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## History of ISBM

### **“YES WE CAN” : A BRIEF (WHIMSICAL) HISTORY OF THE ISBM**

*Weiss S*

A hastily organized breakfast meeting following the 1984 U.S. Society of Behavioral Medicine's annual meeting in San Francisco..... A “pledge of intent” to create an International Society of Behavioral Medicine.....what an audacious idea! Why, what, when, where, how? Heretofore secrets of the ISBM's founding revealed!

## Irmela Florin Memorial Lecture

### **COGNITIVE ACTIVATION THEORY OF STRESS IN HEALTH AND BEHAVIOR**

*Eriksen H R*

“Drawing from traditional sources and basic research to improve health of individuals, communities and populations” is the theme of the 10th ICBM. Behavioral medicine is relevant to health and illness for disease prevention, health promotion, etiology, diagnosis, treatment and rehabilitation. In this presentation behavioral medicine will be explained by principles of cognitive activation theory of stress (CATS). Different diseases/illnesses including subjective health complaints, diseases related to unhealthy lifestyle, and sick leave will be used as examples to give a better understanding of the different individual aspects involved in behavioral medicine and strategies in the field.

The main focus of this presentation will be how individual factors explained within CATS may influence behavior and health. Individual expectancies, being central in CATS, influence choice of lifestyle, treatment and motivation for change. Increasing social inequalities in health have been ascribed to unequal distribution of resources and to exposure factors. I propose that these differences also may be explained by principles from cognitive activation theory. Based on reinforcement contingencies and resources, the individual learns positive response outcome expectancies (“coping”), or that nothing helps (“helplessness”), or that everything goes wrong (“hopelessness” - negative outcome expectancy). High levels of coping are associated with high social position and low stress values. Low level or lack of coping is associated with high and maintained stress levels, which may produce somatic changes. Lack of coping also affects choice of life style. Social inequalities in health, therefore, may depend on the learning history of the individuals. Expectancies of success or failure produce direct somatic effects via sustained activation, and via learning of different life styles and motivation for change. This may also contribute to understanding why Effort-Reward Imbalance and high demands and low control may cause ill health.

## Keynote Address, Thursday 28 August

KA-1

### MISMATCH BETWEEN OUR WORLD AND OUR BODIES

*Chair (s) : Theresa Marteau*

*Gluckman P*

*The University of Auckland, New Zealand*

Adolescence can be viewed as that period in the human life course between biological maturation and acceptance and full functioning as an adult. There is ample evidence that in humans as in other species, the age of menarche is a selected life history trait. Modelling based on Paleolithic data suggests that humans evolved to have a close match between biological and psychosocial maturation. However as society grew more complex, the age of psychosocial maturation appears to have become progressively delayed, more so in the last 50 years with the complexities of communication, networks and social structure. It is difficult to know whether the psychosocial maturation is an intrinsic phenomenon of living in a complex societal environment but MRI evidence suggests that neural maturation can extend into the third decade. On the other hand the age of biological maturation rose to a peak in Europe in the late 18th century reflecting childhood under-nutrition and infection and has fallen dramatically since that time and appears to be returning to or even falling below the evolutionary norm. The result is greater psychological mismatch with evidence morbidity resulting. Experimentally there is good evidence that the tempo of maturation is largely set prenatally — both maternal over-nutrition and under-nutrition are associated with an advanced tempo of maturation but whereas the former is associated with enhanced ovarian function, the latter may lead to accelerated puberty but poor lifetime ovarian function. Postnatal nutritional state also affects the timing of puberty but both rodent and human data suggests a strong role for the early effects — these have a clear adaptive explanation. These effects are mediated through epigenetic processes. Thus the falling age of puberty may reflect a return to the evolutionary norm complicated by the increasing evidence of paradoxically both excessive maternal and childhood nutrition and by prenatal maternal constraint complicated by childhood obesity (which may be a component of the adaptive response to constraint to accelerate maturation). For the first time in our evolutionary history there is a large gap between our age of biological and the age of psychosocial maturation. Educational, social and legal systems are not appropriate for this extended mismatch. While there is a strong biological basis for this phenomenon, a biomedical solution seems unlikely.

## Keynote Address, Friday 29 August

KA-2

### DIABETES AND METABOLIC SYNDROME FROM AN ASIAN PERSPECTIVE

*Chair (s) : Akio Inui*

*Chan J C N*

*Hong Kong Institute of Diabetes and Obesity, Chinese University of Hong Kong, Prince of Wales Hospital, Shatin, Hong Kong SAR, China*

The global epidemic of diabetes and obesity is hitting Asia the hardest with nearly two third of its population with or at risk of these chronic conditions. During the last two decades, the prevalence of diabetes has increased by 2-5 fold in most Asian countries compared to 1.5 fold in the western world. Approximately 5-15% of people in Asia and 50-60% of people in US are considered either overweight (27 kg/m<sup>2</sup>) or obese (30 kg/m<sup>2</sup>). Yet, the prevalence of diabetes in Asia averages 5-10% which is comparable if not higher than US population.

The rapid transition from an energy scarce to an energy abundant lifestyle, the chronic stress associated with urbanization and possibly an efficient innate inflammatory responses are likely to interact in a complex and multiplicative manner to induce insulin resistance, mainly mediated through obesity, to cause decompensation of the pancreatic  $\beta$  cell function, which may not be genetically designed or programmed to meet these metabolic demands, in many of the Asian populations.

There is now a rapidly expanding body of knowledge on the low threshold of obesity for diabetes, the marked phenotypic and genotypic heterogeneity as well as hormonal dysregulation of diabetes and the high risk for renal complications in Asian people with diabetes. Many Asian researchers have now reported the risk associations of lifestyle, environmental and socioeconomic factors with diabetes and metabolic syndrome. These include but not limited to reduced number of sleep hours, long working hours, low socio-economical and educational levels, school environment, low birth weight, smoking and chronic hepatitis B infection. Of growing concern is the high rate of gestational diabetes in Asian women and its association with the long term risk of diabetes in mother and increased cardiometabolic risk in their offspring.

Despite these daunting trend, it is also in Asia where exemplary examples of national surveillance and prevention programs for diabetes and obesity as well as workplace-based lifestyle modification, school-based children fitness and multidisciplinary structured care programs have been initiated and demonstrated to have marked beneficial effects in reducing risks of diabetes and its complications.

Asia is a diverse region where countries and areas are undergoing different stages of technological and socioeconomic development. The differences in ethnicity, cultures, politics and health care settings have contributed to the marked heterogeneity in disease patterns and progression. By taking these factors into consideration and adopting a holistic approach in understanding and managing the disease, Asia is in a prime position to offer new insights into the causality of this complex disease and novel solutions in our common pursuit to control this epidemic of the millennium.

Keynote Address

## **Keynote Address, Saturday 30 August**

KA-3

### **INFLUENCE OF RACE, THE LIFE-COURSE, AND CHRONIC STRESS ON HEALTH DISPARITIES**

*Chair (s) : Redford Williams*

***Jackson J S***

*Institute for Social Research, University of Michigan, USA*

The scientific literature has long held that differences in such things as socioeconomic status, poor living arrangements, and even genetic differences might account for race and ethnic inequalities in health. In examining race differences in both physical and mental health we observe long running differences in morbidity and mortality that favor non-Hispanic Whites over African Americans, but little differences in major forms of mental disorders between the groups; and differences that if anything favor African Americans. The fact that the nature of health inequalities differ by their source, as either physical or mental, raises serious questions about the veracity of the simplistic set of assumptions about causal factors and underlying mechanisms related to SES, poor living arrangements and genetic factors. We address this issue by proposing a more complex set of relationships among, race and ethnicity, living conditions, coping resources and strategies, the HPA Axis and related brain mechanisms, and physical and mental health outcomes. We believe that the proposed theoretical framework and epidemiological data make a strong case for this new perspective on the nature of health inequalities among different social, race and ethnic groups in the United States.

## Master Lectures, Thursday 28 August

### ML1

#### HEALTHY WORK IN A GLOBALIZED ECONOMY?

*Chair (s) : Hege Eriksen*

**Siegrist J**

*Department of Medical Sociology, University of Dusseldorf, Germany*

In today's world we experience a rapid expansion of modern economy, technology and culture over the globe. More specifically, international organizations, transnational corporations and market-friendly ('neoliberal') national policies have produced a state of global interconnectivity fuelled by flows of electronic communication and capital investment as well as by the spread of a transnational labour market. How does economic globalization affect the health of working populations? On the one hand, economic growth of developing countries contributes to increased health and life expectancy by improving working and living conditions of formerly deprived population groups. On the other hand, economic competition results in increased work intensification, job flexibility and job insecurity while dismantling social protection and welfare regulations. In order to demonstrate the direct effects of these latter features of economic globalization on workers' health, epidemiological investigations based on theoretical models are needed that identify the 'toxic' components of changing work and employment. One such model, effort-reward imbalance, claims that lack of reciprocity between efforts spent at work and rewards received in turn (money, esteem, promotion prospects including job security) produces adverse effects on health by eliciting recurrent states of stressful ('high cost/low gain') experience. In this lecture, the health-adverse effects of effort-reward imbalance at work are demonstrated, based on evidence from selected developed and rapidly developing countries. Significantly elevated relative risks of cardiovascular disease, depressive disorder and a variety of indicators of ill health are associated with effort-reward imbalance. These epidemiological results are supported by findings from experimental studies. What are the implications of these results for policy? In its final part the lecture demonstrates some successful models of implementing health-promoting work at the level of single companies and branches. Yet, substantial policy efforts are needed nationally and internationally to face the threats to human health produced by current globalized economy.

### ML2

#### ADVERSE LIFE CIRCUMSTANCES AND ILLNESS IN CHILDREN

*Chair (s) : Jane Wardle*

**Chen E**

*University of British Columbia, Vancouver, Canada.*

Low socioeconomic status (SES) has profound effects on disease morbidity and mortality across the lifespan. These effects emerge across various diseases and are evident across numerous countries around the world. As one example, low SES is associated with increased risk of hospitalizations for asthma, the most common chronic illness in childhood. While the evidence for this epidemiological pattern is robust, an understanding of the mechanisms that explain these effects is just starting to emerge. This talk will discuss empirical evidence for various psychosocial and psychobiological pathways explaining how low SES comes to have detrimental health effects on children, with a particular focus on immune and hormonal pathways implicated in asthma.

## Master Lectures, Friday 29 August

### ML3

#### EMOTION, BEHAVIORS AND BRAIN-GUT INTERACTIONS

*Chair (s) : Paul Enck*

**Fukudo S**

*Department of Behavioral Medicine, Tohoku University  
Graduate School of Medicine, Sendai, Japan*

An emotional state has two components, one evident in a characteristic physical sensation and the other as a conscious feeling. We sense our gastrointestinal motility and we consciously feel disgust. Classical experiments on emotion examine how external stimuli such as public speaking, mental arithmetic, the Stroop test, etc. change our body. The elements of these tasks are divided into visual, auditory, olfactory, taste, and somatosensory stimuli. However, recent advances in brain science have shown how brain function depends upon interoceptive signals, and interoceptive signals from the gastrointestinal tract likely arose early in our evolutionary history. Bottom-up processing from gut-to-brain and top-down autonomic/neuroendocrine mechanisms in brain-to-gut signaling constitute a circuit. Clinically, irritable bowel syndrome (IBS) is a disorder that relates to brain-gut interactions, emotional dysregulation, and illness behaviors. Although there are some candidate molecules to play a crucial role in this condition, corticotropin-releasing hormone (CRH), 5-hydroxytryptamine (5-HT), and histamine are the most promising substances. Peripheral administration of corticotropin-releasing hormone (CRH) receptor antagonist improves visceral stimulation-induced increase in colonic motility, abdominal pain, anxiety, and decreased alpha power spectra of electroencephalogram in IBS patients. Peripheral administration of CRH receptor-1 antagonist selectively induces similar phenomena in IBS model rats. Brain imaging study clarified that significantly more activated brain regions with intense distention between placebo and CRH receptor antagonist treatments in IBS patients than that in controls are right anterior insula, right prefrontal cortex, and left parahippocampal gyrus. Genotypes of 5-HT transporter-linked promoter region have effect on the brain activation pattern during visceral perception. Histamine antagonist reverses the changes in viscerosensory evoked potentials at the analgesic hypnotic suggestion. Clarifying the brain processing in these brain-gut interactions will advance our fundamental understanding of emotion and behavior. Moreover, research on the link among interoception, emotion, and behavior may provide useful information for treating various medical disorders.

### ML4

#### INCREASING PHYSICAL ACTIVITY AND DECREASING SEDENTARY BEHAVIOR

*Chair (s) : Antti Uutele*

**Owen N**

*The University of Queensland, Brisbane, Australia*

Research on physical activity and population health has focussed on understanding how to bring about health benefits through increasing the time that adults spent doing moderate-to-vigorous intensity activities; 30 minutes a day is generally recommended. Recent evidence underlines the importance of also focusing on sedentary behaviours -- the high volumes of time that adults in industrialised and developing countries spend sitting in their other 15½ 'non-exercise' waking hours. In the context of contemporary concerns about physical activity and population health, this lecture will provide an overview of recent evidence, including new findings from the AusDiab study, on the distinct relationships of 'too much sitting' with biomarkers of metabolic health, and thus with increased risk of type 2 diabetes, cardiovascular disease and other prevalent chronic health problems. Research opportunities will be highlighted: 1) identifying the biological mechanisms through which prolonged sitting may be exerting its deleterious effects; 2) how sitting time may be measured in behavioural and epidemiological studies; 3) understanding population prevalence, variations and determinants of sedentary behaviours in domestic, community, occupational and transport settings; 4) the challenges for promoting physical activity in the context of the ubiquitous environmental and social drivers of sitting time; 5) developing interventions that may be effective in reducing or breaking-up sitting time; and, 6) potential implications for public health interventions, guidelines, and broad-based policy initiatives.

## Master Panels, Thursday 28 August

### MP1

#### Tobacco Control

*Chair (s) : Ron Borland*

#### MP1-1

##### **TOBACCO CONTROL: A MAJOR INTERNATIONAL BEHAVIOUR CHANGE CHALLENGE**

**Borland R**

*The Cancer Council, Victoria, Australia*

##### Overview

This panel will outline key issues around tackling the global tobacco problem. Prof Fong will introduce the International Tobacco Control (ITC) Policy Evaluation Project a collaborative project now in 18 countries across the globe, including China. The core of the ITC project is the collection of the same survey data from cohorts of smokers in the different countries. Questions asked relate to tobacco control policies and the mediational mechanisms by which they are theorised to affect smokers. Thus by comparing change over time across countries which have different policies and/or introduce new ones, the impact of policies can be estimated and their mechanisms of operation confirmed. The study also allows for exploration of effects of policies across different cultural and political conditions.

Dr Yuan will describe the nature of the problem in China where around one third of the world's smokers live. China has only relatively recently become serious about reducing smoking and many of its people still hold misbeliefs about it, and do not understand its harmfulness. Data from the ITC project will be used to help understand how the situation in China differs from other countries.

The ensuing discussion will focus both on insights for tobacco control more broadly and on the utility of the methodology underpinning the ITC surveys for providing an evidence base for tackling other health behaviours that require social level change. It will also focus on the difficulties of accelerating the rate of change in countries that have only recently taken decisive action to stem the epidemic.

#### MP1-2

##### **EVALUATING THE POLICIES OF THE FRAMEWORK CONVENTION ON TOBACCO CONTROL**

**Fong G T**

*University of Waterloo and Ontario Institute for Cancer Research*

Tobacco use is the most important prevalent cause of premature morbidity and mortality in the world. Currently, 5.4 million people die each year of tobacco-related causes. By 2030, there will be more than 8 million deaths a year, and over 80% will be in developing countries. In the 20th Century, 100 million died of tobacco use, but in the 21st Century, an estimated 1 billion people will die. The Framework Convention on Tobacco Control (FCTC), the first-ever health treaty, holds great potential in reducing the threat that tobacco use poses to global health. But fulfilling the potential of the FCTC will depend on whether the policies actually implemented are effective. There is thus an urgent need for evidence to support strong implementation of the FCTC, and

evidence from rigorous evaluation of FCTC policies being implemented currently will help meet this need. The International Tobacco Control Policy Evaluation Project (the ITC Project) was created to evaluate and understand the psychosocial and behavioural impact of FCTC policies. To date, 15 countries, inhabited by over half of the world's smokers, are participating in the ITC Project: Canada, United States, United Kingdom, Australia, Ireland, Thailand, Malaysia, South Korea, China, New Zealand, Mexico, Uruguay, France, Germany, Netherlands, with ITC Projects being developed in Bangladesh, Sudan, and India. In each country, annual longitudinal cohort surveys are conducted among adult smokers (average N > 2,000), allowing evaluation at the level of the individual. ITC Survey questions are designed to be identical or functionally equivalent across all countries, providing strong potential for cross-country comparisons. The survey measures many aspects of smoking behavior and psychosocial predictors of smoking and quitting, and includes measures of each FCTC policy (e.g., warning labels, advertising/promotion, price/taxation, smoke-free, cessation). The conceptual model of the ITC Project and past and current findings will be presented.

#### MP1-3

##### **TOBACCO CONTROL IN CHINA**

**Yuan J**

*National Tobacco Control Office, China CDC*

There are about 350 million smokers in China, consuming one third of the world's tobacco. Today, 1 million deaths each year are attributed to smoking, rising to 3 million by 2050 if current smoking patterns continue.

Smoking prevalence has been falling in China for more than 20 years from 35.8% to 31.4%. Male prevalence has fallen from 66% to 57.4%. However, prevalence is rising among adolescents and urban women. Successful quit rates are low. More than half of the population, in particular children, is exposed to secondhand smoke every day. Awareness of the adverse health effects of tobacco use is poor, even among medical professionals.

Efforts to control tobacco have focused on passive smoking. In 1991, a law was passed stipulating that "the State and society shall strengthen the publicity and education of the health hazards of smoking, and prohibit or restrict smoking in public transport and public places." Legislation also prevents smoking in classrooms and other places where children and young people gather. Laws relating to smoking on public transport were strengthened in 1997. Local law enactment to ban smoking in public places first began in 1993. By October 2006 154 cities had enacted regulations to ban smoking in public places. However, several deficiencies remain: Only 45.7% of prefecture and above level cities in China have tobacco control regulations. Only two cities have banned smoking in air-conditioned restaurants. Indoor workplaces are not included in any of the regulations.

There are challenges to strong tobacco control in China. Social norms in China do not currently support tobacco control measures, and the state-owned tobacco industry provides the government with significant revenue from taxes. However, there are positive signs. The 2008 Beijing Olympics have been declared smokefree — significant because these are the first Olympic games since FCTC ratification. And China's ratification of the FCTC creates a tremendous opportunity for stronger tobacco control.

MP1-4

**THE EFFECTS OF A THREE-YEAR SMOKING PREVENTION PROGRAM IN UPPER LEVELS OF COMPREHENSIVE SCHOOLS IN FINLAND**  
**THE EFFECTS OF A THREE-YEAR SMOKING PREVENTION PROGRAM IN SECONDARY SCHOOLS IN FINLAND**

*Pennanen M (1), Haukkala A (2), Vartiainen E (1)*

*1 National Public Health Institute, Finland; 2 University of Helsinki, Finland*

Background: This study evaluates the effects of a three-year smoking prevention program in secondary schools in Helsinki. The study is part of European Smoking prevention Framework Approach (ESFA), in which Denmark, Finland, the Netherlands, Portugal, Spain and the UK took part. Methods: In Finland 27 secondary schools participated in the program (n=1821). Schools were randomized to treatment (13) and control groups (14). The program lasted for three years, starting in 1998 when participants began their 7th grade. The program included 14 lessons of information about smoking and refusal skills training. During the three years smoking prevention was also integrated in regular subjects. The community-element included parents, parish confirmation camps and dentists. Treatment schools received the prevention program and control schools standard health education curriculum. Results: At the baseline participants average age was 13.8. Among baseline never smokers (60.8%) the program had a significant effect on onset of weekly smoking in the treatment group [OR=0.63 (0.45-0.90), p=0.009] compared to control group. Students that performed poorly at school smoked regularly six times more than those who achieved the best grade average at the age of 15. Using Structural equation modeling, the findings suggest that, not merely deterioration of school achievement contributes to progression in smoking uptake continuum but also vice versa progression in smoking uptake continuum to deterioration of school achievement over time (CFI=.998). Conclusion: This study shows that school and community based smoking prevention program can prevent onset of smoking among all adolescents, including high-risk students. Both deterioration of school achievement and progression in smoking uptake continuum predicts changes in other behavior during the first two years in secondary school in Finland.

MP1-5

**TOBACCO CONTROL IN JAPAN AND THE US: TRIUMPHS AND CHALLENGES**

*Lawrence D (1), Yamamoto H (2), Katanoda K (3), Itsurou Y (2), Zeller M (4)*

*1 National Cancer Institute, National Institutes of Health, USA; 2 Ministry of Health, Labour and Welfare, Tokyo, Japan; 3 National Cancer Center, Tokyo, Japan; 4 Pinney Associates, USA*

Tobacco use is a major risk factor for cancer, heart disease and stroke, the leading causes of death in Japan and the US. This presentation will discuss patterns and trends in cigarette use among adults and adolescents, in both countries, examined by sociodemographic factors such as age and gender. In both countries, the cigarette smoking prevalence rates have decreased. Since the mid-1960s, smoking rates among men have declined from 82% to 40% in Japan and from 52% to 24% in the US. Similarities and differences in goals and approaches to tobacco control, such as prevention programs,

cessation interventions, and legislative measures will be presented. Tobacco control strategies have included similar components such as disseminating knowledge about the health effects of smoking, preventing underage smoking and supporting persons who want to quit smoking (with nicotine addiction treatment). Progress in protecting nonsmokers from exposure to cigarette smoke at home and in public spaces, including the workplace, will also be described. The progress in tobacco control efforts will be considered both from the perspective of what has been achieved and the challenges that remain in Japan and the US. Recent evidence shows that the declining smoking rates have stalled in the US since 2004. While smoking has declined for the general population, rates for certain US subgroups have remained higher than the national average and for some have recently increased. Although cigarette smoking has declined in Japan, it is increasing among young women (aged 20-30). In order to further decrease smoking prevalence rates, it may be important for both countries to consider revisiting tobacco control strategies, including the implementation of evidence-based interventions. New product offerings by the tobacco industry in apparent response to the health concerns of smokers, and their impact on overall consumption and prevalence, will also need to be better understood.

MP2

**Applying Social Psychological Theory to Behavioral Interventions Sponsored by the U.S. National Cancer Institute**

*Chair (s) : Robert Croyle*

MP2-1

**APPLYING SOCIAL PSYCHOLOGICAL THEORY TO BEHAVIORAL INTERVENTIONS**

*Croyle R*

*National Cancer Institute, USA*

Social psychological theory offers many potentially fruitful avenues for the development of effective health communications and behavioral interventions. In this master panel, we review several examples of how a wide range of current theories in social psychology can be applied in a health context. All of the speakers are social psychologists whose work bridges the fields of social psychology and health psychology. Alexander Rothman will begin by discussing how theory must inform practice and practice must inform theory, drawing on examples from his own and others' research programs. Hart Blanton will discuss social psychological research on peer influences and social norms, highlighting their implications for the design of social norming campaigns aimed at reducing risky health behaviors. Paschal Sheeran will review self-regulation theory and research on goal pursuit and the critical role of implementation intentions in the attainment of goals, noting how these findings can inform intervention strategies for translating health behavior intentions into actions. Linda Cameron will consider recent developments in self-regulation theory and research pointing to new ways to incorporate affect arousal and imagery into communications aimed at motivating health protective action. Finally, Robert Croyle will lead a discussion-based presentation. This master panel is sponsored by the National Cancer Institute, with the aim of facilitating greater connections between research in social psychology and behavioral medicine.



MP2-2

**IT IS TIME TO REINVIGORATE THE RECIPROCAL RELATION BETWEEN THEORY AND PRACTICE.**

**Rothman A J**

*University of Minnesota, USA*

The degree to which behavioral practices contribute to current rates of disease morbidity and premature mortality is a staggering practical problem. Although investigative efforts to identify the processes that underlie people's behavioral decisions are guided, at least in part, by the promise that the theoretical principles that emerge from this work will inform efforts to address practical problems, innovations in social psychological theory too often remain disconnected from the development of intervention strategies to promote healthy behavioral practices. What should we conclude from this state of affairs? Was Lewin wrong to claim that there is "nothing so practical as a good theory"? In my presentation, I will assert that Lewin was correct, but that the "practical" value of our theoretical models critically depend upon feedback between theory and practice. In order to illustrate this point, I will examine how several models of health behavior have and have not evolved over time and will explore how interventions afford valuable – but under utilized -- opportunities to assess the strengths and weaknesses of theoretical models. I will also briefly examine how my colleagues and I have utilized a series of intervention studies (in the domains of smoking cessation and weight loss) to test predictions derived from a new model of behavioral decision making regarding the determinants of behavioral initiation and behavioral maintenance.

MP2-3

**THE ROLE OF GOAL INTENTIONS AND IMPLEMENTATION INTENTIONS IN PROMOTING HEALTH GOAL ATTAINMENT**

**Sheeran P**

*University of Sheffield*

Several theories in social and health psychology converge on the idea that (a) forming a behavioral or goal intention (e.g., "I intend to lose weight") is the key act of willing that promotes goal attainment, and (b) more favorable evaluations of the outcomes of acting (attitude), social pressure to act (norms), and greater confidence on one's ability to act (self-efficacy) each cause strong goal intentions. This talk presents meta-analyses of experimental studies that tested these hypotheses. Findings indicate that changing attitude, norm, and self-efficacy engender changes in goal intentions of approximately medium magnitude ( $d = .48, .52$ , and  $.56$ , respectively). However, medium to large changes in goal intention generate only a small to medium change in subsequent behavior ( $d = .36$ ). Statistical simulations that maximized attitude, norms, and self-efficacy scores for 30 behaviors afford the same conclusion: Goal intention scores increased to 97% of their maximum possible value; however, although the proportion of the sample performing the behaviors increased by 28% compared to baseline, the behaviour of a substantial minority of the sample (26%) did not change. To understand this 'gap' between intention and action, the talk then analyses two types of self-regulatory problems that can undermine goal striving - namely, problems in initiating action and shielding ongoing goal pursuits from unwanted influences. The utility of forming if-then plans, or implementation intentions (Gollwitzer, 1993), in overcoming these problems is examined, and meta-analytic evidence is presented that implementation intention formation

increases rates of attainment of health goals. In sum, this presentation suggests that it is useful to distinguish between a deliberative action phase (where people decide what goals to pursue), and an implemental action phase (where people strive to translate their intentions into action), and illustrates how social psychological theories are helpful in designing interventions to promote progress through these action phases.

MP2-4

**DESIGNING HEALTH COMMUNICATIONS: HARNESSING THE POWER OF AFFECT, IMAGERY, AND SELF-REGULATION**

**Cameron L**

*The University of Auckland*

Within the health domain, one of the great challenges is to identify communication strategies that will motivate individuals to engage in health-protective behaviors. Recent advances in self-regulation theory and research point to strategies for integrating affect arousal and imagery into health communications. In this talk, I briefly review self-regulation theory and research highlighting the central roles of emotion and imagery in the persuasion process and consider their implications for designing health promotion interventions. I will review research on how fear arousal and imagery influence health information processing and decision-making. Despite ongoing controversy over the use of fear messages, considerable evidence supports their efficacy. Such threat appeals can backfire, however, if they fail to address key aspects of self-regulation processes. Research on the cognitive and emotional influences of imagery and other concrete-perceptual stimuli points to strategies for integrating them into health messages. Mental simulation techniques represent another promising avenue for communications aimed at fostering health behavior change. In recent research, we found that imagery tasks guiding sedentary individuals to vividly imagine positive health goals of exercise and the implementation of exercise routines effectively increased their rates of physical activity. I will discuss the implications of this body of findings for more nuanced applications of fear arousal in health communications and applications for Internet and other computer mediated communications aimed at promoting health-protective behaviors.

MP2-5

**MISPERCEPTIONS ABOUT NORM MISPERCEPTIONS: DESCRIPTIVE, INJUNCTIVE AND AFFECTIVE "SOCIAL NORMING" EFFORTS TO CHANGE HEALTH BEHAVIORS**

**Blanton H (1), Köblitz A(2), McCaul K D(2)**

*1 Department of Psychology, Texas A&M; 2 Department of Psychology, North Dakota State University*

Researchers have known for a long time that people are often motivated to conform to the wishes of groups. Peer influence can shape human behavior through the creation of social norms, and the frequency of some behaviors related to health (e.g. alcohol use) may depend on the perception of these norms. This talk focuses on the influence of perceived social norms, especially normative misperceptions regarding health behaviors. It also introduces "social norms campaigns" that are intended to reduce risky health behaviors by debiasing perceptions of behavioral norms. Some benefits of these campaigns are discussed, but so are practical problems and

## Master Panels

faulty theoretical assumptions that may limit the utility of these approaches. A better alternative might be to develop interventions that debias misperceptions of injunctive norms or affective norms. The theoretical grounding for these different approaches will be presented, as well as recent data suggesting that they could be more successful than traditional social norming campaigns at reducing risky health behaviors.

### MP3

#### Genetic and Development aspects of Obesity

*Chair (s) : Bernt Lindahl*

#### MP3-1

##### BEHAVIORAL MEDICINE PERSPECTIVE ON THE WORLD-WIDE EPIDEMIC OF OBESITY

**Lindahl B**

*Associate Professor of Behavioral Medicine, Umeå University, Sweden*

An epidemic of obesity is in progress across the world. Much evidence supports this to be an effect of adverse behaviours in modern society, such as poor dietary habits, sedentary lifestyles and high levels of stress. Simultaneously, evidence accumulates that it is very difficult for an adult obese to achieve a long-term weight decline by adopting a healthy lifestyle. Probably, this is due to an inability to maintain the new lifestyle regimen on a long-term basis, but perhaps there also could be other causes. It is often said that in order to change our genes we need hundreds of thousand of years? The implication of this is that the epidemic of obesity we see today could not be of genetic origin but must be an effect of environmental change. At the same time, there is new research discussing the complexity of gene-environment interactions and gene adaptations. As a clinician, working with adult obesity and acknowledging the difficulties of achieving long-term weight loss among patients, the thought of preventing obesity by taking actions already in childhood seems logical. Perhaps, it is easier to develop new healthier lifestyle habits when you still are young. Furthermore, the role underprivileged living conditions in early childhood plays on future body weight is a matter of great concern. Is there a specific time frame where developmental processes more easily are influenced and if missed you reach a point of no return?

#### MP3-2

##### WHAT IS DRIVING THE DEVELOPMENT OF THE OBESITY EPIDEMIC?

**Sorensen T I A**

*Dr.Med.Sci, Danish Obesity Research Centre, Institute of Preventive Medicine, Copenhagen University Hospitals, Denmark*

Obesity undoubtedly has genetic causes, as evidenced by multiple family, adoption and twin studies, and specific genes, e.g. the FTO, constituting the genetic susceptibility, are now being found. On the other hand, there is also clearly very important environmental causes as evidenced by the ongoing worldwide 'obesity epidemic'. The prevailing interpretation of its causes is that the societies have created a more and more

'obesigenic' environment, which of course is saying nothing until specified. It is assumed to be the continuous exposure to living conditions that eventually creates a positive energy balance of the body by increasing energy intake and reducing energy expenditure by physical activity, leading to deposition of the surplus of energy as fat in the adipose tissue. It is also assumed that those who become obese in this environment are those susceptible to the environmental changes due to their genetic predisposition. There is a need to review the components of the paradigm of the obesity epidemic to see which are based on observational or experimental scientific evidence and which are implicit assumptions. The paradigm seems based on circular reasoning, and the main missing link is the lack of support of the assumption that the changes of the 'obesigenic' environment, as conceived, provides an adequate explanation of the development of the epidemic. Very few attempts to generate critical testing of the hypothesis have apparently been undertaken, and when done they do not provide an unambiguous support. Studies that can address the development of the epidemic in time and space in sufficient detail suggest that an environmental conditioning may take place very early in life, adding to the genetic susceptibility. If this is true, it will pave the way for a preventable target in a limited time window at an age, where preventive actions are commonly accepted.

#### MP3-3

##### DEVELOPMENTAL ASPECTS OF OBESITY IN CHILDREN

**Delamater A M**

*Professor, Pediatrics and Psychology University of Miami Miller School of Medicine Miami, FL, USA*

Obesity in children has increased dramatically in recent years and is considered an epidemic with significant implications for public health. This paper will review the latest findings regarding the prevalence and etiology of obesity in children. International and generational differences in obesity prevalence will be highlighted. Bio-behavioral aspects of obesity will be addressed, including the role of genetic, hormonal, and environmental factors in the development of obesity. Special attention will be given to the impact of maternal feeding behaviors on the development of young children's ability to self-regulate appetite and satiety. Adverse health conditions related to obesity in children, including metabolic syndrome, will be summarized. Research addressing the efficacy of various intervention approaches for the prevention and treatment of pediatric obesity will be reviewed. Clinical challenges and future research issues will be discussed.

## Master Panels, Friday 29 August

### MP4

#### PNI

*Chair (s) : Frank J. Penedo*

#### MP4-1

#### **PNI MECHANISMS IN CANCER: FROM CAREGIVING TO DIAGNOSIS TO ADVANCED DISEASE**

***Penedo FJ***

*University of Miami, USA*

Over the past decade, there has been a significant increase in our understanding of endocrine and immune processes involved in the stress response. Moreover, advances in methodologies employed to understand how endocrine and immune mechanisms may impact disease processes have led to numerous studies addressing psychosocial, endocrine and immune mechanisms in health and disease populations. The field of Psychoneuroimmunology (PNI) provides an interdisciplinary framework for understanding interactions among psychosocial, nervous and immune system interactions. Chronic and potentially stressful physical conditions such as cancer have provided an opportunity to better understand the extent to which PNI mechanisms in patients and their caregivers are associated with emotional adjustment, quality of life and physical health outcomes. Some recent work has proposed potential pathways linking psychological stress to tumor biology via stress-induced endocrine pathways such as SAM and HPA activation, and via immune and pro-inflammatory pathways including cell-mediated cytolytic activity, NK cell cytotoxicity and inflammatory cytokines. In this master panel, we will discuss potential PNI mechanisms in disease presentation and activity in prostate cancer patients, and novel PNI pathways in familial caregivers of brain cancer patients that may explain stress-related disease processes. Dr. Greg Miller, will discuss his recent work focusing on transcriptional control pathways such as pro-inflammatory transcription factors that are modified by chronic stress among familial caregivers of brain-cancer patients. He will also discuss possible implications of these control pathways in stress-related morbidity and mortality. Following this presentation, Dr. Kavita Vedhara will present some of her recent work suggesting that depressive symptoms are associated with a greater likelihood of being diagnosed with prostate cancer, as well as PSA levels at diagnosis. In her presentation, she will discuss possible PNI mechanisms that may explain this relationship. Finally, Dr. Frank Penedo will present some of his recent work addressing neuroendocrine and immune pathways promoting disease activity among men living with advanced prostate cancer, including stress and aging interactions in endocrine and immune processes, and the role of psychosocial interventions in modifying stress responses in this population.

### MP5

#### **CBT in Physical Health**

*Chair (s) : Trudie Chalder*

#### MP5-1

#### **CBT IN PHYSICAL HEALTH**

***Chalder T***

*Department of Psychological Medicine, King's College London, Weston Education Centre*

Chronic disease management is at the top of the agenda for health care purchasers and providers worldwide. With a large aging population diseases and illnesses such as diabetes, asthma, heart failure, chronic obstructive airways disease, multiple sclerosis and medically unexplained syndromes need less conventional management with more emphasis on empowering the individual to take responsibility for their own health care and maximising independence. The aim of this Master Panel Session is to address how this can be achieved and will provide some evidence from the gold standard randomised controlled trial that robust change can be achieved through behavioural and cognitive changes.

#### MP5-2

#### **CBT IN PHYSICAL HEALTH**

***Rief W***

*University of Marburg, Germany*

Cognitive-behavioral interventions have demonstrated to be a useful tool in many different physical conditions. In two randomized clinical trials both including more than 100 patients, we were able to show that CBT is most effective in treating patients with chronic low back pain or patients with chronic tinnitus. Especially for these chronic conditions, other medical interventions seemed to be less effective and CBT should be the treatment of first choice. I will highlight some parallels and differences between CBT programs for different medical conditions, concluding that disorder-specific interventions are necessary although the treatment programs share a lot of common aspects. The major discussion should address the issue that CBT is provided to only very few people on the planet. Therefore we have to address the following issues: 1) How to increase the number of people providing CBT in different medical care settings; 2) How to develop and provide CBT-oriented minimal interventions that can be offered to most people suffering from chronic physical conditions, and 3) How to train health care providers such as primary care doctors what CBT is, and how to make the link between primary care and CBT programs.

#### MP5-3

#### **CBT FOR TYPE I DIABETES**

***Chalder T, Ismai K***

*Department of Psychological Medicine, King's College London, Weston Education Centre*

Many people believe that psychological interventions have the potential to change cognitions, behaviour and emotion. However the trial described below will be used as an example

## Master Panels

of how changing behaviour and cognition can have a significant impact on physiological outcomes.

The health care needs of patients with type 1 diabetes are vast. There is some preliminary evidence that a variety of psychological interventions, including cognitive behaviour therapy (CBT), impact positively on health outcomes. Most of the interventions however, have focused on co-morbid anxiety and depression while diabetes specific beliefs and behaviours have not necessarily been the focus. We developed a diabetes specific intervention which took into consideration the special needs of patients with diabetes and tested its efficacy within a randomised controlled trial. We compared motivational enhancement therapy (MET) + CBT, MET alone and treatment as usual for patients with type 1 diabetes whose blood glucose levels were putting them at risk of developing complications. The CBT was delivered by diabetes specialist nurses (DSN's), who were trained specifically for the trial.

344 participants were randomised to MET + CBT (12 sessions) over 6 months or MET alone (4 sessions) over 2 months or to usual care. The main outcome was the 12 month glycated hemoglobin adjusted for baseline glycated hemoglobin and the secondary outcome was change in depression scores (Patient Health Questionnaire-9) from baseline to 12 months. The adjusted mean 12 month glycated hemoglobin was 0.45% lower in the MET + CBT group compared to usual care and 0.16% lower in MET alone compared to usual care.

In individuals with persistent sub-optimally controlled diabetes, nurse-delivered MET + CBT was associated with an improvement in glycemic control compared with usual care. MET alone was not.

## MP5-4

### **INTERVENTIONS FOR POST CANCER FATIGUE AND CHRONIC FATIGUE SYNDROME, HOW CRUCIAL IS THE INCREASE OF PHYSICAL ACTIVITY FOR THE REDUCTION OF FATIGUE?**

**Bleijenberg G**

*Expert Centre Chronic Fatigue, Radboud University Nijmegen Medical Centre*

Several randomised controlled trials demonstrated that CBT and graded exercise therapy (GET) are effective in treating chronic fatigue syndrome, although there are differences in the degree of reduction of fatigue that is reached. The evidence of efficacy for post cancer fatigue interventions is mixed.

A short review of effective and non effective interventions for post cancer fatigue will be presented. Four studies, all ineffective, tried to improve fatigue by increasing physical activity. From the four effective studies two also aimed at increasing physical activity. Until now we do not know what the essential elements are of an effective fatigue intervention, neither in CFS nor in post cancer fatigue.

There is a generally accepted idea that fatigue in these conditions can be treated with exercise or activity enhancement. Indeed, activity increase is very often an important element of the treatment. However, the mechanism by which physical activity enhancement would reduce fatigue is not known. There is some research suggesting that mere physical activity increase is insufficient to treat fatigue. This raises the question whether physical activity increase is really crucial for fatigue reduction or that it only marginally contributes to a change in the perception of fatigue.

## Symposia, Thursday 28 August

### SS22

#### Heavy workload and cardiovascular diseases

##### *Chair (s) : Teruichi Shimomitsu*

It is well known that heavy work burden has an adverse effect on cardiovascular systems and causes several health problems. Among those health problems, Karoshi, death by overwork is an ultimate example.

In this symposium, Professor Uehata who coined the word Karoshi will talk about the current situation of Karoshi in Japan and overview Karoshi studies over the last 30 years. Dr. Jungsun Park from Republic of Korea will present the current status about the incidence of work related cardiovascular diseases which is rapidly increasing and its preventive measures by revision of rules regarding the Industrial Health Standards. For the prevention of disorder of cardiovascular system caused by heavy work loads such as long hours working, it is necessary to build up healthy working environment at workplace as well as developing tools to assess and identify biological functions which leads to abnormality. Professor Hayano will introduce a new method for quantitative assessment of rest by respiratory sinus arrhythmia during daily sleep to evaluate the impairment of restorative function of sleep by real work stress. Furthermore, Dr. Tanigawa will present his study on sleep disordered breathing and blood pressure among professional truck drivers and will show the evidence that sleep disordered breathing play an important role as an indicator to evaluate workload and cardiovascular disease risk.

I hope this symposium can offer valuable information to all of the audience in the field of work related stress and cardiovascular diseases.

### SS22-1

#### RECENT PROBLEMS OF KAROSHI IN JAPAN

##### *Uehata T*

*National Institute of Public Health, Japan*

Since the late 1970s, Karoshi has been a well-known social medical term in Japan, meaning death by overwork. Firstly, we suggested that clinical disease of Karoshi consists of cardiovascular diseases such as stroke, ischemic heart diseases and other cardiovascular diseases. However, this concept is now enlarging from cardiovascular diseases to suicide or heavy respiratory attack both by heavy work load or work-related stress. Moreover, it is thought that Karoshi is mainly caused by accumulating fatigue of long hour work continuing for several months, rather than accidental heavy work for one day or for one week at least.

These changes happened in these several years, since the Supreme Court judged in 1999 that work compensation standard of Karoshi by Ministry of Labor was not appropriate for the reason that sustained work stress by long working hours could not be evaluated. Since then, new committee for work compensation of cardiovascular diseases started, and in December of 2002 Compensation standard was renewed, in which overtime work for more than 100 hours within one month or more than monthly 80 hours in means within 2-6 months just before the attack was necessary for the compensation, and not only working hours but also irregular time work, long restriction time, many business trips, night and shift work, exposure to heat, cold, noise or time difference in work environment, and work under strong mental pressure etc must be taken into consideration.

Now, compensated numbers of Karoshi is increasing to about three hundred and more annually, and also numbers of claims are increasing, however, compensated suicide did not increase so much, in spite of rapid increase of annual numbers of suicide that is more than thirty thousand.

In this paper, I will show some Karoshi cases that I experienced and problems related with work compensation.

### SS22-2

#### WORK-RELATED CARDIOVASCULAR DISEASES IN KOREA

##### *Park J (1), Kim Y (2)*

*1 Occupational Safety and Health Research Institute, Korea Occupational Safety and Health Agency (KOSHA), South Korea; 2 Ulsan University Hospital, South Korea*

The aim of this presentation is to introduce the current status about the incidence and prevention of work-related cardiovascular diseases (WR-CVDs) in Korea. In particular, national infrastructure for WR-CVDs; the preventive measures to reduce the CVDs risk in workplaces; the points of view of labor and management concerning WR-CVDs; and future actions needed.

According to a rapid industrial development since the 1970s in Korea, the industrial structure has also moved dramatically from the primary industry to the secondary industry and from the secondary industry to the tertiary industry. Due to this rapid industrial change in the country, it has been presumed that workers are largely exposed to psycho-social factors like occupational stress. The reason behind this assumption is due to the recently increasing proportion of cases of WR-CVDs, known to be related to job stressors, among total compensated diseases. Since the mid-1990s the number of workers suffering from WR-CVDs has significantly increased. According to the 2006 statistics on occupational diseases, 1,607 workers were suffering from WR-CVDs.

In July 2003, there was a sweeping revision of Rules regarding the Industrial Health Standards. Also, one thing to note about the Rules regarding Health Standards revised in July 2003 is that the prevention of health problems due to Indoor Pollution, Physical Workload, Biological Agents and Other Hazards such as work stress, etc. were newly added.

According to the regulations of the newly revised Rules regarding Health Standards, the duties of job stress management for prevention of WR-CVDs are enforced upon employers. The national policy for job stress management in Korea is connected with the policy for prevention of WR-CVDs. The rule concerning job stress management is for high risk groups of WR-CVDs such as long working hours, shiftwork including night work, driver, and controllers.

### SS22-3

#### IMPAIRMENT OF RESTORATIVE FUNCTION OF SLEEP BY REAL WORLD STRESS: QUANTITATIVE ASSESSMENT OF REST BY RESPIRATORY SINUS ARRHYTHMIA DURING DAILY SLEEP

##### *Hayano J (1), Sakakibara M (2), Kanematsu T (1), Yasuma F (3)*

*1 Department of Medical Education, Nagoya City University Graduate School of Medical Science, Nagoya, Japan; 2 Department of Humanities, Tokai Gakuen University, Nagoya, Japan; 3 Fumihiko Yasuma, Department of Internal Medicine, Suzuka National Hospital, Suzuka, Japan*

Respiratory sinus arrhythmia (RSA) is an intrinsic resting function of cardiorespiratory system. RSA improves pulmonary gas exchange efficiency through matching the timing of alveolar ventilation and capillary blood flow. This function is useful for saving cardiac energy at rest through effectively reducing heart rate by selectively suppressing unnecessary heartbeats during expiration. Thus, RSA seems a quantitative marker reflecting the level of cardiorespiratory resting. We developed a system for measuring the amplitude of RSA from pulse wave signal recorded with a wristband-shaped wireless transdermal photoelectric sensor. The reliability of the system was confirmed by a study that showed agreement of the measured RSA with that assessed from simultaneously recorded ECG in 30 healthy subjects (ICC, 0.981). Using this system we examined RSA in daily life. In 23 healthy male daytime workers (age, 24-46 years), we measured RSA at every night for 3 weeks continuously. The RSA showed day-to-day variations with tendency to increase on weekends and to decrease on weekdays. Also, the RSA markedly reduced during sleep after heavy alcohol drinking independently of the day of the week. To obtain more direct evidence, we studied impact of college examinations on RSA in 17 healthy college students (9 women, age, 20 +/- 1 years). RSA was measured at one week before, the day before, and the 1st day of semester-end examinations during sleep at their own residences. Smoking and alcohol drinking were prohibited during 24 hr before the measurement. On the day before the examinations, compared with baseline, the score of state anxiety increased and the RSA decreased. These observations indicate that daily stress is accompanied by suppression of the cardiorespiratory resting function during sleep. Given the importance of restorative function of sleep, our observations provide an important insight into the mechanisms of the impact of real-world stress on cardiovascular system.

#### SS22-4

### **SLEEP DISORDERED BREATHING, AS AN IMPORTANT FACTOR FOR EVALUATION OF WORKLOAD AND CARDIOVASCULAR DISEASE RISK**

**Tanigawa T (1), Sakurai S (2), Cui R (3), Yamagishi K (1), Hiroyasu I (4)**

*1 Department of Public Health Medicine, University of Tsukuba, Ibaraki, Japan; 2 Department of Sleep Medicine, University of Tsukuba, Ibaraki, Japan; 3 Department of Epidemiology and Community Medicine, Medical College of Nankai University, China; 4 Public Health, Department of Social and Environmental Medicine, Osaka University Graduate School of Medicine, Osaka, Japan*

To examine the relationship of sleep-disordered breathing (SDB) with blood pressure level among truck drivers, we conducted a population-based cross-sectional study of 1,313 professional male drivers aged 20-69. The 3% oxygen desaturation index (3%ODI) was selected as an indicator of SDB, representing the number of desaturation events per hour of recording time in which blood oxygen fell by  $\geq 3\%$  by overnight pulse oximetry. There were significant positive associations between the 3%ODI levels and diastolic blood pressure level. The multivariable odds ratio of hypertension was 2.0 (1.1-3.6) for a 3%ODI of  $\geq 15$  in reference with a 3% ODI of  $<5$ . This association was more evident among those aged  $\geq 40$  years and overweight subjects. We measured blood pressure levels, and 3%ODI among 253 male shift workers and 206 male day workers aged 30 to 62 years at nuclear power plants in Japan. Diastolic blood pressure levels were significantly correlated with 3%ODI in

total subjects after adjustment for potential confounding variables ( $p=0.04$ ). This association was primarily observed among workers aged  $\geq 40$  years, more specifically older shift workers.

The association of SDB severity with diastolic blood pressure levels among truck drivers and shift workers suggests the need for SDB screening for the prevention and control of hypertension.

SDB should be taken into consideration as an important physical condition for evaluation of workload and cardiovascular disease risk.

#### SS11

### **The potential of genetic risk information to promote risk-reducing behaviour change.**

**Chair (s) : Alison Wright**

There is considerable interest in whether personal genetic susceptibility testing may serve to motivate risk-reducing behaviour. However, early evidence regarding the cognitive and behavioural impact of such testing has been mixed. This symposium draws together four studies that provide a more nuanced understanding of how and when genetic susceptibility testing might promote risk reducing behaviour change. The papers share two common themes: the role of information provision and the consideration of cognitions mediating genetic testing's behavioural impacts.

Wright et al use analogue methods to examine the hypothesis that genetic risks are associated with stronger belief in the effectiveness of medication for risk-reduction. They find that both the cause of the risk, and the condition in question, influence perceptions of treatment effectiveness.

Smerecnik et al examine how the motivational impact of information concerning a genetic predisposition to salt-sensitive high blood pressure results from an interaction between this information and existing causal beliefs about the disorder.

McBride et al look at the impact of information provision, in the context of offering young adults genetic susceptibility testing for eight common health conditions. The results suggest that providing more information about the specifics of the genetic tests to individuals who were initially interested in testing, made participants less willing to be tested, and that the overall uptake of such tests may be modest.

Finally, Sanderson et al delivered information about the results of genetic susceptibility testing for lung cancer to smokers using the internet, successfully accessing a geographically disparate group of participants. This study's results suggest that information delivered in this manner may effectively motivate risk-reducing behaviour.

Together, these studies suggest that careful consideration should be given to the circumstances in which personal genetic susceptibility testing is likely to motivate risk-reducing behaviour and so facilitate improvements in the health of the public.

#### SS11-1

### **UNDERSTANDING HOW GENETIC VS. NON-GENETIC REPRESENTATIONS OF HEALTH PROBLEMS AFFECT PREFERRED TREATMENTS: A VIGNETTE-BASED STUDY**

**Wright A J, Whiteley A, Whitwell S C L, Hankins M, Sutton S, Marteau T M**

Genetic testing for common diseases may not induce fatalism,

but instead change individuals' beliefs about the severity of the problem and the best treatments for the condition. When a health threat is seen as genetic in origin, medication is likely to be preferred to a behaviorally-based treatment. This is because, as suggested by Leventhal, health problem representations influence the solutions selected.

This study tests the hypothesis that, because health problems with genetic origins are considered biological and so as needing biologically-based solutions, individuals told a problem has a genetic cause will have stronger preferences for medication than those told the problem has an environmental cause. We also examined differences in reactions to risk based on a DNA test vs. risk based on family history.

**Design:**

4(cause: DNA test positive and family history; DNA test positive; family history; environmental) x 2(seriousness: serious; not serious) x 3(condition: heart disease; depression; obesity) between-subjects factorial design using vignettes.

**Method:**

648 individuals recruited from the general population were randomly allocated to read one of 24 vignettes describing a man at high risk for one of the three conditions. Descriptions of the cause and severity of the condition varied according to the cell of the design.

**Key outcome:**

Perceived effectiveness of medication.

**Results:**

Perceived effectiveness of medication was influenced by cause ( $F(3,624)=3.79$ ,  $p=0.01$ ) and condition ( $F(2,624)=86.40$ ,  $p<0.001$ ) but not seriousness; ( $F(1,624)=0.97$ ,  $p=0.33$ ). There were no significant interactions between the factors. Medication was perceived as more effective for health risks caused by DNA than for those caused by environmental factors. Amongst the different conditions, medication was perceived as most effective for heart disease and least effective for obesity.

**Discussion**

Preferences for medication over behavioural treatments are influenced by condition and by the perceived causes of the condition. These findings can be interpreted using Leventhal's self-regulation model.

**SS11-2**

**THE VALUE OF INFORMATION ABOUT THE EXISTENCE OF GENETIC RISK FACTORS IN EDUCATING A PREVIOUSLY UNAWARE POPULATION**

**Smerecnik C, Mesters I, de Vries N K, de Vries H**

*University of Maastricht, The Netherlands*

Recent advances in the understanding of genetic predispositions to disease have several implications for public health promotion; the most obvious being whether and how to use genetic information to promote public health. Investigating public responses to genetic information is one important dimension of the translation of professional genetic knowledge into public health benefits.

To this end, we conducted several cross-sectional studies in which we presented the Dutch general population with either information concerning the existence of genetic risk factors for salt sensitivity or general information about salt sensitivity without reference to genetic risk factors with risk perception and the intention to restrict salt intake. Results showed that information on the existence of genetic risk factors lead to lowered risk perception and, consequently, to lower intentions to restrict salt intake, but only for individuals who were unaware of genetic risk factors at the time of information

exposure.

A longitudinal study is conducted to assess the long-term effects of information about the genetic risk factors on risk perception and intention and to assess its effect on behaviour (i.e. restricting salt intake). Follow-up measurements were presented to the research sample immediately after they read the target information (genetic versus non-genetic information), and 1 month and 6 months afterwards. The data will be analyzed using structural equation modelling.

Based on previous cross-sectional studies, we expect that information about the existence of genetic risk factors will result in lower risk perception and consequently lower intentions to restrict salt intake as well as to lower actual (subjective) salt intake. However, we expect these results only for individuals who were unaware of the existence of genetic risk factors for salt sensitivity at the time of information exposure. The implications for genetic education and public health promotion will be discussed.

**SS11-3**

**THE MULTIPLEX INITIATIVE: BEGINNING A RESEARCH AGENDA TO UNDERSTAND THE POTENTIAL OF GENETIC RISK INFORMATION TO BENEFIT PUBLIC HEALTH**

**McBride C M (1), Alford C H (2), Baxevas A D (3), Reid R (4), Larson E B (4), Brody L C (2)**

*1 Social and Behavioral Research Branch, NHGRI, Bethesda, MD, USA; 2 Henry Ford Health System, Detroit, MI; 3 Genome Technology Branch, NHGRI, Bethesda, MD; 4 Group Health Cooperative, Seattle, WA*

Emerging associations between gene variants and common health conditions may impact public health practice through the use of personal genetic susceptibility testing. These genetic test results could be returned to encourage health-promoting habits. While genetic susceptibility testing is not yet widely available, there is a need to begin evaluating the public's receptivity to such testing and the impact such testing may have on information seeking related to personal risk for common diseases.

The Multiplex Initiative is the first research project that is offering genetic susceptibility testing for eight common health conditions (15 gene variants), with the ultimate goal of examining the effects on health services use and information seeking. A random sample of enrollees aged 25-40 in the Henry Ford Health System (Detroit, MI) were contacted. Men (54%), African Americans (58%), and those with low educational levels (55%) are being over-sampled. Participants who complete a baseline survey are asked to visit the study's informational Web site, where they decide whether or not to undergo genetic testing. Of the 725 people who completed the baseline survey so far, 149 (21%) accessed the Web site, and 89 (12%) decided to take the Multiplex genetic test. African Americans were significantly less likely than Caucasian Americans to request the test (7% vs. 21%). Additionally, of the participants who stated interest in genetic susceptibility testing in the baseline survey, only 16% decided to take the test once they learned the specifics of testing. We are in the process of providing test feedback and will report proportions of tested individuals who seek additional risk information related to family history and the Harvard behavioral risk self assessment.

These initial recruitment results show that the overall uptake of the Multiplex test may be modest. As the first population-based study to examine uptake of genetic susceptibility testing for common health conditions, these results could inform efforts to avert disparities in dissemination of genetic

technologies and may be useful for planning future research.

#### SS11-4

### IMPACT OF GENETIC TESTING FOR GSTM1-NULL AMONGST SMOKERS RELATED TO PATIENTS WITH LUNG CANCER: A PHASE I FEASIBILITY STUDY

*Sanderson S C, O'Neill S C, White D, Lipkus I, Bepler G, Bastian L, McBride C M*  
*Social and Behavioral Research Branch, NHGRI, Bethesda, MD*

**Background:** One way in which genetic information is predicted to benefit public health is by encouraging individuals identified as being at increased disease risk to make risk-reducing lifestyle changes. The aim of this feasibility study was to investigate the impact of personal results from genetic testing for a single lung cancer-associated common gene variant, amongst smokers related to lung cancer patients, on smoking cessation-related outcomes.

**Method:** Participants were 44 smokers who were related to and recruited via patients with late-stage lung cancer, and who had taken up the offer of GSTM1 genetic testing. GSTM1-null is a common gene variant associated with a slightly increased risk (OR 1.17) of developing lung cancer. Information about the genetic test, and personal test results, were delivered on-line. Dependent variables included perceived risk, self-efficacy and response-efficacy. Variables were assessed on-line at baseline and immediately after test results were received, and in a six month telephone follow-up survey. Inclusion criteria included having internet access.

**Results:** 22 smokers received a GSTM1-null ('higher risk') result and 22 received a GSTM1-present ('lower risk') result. Immediately after receiving test results, smokers who had received a GSTM1-null result reported lower response-efficacy (i.e. lower confidence that quitting would reduce their disease risk), but greater self-efficacy (i.e. greater confidence in their ability to quit smoking), compared to smokers who had received a GSTM1-present result. At six month follow-up, 29% (5/17) GSTM1-null smokers had quit smoking, compared to 6% (1/18) GSTM1-present smokers.

**Discussion:** The results suggest that informing smokers that they have a slightly increased genetic risk of lung cancer, based on a genetic test for a single common gene variant, could have both positive and negative effects on cognitions linked to smoking cessation. Further research is needed using larger sample sizes and in which multiple common gene variants are tested for simultaneously.

#### SS9

### Sedentary Behaviors and the Attributes of Neighborhood Environments

*Chair (s) : Takemi Sugiyama*

Our lifestyles are becoming increasingly sedentary due to changes in the home, neighbourhood, and workplace environments. Research evidence on the serious health impacts of sitting too much is now emerging. However, there is only a modest body of research that can help to understand the potential determinants of sedentary behaviors. The purpose of this symposium is to describe recent findings on environmental and individual correlates of sedentary behaviors. The symposium involves a multidisciplinary group of researchers from the USA, Japan, China, and Australia.

Professor Sallis will present a study conducted in the USA that

examined the associations of objectively-assessed neighborhood walkability with self reported measures of sedentary behaviors and education level. Low neighborhood walkability was found to be associated with high amounts of time spent in TV viewing and in driving. Dr. Inoue will discuss findings from his study conducted in four cities in Japan. Perceived environmental attributes were not associated with total time spent in leisure-time sedentary behaviors for the whole sample. However, different environmental attributes were associated with sedentary time in men and in women. Dr. Xufei will present a study on adolescent's TV viewing time and residential density in a Chinese city. TV viewing time was not associated with residential density, but participants' physical activity was negatively associated with residential density—a finding that is not consistent with those of previous studies in the USA and Australia. Dr. Sugiyama will report a study conducted in Adelaide, Australia, which examined whether area-level socio-economic status (SES) moderates the previously reported association of neighborhood walkability with sedentary behaviors in women. This association was found significant for women living in higher SES but not for those in lower SES neighborhoods. The symposium will conclude with a Panel Discussion, which will address future research directions.

#### SS9-1

### ASSOCIATIONS OF NEIGHBORHOOD WALKABILITY AND EDUCATION WITH SEDENTARY BEHAVIOR IN AMERICAN ADULTS

*Sallis J F (1), Kozo J (1), Conway T L (1), Kerr J (1), Saelens B E (1), Frank L D (2), Cain K (3), Chapman J (4)*  
*1 San Diego State University; 2 Children's Hospital Seattle; 3 University of British Columbia; 4 Lawrence Frank & Company*

**Background:** Both a lack of physical activity and high levels of sedentary behavior are risk factors for overweight and obesity. Correlates of physical activity are much better understood than those for sedentary behaviors. The purpose of the present study was to examine the associations of self reported measures of sedentary behavior with neighborhood walkability and education level.

**Methods:** Participants were 2,198 adults from the Seattle, Washington, and Baltimore, Maryland regions who were recruited from neighborhoods selected to vary on walkability and median income. Walkability is a measure derived from objective built environment indicators, which comprised of residential density, intersection density, land use mix, and retail floor area ratio. Self reported time (min/week) spent engaged in eight different sedentary behaviors were obtained and these were compared across high and low walkable neighborhoods. The association of time spent in sedentary behaviors with participants' education levels was also examined. Education level was recoded into a dichotomous variable: Less than some college and at least completed college.

**Results:** Lower neighborhood walkability was associated with more time spent driving or riding in a car (low: 252.3 vs. high: 129.6 min/week,  $p < 0.001$ ) and more time spent watching TV/videos (low: 437.3 vs. high: 340.6 min/week,  $p < 0.001$ ). Higher education level was associated with less TV/video watching ( $p < 0.001$ ), more computer/Internet use ( $p < 0.001$ ), and more total sitting time ( $p = 0.001$ ).

**Conclusions:** Driving/riding in a car and TV watching have previously been shown to be related to obesity risk, so these sedentary behaviors could be a mediator of the relation between neighborhood walkability and the risk of overweight



or obesity. Education level had a complex relation with sedentary behaviors, and this needs to be investigated in future research studies.

#### SS9-2

### ASSOCIATION OF SEDENTARY BEHAVIOR WITH ENVIRONMENTAL AND SOCIODEMOGRAPHIC VARIABLES AMONG JAPANESE ADULTS

*Inoue S*

*Tokyo Medical University*

**Objective:** To examine the association of sedentary behavior with environmental and sociodemographic variables among Japanese adults.

**Methods:** A cross-sectional study was conducted in four Japanese cities (Tsukuba, Koganei, Shizuoka, Kagoshima). The sample was randomly selected from the registry of residential addresses. A mail survey of 736 adults (men: 45%, age: 20-69 y.o.,  $47.9 \pm 14.3$  y.o.) collected the following data: duration of leisure-time sedentary behavior (SB, min/day), eight perceived neighborhood environmental attributes using the Japanese version of Abbreviated Neighborhood Environment Walkability Scale (A-NEWS), and sociodemographic variables (sex, age, education, job status, living with family, marital status, children in the home, care receiver in the home, dog ownership). For data analyses, the duration of SB and eight environmental variables were converted to dichotomous variables. Logistic regression models were used to calculate the odds of higher SB ( $\geq 180$  min/day), by the environmental and sociodemographic variables.

**Results:** Participants who were less than thirty or more than sixty years old, had a low educational attainment, did not have a job, did not have a spouse, and did not have a person who needs care in the home had a significantly higher odds of engaging in longer leisure-time SB, after adjustment for sex, age, and education (where appropriate). No association was found between any of the eight environmental variables and SB in the whole sample. However, men who perceived low residential density tended to be more sedentary (OR, 95%CI: 1.64, 1.02-2.62). Women who perceived low street connectivity were less sedentary (0.63, 0.41-0.97), after adjustment for age and education; this association was in an unexpected direction.

**Conclusions:** Modest associations of leisure-time sedentary behavior with perceived environmental attributes emerged in this sample of Japanese adults. Further studies are needed to examine gender differences; and, how psychosocial factors may moderate the relationships between sedentary behavior and environmental attributes.

#### SS9-3

### ASSOCIATION OF RESIDENTIAL DENSITY WITH TV VIEWING AND PHYSICAL ACTIVITY TIME AMONG ADOLESCENTS IN AN URBAN REGION OF MAINLAND CHINA

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**Objectives:** To investigate the association of residential density with time spent in TV viewing and in physical activity among adolescents in an urban area of mainland China.

**Design:** Population-based cross-sectional study, conducted between September and November 2004.

**Setting:** With multi-stage sampling methods, 72 classes were randomly selected from all 49 urban junior high schools in Nanjing, China.

**Subjects and Methods:** The sample consisted of 2375 students (aged 12-16 years, 54% girls); the response rate was 89.3%. The outcome variables were self-reported daily time spent in viewing TV and in after-class physical activity in a typical week. The predictor variable was residential density of ten urban districts, which was dichotomized into higher and lower density. Linear regression models were used to examine associations of time spent in TV viewing and in physical activity with residential density.

**Results:** Adolescents living in higher residential density areas and those in lower residential density areas did not differ in TV viewing time (Mean  $\pm$  SD for higher vs. lower density:  $1.02 \text{ hr/day} \pm 0.76$  vs.  $0.98 \pm 0.74$ ,  $p = 0.33$ ). However, students in higher residential density areas spent less time in physical activity than those in lower residential density areas (Mean  $\pm$  SD for higher vs. lower density:  $1.62 \text{ hr/week} \pm 0.76$  vs.  $1.69 \pm 0.75$ ,  $p = 0.01$ ). After adjusting for age, gender, grade, parents' educational attainment, and pocket money, residential density was negatively associated with physical activity time ( $\beta = -0.05$ ,  $p = 0.04$ ), but was not significantly associated with TV viewing time ( $\beta = 0.04$ ,  $p = 0.09$ ) among urban Chinese adolescents.

**Conclusions:** Higher residential density may decrease the time spent in physical activity among urban Chinese adolescents. This is not consistent with findings reported in previous US and Australian studies.

#### SS9-4

### MODERATING ROLE OF AREA-LEVEL SOCIO-ECONOMIC STATUS IN THE ASSOCIATION OF NEIGHBORHOOD WALKABILITY WITH SEDENTARY BEHAVIORS AMONG AUSTRALIAN WOMEN

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**Background:** We have previously shown objectively-assessed neighborhood walkability (based on land use mix, residential density and street connectivity) to be associated with TV viewing time in women. We examined whether area-level socio-economic status (SES) moderates the relationships of walkability with sedentary behaviors.

**Methods:** A mail survey was used to collect the following data from adults living in Adelaide, Australia: time spent in TV viewing; in motorised transport (car, bus, train); in walking for transport; and socio-demographic variables. Area-level SES was determined based on median income, and dichotomized as low and high SES. Logistic regression analyses examined the odds of women in this sample ( $n=1533$ ) spending longer time in TV viewing ( $\geq 90$  min/day), longer time in motorised transport ( $\geq 30$  min/day), and shorter time in walking for transport ( $< 12$  min/day), separately for low and high SES neighborhoods, controlling for age, education, and work status.

**Results:** For women in high SES areas, living in low-walkable neighborhoods was associated with a higher odds of spending longer time in TV viewing (OR, 95%CI: 1.75, 1.29-2.37), longer time in motorised transport (3.01, 2.20-4.12), and shorter time in walking for transport (2.07, 1.53-2.81), compared to living in high-walkable neighborhoods. However, for women living in low SES neighborhoods, walkability was not significantly associated with these behaviors.

Conclusions: Neighborhood walkability was relevant to sedentary behavior patterns (watching TV; using motorised transport; not walking for transport) only for women living in high SES areas. The findings suggest that neighborhood walkability may promote more active lifestyles for women in higher SES areas, but not for those in lower SES areas. Further studies are needed to examine how the psychosocial characteristics of women in low and high SES areas may be involved in the relationships between neighborhood walkability attributes and sedentary behaviors.

## SS7

### **The natural history of smoking cessation and relapse: findings from longitudinal studies**

*Chair (s) : Ron Borland*

Longitudinal studies provide the opportunity to examine the natural history of smoking behaviour among different population groups at a more fine-grained level than repeat cross-sectional designs: they allow for an analysis at the level of individuals and how they change over time. This symposium presents findings on the natural history of quitting and relapse from three large longitudinal studies of smoking. The symposium will highlight opportunities for smoking cessation and relapse prevention interventions, and will point to important future research directions.

The symposium will begin with a presentation on the predictors of continued smoking and relapse among young adult women in the Australian Longitudinal Study on Women's Health. This 10-year prospective study examines the associations of continued smoking and smoking relapse with demographic, psychosocial, lifestyle-risk behaviour, and life-stage transition variables over three survey periods. The second presentation will be an introduction to the International Tobacco Control Policy Evaluation Project (the ITC Project), which consists of parallel annual cohort surveys of adult smokers from 14 countries, inhabited by over half of the world's smokers, all guided by the same conceptual model, and with identical/similar measures across all countries. The third presentation is an analysis of the natural history of quitting among adult smokers in the ITC Four Country Survey (Canada, Australia, United States, and United Kingdom) across 6 annual waves, focusing on respondents who quit during the 6 years, and identifying predictors of relapse vs. sustained abstinence over time. The fourth presentation will describe a longitudinal study on the psychological predictors of relapse among ex-smokers from the Netherlands, which examines two psychological predictors of continuous abstinence and relapse: temporal comparisons and self-efficacy interpretations. The study also offers a framework for understanding the process of continuous abstinence, which can inform the creation of effective interventions to sustain smoking cessation.

## SS7-1

### **PREDICTORS OF CONTINUED SMOKING AND SMOKING RELAPSE AMONG YOUNG ADULT WOMEN: A 10-YEAR PROSPECTIVE STUDY**

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Young adulthood is a critical period in establishing patterns of tobacco use, and thus provides potential opportunity for targeted smoking cessation efforts. Data from a large,

prospective study of women, initially aged 18-23 years, was used to examine factors associated with continued smoking and smoking relapse. Participants in the Australian Longitudinal Study on Women's Health completed postal questionnaires in 1996, 2000, 2003 and 2006. The analysis sample was the 6840 women who participated in all four surveys and who provided complete data on smoking. Outcome variables included four smoking groups which were classified from data for three time periods: 1996-2000, 2000-2003 and 2003-2006. Using multiple logistic regression analyses, quitters were compared to continuing smokers, and relapsers compared to ex-smokers. Explanatory variables included demographic, psychosocial, lifestyle-risk behaviour and life-stage transition variables.

The most consistent association with smoking behaviour was recent illicit drug use, which was a predictor of continued smoking and relapse for all three time periods. Being a risky/high-risk drinker also predicted continued smoking and relapse, although not consistently for all three survey periods. Marriage or being in a committed relationship was significantly associated with quitting and with remaining an ex-smoker at different time periods. Being less physically active was only significantly associated with smoking relapse when the young women were in their late twenties/early thirties. Higher levels of depression, lower educational qualifications and living in a rural or remote area were significantly associated with continued smoking.

Smoking cessation interventions with young women could be guided by an understanding of these predictors of continued smoking and relapse. Key target groups would include rural and remote and less-educated young women, high-risk drinkers and users of illicit drugs; life-stage transitions such as marriage may provide opportunities to promote cessation.

## SS7-2

### **AN INTRODUCTION TO THE INTERNATIONAL TOBACCO CONTROL POLICY EVALUATION PROJECT**

*Fong G T*

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The International Tobacco Control Policy Evaluation Project (ITC Project) is a collaboration of over 60 tobacco control researchers across 14 countries who are conducting research studies to evaluate the impact of tobacco control policies of the WHO Framework Convention on Tobacco Control (FCTC), the first-ever health treaty, which has been ratified by over 150 countries. The FCTC obligates these parties to implement policies such as more prominent warning labels, restrictions/bans on tobacco advertising/promotion, higher taxation, smoke-free laws, and eliminating misleading brand descriptors (e.g., "light" and "mild").

The ITC Surveys are a set of parallel national surveys of representative samples of adult smokers across 14 countries, inhabited by half of the world's smokers. Each ITC Survey has been created from the same conceptual model, with identical or functionally similar measures of a broad range of tobacco use variables (e.g., current smoking behaviour, smoking history, dependence, quitting history, quit intentions, perceived risk, beliefs about smoking, perceived norms, quit efficacy) and measures of each FCTC policy (e.g., label salience, support for smoke-free laws, noticing pro-tobacco and anti-tobacco messages, beliefs about "light" cigarettes, source of cigarettes and price paid).

The longitudinal design of the ITC Surveys, coupled with the policy-specific measures and pre-specified mediational models

of policy impact, constitute a powerful multinational system for rigorous evaluation of FCTC policies at the level of the individual, taking advantage of the natural experiments created by countries as they begin to implement FCTC policies. The broad objective is to build the evidence base for strong, evidence-based implementation of the FCTC throughout the world and also to understand the mediational mechanisms underlying the impact of tobacco control policies.

This presentation will introduce the ITC Project, with emphasis on the design and measures of the ITC Surveys, and important findings to date will be presented.

#### SS7-3

### **THE NATURAL HISTORY OF QUITTING SMOKING: FINDINGS FROM THE INTERNATIONAL TOBACCO CONTROL (ITC) FOUR COUNTRY SURVEY**

*Herd N*

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Little is known about the long-term natural history of quitting and the predictors of relapse after a significant period of abstinence. Short follow-up studies suggest that after the initial weeks of quitting, former smokers experience very little change with respect to potential predictors of relapse. This paper explores the long-term natural history of quitting smoking by using participants (N=2502) from the International Tobacco Control (ITC) Four Country Survey who were quit at the time of being surveyed. Questionnaire items asked at various durations of abstinence across participants (1 to 1472 days) were used to map the natural history of quitting.

Results showed that frequency of smoking urges and perceived benefits of smoking were still declining years after quitting, whereas abstinence self-efficacy was still increasing. For the majority of the constructs measured, change occurred according to a logarithmic trajectory. Given that similar patterns of change occurred for subsequent relapsers and abstainers, it was concluded that change was not simply a consequence of cumulative relapse across time. These findings demonstrate that the process of adjusting to not smoking is a prolonged process for ex-smokers and some aspects are unlikely to have resolved themselves completely in their lifetime. This helps to explain the reports of relapse even years after successfully quitting. Research is needed to see if this adjustment can be sped up, and/or what interventions can be put in place to support ex-smokers long term.

#### SS7-4

### **PSYCHOLOGICAL PREDICTORS OF RELAPSE IN EX-SMOKERS**

*Dijkstra A*

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While several models successfully relate different psychological factors to the process of motivation and intention formation in smokers, in ex-smokers only self-efficacy expectations have been studied and related to continuous abstinence. The present study aimed at testing two other predictors of continuous abstinence and relapse: temporal comparisons and self-efficacy interpretations. Temporal comparisons are comparisons ex-smokers make to conclude whether they make progress towards the ultimate goal of continued abstinence. When the progress is perceived to be small, the motivation to put in effort will be lowered and

the risk of relapse is increased. Self-efficacy interpretations are self-representations about the ability to maintain abstinence that are triggered in mind when the goal of abstinence is threatened.

A cohort of 340 ex-smokers was followed-up for seven months. At T1, several demographic, smoking history and psychological variables were assessed by self-report. At T2, after seven months, continuous abstinence was defined as not having smoked in the past seven months, "not even one cigarette". The results showed that temporal comparison predicted abstinence after seven month in interaction with self-efficacy. Specifically among ex-smokers with the combination of negative temporal comparisons and low self-efficacy, relapse was high (over 30% more compared to the other ex-smokers). In addition, the ratio between positive and negative self-efficacy interpretations was a powerful predictor of abstinence after seven months. While in ex-smokers with a positive/negative ratio lower than .68, the relapse rates were about 50%, ex-smokers with a higher proportion of positive thoughts (>.68) the relapse rate was around 16%. These results give new angles to understand the process of continuing abstinence and provide a basis for new intervention elements.

#### SS40

### **Using telecommunications technology to reduce diabetes risk and improve diabetes care in three countries**

*Chair (s) : Robert H. Friedman*

The prevalence of diabetes mellitus worldwide has increased dramatically over the past several decades. The major modifiable risk factor for Type 2 diabetes (representing at least 90% of cases) is overweight/obesity, with sedentary lifestyle and consumption of high calorie foods the major contributors. For diabetes patients, there is abundant scientific evidence that adverse outcomes of diabetes (cardiovascular disease, stroke, loss of eyesight, lower extremity amputations) can be significantly reduced by normalizing blood glucose levels.

In this Symposium, Dr. Friedman will begin with a description of the increased prevalence of diabetes worldwide, its effects on world health, and the issues involved in its prevention and disease control. He will describe the TLC telecommunications technology (Telephone-Linked Care [TLC]) and the model for using it in primary prevention and disease control in diabetes with reference to its application in both developed and developing countries. Next, Dr. Lau will describe a project in China (Shenzhen) for reducing diabetes risk in at risk individuals (first degree relatives of diabetes patients) in a developing country (China) using the TLC technology to increase physical activity levels. He will focus on the delivery of this program in the primary care centers of the chronic disease hospital system in China. Next, Dr. Mori will present a project in the United States to accomplish the same goal of primary diabetes prevention. Dr. Oldenburg will follow with a presentation of a program using TLC for Australian diabetes patients, designed to promote and support behavior change and disease management for normalizing blood glucose levels. Finally, Dr. Friedman will lead a discussion of the advantages and issues in the use of telephony systems for promoting primary prevention and disease control in diabetes patients in three countries, both developed and developing, as a model for preventing and controlling chronic disease worldwide.

SS40-1

**THE TLC MODEL TO IMPACT THE EXPLOSIVE INCREASE IN DIABETES PREVALENCE WORLDWIDE**

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The prevalence of diabetes mellitus worldwide increased dramatically over the past several decades. Twenty years ago there were about 30 million sufferers; now there are almost 250 million. For example, in the U.S. diabetes affects 7% of the population (over 20 million). The situation is similar in other developed countries. In developing countries, the situation is often worse with 7 of the 10 countries with the greatest numbers of diabetics being in the developing world. Thus, in all countries an important public health goal is to prevent diabetes, principally by controlling weight (the major modifiable risk factor) through promoting active lifestyles and healthy eating. For patients with diabetes, scientific evidence suggests that the goal is to normalize blood glucose levels by promoting adherence to prescribed diabetes medications, calorie limited diets and regular physical activity and through self-monitoring by patients.

We developed a telephone-based automated system (Telephone-Linked Care [TLC]) that delivers tailored messages based on accepted behavioral and chronic disease care models to individuals at risk for developing Type 2 diabetes (the most common form of the disease) and patients with the disease. These messages are given during a series of "conversations" that assess behavior, knowledge, and health status, provide theory-based intervention, and alert responsible health care providers about important clinical findings. The TLC Model for prevention is to intervene with individuals who are genetically at risk for Type 2 diabetes, especially if they are overweight/obese, with a program that promotes an active lifestyle (for sedentary persons) and a calorie-controlled healthy diet (for persons with "unhealthy" eating behaviors). The TLC Model for improving blood glucose control in diabetics is to promote patient self-care behaviors associated with glucose control, by patient self-monitoring, and by alerting responsible health care professionals. These models are appropriate for use in both developed and developing countries.

SS40-2

**TRANSLATIONAL RESEARCH FOR AN INTERNATIONAL COLLABORATION TO INTRODUCE AND DISSEMINATE A BEHAVIORAL INFORMATICS SYSTEM IN CHINA**

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In recent years the Chinese economy has been blooming. Shenzhen, a Special Economic Zone" in the southern part of China, is at the forefront of this phenomenon. Last year, it had the highest per capita income in China. The highly urbanized lifestyle of the population is very similar to cities in developed countries with physical activity levels decreasing and consumption of high calorie foods increasing, resulting in an increase in body weight in the population. Given this trend, relatives of Type 2 diabetes patients (who are at higher risk than the general population for developing diabetes) should be

targeted for intervention programs that seek to control their weight, including those that promote physical activity.

We are collaborating with Boston University and Shenzhen Chronic Disease

Hospital to conduct a project that aims to increase the physical activity level of these high risk people. We are adapting a computerized, fully automated telephone counseling system for physical activity (TLC-PA) that was originally developed by the Boston University team, which we will deploy in the Shenzhen area. The goal is to help sedentary relatives of Type 2 diabetics reach the public health goal of at least 150 minutes per week of moderate intensity physical activity. Aside from evaluating the efficacy of the TLC-PA-China system, there is an important opportunity to conduct translational research to assess the impact of this system at a population level. The true impact of the TLC-PA-China system, to be delivered through primary care centers of the Chronic Disease Hospital system in Shenzhen, can be estimated by the five elements of the RE-AIM framework (Reach, Efficacy, Adoption, Implementation and Maintenance). Should these evaluations indicate the value of TLC-PA-China, we expect that it will be introduced throughout China where health practitioners are less available.

SS40-3

**DEVELOPING AN AUTOMATED TELEPHONE INTERVENTION TO PROMOTE EXERCISE IN VETERANS WITH DIABETES IN THE UNITED STATES**

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Sixteen million Americans have been diagnosed with diabetes, and it has been speculated that this number will increase to 23 million by the year 2010. Furthermore, there is a substantially higher prevalence of diabetes in the American veteran population as compared to the general population, with nearly 16 percent of veterans being affected. This alarming increase has been associated with the increasing prevalence of obesity and sedentary lifestyles. The benefits associated with exercise in the diabetic population are extensive, and even though regular exercise is typically prescribed as a significant component of the diabetic treatment plan, compliance tends to be very poor. The overarching objective of this study is to adapt a low cost automated telephone intervention to be used to enhance exercise adoption in a population of overweight or obese veterans with type 2 diabetes. The primary aim of this study is to implement and evaluate the effectiveness of this telehealth intervention (TLC-PED: Telephone Linked Care - Promoting Exercise for Diabetes) in a population of chronically ill patients. The secondary aim is to evaluate the impact TLC-PED has on weight and other diabetes relevant physical health parameters, quality of life and psychological distress. If the telehealth intervention is found to be efficacious, the tertiary aim will be to evaluate the cost effectiveness of the intervention. It is hypothesized that overweight veterans with diabetes who receive the TLC-PED intervention (versus those who do not) during their six month participation in a home based walking program will be more likely to engage in regular physical activity and obtain improvements in self-reported physical activity, and other indices of diabetes health, and maintain these changes over a six month period. These findings have significant implications for introducing a low cost intervention with high translatability to individuals with diabetes across a wide geographic area.

SS40-4

**DEVELOPMENT AND EVALUATION OF AN AUTOMATED TELEPHONE SYSTEM FOR DIABETES SELF-MANAGEMENT IN AUSTRALIA**

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Even in developed countries, the majority of people with Type 2 Diabetes do not achieve optimal diabetes management. Whilst there is strong evidence that lifestyle factors are essential components of diabetes management and that sustaining behavior change requires regular and long term support, this is very difficult to achieve within health systems which are not designed for this challenge. This study is evaluating the six and 12-month health outcomes and cost-effectiveness of a program using an automated interactive telephone system designed to promote and support behavior change and disease management. This program, the Diabetes Telephone Linked Care (TLC) Australia, has been developed collaboratively with the Medical Information Systems Unit at Boston Medical Center. Participants with Type 2 diabetes (340) are being recruited in Brisbane (Australia). They are randomised to a usual care condition or to the intervention group. For six months, participants in the intervention group download their past week's blood glucose levels to the system's database via a cell phone link prior to calling the system weekly to "converse" on one or more of the following topics: blood glucose monitoring, nutrition, physical activity and medication. A case manager monitors usage and "alerts" sent by the system. Primary outcomes are Haemoglobin A1C and quality of life at 6 and 12-month follow-up. Secondary outcomes include self-care behaviors, waist measurement and insulin sensitivity. An economic evaluation is also conducted. The presentation will outline initial results of the piloting of the intervention components and how these have informed the program structure. It will also include an overview of the project's methodology and recruitment to date. This new telehealth program addresses many barriers faced in the delivery of long-term diabetes self-management support and provides a patient-centered approach consistent with current models of chronic disease management.

SS23

**PROMOTING SUSTAINED BEHAVIOR CHANGE TO PREVENT DISEASE AND PROMOTE HEALTH**

*Chair (s) : Pilvikki Absetz & Brian Oldenburg*

Non-communicable diseases, such as cardiovascular diseases and diabetes, are rapidly increasing in all regions of the world. Although highly prevalent and very costly, these diseases are largely preventable or manageable through lifestyle changes of relevant risk factors. Behavioral medicine has traditionally placed more emphasis on the initiation of behavior change rather than on sustaining it. This symposium will examine initiation and maintenance of change in prevention and management of diabetes and cardiovascular diseases (CVD) and in weight loss, and discuss opportunities for ongoing follow up and support to sustain change. Dr Luszczyńska discusses findings from Poland in two interventions targeting self-efficacy and planning among patients with diabetes, CVD and MI. She shows that treatment tailored to participants'

cognitions may contribute to an initial change in health behavior. From the GOAL (Good Aging in Lahti) diabetes prevention program in Finland, Dr Absetz will document differences in the processes of exercise adoption and maintenance with quantitative analyses, and also use qualitative data from focus groups to highlight the balance of pleasure seeking vs health seeking as one key factor in maintenance of changes. Dr. Jeffery from the USA will discuss how difficulty in maintaining weight loss reflects: (a) insufficient support in the physical and social environment; (b) reduced novelty of weight loss activities; (c) fading of reinforcement from initial changes in weight, appearance, or medical risks; and (d) reduced influence of health professionals' feedback and general social feedback. He will also describe current evaluation of a maintenance intervention emphasizing ongoing monitoring and adjustment of behavioral treatment prescriptions. Based on three different telehealth implementation interventions in Australia, Dr Oldenburg will discuss experiences and challenges in promoting diabetes management and other key health behaviors including physical activity and healthy diet.

Keywords: Health behavior change, Diabetes, CVD.

SS23-1

**EFFECTS OF TAILORED HEALTH BEHAVIOR CHANGE INTERVENTIONS DEPEND ON CHRONIC DISEASE DIAGNOSIS AND PERCEIVED RISK OF COMPLICATIONS**

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The paper discusses effects of brief social-cognitive interventions (tailored to participants' cognitions) on changes in nutrition and exercise across 6 months in the context of cardiovascular diseases (CVD) and diabetes. Study 1 examined the influence of a brief tailored self-efficacy intervention on exercise and self-efficacy in the context of participants' health status, in particular diabetes or CVD. Data from 187 adults were collected twice, with a 6-month follow-up. Besides the influence of the intervention on exercise and self-efficacy, the effects of treatment were moderated by diabetes/CVD: Compared to people without a diagnosis, participants with CVD/diabetes benefited more from the intervention. Study 2 investigated the effects of a brief planning training (tailored to participants' beliefs about planning) on saturated fat intake among 114 patients after myocardial infarction (MI). After data collection at 2 months after MI (2 weeks after cardiac rehabilitation), patients were assigned to the control group or the intervention group (an individually tailored planning training). Results indicated that the planning training participants were able to decrease saturated fat intake from 22.88 grams at 2 months after MI to 19.71 grams at 8 months after MI. The control group participants reported a small increase in saturated fat intake across measurement points. The obtained effects were larger among participants perceiving high risk of next MI, measured at 1 week after MI. Concluding, Studies 1 and 2 indicated that a parsimonious treatment tailored to participants' cognitions may contribute to a change in health behaviour over a longer term, in particular among individuals with a disease related to the respective behaviour. Among those with a diagnosis the effects are larger if the perceived risk of further complications is higher.

SS23-2

**ADOPTION AND MAINTENANCE OF LIFESTYLE CHANGE IN PREVENTING TYPE 2 DIABETES ? DIFFERENT PREDICTORS, DIFFERENT STRATEGIES FOR SUSTAINED CHANGE?**

**Absetz P (1), Jallinoja P (1), Hankonen N (1), Renner B (2), Ghisletta P (3), Oldenburg B (4), Uutela A (1)**

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Theoretical models and explanatory factors for healthy behaviours are commonly regarded as universal. However, different health behaviours such as diet and physical activity might differ greatly in their underlying motivational processes. Likewise, the adoption and maintenance of a healthy lifestyle might require qualitatively different competencies and processes. Our aim is to highlight some of the key differences. This study is part of the GOAL (Good Aging in Lahti region) Lifestyle implementation trial. Participants were 385 Finnish middle-aged adults at an increased risk for type 2 diabetes recruited from primary care centres. Prospective surveys were conducted at pre-intervention baseline, three months, and at one year, and focus group interviews at 18 months. Structural equation modelling with latent difference score analysis showed that changes in self-efficacy and action planning enabled exercise adoption at three months. However, maintenance of exercise at one-year was predicted only by coping planning, not by self-efficacy, indicating qualitative differences between the two change phases. In general, the key predictors of social-cognitive health behaviour models explained only a small amount of the variance. The focus group interviews indicated that maintaining lifestyle changes is a question of balancing health- and pleasure-needs. Conclusion: Adoption and maintenance of healthy lifestyle represent two different stages of behaviour change. However, even key cognitive predictors explain only a small proportion of variance in the behaviour. Social-cognitive health behaviour models need to include “non-health” related predictors such as pleasure-related needs as a central human drive for changing and maintaining lifestyle changes.

SS23-3

**MAINTENANCE: THEORETICAL AND EMPIRICAL CONCEPTS**

**Jeffery R W (1), Levy R L (2)**

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Behavioral interventions for weight loss have received considerable attention over the last 25 to 30 years. They have improved steadily over that time and have recently been shown to be capable of producing clinically significant improvements in health. However, their Achilles heel is maintenance. Seemingly regardless of the content of treatment and degree of success in achieving weight loss, most people do not persist in the behaviors that are needed to maintain weight loss and after 6 months or so regain weight steadily until much of the medical and social benefits have been lost. A conceptualization of the problem will be articulated in this presentation that is based on three main premises. First, the natural physical and social environments of most people do not provide enough support to maintain successful weight control behaviors. Second, people are often successful in their

weight loss efforts in the short term because the weight loss activities are novel and they are rewarded with changes in weight, in appearance, in medical risks and in social feedback. Third, they discontinue successful weight control behaviors when sources of positive feedback for weight control behaviors lose their potency. Weight loss behaviors lose their novelty over time, stable weight isn't as reinforcing as decreasing weight and positive social feedback lessens as weight stabilizes. Continued reminders and monitoring by health professionals lose their power for similar reasons.

The implications of the above conceptualization for behavioral treatment practice are several, including ongoing monitoring of the condition and adjustment of treatment prescriptions. Empirical support for these ideas will be reviewed and an experiment currently underway that is evaluating such a protocol will be described.

SS23-4

**IMPROVING THE MAINTENANCE AND SUSTAINABILITY OF PROGRAMS FOR THE PREVENTION AND MANAGEMENT OF NON-COMMUNICABLE DISEASES**

**Oldenburg B**

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Non-communicable diseases, such as cardiovascular diseases and diabetes, are rapidly increasing in all regions of the world. Although highly prevalent and very costly, these diseases are largely preventable or manageable through lifestyle changes of relevant risk factors. There are still relatively few implementation trials demonstrating good long term maintenance and sustainability of lifestyle change programs in ‘real world’ settings. Without accumulating such evidence, it is unlikely that such programs will have good uptake in health systems around the world, particularly in low- and middle-income countries. Use of contemporary information and communications technology, for example, the telephone, provide a means by which such programs can be delivered with broad reach, good program exposure and for relatively little cost. We are currently conducting a series of telehealth intervention trials for people at different stages of chronic disease prevention and management. In one of these, the Logan Healthy Living Program is evaluating a telephone counselling intervention for physical activity (PA) and diet. Results at 4- and 12-months suggest that telephone counselling can be effective in producing modest changes in PA and diet in a challenging patient population. Another program, TLC Diabetes, is utilizing an automated telephone counselling program combined with remote and automatic downloading of blood glucose results, to improve diabetes management. The final program to be discussed, ProActive Heart, is using human coaches to deliver a secondary prevention and rehabilitation program to people following myocardial infarction.

SS28

**EXPLORING THE BOUNDARY CONDITIONS OF EXPRESSIVE WRITING AS AN INTERVENTION IN ILLNESS SETTINGS ? AN INTERNATIONAL PERSPECTIVE**

**Chair (s) : Joshua M. Smyth**

Evidence suggests that disclosing one's thoughts and feelings through writing may produce beneficial effects. Yet, in

contrast to the allure of expressive writing [EW] as a potentially cost-effective and easily administered adjuvant treatment for patients with medical or psychological illness, much of the EW research has been conducted on healthy individuals and/or on outcomes unrelated to illness and illness behaviors. In this symposium we explore the boundary conditions of EW as an intervention in a variety of illness populations. First, EW is demonstrated to improve wound healing in an experimental setting. This suggests the potential for emotional disclosure interventions in patients with acute physical trauma, surgery, and related conditions that require reparative processes modulated by stress and emotional factors. Second, we explore the relationship of stress/emotion to core cognitive functions necessary for daily function and self-care, demonstrating that EW can improve working memory. EW interventions thus may be useful in a range of illness settings (e.g., when cognition is disrupted, if disease self-care requires prospective memory, etc.). Third, we examine the role of EW in the cognitive representations of stress/trauma for depressed or traumatized persons. EW promoting restructuring of cognitive representations was most beneficial, suggesting the promise of writing interventions targeting illness cognitions and perceptions. Fourth, we examine how emotional responses to EW are related to chronic disease (asthma or arthritis) and to neuroendocrine function in patients with post-traumatic stress disorder. Emotional responses during EW sessions were predictive of long-term outcome, and even severely traumatized individuals' emotional and neuroendocrine systems may be somewhat normalized following EW. In summary, this symposium presents evidence from multiple disciplinary perspectives, several countries, and a range of patient samples that EW can positively impact illness, illness behaviors, and emotional responses to illness, and that EW has potential as an adjuvant treatment in many settings and samples.

#### SS28-1

### ENHANCED WOUND HEALING AFTER EMOTIONAL DISCLOSURE (EXPRESSIVE WRITING) INTERVENTION

*Weinman J*  
*Kings College, UK*

Psychological stress is believed to impair wound healing via a down-regulation of the immune system. As previous research suggests that disclosure of traumatic experiences can result in an up-regulation of immune function, the present study aimed to investigate the impact of an expressive writing disclosure intervention on the progress of wound healing. The study used a prospective, longitudinal design with random assignment to the control (writing about time management) and experimental group (writing about a traumatic event). Participants (N = 36) completed questionnaires measuring perceived and emotional distress, loneliness, self-esteem, social support, dispositional optimism and health related behaviours. All participants were administered a small, standardized, punch biopsy wound. Accurate indication of the healing of the wound was determined by using a high-resolution ultrasound scanner repeated over several weeks. Repeated measures ANOVA indicated that the expressive writing intervention significantly improved wound healing. Participants who wrote about traumatic events had significantly smaller wounds 14 and 21 days after the biopsy compared to those who wrote about time management. It is therefore concluded that a relatively brief and easy to administer intervention can have beneficial effects on wound healing. We discuss the implications of this work, particularly noting that there is great potential for use of

expressive writing in patient samples.

#### SS28-2

### EXPRESSIVE WRITING, EXECUTIVE FUNCTION AND HEALTH

*Yogo M*  
*Doshisha University, Japan*

Higher cognitive functioning such as working memory, sustained attention, behavioral inhibition, and general mental flexibility associated with prefrontal cortical activity plays a major role in our daily living, and it is of clinical importance to understand how stress /negative emotions affect these functions. It is well established that stress can impair cognitive functioning, through autonomic dysregulation which contributes to decline in attention and cognitive performance. Moreover, our data suggests that suppression of stress-related thoughts affect working memory capacity (WMC) independently to intrusions of these thoughts. That is, suppression of stressful/negative emotional experiences rather than the stressful experience itself may be related more strongly to impairment in cognitive functions. Therefore it is important to explore how releasing inhibition of stressful/negative emotional experiences affect cognitive functions. Expressive writing is considered a useful intervention to reduce inhibition. Numerous studies have indicated that expressive writing reliably produce benefits across a wide range of outcomes. In the present study, we examined the influence of expressive writing on working memory capacity (WMC). Japanese undergraduates (N=104) were assigned to trauma writing group, best possible self (BPS) writing group, or a control writing group, and participated six separate experimental sessions (baseline, three writing, and two follow-up sessions at 1 and 5 weeks) to write 20 minutes each time on assigned topics. WMC tests were completed at baseline and at two follow up sessions. Results indicate that expressive writing about traumatic experience can improve WMC at 5 weeks after writing. BPS or control writing had no effect on WMC. Taken together, these findings suggest that suppression or expression of stressful/negative emotional experiences can decrease or increase executive functioning. The relation between expressive writing, cognitive functioning, autonomic regulation and improved physical health will be discussed.

#### SS28-3

### THE EFFECTS OF STRUCTURED WRITING TO ENHANCE COGNITIVE RESTRUCTURING OF TRAUMAS ON HEALTH AND COGNITIVE FUNCTIONING

*Sato K*  
*University of Tokushima, Japan*

Previous studies have indicated that the written disclosure of trauma may improve health and cognitive functioning. However, several studies have either found no beneficial effects or detrimental effects among clinical or subclinical individuals with depression or posttraumatic stress reaction (PTSR). It is well known that these individuals tend to have distorted cognitive processing. On the other hand, previous researches suggested that cognitive restructuring of traumas is a key element of health and cognitive effects of writing, such that an increase in both causal and insight words (cognitive words) over the course of writing sessions were associated

with improved health. Furthermore, cognitive behavior therapists pointed out that self and world schemata of the patients with posttraumatic disorder (PTSD) are maladaptive. Thus, writing structured to enhance the cognitive restructuring (i.e. structured writing) may be superior to writing about emotions and thoughts freely (i.e. free disclosure). The first study compared health and cognitive functioning results among structured writing, free writing (i.e. typical Pennebaker writing paradigm), and neutral writing conditions. Results indicated that all groups improved health and cognitive functioning. To account for the possibility that majority of participants had recovered spontaneously a second study was conducted targeting individuals who have maintained their PTSR for a long period. Individuals who maintained high score of PTSR for six months or more were assigned to structured, free, and neutral writing conditions. Results indicated that only the structured writing condition evidenced significantly decreased scores on an intrusion subscale of PTSR. The role of cognitive schemas and cognitive restructuring in improving health from the viewpoint of cognitive behavior therapy will be discussed.

#### SS28-4

### THE ROLE OF AFFECTIVE RESPONSES TO EXPRESSIVE WRITING IN PREDICTING CLINICAL DISEASE STATUS AND NEUROENDOCRINE FUNCTION

*Smyth J M*

*Syracuse University, USA*

Accumulating evidence suggests that expressive writing [EW] interventions are efficacious in some contexts and/or for some individuals, but less is known about factors that predict efficacy in use of EW in patient samples. Two studies examined the role of affective responses to EW in predicting clinical disease status and neuroendocrine function. Study one examined patterns of short-term (during writing) emotional responses and their relation to the probability of long-term (4 month) evidence of clinically relevant improvements in disease in 112 patients with chronic disease (asthma or arthritis). Study two was a study of 25 patients with verified post-traumatic stress disorder [PTSD] examining emotional responses to writing about PTSD, as well as the effectiveness of EW at producing long-term (3 month) improvements in mood and neuroendocrine responses. Both studies and both samples demonstrated emotional response patterns consistent with habituation (i.e., high levels of initial dysphoric mood that attenuated across writing sessions), although there was considerable variability in such responses. Study 1 indicated that the rate of habituation (slope in mood changes across writing sessions) related to the probability of clinically significant improvement in disease status in a curvilinear fashion. Namely, individuals showing moderate rates of habituation were significantly more likely to benefit following EW. Study 2 demonstrated that PTSD patients assigned to EW showed significant long-term mood improvements relative to PTSD patients who wrote about neutral topics. Additionally, following EW, PTSD patients exposed to trauma-related memories at 3-month follow up showed a significantly attenuated cortisol response and significantly more rapid cortisol recovery (versus the PTSD control group). Together, these studies show that emotional responses and emotional regulation are important indicators of both process and function of EW. In particular, immediate emotional responses during EW sessions may be predictive of long-term outcome and that even severely traumatized individuals' emotional and biological systems may be somewhat normalized following

intervention.

#### SS20

### Evidence based behavioural medicine: how to take the context into account?

*Chair(s) : Aro A R*

In designing and implementing behavioural medicine interventions, the importance of context is increasingly being emphasised: contextual issues determine behaviour and can also be used as channels for behaviour change. Interventions should therefore take the context into account. Less clear, however, is how to do this in developing evidence based behavioural medicine: the rigid methodological requirements of evidence based behavioural medicine seem to be discordant with contextual sensitivity and idiosyncrasy. The goal of this symposium is to give a state of the art overview of new approaches which take into account contextual variation, while maintaining scientific rigor. The symposium covers the entire range of behavioural medicine interventions, i.e. both clinical medicine and complex community interventions. The symposium will show how behavioural medicine can benefit of the context to develop more powerful interventions.

Dr. Aro talks on complex community interventions in health promotion: she describes how local and regional resources can be mobilized in order to enable people to improve their health. Dr. Spring describes key aspects of incorporating context into evidence-based decision-making and she will describe two new tools to support contextualized decision making. Dr. Dekker will identify key elements of the process of allowing both patient preference and research findings to influence clinical decisions. Dr. Schneiderman will serve as discussant, drawing upon his wide experience in contextualizing behavioural medicine interventions.

#### SS20-1

### COMMUNITY INTERVENTIONS: BUILDING ON RESEARCH EVIDENCE AND IMPLEMENTING IN LOCAL SETTINGS

*Aro A R*

*Unit for Health Promotion research, University of Southern Denmark*

Complex community interventions in health promotion provide challenges for evidence based research and practice. This is due to the fact that health promotion work uses the existing strategies, initiatives, structures and channels, and is done in participatory, empowering and ownership-based manner. The purpose of the presentation is to describe how rigorous research evidence is used to plan and apply health promotion interventions for practice in communities.

In community-based health promotion research evidence on health determinants informs *what needs to be done*. Evidence on effectiveness of interventions informs what can be done in certain settings. However, what is actually done in practice depends on political and social factors, and how it is done depends on the resources, structures and stakeholders involved. Non-research documents as well as local stakeholders such as different professionals but also lay people have a lot of implicit know-how on setting-based implementation, which can prove fruitful in intervention planning, implementation and evaluation. In health promotion, taking context into account ranges from changing policies and environment to mobilizing and engaging local and regional resources to enable people to improve their health. The



presentation gives examples of recent evidence-based community interventions in different settings. By doing this the presentation describes new approaches to take contextual variation into account while maintaining scientific rigor.

## SS20-2

### CONTEXTUALIZING THE EVIDENCE FOR PRACTICAL DECISION MAKING

#### *Spring B*

Evidence-based practice designates a process that integrates research evidence, resources, and patient or community preferences and characteristics in order to make best decisions about health practices. The first three steps of the evidence-based practice process have been well characterized: 1) ask a question; 2) search for evidence; and 3) critically appraise the evidence. Contextualization of the evidence occurs in step 4) decision making, and precedes step 5) implementation. Relatively little has been written about the decision-making step of evidence-based practice. Indeed, there is controversy about several key aspects of evidence-based decision-making. A first, fundamental question is whether practitioners have the cognitive capacity accurately to perform decision making that takes context into account. A second question is whether current evidence reporting provides adequate information about generalizability, and whether the default assumption should be irrelevance or applicability of findings to different populations and settings. A third question concerns the best balance between implementing research-tested interventions with fidelity versus adapting/reinventing them for new contexts.

The speaker will describe two new tools to support contextualized decision making. One tool is a new kind of systematic review that synthesizes and integrates quantitative information about moderators and qualitative information about community views in the interests of knowledge translation. The second tool is the operationalized clinical guideline that uses decisional algorithms to determine an adaptive treatment strategy. Ordinarily attached to an electronic health record, the adaptive approach begins by integrating treatment based on nomothetic guidelines with the patient's characteristics, preferences, and prior treatment response. The approach then sequences treatment iteratively based on subsequent response. Implications for practical decision making are discussed.

## SS20-3

### PATIENT PREFERENCE AND RESEARCH EVIDENCE: CREATING SYNERGY IN CLINICAL DECISION MAKING

#### *Dekker J*

Combining patient preference with research evidence is a basic tenet of clinical decision making in evidence based medicine. Although frequently proclaimed, it is less clear exactly how synergy between patient perspective and research findings can be achieved in making clinical decisions in behavioural medicine. The purpose of this presentation is to describe recent approaches towards combining patient preference and research evidence in clinical decision making in behavioural medicine.

Using 'patient centred care' and 'collaborative care' as prime examples, speaker will describe key elements of the process of allowing both patient preference and research findings to

influence clinical decisions. Psychometric properties of patient specific measurement instruments will be reviewed, as well as outcome of treatment based on these approaches. Key elements of clinical decision making in 'patient centred care' and 'collaborative care' include personalized identification and prioritisation of health problems; selecting appropriate treatment approaches based on research evidence; identification of personal strengths, resources and environmental conditions; collaborative goal setting and contracting; implementation of treatment, with a strong focus on self management; monitoring of outcome; and adaptation of treatment, if required. Psychometric properties of patient specific measurement are adequate. Treatment based on these approaches shows promising results, but further research is required.

Treatment approaches which combine patient preference with research evidence are highly feasible and promising. Patient preference provides a powerful context for the implementation of empirically tested behavioural medicine interventions.

## SS26

### Progress in ambulatory assessment ? Psychophysiological monitoring and electronic diary methods in behavioral medical research and practice

#### *Chair (s) : Thomas Kubiak and Andrew Steptoe (discussant)*

The past decades have seen a rapid progress in the development of ambulatory monitoring devices, including psychophysiological monitoring systems and powerful electronic diary solutions. Building on the long tradition of (self-)monitoring in behavioral medical research and practice, this symposium aims at giving an overview on recent findings and developments in ambulatory assessment across various fields of application. These include psychophysiological stress research, studies on protective factors for burnout, as well as disease-specific applications in type 1 diabetes mellitus and attention deficit hyperactivity disorder. In addition to providing an overview and highlighting methodical strengths and pitfalls of ambulatory assessment, the symposium particularly focuses on novel clinical applications, such as deriving useful diagnostic markers from monitoring data and introducing new features to symptom self-monitoring via online processing and symptom feedback.

## SS26-1

### SELF-EFFICACY AS A HEALTH-PROTECTIVE RESOURCE IN TEACHERS? LESSONS LEARNED FROM AMBULATORY MONITORING

#### *Schwerdtfeger A, Konermann L, Schoenhofen K*

*Department of Psychology, Johannes Gutenberg-University Mainz, Germany*

We aimed to examine the psychobiological correlates of self-efficacy in teachers. Two studies were conducted. Study 1 examined associations between teacher self-efficacy and cardiac activation on a working day and study 2 assessed the cortisol morning response in teachers with varying levels of teacher self-efficacy. Teacher self-efficacy was assessed by questionnaire. In study 1 heart rate, heart rate variability, and locomotor activity were recorded by 22 hours ambulatory monitoring and subjective measures of stress and strain were obtained. Study 2 assessed the cortisol response to awakening to obtain a measure of HPA-axis activation and teachers filled in a questionnaire on physical complaints. Study 1 found that self-efficacy proved protective for psychological well-being.

Moreover, after controlling for locomotor activity, demographic, and lifestyle variables self-efficacy was associated with elevated heart rate and attenuated heart rate variability during school and leisure time, respectively, but not during the night, thus questioning the health-implications of self-efficacy. Study 2 found that teachers high in self-efficacy exhibited an attenuated cortisol response to awakening and fewer cardiac complaints. The results of both studies are compatible with the view that teacher self-efficacy might act as a physiological toughening agent with possibly favorable health outcomes.

## SS26-2

### **BINGE EATING IN THE FIELD: AN AMBULATORY STUDY IN PATIENTS DIAGNOSED WITH BULIMIA NERVOSA**

**Vögele C (1), Tuschen-Caffier B (2)**

*1 Clinical and Health Psychology Research Centre, School of Human and Life Sciences, Roehampton University, UK; 2 Department of Psychology, University of Freiburg, Germany*

Binge eating is one of the major diagnostic criteria for bulimia nervosa and binge eating disorder. During binge attacks large amounts of food are consumed in a short period of time, while the person affected experiences an acute sense of loss of control over eating. Despite the central role of binge eating for bulimia nervosa and binge eating disorder, relatively little is known about the underlying psychological and physiological mechanisms. Experiments conducted in the laboratory tend to use food or stress exposure techniques in order to provoke binge eating. However, there is doubt as to the ecological validity of this procedure. The current study investigated binge eating behaviour in the field. Thirteen female individuals diagnosed with bulimia nervosa were equipped with ambulatory monitoring devices recording ECG, EMG and physical activity over two 24-hour periods within the same week. Participants filled in a detailed food (type, amount) and mood diary over the recorded periods. The control group consisted of eleven age- and weight-matched non-eating disordered female volunteers. Results show that binge attacks occurred in 25% of recorded periods within the bulimia sample. Within group comparisons showed binge attacks to be associated with an increase in heart rate compared to no changes during normal meals. The results are discussed in terms of cardiac autonomic deregulation and a conditioning model of binge eating.

## SS26-3

### **SELF-MONITORING IN TYPE 1 DIABETES MELLITUS RE-VISITED: ELECTRONIC DIARIES AND CONTINUOUS GLUCOSE MONITORING PUT TO CLINICAL USE**

**Kubiak T**

*University of Virginia, USA*

Self-monitoring of blood glucose levels and symptoms is crucial for a successful disease self-management in people with type 1 diabetes mellitus (T1DM) in order to avoiding short-term (hypoglycemia, ketoacidosis) as well as long-term diabetes complications. Particularly in T1DM with impaired awareness of hypoglycemia, symptom self-monitoring is of high importance and beneficial effects of systematic self-monitoring for enhancing hypoglycemia awareness are well known. In the present talk, the two ambulatory monitoring

methods, electronic diaries and continuous glucose monitoring systems, are presented and practicability and their usefulness for assessment and intervention are discussed on the basis of a series of studies in T1DM patients. In a first set of studies, we investigated the use of electronic diaries for assessing symptom perception in diabetes mellitus patients. The findings demonstrated the added diagnostic value of electronic diaries as compared to relying solely on questionnaires or paper-pencil self-monitoring. Furthermore, in a second set of studies employing continuous glucose monitoring led to more superior diagnostic results as compared to spot glucose measurements with regard to the detection of unrecognized hypoglycemic events. Finally, a sample of T1DM patients was studied using an extended electronic diary procedure with an integrated blood glucose / symptom feedback function based on online processing of the patients' entries. Here, beneficial effects could be observed with regards to improving symptom perception pointing towards novel, relevant uses of electronic diaries in clinical diabetes care.

## SS19

### **Cognitive behavioral treatment for chronic fatigue**

**Chair (s) : Gijs Bleijenberg**

Cognitive behavioral therapy (CBT) is an evidence based treatment for chronic fatigue syndrome (CFS). But we hardly know which factors determine whether a patient has a good outcome and whether these predictors can be influenced. There is only one controlled study of CBT in adolescents with CFS published. What are the long term effect of CBT in these patients and what are the predictors for a good outcome?

Not all CFS patients need an intensive treatment as the regular CBT for CFS. Is it possible to develop an efficacious minimal intervention based on the principles of CBT for CFS? Which patients can benefit from such a minimal intervention and which not?

Can our knowledge about CBT for CFs be used in the treatment of other conditions with fatigue, like multiple sclerosis? Are the same behavioral features present in MS? Can fatigue in MS be relieved by changing cognitions and behavioral responses?

The above questions will be discussed by presenting empirical studies.

## SS19-1

### **HOW IMPORTANT ARE COGNITIVE AND BEHAVIOURAL RESPONSES IN TERMS OF PREDICTING AND MEDIATING CHANGE IN CHRONIC FATIGUE SYNDROME?**

**Chalder T (1), Rimes K, Moss-Morris R (2)**

*1 Academic Department of Psychological Medicine, King's College London; 2 School of Psychology University of Southampton*

Previous trials have shown that both cognitive behaviour therapy (CBT) and graded exercise therapy (GET) are effective treatments for chronic fatigue syndrome (CFS) in terms of reducing fatigue and improving physical functioning. Factors which have been associated with a poor outcome include being a member of a self help group, being in receipt of sickness benefit at the start of treatment and dysphoria. Good outcome has been associated with change in avoidance behaviour and related beliefs. A decrease in symptom focusing mediated change in fatigue in a trial comparing graded

exercise and standard medical care. We have now developed a scale to measure specific cognitive and behavioural responses and have examined to what extent they change over time, whether change in these variables correlates with change in fatigue and social adjustment and have examined predictors of outcome. Patients in this study were recruited from consecutive GP and Consultant referrals to the CFS specialist Unit in London. Patients received an average of 13 sessions of CBT on a fortnightly basis and their progress was reviewed at 3 and 6 months post treatment. Fatigue and social adjustment improved at discharge and these improvements were maintained to 6 months follow up. Catastrophising, which has been associated with poor outcomes in chronic pain changed as a result of CBT but worse scores at baseline predicted a worse outcome. These results are discussed with the context of the cognitive behavioural model of CFS.

#### SS19-2

### **EFFICACY OF COGNITIVE BEHAVIOUR THERAPY FOR ADOLESCENTS WITH CHRONIC FATIGUE SYNDROME: LONG-TERM FOLLOW-UP OF A RANDOMIZED CONTROLLED TRIAL**

**Hans Knoop, Stulemeijer M, Bleijenberg G**

*Expert Centre Chronic Fatigue Radboud University Nijmegen Medical Centre*

The first and until now only published randomized controlled trial that tested the effectiveness of cognitive behaviour therapy (CBT) for adolescents with chronic fatigue syndrome (CFS) showed a significant reduction in fatigue, improved physical functioning and increased school attendance directly following CBT. The main objective of the present study was to assess the long term outcome of adolescents who received CBT. The second objective was to find predictors of treatment outcome at follow-up.

66 adolescent CFS patients who previously participated in the trial were contacted for a follow-up assessment. 50 participants of the follow-up study had received CBT for CFS, the remaining 16 patients had refused CBT after the waiting period. Main outcome measures were fatigue severity, physical functioning and school attendance.

There was no significant change in fatigue severity between post treatment and follow-up in the CBT group. The physical functioning and school attendance was significantly further increased. The CBT group was less fatigued and less functionally impaired, and had a higher school attendance at follow-up than the no treatment group. Fatigue severity of the mother was a significant predictor of treatment outcome.

The positive effects of CBT in adolescents with CFS are sustained at follow-up. Higher fatigue severity of the mother predicts lower treatment outcome in adolescent patients.

#### SS19-3

### **EFFICACY OF GUIDED SELF-INSTRUCTIONS IN THE TREATMENT OF PATIENTS WITH CHRONIC FATIGUE SYNDROME: A RANDOMISED CONTROLLED TRIAL**

**Bleijenberg G, Knoop H, van der Meer J W M**

*Expert Centre Chronic Fatigue Radboud University Nijmegen Medical Centre*

CBT for CFS is an intensive treatment, requiring thirteen to sixteen sessions depending on the protocol used. It is likely that for a subgroup of patients a less intensive intervention

suffices. We developed a minimal intervention based on the CBT protocol for CFS (Bleijenberg et al, 2003) consisting of self-instructions combined with email contact. The first objective of this study was to determine if self-instructions were an effective treatment for CFS. For this, the effects of the guided self-instructions on fatigue severity and level of disabilities were compared to a waiting list condition in a randomised controlled trial. Secondly, the predictive value of indices of severity of CFS and of the perpetuating factors of CFS for treatment outcome were investigated in an explorative analysis to determine which patients benefited from a minimal intervention. Furthermore, cut-off scores on the predictors of treatment outcome were determined to be able in the future to select those patients at baseline who have the largest chance on a favourable outcome with the minimal intervention.

Eighty five patients were allocated to the treatment condition, 86 to the waiting list. An intention to treat analysis showed that fatigue and disabilities decreased significantly more after guided self-instructions. Fatigue severity and disabilities were negatively related with treatment outcome.

Guided self-instructions are an effective treatment for relatively less severely disabled and fatigued CFS patients.

#### SS19-4

### **FATIGUE IN CHRONIC FATIGUE SYNDROME AND MULTIPLE SCLEROSIS: ARE THEY ANY DIFFERENT?**

**Moss-Morris R**

*School of Psychology University of Southampton*

This presentation will argue that cognitive behavioural (CB) models similar to those used to explain chronic fatigue syndrome (CFS) can be used to understand fatigue in medically explained illnesses such as Multiple Sclerosis (MS). In particular, primary disease factors trigger the initial symptom, but how people react to the fatigue cognitively, emotionally, and behaviourally can perpetuate and worsen the fatigue.

In support of this model I will present a series of four studies on MS fatigue. In the first, we showed that 168 MS patients' perceptions of their fatigue accounted for 30-37% of the variance in fatigue even when controlling for remission status and severity of MS. In the second, we compared fatigue and CB responses to symptoms in 250 CFS and 149 MS patients. The CFS patients were more fatigued and disabled than the MS patients. However, similar CB factors, such as somatic attributions, all-or-nothing behaviour or inactivity were related to fatigue in both groups. Even when controlling for depression, anxiety and illness severity, CB factors accounted for a unique 16% of the variance in MS fatigue, when controlling for. The third study showed that perceived stress was associated with fatigue in 183 MS ( $r=.51$ ,  $p<.001$ ). This effect was moderated by satisfaction with social support, less avoidance and energy conservation.

In the final study, 72 patients with MS fatigue were randomly assigned to either eight sessions of CBT or eight sessions of relaxation training. CBT was more effective at reducing fatigue up to six month follow-up ( $F(2.79, 189.82)=3.60$ ,  $p=.02$ ). The key mediator of improvement was an increase in more positive perceptions of fatigue.

Across a series of studies we have consistently shown that CB factors are important features of MS fatigue. This has treatment implications as many patients complain that fatigue is their most disabling and distressing symptom.

SS30

**The Impact of Stress and Depression on Disorders in Obstetrics and Gynecology.**

*Chair (s) : Beate Ditzen*

In epidemiological research, stress and depression have long been associated with negative health outcomes. More particular in animal studies, stressor-elicited endocrine systems, such as the hypothalamic-pituitary-adrenal- (HPA) axis and the sympathetic-adrenal-medullary (SAM) system were shown to exert multilevel inhibitory effects on the reproductive hypothalamic-pituitary-gonadal- (HPG) axis, and vice versa (1). These data suggest direct reproductive regulatory influences of stress and depression (2). In turn, increased rates of stress and depression in women suffering from gynecological disorders might impair their social relationships. For humans, however little physiological evidence exists in support of an interaction of physiological stress systems and gynecological disorders.

In this symposium, we focus on stress and depression in obstetrics and gynecology. Research on the predictive value of stress for adolescents' contraceptive decisions will be presented. Above this, data with regard to the psychosocial consequences of adverse pregnancy outcomes, as well as gynecological disorders and their treatment will be shown. We will discuss the results of these studies embedded in a psychosocial model of stress in gynecological disorders.

SS30-1

**INFLUENCE OF DEPRIVATION ON YOUNG PEOPLE'S CONTRACEPTIVE DECISIONS.**

*Smith D, Roberts R*

*Psychology Department, Kingston University, London, UK.*

Background: International comparisons of the prevalence of young pregnancy demonstrate that the UK has one of the highest rates in the developed world (Unicef, 2001). Young mothers are at greater risk than older mothers for post-natal depression, social exclusion (Social Exclusion Unit, 1999) and psychiatric morbidity (Roberts et al., 2004). Research highlights an association between deprivation and young pregnancy with deprived areas having higher under-18 conception rates and lower abortion rates than affluent areas (Uren, et al., 2007). With poverty an international issue which adversely affects development and future aspirations (Unicef, 2007; Wilkinson, 2006), the influence of social inequalities on health remains pertinent to research (Davey Smith, et al., 1997; Dorling, et al., 2007; Paxton & Dixon, 2004), however the association between young pregnancy and deprivation is currently poorly understood (Arai, 2007; Lee, et al., 2004; Swann, et al., 2003).

These studies explore the mechanism involved in the association between deprivation and young pregnancy by examining the influence of deprivation on young parent's decisions.

Methods: A theoretical framework drawn from psychology and epidemiology was used to explore the role of cultural and social factors.

Results: Findings suggest that the image of pregnancy and parenthood offered to young people through intra-cultural communication differs from their actual experiences - this discrepancy between the imagined and real picture for young parents' impacts upon their emotional well-being and future plans. Social inequalities influence young pregnancy outcomes through social representations. Within economic subgroups different social representations produce varying values and

beliefs concerning sexual and reproductive behaviour, gender roles, role models and social acceptance of young pregnancy and abortion. Accordingly, behavioural factors are likely to contribute to the production of social inequalities in young pregnancy in London.

Discussion: To lower under-18 conception rates and the social exclusion suffered by young mothers, these behavioral factors must be addressed.

SS30-2

**PERCEIVED CONTROL IN CHILDBIRTH AND POSTPARTUM POST-TRAUMATIC STRESS DISORDER**

*Newby K, Dunn O*

*Department of Psychology, Coventry University, Coventry, UK*

Background: This study aimed to provide evidence to support a theoretical relationship between loss or lack of perceived control over the outcomes of childbirth related to mother/child survival or well-being, and the postpartum development of PTSD.

Methods: Eleven women between 6 and 16 weeks postpartum were interviewed about their experiences of childbirth. The participants were identified within a previous study as having experienced either high or low perceived control (PCON; Wallston, 1989) during childbirth. Two participants within the low perceived control group were identified as evidencing clinically significant symptoms of PTSD. Transcripts were analyzed using IPA.

Results: The low perceived control group experienced a birth in which desires for childbirth believed to be threatened. The experiences of women with symptoms of PTSD were distinct from the rest of this group in that threatened desires related to their own or their child's survival or well-being rather than the achievement of higher-order outcomes. Participants within the high perceived control group experienced a birth in which no threat to desirable outcomes was perceived. Aspects of childbirth that were supportive or detrimental to perceptions of control were identified. These consisted of responses taken to situational demands, perceived social support from health professional/partner, the extent to which the reality of birth met with the mother's expectations, pain and pain relief.

Discussion: On the basis of the findings, practical suggestions were made as to how women could be best supported in childbirth so as to maximize opportunities for perceived control. Suggested changes related to the content of formal antenatal preparation classes, the use of coping strategies during birth and the support provided by health professionals/partners. These suggestions not only have the potential to impact upon the prevention of postpartum PTSD but also to positively impact upon parturients' overall satisfaction with the childbirth experience.

SS30-3

**SEXUAL DIFFICULTIES AFTER BREAST CANCER: WHOM CAN WE BLAME?**

*Alder J, Zanetti R, Bitzer J*

*University Women's Hospital Basel, Switzerland*

Background: To determine the impact of sex steroids, relationship satisfaction, depression and chemotherapy on sexuality after breast cancer.

Methods: 30 women with premenopausal stage I and II breast

cancer diagnosis and termination of cancer treatment at least 6 months ago were included. Serum levels active androgens and their metabolites as a marker of total pool of androgens (ADT, 3  $\alpha$ -diol) were analysed. Information on sexuality (FSFI), relationship (PFB), depression (BDI) and body image (EORTCQLQ) were assessed by questionnaire. Linear regression analysis was used to determine the predictive value of the independent variables on sexual domain scores.

Results: Mean FSFI scores (2.9 for desire, 3.7 for arousal, 3.2 for lubrication, 3.3 for orgasm, 3.8 for satisfaction, 3.2 for pain and 20.1 total score) reflected sexual impairment comparable to women with FSAD. Patients who had undergone chemotherapy had significantly lower scores in all sexual domains. A history of chemotherapy however, was not associated with differences in androgens compared to patients without chemotherapy. None of the hormonal variables but relationship dissatisfaction and a history of chemotherapy predicted sexual dysfunction.

Discussion: The aftermath of breast cancer treatment on sexuality has been described in the past. The study supports the detrimental effect of chemotherapy on sexual function while the specific underlying mechanisms remain unresolved. However, just as important is the transition from pre- to post cancer treatment within the relationship. Couples should be counselled early during treatment and offered professional support in case of the emergence of sexual difficulties after breast cancer.

#### SS30-4

### **SOCIAL SUPPORT AND COUPLE INTERACTION IN PATIENTS WITH BREAST CANCER AND THEIR PARTNERS.**

**Zimmermann T (1), Heinrichs N (2), Stehr M (1), Szeimies A K (1), Huber B (3), Herschbach P (3)**

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Background: A breast cancer diagnosis is a stressful life event that poses considerable challenges, not just to the women themselves, but also to their intimate partners. At the time of diagnosis, most couples are highly distressed and fearful about the prognosis and the medical treatment. In addition to causing disruptions in individual and role functioning, the cancer diagnosis frequently leads to maladaptive interaction patterns between the patient and partner which negatively impact the patient, the partner, and the couple's relationship. A conjoint process of mutual support has been suggested to be an effective coping strategy for patients who are in committed relationships. The interaction patterns between the patient and their partner are associated with positive patient adaptation to cancer and should include an open communication about cancer-related issues, the ability to express emotions and to have one's partner listen supportively. Therefore, social support appears to be an important variable for the adjustment to a breast cancer diagnosis.

Methods: Within the context of an ongoing study on a brief couple's based psychological intervention ("Side by Side") designed to assist women and their partners to cope with breast cancer, we collect data on social support in two different manners: (1) we measure social support by self-report questionnaires that reflect various aspects of social support received from each partner during the breast cancer experience; (2) we conducted a behavioral observation task of how each partner communicates social support to their partner. Partners are asked to discuss a cancer-related topic with each

other and take turns as the listener as well as the discloser at three assessment points (pre-, post- and 12-month follow-up). Results: The data of 50 couples at pre and post will be presented.

#### SS17

### **Breast Cancer Screening ? Barriers and Facilitators for Women Worldwide**

**Chair (s) : Lina Jandorf**

Breast cancer continues to be the most widely diagnosed cancer, as well as the leading cause of cancer mortality among women worldwide. Mortality rates have been directed linked to later stage of diagnosis which in turn is related to adherence to mammography screening. Persistent health disparities have been examined, as they related to differences in screening adherence. This symposium will examine differences across international studies (Iceland, Denmark and Latina Immigrants in the United States) in reasons for lower adherence as well as discuss interventions to address these disparities.

#### SS17-1

### **UNCERTAINTY AND DISTRESS IN DANISH WOMEN AFTER NEGATIVE RESULTS OF MAMMOGRAPHY**

**Zachariae R, Christensen S, Pedersen C, Jensen A B**

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Some women continue to feel uncertain about their health in spite of negative results of breast cancer examinations. The aim was to explore possible predictors of uncertainty and distress after negative results of a mammography. Methods: 804 Danish women (Mean age: 47.5) referred to mammography by their GP were asked to complete questionnaires measuring demographic and psychosocial variables before, immediately after, and 12 weeks after the examination. The women had been classified as having high (35.8%), medium (44.5%), and low risk of having breast cancer (19.7%). Results: Of the 413 of the women with no current or previous cancer, who had completed questionnaires after 12 weeks, 33.4% reported that they felt less certain than the physician that they did not have breast cancer. Uncertain women had performed twice as many breast self-examinations than certain women in weeks 11 and 12 after mammography and reported more physical symptoms and emotional, and social problems as well as higher cancer-related intrusion and avoidance (p: 0.05 to 0.001). They were also less satisfied with information provided (p < 0.001) and with the personal contact with the staff (p<0.05). Logistic regression showed that uncertainty was predicted by lower educational level (B:-0.64; p<0.05) but not by age, marital status, risk group, or family history of breast cancer. Of the psychological predictors measured prior to the mammography, only perceived risk of having cancer (B: 0.01; p<0.05) and avoidance of cancer-related thoughts (B: 0.16; p 0.01) reached significance. Conclusion: Lower educational level, higher perceived risk of having breast cancer, and avoidance of cancer-related thoughts prior to examination for breast cancer were risk factors for continued uncertainty after the examination. Uncertain women were more distressed and less satisfied with the information they had received and could possibly benefit from a brief post-examination counseling.

SS17-2

**DIFFERENTIAL EFFECTS OF EMOTIONAL AFFECT ON MAMMOGRAPHY ADHERENCE AMONG ICELANDIC WOMEN: A PROSPECTIVE POPULATION BASED STUDY**

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Breast cancer remains the most commonly diagnosed cancer and the leading cause of cancer related mortality among women worldwide. However, despite clear guidelines on screening, adherence continues to be a problem, even in settings in which potential system barriers (e.g., insurance, physician's recommendation) have been removed. This ongoing public health problem underscores the importance of identifying potentially modifiable risk factors of non-adherence. The possibility that emotional factors affect adherence with mammography screening guidelines have received increasing attention in recent years. However, the major weakness in the literature on the effects of emotional factors on mammography adherence has been that the overwhelming majority of studies have used retrospective study designs. To our knowledge, this study is the first to use a nation-wide approach to sampling and to use clinical records to prospectively explore emotional predictors of mammography adherence. A randomly selected sample (n=1000) of all Icelandic women aged 40.0-69.0 years, not previously diagnosed with breast cancer, were recruited by mail. Participants completed questionnaires for: demographic/medical variables, cancer-specific distress (Impact of Events Scale), and general-distress (Brief Symptom Inventory); Mammography-specific distress was also assessed (e.g., "Thoughts about undergoing mammography make me distressed"). Two-three years after completion of questionnaires mammography adherence (<2.2 yr) was determined using nation-wide records. According to these records 36.36% of the sample was non-adherent. Multiple logistic regression analysis revealed that non-adherence to mammography screening was independently predicted by: older age (OR= .97, CI=.95 -.99), higher levels of depressed affect (OR=.72, CI=.54 -.96), higher levels of mammography-specific distress (OR= .64, CI=.51 -.81) and lower levels of cancer-specific distress (OR= 2.3, CI=1.4-3.6). Thus, emotional factors selectively influence adherence to mammography screening guidelines. Interventions to increase adherence to cancer screening guidelines should address the role of such factors to maximize effectiveness.

SS17-3

**BREAST CANCER KNOWLEDGE AND SCREENING PRACTICES AMONG SUBGROUPS OF HISPANIC IMMIGRANTS IN THE UNITED STATES**

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Hispanic women are more likely to die of breast cancer (BC) compared to their non-Hispanic White counterparts. These disparities have been shown to be related to lower screening rates and later detection of cancer among Hispanic women

making the disease more difficult to treat. Over the past decade, Hispanic immigration to the United States has increased more than 106% from Mexico, Hispanic Caribbean, Central and South America. Considering this dramatic increase in immigration, minimal research has examined the heterogeneity among subgroups of Hispanic immigrants and the differences in cancer knowledge and screening. This study sought to fill this gap by examining BC knowledge and screening practices and associations to age, country of origin, and acculturation (years in U.S.) among a heterogeneous group of Hispanic women. Data from 266 women (mean age = 39.96  $\pm$  13.4) born in Mexico, the Dominican Republic, Puerto Rico, and various countries throughout Central and South America regarding BC knowledge as well as their past participation in mammography (MAM), clinical breast exam (CBE), and breast self-exams (BSE) were analyzed. Participants' BC knowledge varied. Approximately 54% of participants were able to accurately define MAM, however more than 50% reported misperceptions regarding the early symptoms of BC and its causes. There were no significant differences in knowledge by country of origin or level of acculturation. Among women over the age of 40 (n =117) 42% have participated in MAM and significant differences were found by country of origin for participation in CBE, BSE and MAM (p < .05). Contrary to expectation, there were no significant associations between acculturation and cancer knowledge or screening (p >.05). These findings demonstrate heterogeneity among Hispanic sub-groups with regards to breast cancer knowledge and screening and suggest the need for interventions tailored to subgroups based on country of origin, within Hispanic communities.

OS1

**Track :**  
**‘Socioeconomic Factors, Culture & Health’**  
**‘Illness/Illness Affect/Illness Behavior’**

*Chair (s) : Philippa Howden-Chapman*

**Track ‘Socioeconomic Factors, Culture & Health’**

OS1-1

**SOCIOECONOMIC DIFFERENCES IN HOSPITAL-BASED INCIDENCE OF ISCHEMIC HEART DISEASE; THE RELATIVE CONTRIBUTION OF HOSTILITY AND DEPRESSIVE SYMPTOMS. FINDINGS FROM THE 12-YEAR GLOBE FOLLOW-UP.**

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There is support for both hostility and depressive symptoms being psychological risk factors of heart disease. Both are also more common in lower socioeconomic groups. In the endeavour of finding out how socioeconomic status (SES) gets under the skin, the relative contribution of hostility and depression to the socioeconomic gradient in heart disease has not yet been determined. This is examined in a Dutch prospective population-based cohort study (GLOBE study), with 15 to 74 year old participants (n=18,973, response rate 70.1%) and 12 years of follow-up. Self-reported data at baseline (1991) and follow-up (until 2003) data (self-reports and hospital admission registers) provided detailed information on SES, psychological and classical risk factors. Information was linked to hospital admission due to incident ischaemic heart disease (IHD). Cox proportional hazard models were used to study the contribution of hostility and depressive symptoms to the association between income, education, and time to incident IHD. The risk of incident IHD was highest in the lowest socioeconomic groups, with a hazard ratio 2.52 (CI 1.51-4.19) for income and 1.93 (CI 1.16-3.21) for education. The contribution of depressive symptoms and of hostility to these inequalities was of similar size and comparable with that of the classical risk factors. Furthermore, in sex-specific analyses, depression and in particular hostility, were the dominant mediating mechanisms in women, whereas classical risk factors were the dominant mediators for men. Interventions aiming to reduce socioeconomic inequalities in heart disease should take both types of risk factors, as well as gender differences therein, into account.

OS1-2

**SUBJECTIVE SOCIAL STATUS AND HEALTH MEASURES, AND ITS PREDICTORS IN SWEDISH WORKING MEN AND WOMEN (THE SLOSH STUDY).**

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Background: Inequalities of socioeconomic status in health

have been widely documented. It is associated with poorer physical & mental health, and a higher level of mortality. Recently, subjective measure of social position has been used. It also has clear relationships between ill-health measures. The Whitehall II study shows that subjective social status (SSS) is a strong predictor of ill-health, and it is determined by occupational position, education, household income, satisfaction with standard of living, and feeling of financial security regarding the future. The aim of this study is to confirm a relationship between SSS and health related factors, and to identify the predictors of SSS in Swedish working population. Methods :The study is based on Swedish Longitudinal Occupational Survey of Health (SLOSH), conducted in March 2006. The participants are 2405 men aged 20-68, and 2736 women aged 19-68. SSS was measured using a 10-rung ladder scale, on which individuals rank the place they thought to occupy in the social hierarchy. Results: Low SSS is significantly related to higher rates of age-adjusted prevalence for poor perceived general health, sleep disturbances, musculoskeletal symptoms, psychosomatic symptoms, depression (only in men), and burnout. Logistic regression models with health related measures as dependent variables were used to test the significance of the relationship between SSS and health. Relative Index of Inequalities (RII) show significant relationships between SSS and all health measures stated above. We also adjusted for socioeconomic group, education, and income for each model. Ladder score remained an independent risk factor after adjustment. Multiple linear regressions with 24 predictor variables show that SSS is mainly determined by household financial situation, whole life satisfaction, socioeconomic group, personal income, education level, and job control, both in men and women (R square adj.= 40%). There are several predictors which appear differently between men and women.

OS1-3

**“GEE MY ACCOUNT IS IN CREDIT!”: USING VOUCHERS TO MITIGATE FUEL POVERTY IN NEW ZEALAND.**

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Despite a temperate climate, New Zealand has around 1600 excess winter mortalities per year. Some of these excess winter deaths may be attributable to the relatively poor housing quality and the inability of householders to achieve adequate indoor temperatures due to fuel poverty, heating patterns and other factors.

To date, fuel poverty has been largely unaddressed by both public policy and research in New Zealand. Fuel poverty presents a complicated social and health policy problem. A significant reduction of fuel poverty is likely to require cross-government policy tools including insulation retrofits, heating system upgrades, and income supplementation for those in lower socioeconomic position.

Vouchers have been mooted as a potential tool to mitigate fuel poverty in New Zealand. One difficulty in giving vouchers to underprivileged groups is that even when tied to the electricity account, vouchers may be used to pay off existing debts, rather than to achieve more comfortable indoor temperatures. This may in part be due to New Zealand’s culture of inadequate home heating, further complicating the issue of raising the living standards of those occupying lower socioeconomic positions.

The Warm Homes Pilot Study: Qualitative Component, used semi-structured interviewing to explore the narratives of older

people with Chronic Obstructive Pulmonary Disease living in cold homes around home heating patterns and health. Focus areas of the interviews included heating patterns, home use, heating costs, and electricity vouchers. Participants were given vouchers of NZ\$500 directly credited to their electricity account during the winter of 2007 as part of the Warm Homes Pilot Study, with the intention of raising indoor temperatures to potentially decrease the morbidity associated with Chronic Obstructive Pulmonary Disease. In fact, vouchers were used by participants to pay off existing debt, or to avoid debt usually accrued over the winter period. This and other results will be discussed.

#### OS1-4

### REDUCING CHILDHOOD ASTHMA MORBIDITY THROUGH HOUSING INTERVENTION

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A quarter of New Zealand children have asthma. Asthma symptoms can be triggered, by aspects of the indoor environment, such as cold, damp, mould and pollutants, as well as combustion by-products from heating. A third of New Zealand households own unflued gas heaters, which emit NO<sub>2</sub>, that inflames the lining of the lungs and can increase the severity of respiratory viral infections. Methods We carried out a single-blinded, cluster, randomised community trial of 409 households in five communities. The inclusion criteria were: a 6-12 year old child, with doctor-diagnosed asthma, living in a household where the main form of heating was a plug-in electric heater or an unflued gas heater. After insulating all houses, baseline measurements were taken. Households had the choice of more effective replacement heaters, which were installed in the intervention group before winter 2006 and in the control group afterwards. Measurements were taken of the indoor environment and the health and well-being of children. Results In the intervention group, indoor temperatures increased significantly and levels of NO<sub>2</sub> were halved. Children reported significantly less poor health, lower levels of asthma symptoms and less sleep disturbance by wheeze and dry cough. Children had significantly fewer days off school and visits to general practitioners and pharmacists. There was no significant difference in lung function between the intervention and control group, when NO<sub>2</sub> was controlled for. Conclusions Substituting more effective and non-polluting heating in the houses of children with asthma significantly improves the indoor air environment, alleviates their asthma symptoms and reduces their days off school and visits to the general practitioner. This study highlights that changing indoor environmental factors is a neglected aspect of behavioural medicine.

#### OS1-5

### A QUALITATIVE STUDY ON PSYCH-SOCIAL IMPACT OF HIV/AIDS ON PLHIV, THEIR FAMILIES AND THE COMMUNITY IN MALAYSIA

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Focus group discussions (FGDs) were carried out to elicit personal perspectives from persons living with HIV (PLHIV) on the consequences of HIV/AIDS on their lives. 19 FGDs (94 PLHIV - drug users, infected women from their partners/spouse, heterosexual men, men having sex with men, sex workers, male refugees) were conducted. The FGDs revealed both good and bad experiences of disclosure of HIV status. Relationships, be it with family members, relatives or friends were affected. Mixed feeling towards religious beliefs and practices were shown. PLHIV, whether they are infected partners, gays, commercial sex workers, drug users, refugees or transsexuals were often stigmatized and discriminated in our society, from family members, friends or employers, and healthcare providers. The psychological impact came from disclosure and its consequences, from silencing themselves, from stigma and discrimination experienced, worries about their health, impending death and from personal fears and anxieties. The initial period of adjustment following diagnoses was extremely difficult and challenging. A sense of shame, guilt and a low self-esteem was experienced. A difference in the psychological and emotional state between the period of diagnosis and their current psychological state was noted. As to their outlook in life, some see it as a challenge and change for the better. However, to some, the fear of the unknown of what is going to happen to them seems to be bothering them. Society lack of understanding of and their negative perception of PLHIV which further contributed to the effects faced by PLHIV needs to be addressed.

### Track 'Illness/Illness Affect/Illness Behavior'

#### OS1-6

### THE INFLUENCE OF ILLNESS PERCEPTIONS OF HYPERTENSIVE PATIENTS IN THE CHOICE OF TREATMENT

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Objectives: The aims of this study were (1) to assess what are the illness perceptions of hypertensive patients using the Brief-IPQ and their relationship with their beliefs about treatment, and (2) to investigate how their illness perceptions may influence their choice of treatment between a generic and a brand medicine. Method: This is a cross-sectional study in which one hundred and ninety one hypertensive patients, (59% female) participated by completing a questionnaire measuring beliefs about medication (BMQ-specific), the brief-IPQ, choice of treatment (generic vs. brand) and socio-demographic variables. A cluster analysis was performed in order to identify groups of patients that share similar illness schemata and whether these profiles influenced their choice of treatment. Results: The results indicated that patients have a well defined common-sense model of their illness and the components of this model are associated with their beliefs about necessity and concern about medication. Two clusters were identified and patients seem to differ in their choice of treatment according to their illness perceptions. Patients sharing more serious illness schemata are more likely to choose a brand medicine. Conclusion: The results indicated that patients have specific beliefs about their treatment, and their illness schemata may influence beliefs about treatment choice.



OS2

**Track :  
'Pain, Musculoskeletal and Neuromuscular Disorders'**

*Chair (s) : Martijn Steultjens*

**Track 'Pain, Musculoskeletal and Neuromuscular Disorders'**

OS2-1

**CATASTROPHIZING AS A PREDICTOR OF PAIN DURING THE EGG RETRIEVAL PROCEDURE IN RELATION TO IN VITRO FERTILIZATION TREATMENT (IVF).**

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**Aim:** While psychosocial pain research is well established within chronic and experimental pain, acute clinical pain in association with unpleasant hospital procedures is less researched. One example is the IVF egg retrieval procedure. In addition to the obvious unpleasantness and distress for the patient, a high level of procedural pain can be highly stressful for the health personnel and may lead to suboptimal treatment results due to patient difficulties in cooperating. Pain catastrophizing has been shown to be an important predictor of pain. Women generally experience more pain than men, and an increased female tendency to catastrophize has been proposed as a possible explanation. Our aim was therefore to investigate the association between a general tendency to catastrophize in painful situations and pain experienced during IVF egg retrieval. Furthermore, we wished to explore the possible mediating role of negative affect in this association. **Methods:** When enrolled in their first IVF treatment cycle, 809 women (mean age: 31.2 yrs) completed the Coping Strategies Questionnaire (catastrophizing subscale). The women completed the Positive and Negative Affect Scales immediately prior to egg retrieval, and answered questions concerning procedural pain immediately after egg retrieval. **Results:** Linear regression showed catastrophizing to be a significant independent predictor of pain during egg retrieval ( $\beta = 0.184$ ,  $p = 0.0001$ ). Mediation analyses indicated that the association between catastrophizing and IVF egg retrieval pain was partly mediated by negative feelings in relation to the procedure (Beta reduction from: 0.184 ( $p = 0.0001$ ) to 0.115 ( $p = 0.006$ )). **Conclusion:** Our results confirmed previously found associations between catastrophizing and pain. A tendency to catastrophize in painful situations places the patient at an increased risk of experiencing pain, and our results suggest that negative affect partly mediates the association between catastrophizing and pain during egg retrieval.

OS2-2

**THE PREDICTIVE VALUE OF THE WOMAC ON THE AMOUNT OF PHYSICAL ACTIVITY AFTER TOTAL HIP ARTHROPLASTY (THA)**

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**Objective** Despite growing awareness of the beneficial effects of physical activity on health, little is known about the amount of physical activity after THA. Although the WOMAC does not give direct information about the amount of physical activity it can be hypothesized that when patients experience limitations this will have an adverse effect on the amount of physical activity they are involved in. In this way the WOMAC can be predictive for the amount of physical activity. The aim of this study is to determine the correlation between the WOMAC and the amount of physical activity and to determine the predictive value of the WOMAC on meeting the (inter-) national guidelines of health-enhancing physical activity. **Methods** 364 patients with a THA (minimal one year postoperative) were included. Self-reported physical functioning was assessed by means of the WOMAC and the amount of physical activity by means of the SQUASH. Correlations between the WOMAC and SQUASH-scores were assessed using Pearson correlation coefficient. Binary logistic regression modelling was used to determine to which extent the score on the WOMAC was predictive in meeting the (inter-)national guidelines. **Results** A significant, low correlation between the WOMAC and SQUASH-scores (range 0.14 - 0.24) was found. Although the WOMAC was a significant predictor to meet the (inter-)national guidelines of physical activity ( $p < 0.001$ ), the odds-ratio was low (1.022, 95%CI 1.012-1.033). The Nagelkerke  $R^2$  was 0.069, implicating that 6.9% of the variance could be explained. **Conclusion** The WOMAC is not suitable to predict the amount of physical activity after THA. **Practice implications** The WOMAC is clinically not useful to predict the amount of physical activity, necessitating the use of additional measures to assess amount of physical activity performed by patients after THA.

OS2-3

**THE ROLE OF ILLNESS PERCEPTIONS IN PREDICTING OUTCOME FOLLOWING ACUTE WHIPLASH TRAUMA - A MULTICENTER 12-MONTH FOLLOW-UP STUDY**

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**OBJECTIVE:** Patients with acute whiplash trauma after a car accident were followed to examine if their illness perceptions at baseline predicted reduced work capability and neck pain at 12 months follow-up. **METHODS:** The study included 740 consecutive patients (474 females, 266 males) referred from emergency departments or primary care after car accidents in four counties in Denmark. After the collision patients received a questionnaire on illness perceptions, emotional distress, previous neck pain and previous unspecified pain, socio-demographics, and severity of the accident. 12 months later

they received a questionnaire on work capability and neck pain. Risk factors were identified by multiple logistic regression analysis. RESULTS: Preliminary analyses shows that illness perceptions associated with affected work capacity at 12-months follow-up were to perceive the illness to have negative consequences and negative emotional representations. In addition, socio-demographic characteristics (female gender, low educational level, unemployment and blue collar worker) were associated with affected work capacity. Factors associated with considerable neck pain at follow-up were perceiving negative consequences and negative emotional representations as well as low perceived control, a previous unspecified pain condition, and socio-demographic characteristics: female gender and formal education <4 years. Pre-collision neck pain and severity of accident were not associated with poor outcome. CONCLUSION: Negative illness perceptions in the week after collision are associated with poorer recovery at 12 months follow-up. Attention to how persons make sense of their trauma in the first days after the accident may contribute to the prevention of chronic whiplash disorder.

#### OS2-4

##### **METHODOLOGICAL ISSUES IN THE STUDY OF SELF-EFFICACY AMONG PATIENTS WITH CHRONIC NON-MALIGNANT PAIN SYNDROMES**

**Wasden K K, Ransom S**

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Among those with chronic non-malignant pain disorders, quality of life is impacted both by physical and psychosocial mechanisms. In recent years, researchers have given increased attention to the psychosocial correlates of negative health-related outcomes in these disorders, such as pain severity, disability, and decreased physical functioning. Research in self efficacy (SE), among the most widely studied of these psychosocial variables, has been particularly fruitful. SE has been variously conceptualized as a beneficial psychosocial outcome, a predictor of other positive outcomes such as increased physical functioning, and a mediator for successful physical and psychosocial intervention outcomes. Unfortunately, research enthusiasm for SE in chronic non-malignant pain models has outstripped progress in SE measurement and theory development for use in chronic pain populations. This study reports findings from an extensive literature review that addressed SE in four non-malignant chronic pain models (rheumatoid arthritis, osteoarthritis, lower back pain, and fibromyalgia syndrome). Findings indicate that psychosocial research in these disorders, while promising, has been hampered by inappropriate measurement resulting from inattention to SE theory. In order to better validate research conclusions, more careful consideration of SE theory in study conceptualization and measurement is recommended. Ways to do this include consideration of how various task demands affect patient SE, attention to SE as a domain-specific rather than global construct, and the development of more theoretically consistent SE scales for use in populations with chronic non-malignant pain.

#### OS3

##### **Track : 'Health Education and Promotion'**

*Chair (s) : Bonnie Spring*

##### **Track 'Health Education and Promotion'**

#### OS3-1

##### **DOES A WOMAN-FOCUSED, WOMAN-HELD RESOURCE IMPROVE HEALTH BEHAVIOURS DURING PREGNANCY?**

**Wilkinson S A, Miller Y D, Watson B**

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We evaluated the effect of women-held pregnancy records as a companion to usual obstetric documentation, on health behaviours important for maternal and infant health. The Pregnancy Pocketbook (PP) is a woman-held, woman-focused pregnancy record to improve self efficacy for smoking cessation, fruit and vegetable intake, and physical activity (PA) during pregnancy. The PP was developed based on current antenatal management guidelines, behaviour-change evidence, and formative research with the target population and health service providers. We evaluated the PP using a quasi-experimental two-group design. Women were recruited from two antenatal clinics within the same health service district. Women received the PP during their first antenatal clinic appointment in one clinic (n = 163), women in the other clinic received usual care (UC: n = 141). Smoking, fruit and vegetable intake, and PA were assessed at baseline (service entry), and 12 weeks later. At baseline, both groups were of approximately 20 weeks gestation and there were no between group differences in sociodemographic characteristics or health behaviours. At 12-weeks, a higher proportion of women in the PP group had stopped smoking and women who received the PP were significantly less likely to be smoking than those receiving usual care. Women receiving the PP demonstrated a mean increase in PA compared with a decrease in the UC group. The mean change in daily serves of vegetables was significantly higher in the PP group than the UC group; however, there was no between-group difference in change in fruit intake. These findings suggest that the PP may have a short-term impact on pregnancy health behaviours that are important for the prevention of poor maternal and infant health outcomes. Both groups are being monitored every 3 months throughout pregnancy and the immediate postpartum period to determine the longer-term impact of the PP on maternal health behaviours.

#### OS3-2

##### **TITLE OF PAPER: THE PLANNED DEVELOPMENT OF A COMPUTER-TAILORED WEIGHT MANAGEMENT PROGRAM FOR ADULTS AT RISK FOR OBESITY, BASED ON SELF-REGULATION AND COGNITIVE BEHAVIOR THERAPY**

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Introduction Weight management to prevent weight gain is seen as a promising approach to stop the still increasing prevalence of obesity. Weight management can be achieved by

small but sustained changes in dietary intake and physical activity. This study describes the planned development of a web based computer-tailored intervention aimed at prevention of weight gain among overweight adults (BMI = 25-30kg/m<sup>2</sup>). The intervention will be based on insights from cognitive behavior therapy (CBT) and promotes self-regulation of bodyweight and behavior.

**Methods** The Intervention Mapping (IM) protocol was used for the planned development of the intervention, to ensure a solid theory and evidence based intervention. IM includes four steps of program development: problem analysis, stating behaviour goals, choosing appropriate theoretical methods and practical strategies and program development. In this intervention information will be tailored to socio-demographic factors, determinants of behaviour and behaviour.

**Results** The intervention will focus on achieving weight management, by teaching people to self-regulate their behaviour. By using the program people will learn to monitor their behaviour, choose relevant behavioural actions from the dietary or PA domain and plan specific actions to achieve these changes. To induce self-regulation the important determinants of self-regulation such as awareness, self-efficacy and skills have to be influenced. Feedback, modelling, goal setting and planning are examples of methods that will be used to do so. Examples of methods derived from CBT that will be applied are analysis of pros and cons, future oriented writing, self-reinforcement, planning of behaviour and coping responses and reattribution training. Dysfunctional cognitions about behaviour, body weight and appearance will be challenged.

**Discussion** The systematic development will lead to a theory and evidence based intervention, which includes solid theories of behaviour change. The effect of the intervention on body weight, diet and PA behaviors will be evaluated in an RCT.

### OS3-3

#### **INTERVENTION FIDELITY IN THE NEW LIFE(STYLE)STUDY: THE REALITY OF IMPLEMENTING A HEALTH EDUCATION PROGRAM.**

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**Background** Fidelity is an increasingly important methodological concept central to process evaluations. It is defined as the full execution of an intervention, in combination with the extent to which the intervention was implemented as planned. **Purpose** To describe the intervention fidelity of the counseling sessions delivered in the New Life(style) study; an RCT which aims to prevent excessive weight gain during pregnancy. **Methods** Two counselors provided the intervention program, consisting of 5 counseling sessions, according to the Problem Solving Treatment for primary care (PSTpc). Audio taped counseling sessions (n=165) were quantitatively evaluated using a fidelity checklist. Measured fidelity criteria were: 1) reach of the intervention (% participants who received all five sessions), 2) dose of the intervention (% delivered intervention and PST components), 3) adherence to the intervention protocol (% achieved study objectives), 4) adherence to the underlying PST theory (% achieved PST objectives), and 5) counselor competence (5 point Likert-scale (0 = not good / 4 = very good)). **Results** The reach of the intervention was acceptable, with 62% of the participants receiving all five counseling sessions. The dose of intervention components was moderate (55%-65%), and the dose of PST

components was low (23%). Adherence was moderate for both study protocol and PST (57% and 47%, respectively). Counselor competence was sufficient (mean: 1.7, SD: 1.0). One counselor scored significantly better than the other on all measured criteria. **Conclusions** Generally, intervention fidelity was moderate, except for the delivery of the PST components, which was low. After training the counselors were not sufficiently able to implement PST specific skills. Remarkably, differences between the two counselors were common, despite using a manual. In intervention studies with an interactive experimental setting it is highly informative to perform a process evaluation including fidelity assessment, hereby opening the black box of the practice of health education programs.

### OS3-4

#### **EVALUATION OF A MEDIA CAMPAIGN TO IMPROVE PRENATAL CARE UTILIZATION**

*Mayer J*

*Saint Louis University School of Public Health*

**Purpose.** Healthy Start is a prenatal case management and social marketing intervention program that aims to prevent infant mortality and low birth weight. During September to December 2006, the Healthy Start program in Saint Louis, Missouri conducted a media campaign employing newspaper, radio, and billboard channels. The first objective of the campaign was to increase awareness of the Healthy Start program, and the second was to disseminate knowledge about the importance of prenatal care. **Method.** A post-campaign door-to-door household survey (n=104) was conducted by outreach workers to assess exposure to campaign messages, knowledge about the Healthy Start program, knowledge about the importance of prenatal care, and demographics (e.g., age, education). The survey was conducted only in the specific neighborhoods targeted by Healthy Start. **Results.** Seventy-eight per cent of the survey respondents were female, 73% had a high school education, 90% were African-American, and the average age was 35 years. Overall, about 40% reported exposure to the media campaign messages with only minor differences by channel. After adjustment for age and education, exposure to radio messages was significantly correlated with three of five survey questions concerning knowledge of the Healthy Start program. Alternatively, exposure to newspaper and billboard messages was significantly correlated with one of two or both survey questions concerning the importance of prenatal care, respectively. **Conclusion.** Despite the relatively brief four-month duration of the media campaign, it appears a substantial share of the Healthy Start target population was reached. Although limited by the cross-sectional post-only methodology, the current results suggest that radio may be the more effective channel for disseminating specific information about the Healthy Start program, while newspapers and billboards may be more effective in improving general knowledge concerning the importance of prenatal care.

OS3-5

**THE EFFECTS OF FIVE DIFFERENT HEALTH-PROMOTION PROGRAMS ON HEALTH AND WELLBEING IN AGED, HOME-CARE CLIENTS**

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The aim of this multidisciplinary intervention study in GOAL programme (Good ageing in the Lahti region in Finland) is to study the effects of five different programs on health and wellbeing in aged individuals. The programs targeted on physical inactivity, unhealthy diet, and lack of social contacts, and they were delivered by health care professionals.

The study examined whether methods acquired from behavioural scientific theories, such as goal setting, promote physical capacity and wellbeing over and above standard methods, such as strength and balance training, in groups or at home.

Participants: Randomly selected 171 home care clients (mean age 82 years).

Intervention design: The study included five arms: 1) home-based exercise only; 2) group-based exercise only; 3) home-based physical and goal setting; 4) group-based physical and goal setting; and 5) information group as a routine care control group. The intervention lasted for 12 weeks, with a 15 months' follow-up.

Measurements: Pre-intervention baseline and follow-up measurements included: Short Physical Performance Battery (SPPB), Berg Balance Score, and a structured interview assessing health, health-related quality of life, and activities of daily living (EURO-REVES, RAND-36, nutrition (Mini Nutritional Assessment), and autonomy and self-determination in behaviour change (Health Care, Self-Determination Theory packet).

Results: At baseline, the participants' physical capacity was significantly poorer than population values, and 75% were at high risk of falling. Group-based physical exercise was shown to be most effective form of physical exercise to enhance balance. Goal setting method was shown to improve the participants' perceived global quality of life and emotional well-being.

Conclusion: The results provide important and useful information when planning interventions in elderly home care clients.

OS4

**Track : 'Stress/Psychophysiology/PNI/PNE'**

*Chair (s) : Manfred Schedlowski*

**Track 'Stress/Psychophysiology/PNI/PNE'**

OS4-1

**THE RELATIONSHIP BETWEEN PSYCHOSOCIAL AND IMMUNE VARIABLES IN AMERICAN WOMEN WITH BREAST CANCER.**

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Immune functioning has been linked to a number of psychosocial variables cancer patient, but the relationships between psychoneuroimmunological variables are neither simple nor clear. Therefore, we evaluated the relationship between psychosocial variables (anxiety, depression, coping, optimism, fatigue, QOL) and immune function (by proinflammatory cytokines) in women newly diagnosed with breast cancer. METHODS: The current study consisted of a subsample of 40 women in the U.S. with early stage breast cancer enrolled in a larger NCI-funded trial. Of the 40 participants in the subsample, 73% were Caucasian, 22% were African American, and 5% identified themselves as other racial designation. The mean age of the sample was 49 years. All participants completed data collection one week prior to beginning chemotherapy. RESULTS: Correlations between psychosocial variables and proinflammatory cytokines revealed that more positive mood states were associated with higher levels of cytokines, whereas negative mood states were associated with lower levels of cytokines. Specifically, higher levels of TNF- $\alpha$  were associated with lower levels of total anxiety, somatic anxiety, and fatigue. Higher levels of IL-2 were associated with higher levels of QOL. Higher levels of positive reappraisal coping were associated with higher levels of IFN- $\gamma$ , and higher levels of confrontive coping were associated with lower levels of IL-1 $\beta$ . Additionally, further models revealed that optimism was not only positively correlated with TNF- $\alpha$ , but using a hierarchical regression model, it served as a significant predictor of TNF- $\alpha$  levels, accounting for 93% of the variance above and beyond age and race. CONCLUSIONS: This information may ultimately be of great relevance to knowledge development in psychosocial oncology. We look forward to future studies measuring cytokines in larger samples, as well as evaluating possible mediating mechanisms between optimism and immune function.

OS4-2

**GENDER-RELATED PERSONALITY AND SERUM CORTISOL LEVELS IN MALE WORKERS IN A JAPANESE MEDIUM-SIZED COMPANY: A CROSS-SECTIONAL STUDY.**

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Gender-related personality (i.e. masculine, feminine, androgynous, and undifferentiated types) has been examined

as a predictive factor for psychological stress. The purpose of the study was to examine relationships between the gender-related personality and serum cortisol levels, as well as psychological stress levels, including job strain, depressive symptoms, and male menopause symptoms. Participants were 187 male workers (mean age = 52.3 years, SD = 7.7), employed by a shipbuilding industry in Japan. Questionnaire data and blood samples were collected during an annual health-check week in 2007. Gender-related personality was measured using the Communion-Agency Scale (Dohi & Hirokawa, 2004). Results showed that cortisol levels of the feminine-type (age adjusted geometric mean = 15.4  $\mu$ g/dl) were higher than those of the other types (masculine: 11.4  $\mu$ g/dl, androgynous: 12.8  $\mu$ g/dl, undifferentiated: 11.9  $\mu$ g/dl) (F (3, 182) = 3.13, p = 0.03). This tendency was the same after adjusting for lifestyle such as smoking status, alcohol consumption, and sleep hours. For psychological stress levels, men in the androgynous-type showed lower job strain, depressive symptoms, and male menopause symptoms than those in the feminine and undifferentiated-types (p = 0.03, 0.00, 0.00, respectively). Femininity may increase serum cortisol levels as well as psychological stress levels, whereas masculinity may have a moderating effect on these associations for male workers in a Japanese medium-sized company.

#### OS4-3

##### **A TWO-YEAR FOLLOW-UP OF CORTISOL MEASUREMENTS AND CIRCULATING LEVELS OF MATRIX METALLOPROTEINASE-9 IN A POPULATION BASED STUDY**

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Dysregulation of cortisol has been in focus for decades in behavioral medicine, as it has been suggested to play a vital role linking psychosocial stress to somatic response. In experimental studies, cortisol has been demonstrated to influence the activity of matrix metalloproteinase -9 (MMP-9), which is an enzyme that has specificity to the arterial wall, having collagen as the main substrate. MMP-9 has been shown to be elevated when measured after a myocardial infarction. Moreover, it has recently been suggested that elevated levels are associated with psychosocial strain and other cardiovascular risk factors before onset of coronary disease. Taken together, it has been hypothesized that both a dysregulation of cortisol and MMP-9 might have an impact on future risk for coronary events. However, lack of longitudinal data has so far limited the knowledge of cortisol and MMP-9 as prognostic markers for future events. This study have evaluated the stability over two years of diurnal variation of cortisol and MMP-9 in a population based sample (n=300) before onset of coronary disease. The results will have implications on interpretation of the biomarkers tested, hinting at the prognostic value and the clinical usefulness of measuring dysregulated cortisol and MMP-9 before onset of coronary events. Conflict of interest: No. Supported with grants from the Swedish Research Council and the Swedish Heart- and Lung foundation.

#### OS4-4

##### **REVISITING THE CONCEPTS OF ALLOSTASIS AND ALLOSTATIC LOAD.**

**Kristenson M**  
Department of Medicine and Health

Background: The concept of allostasis describes the need of an ability to change and match resources according to needs. Loosing ability to change leads to two possible problems, the load of having too high stress levels but also, no margins for responding to new challenges. The concept of allostatic load describes the costs of long term stress, in terms of “wear and tear”. However, the allostatic load models mainly used seem to search only the problem of overload (sustained arousal), not the loss of ability to respond. Aim and method: Aiming at revisiting above concepts, empirical data shall be presented from cross-sectional population based studies of middle-aged men and women and case control studies of MI patients, using psychometric analyses, laboratory stress testing, ambulatory saliva sampling and 24 hour urine sampling. Markers are the stress hormone cortisol, the proinflammatory cytokine interleukine 6 and matrix metalloproteinase 9 a measure of enzyme activity “critical for maintaining tissue allostasis”. Results: Attenuated cortisol stress responses and flat diurnal deviation of cortisol were related to psychosocial measures of chronic stress e.g. vital exhaustion and also characteristic for MI patients. Individuals with attenuated cortisol responses, with chronic stress and MI patients had raised levels of IL 6 and of MMP 9. MI patients also had increased total cortisol output according to at 24 hour urine sampling, and their flat diurnal rhythm was mainly a result of raised evening levels. Conclusion: Loss of allostasis and allostatic load may have different biological relevance. While the allostatic load of high urinary output of cortisol seems to be linked to disease specific processes eg. atherosclerosis, the loss of allostasis, in terms of attenuated cortisol stress response, may be more related to capacity of general resistance resources, allowing inflammatory activity, reduced tissue allostasis and increased vulnerability.

#### OS4-5

##### **RESPONSES TO AWAKENING OF CORTISOL, SIGA, CHROMOGRANIN A AND ULTRA-WEAK CHEMILUMINESCENCE IN SALIVA.**

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Objective: The activity of the HPA axis, dysregulation of which is a potential pathogenic mechanism, is characterized by a circadian rhythm, and there is a pronounced release of cortisol (Cort) immediately after awakening in the morning. It has been demonstrated that the free Cort response to awakening can serve as an useful index of the adrenocortical activity. We have investigated the way to detect persons with excessive fatigue, demoralization, or depression. Since secretory immunoglobulin A (sIgA), chromogranin A (CgA) and ultra-weak chemiluminescence (uwCL) in saliva are also used to measure psychological features, we compared the values of these markers at awakening with those of Cort. Methods: Ninety-eight male participants having an annual health checkup were agreed to participate in this study. Saliva

samples were collected upon awakening and at +30 min thereafter. Questionnaires with regard to psychological conditions were the Center for Epidemiologic Studies Depression (CES-D) scale. The levels of Cort, sIgA, CgA and uwCL were compared with the CES-D scores. Results: Salivary volume and Cort concentrations increased in 30 min, whereas the levels of sIgA, CgA and uwCL were decreased. The ratio of sIgA levels at +30 min to those at 0 min after awakening was lower in higher depressive participants in comparison with lower depressive ones. Cort ratio appeared to be higher in participants reporting the moderate level of depressive symptoms in comparison with those displaying low and high depressive symptoms. Conclusions: It was suggested suggest that severe depressive symptoms can be characterized by the low levels of sIgA after awakening. The possible mechanism underlying the different responses among Cort, sIgA, CgA and uwCL will be discussed in the presentation.

#### OS4-6

##### **EFFECTS OF AURICULAR ACUPUNCTURE ON RESPIRATORY SINUS ARRHYTHMIA**

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The nervus vagus (NV) is associated with several psychiatric and somatic disorders, which show decreased (re-)activity of the vagal nerve. Additionally, a decreased level of heart rate variability is associated with an elevated risk for coronary heart diseases. While invasive NV stimulation shows good treatment effects in some disorders (e.g. depression), some studies show the potential role of acupuncture as a mild invasive intervention to affect vagal activity. The purpose of our study was to examine the effect of auricular acupuncture on the activity of the NV in healthy subjects. 14 healthy male subjects participated voluntarily, single-blind and in randomized order to a (1) control condition without intervention, (2) a placebo condition with Streitberger needles, (3) a manual and (4) an electrical acupuncture session. Two needles were applied to the cavum conchae inferior for the placebo (2) and verum acupuncture (3 and 4). The different interventions were administered for 30 minutes, each one week apart. Respiratory sinus arrhythmia (RSA) as an indicator of vagal activity was measured continuously with the LifeShirt System (Vivometrics). Additionally, saliva was collected repeatedly before, during and after the acupuncture interventions to measure salivary flow rate and the concentration of alpha-amylase. Preliminary data show a significant increase of RSA during all conditions, even the control condition. Electrical acupuncture induced significant higher RSA than manual acupuncture, which compared to the control and placebo condition showed no effect. The increase of RSA in all conditions underlines the importance of the consideration of a control condition in acupuncture studies. The electrical stimulation of the vagally innervated area of the ear seems to influence the activity of the NV and should be focused in further studies.

#### OS5

##### **Track : ‘Cancer’**

*Chair (s) : Tracey Revenson*

##### **Track ‘Cancer’**

#### OS5-1

##### **ASSOCIATION OF STRESS-RELATED PSYCHOSOCIAL FACTORS WITH CANCER INCIDENCE AND SURVIVAL: A SYSTEMATIC QUANTITATIVE REVIEW OF 40 YEARS OF INQUIRY**

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A large body of research has investigated associations between stress-related psychosocial factors and cancer outcomes. Narrative reviews summarizing this literature have been inconclusive. In this review we used meta-analytic techniques to evaluate longitudinal associations between stress and cancer. We searched general bibliographic databases: Medline, PsycINFO, Web of Science, and PubMed up to September 2007. Two reviewers independently extracted data on study characteristics, quality, and estimates of associations. If more than one cancer site or type of psychosocial factor was assessed in a study, the samples were included separately. Results from 37 incidence cohorts, 62 prognosis cohorts and 22 mortality cohorts were published between 1966 and 2007, involving participants from Asia, Australasia, Europe, and America. The meta-analyses indicated that stress-related psychosocial factors were associated with higher cancer incidence in initially healthy populations (165 studies: combined hazard ratio 1.06, 95% confidence interval 1.02-1.11,  $p=0.005$ ), poorer survival in patients with diagnosed cancer (330 studies: 1.03, 1.02-1.04,  $p<0.001$ ), and higher cancer mortality (53 studies: 1.29, 1.16-1.44,  $p<0.001$ ). Subgroup meta-analyses by stress type demonstrated that stressful life experiences were related to poorer cancer survival and higher mortality but not incidence, while stress-prone personality, unfavorable coping styles, negative emotional responses and poor quality of life were related to higher incidence, poorer survival and higher mortality. Depression appeared to be the primary driver of the adverse effects of negative emotional response. Low social support was not associated with cancer outcomes. Site-specific analyses indicated that psychosocial factors were associated with higher incidence of lung cancer and poorer survival in breast, lung, head and neck, hepatobiliary, and lymphoid and hematopoietic cancers. This review concluded that stress has an adverse effect on cancer incidence and survival, but there was evidence of publication biases suggesting unpublished negative findings, which means that the results should be interpreted with caution.

#### OS5-2

##### **STRESS AND PROGNOSIS OF CANCER: A SYSTEMATIC REVIEW**

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**BACKGROUND :** Although it is a popular belief that psychological stress may influence the course of cancer, the current evidence is limited. **METHODS :** Prospective studies investigating the association between psychological stress and survival and/or recurrence of cancer were systematically searched. Average effect sizes were calculated for three stress measures: life event scales, single specific life events (hazard ratios (HR)), and perceived stress (correlation coefficients (ESR)). **RESULTS :** 12 independent prospective studies were identified with 8 focusing on breast cancer (N=1645) and the remaining 4 on various cancers (N=22734). An association between perceived stress and death or recurrence was found in 3 studies (N=342) (Pooled ESR: 0.18; 95% CI: 0.07-0.28;  $p<0.001$ ; fixed effect). An association was also found in 3 registry-based studies (N=22644) between exposure to a single specific stressor (death of a child) and all-cause mortality in patients with various cancers (Pooled HR: 1.17; 95% CI: 1.04-1.31;  $p<0.01$ ; fixed effect). In contrast, there was no association between life event scale stress measures and death and recurrence of breast cancer (Pooled HR: 1.10; 95% CI: 0.85-1.43;  $p=0.47$ ; random effects) (N: 1393). When analyzing results for breast cancer separately, no effects were found. **CONCLUSION :** The results of the few available studies suggest a small effect of perceived stress on prognosis of breast cancer and a small association between a single specific stressor and all-cause mortality in individuals previously diagnosed with various cancers, while there was no association between stress measured with life event scales and prognosis of cancer. The available evidence is limited, and further studies including other cancers than breast cancer as well as potential psychosocial moderators, e.g. self-efficacy and social support, are needed.

#### OS5-3

### A FOUR TIER MODEL OF PSYCHOLOGICAL SUPPORT FOR PEOPLE WITH CANCER AND THEIR FAMILIES

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**Purpose** The purpose of this project was to implement and evaluate a Four-Tier model of psychological support for people with cancer and their families, as recommended by the UK National Institute of Health and Clinical Excellence guidance for Supportive and Palliative Care (NICE, 2004). Staff at Level 2 should be screening for psychological distress at diagnosis, during treatment, end of treatment and recurrence and should be able to intervene using techniques such as problem solving and psychoeducation. **Methods** The model has been implemented through the provision of a Psychological Support Team to provide assessment and treatment of psychological distress at Levels 3 and 4 of the model. A teaching programme has been developed to educate staff at Level 2, in the recommended screening and psychoeducation skills. The teaching is evaluated through the use of pre and post confidence questionnaires, with six month follow-up. The utility of the Team is evaluated through patient and staff satisfaction questionnaires. **Results** Results for the teaching programme show statistically significant improvements in all areas of assessment ( $p<0.01$ , N=212). These improvements are maintained at 6 month follow-up. Results from patient and staff satisfaction questionnaires show improvement in satisfaction with psychological support since the implementation of the specialist team at Levels 3 and 4 of the model. **Conclusion** The teaching programme has been effective in improving staff confidence and are maintained at 6

month follow-up. It was hypothesised that the training at Level 2 and the existence of a Psychological Support Team would improve both patient and staff satisfaction with the psychological support available and this has been shown to be the case. Results will contribute to setting standards of psychological support available to patients, families and staff in cancer services. This project is only possible due to the generosity of the Wessex Cancer Trust.

#### OS5-4

### NEGATIVE COGNITIVE COMPARISONS PREDICT INCREASED DEPRESSION AND REDUCED LIFE SATISFACTION IN WOMEN TREATED FOR BREAST CANCER

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**BACKGROUND:** Diagnosis and treatment of breast cancer is frequently accompanied by psychological distress. The women have to overcome existential concerns and disease-related anxiety. Thus, activation of emotion-focused coping will generally be an adaptive response. Cognitive strategies to obtain emotional control include using temporal and social comparisons to evaluate one's present situation relative to own previous life experiences and the life circumstances of others. Little is however known of whether cognitive comparisons are psychologically adaptive for cancer patients. **AIM:** The present study was conducted to examine whether temporal and social comparisons predicted changes in depression and life satisfaction over a 3-month period in women treated for breast cancer. **Methods:** The sample consisted of 509 women treated for breast cancer. The women were included about one month after treatment, follow-up was conducted 3 months later. At both occasions participants filled out questionnaires to measure depression (BDI), life satisfaction (SWLS) and questions regarding use of temporal and social comparisons. **RESULTS:** At baseline 54% reported using temporal comparison and 35% social comparisons. Of these, 29% evaluated their present life as worse and 32% as better than previous periods of their lives. Twenty-two percent evaluated their life as worse compared to other peoples', whereas 30% evaluated their life as better. Over a three-month period negative temporal comparisons predicted increased depression ( $r=0.19$ ,  $p<0.01$ ) and decreased life satisfaction ( $r=-0.24$ ,  $p<0.01$ ), and negative social comparison predicted decreased life satisfaction ( $r=-0.22$ ,  $p<0.05$ ). **CONCLUSION:** Using negative cognitive comparison may be psychologically maladaptive for women with breast cancer. Negative temporal and social comparisons were related to poorer emotional adaption three months after treatment had ended. Thus psychological interventions may be aimed at supporting patients who complain about their lives being less satisfying than previously and worse compared to others; attitudes which could be precursors of depression.

OS5-5

**SELF-REPORTED PHYSICAL ACTIVITY BEHAVIOUR; EXERCISE MOTIVATION AND INFORMATION AMONG DANISH ADULT CANCER PATIENTS UNDERGOING CHEMOTHERAPY**

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Cancer treatment may be seen as significant stressor disrupting the practice of health behaviours, including exercise, which may have an independent negative impact on Quality of Life. With increased consensus that physical activity is important in preventing and treating a series of lifestyle diseases, including some forms of cancer, the current study aimed at investigating the impact of anti-cancer treatment on self-reported physical activity behaviour. Using a cross-sectional design, 463 Danish adult cancer patients (18-65 years) who received chemotherapy completed a questionnaire that assessed past (pre-illness) and present (during active treatment) behaviour and motivation towards physical activity. Data revealed that cancer patients, regardless of diagnosis, reported a significant decline in physical activity due to diagnosis and treatment ( $p < 0.001$ ). Amongst the respondents, 9% stated that exercise did not appeal to them; 68% answered that they believed exercise to be beneficial for cancer patients undergoing chemotherapy. 78% claim that they currently did not exercise as much as they desired. The most mentioned barrier to exercising during chemotherapy was lack of energy, including fatigue (74%) and physical discomfort (45%). Younger patients tended to report more physical activity during treatment compared to their older counterparts ( $p = 0.011$ ). Those patients who claimed to have been informed about exercise were more in agreement with doing exercise while on chemotherapy ( $p = 0.02$ ). More men than women, and more patients <35 years than patients >55 years stated that they had received information regarding exercise. In conclusion, results indicate a general interest in and positive attitude towards exercise amongst Danish adult cancer patients undergoing chemotherapy. The treatment period is a vulnerable stay in the cancer trajectory, both physically and psychosocially, and may for this very same reason be an optimal time to introduce and promote sustainability strategies or positive changes in the amount of exercise undertaken.

OS5-6

**FEAR OF RECURRENCE TRAJECTORIES AMONG BREAST CANCER SURVIVORS**

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Growing numbers of women are living with breast cancer for longer periods. Although many adjust well once initial treatment is completed, one difficulty that may not lessen is fear of recurrence. This study examines how fears of recurrence change after the initial adjustment period and which demographic, medical and psychosocial factors account for these changes. Using growth curve modeling, we describe trajectories in fear of recurrence among women who are 5-10

years post-diagnosis. Data from 169 women with early-stage breast cancer were collected initially at 1-7 years post-surgery and at one ( $n = 101$ ) and three ( $n = 90$ ) years later. Over 50% of the women reported moderate to strong fears of recurrence. More importantly, these fears remained fairly stable over the four-year period of the study. Fear of recurrence decreased over time, but the degree of change was small. The following factors were related to greater fears of recurrence at all three time points and explained 57% of the variance in a full model: Being closer in time to diagnosis, younger, less optimistic, having more intrusive thoughts, and greater psychological distress. In sum, although mental health indicators, such as psychological distress, returned to pre-cancer levels and many women reported post-traumatic growth, many long-term breast cancer survivors continued to experience fears that their cancer would recur. However, as we can identify who, at the end of their initial treatment, is more likely to have greater fears of recurrence one and three years later, it may be important to conduct brief psychosocial interventions before initial medical treatment ends in order to have longer-term effects on well-being.

OS6

**Track :  
'Cross Track and Other'  
'Violence/Victimization/PTSD'**

*Chair (s) : Johannes Siegrist*

**Track 'Cross Track and Other'**

OS6-1

**SOCIAL INEQUALITIES IN THE BENEFITS FROM A SELF-MANAGEMENT INTERVENTION.FINDINGS FROM THE DELTA RANDOMISED CONTROLLED TRIAL.**

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Objective: To examine whether chronically ill patients with a low educational level benefit more from self-management interventions (aimed at increasing or giving back control and responsibility to patients) than their better-educated counterparts, as, in terms of control beliefs, there is more profit to gain in the lower educated. Design: Randomised controlled trial, conducted between October 2003 and May 2005, with a one year follow-up. Setting: 89 primary care practices in the south of the Netherlands. Participants - 361 mildly depressed, male and female patients with diabetes type 2 or chronic obstructive pulmonary disease who were 60 years or older. Interventions: In addition to the usual care, the intervention group had tailor-made contacts with nurses. Through goal-setting and problem-solving techniques, patients were learned to take control of and responsibility for day-to-day management of their disease and its consequences. Main outcome measures: Depressive symptoms (Beck Depression Inventory), mental and physical health-related quality of life (SF36), mastery (Pearlin-Schooler scale), and general self-efficacy (Sherer scale). Results: Nine months after the intervention, the intervention group on average had healthier scores on all five outcome measures compared with the control group, but the positive effect was in each instance confined to patients with a higher educational level. The patients with



primary schooling only did not benefit from the intervention. Conclusions: The increasing emphasis on self-management approaches in chronic disease management programs should be scrutinised closely, as socioeconomic inequalities in health outcomes might widen rather than narrow following their implementation. It is speculated that taking up self-management skills might be conditional upon the presence of self-efficacy-promoting and supporting environments or higher intellectual abilities. Trial registration: isrctn.org, identifier: ISRCTN92331982.

## OS6-2

### COGNITIVE FUNCTIONING PREDICTS MORTALITY IN END-STAGE RENAL DISEASE

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Cognitive functioning is a consistent predictor of survival, as evidenced in empirical studies in patients with cardiovascular disease. In the area of renal diseases, this topic has not yet been studied. The impact of cognitive functioning on the survival of end stage renal disease (ESRD) patients on dialysis was examined in a seven year longitudinal observational study. A total of 145 prevalent ESRD patients on hemodialysis or peritoneal dialysis were surveyed from 1998 to 2005 (mean follow-up = 64.4 months, SD = 27.4) using neuropsychological tests (assessing attention, concentration, memory and psychomotor function) and measures of depression and quality of life (QOL). Sociodemographic and clinical measures were also collected. The primary end point was all-cause mortality. Patients were followed through February 2005, and censored at the time of change to a different treatment. At follow-up  $n = 56$  (38.6%) patients had died,  $n = 29$  of cardiac causes. The cumulative survival of patients presenting with cognitive dysfunction, QOL impairments and depression at baseline was significantly lower than that of patients with no evidence of depression, QOL, and cognitive impairments as determined by Kaplan-Meier estimations ( $p < 0.01$  log rank test). Cox regression analysis indicated that impairment in cognitive abilities was associated with increased mortality that remained significant after adjustments were made for baseline sociodemographic, clinical and psychological risk factors (RR = 2.89; 95% CI 1.17, 7.09;  $p = .021$ ). The recognition of cognition as an important predictor of mortality in patients receiving dialysis highlights the need to investigate the implications of early recognition and treatment of cognitive impairment for clinical outcomes. These results suggest that patient management protocols should attempt to prevent cognitive decline, in addition to managing renal disease and coexisting medical conditions.

## OS6-3

### EVALUATION OF POLICY INTERVENTIONS THAT AFFECT HEALTH BEHAVIOUR

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Evaluation of interventions is currently focussed around randomised trials. While this is appropriate for many interventions, and particularly useful for demonstrating that interventions can work, it is compromised or impractical for interventions which involve community change, especially where these are implemented as policy decisions of governments. It is also problematic for showing that interventions do work at a population level. All the really important behaviour change issues for health are or are likely to include a mix of policy initiatives along with individually focussed interventions and all need to make a net positive contribution to population-wide change. Determining what works and how the mix of interventions contributes to change is an evaluation priority. Having an evaluation framework that does not distort decision making in favour of individual-focussed interventions is important. This paper outlines the key conclusions of a recent attempt to develop coherent evaluation strategies for tobacco control that do not focus on RCTs. The approach is encapsulated in the recently published IARC Handbook: Measuring the effectiveness of tobacco control policies (IARC: Lyon, 2008), on which the authors were the scientific editors. Keystones of the approach are use of evidence from diverse methods, a strong focus on the ecological validity as well as internal validity of studies, and the testing of mediational models of effect using cohorts recruited from jurisdictions which vary in policy implementation. The framework lays out logic models of postulated pathways of action and takes into account both intended and incidental effects of interventions. The framework also elaborates the value of use of multiple measures within a setting as well as measures from multiple settings, with the former generally being more important. This paper also discusses the potential to generalise the model to the evaluation of interventions designed to change other health behaviours and environmentally responsible behaviours.

## OS6-4

### NEUROENDOCRINE, METABOLIC AND CARDIOVASCULAR RESPONSES ASSOCIATED WITH SOCIAL ISOLATION

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Objective: A large social network is associated with reduced risk of cardiovascular disease. Psychobiological responses may partly mediate associations between social factors and health risk. We hypothesized that social isolation might be associated with increased blood pressure and cholesterol stress responsivity, and with an enhanced cortisol awakening response in the morning. Method: One hundred twenty eight men and 110 women aged 47 to 59 from the Whitehall II cohort completed the study. Social isolation was assessed using questions from the Close Persons Questionnaire, and participants were classified as low ( $N=129$ ), intermediate ( $N=85$ ) or high ( $N=24$ ) in social isolation. Systolic blood pressure and cholesterol were measured at baseline, immediately after mirror tracing and colour-word tasks, and 45 minutes later. Cortisol was collected using salivary sampling by participants at 9 points across a working day, and the cortisol awakening response was calculated as the difference between the waking plus 30 minutes and the waking samples. Results: Systolic blood pressure increased in response to tasks, and differed between social isolation groups at 45 minute recovery time. Systolic blood pressure recovery was faster in the low social isolation group compared with the intermediate and high isolation groups. Social isolation was related to total

cholesterol/HDL ratio stress responses in men but not women, with those in the higher social isolation group having a greater cholesterol stress response. Additionally, the cortisol awakening response was greater in more socially isolated participants independently of covariates. Conclusions: Social isolation was associated with delayed post-stress blood pressure recovery, enhanced lipid stress responses in men, and with a heightened cortisol awakening response. Social isolation may contribute to disease risk in part through these cardiovascular, metabolic and neuroendocrine pathways.

## Track 'Violence/Victimization/PTSD'

OS6-5

### PSYCHOSOCIAL CORRELATES OF WOMEN'S REPORT OF POST TRAUMATIC STRESS SYMPTOMS FOLLOWING RECENT REPRODUCTIVE LOSS

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The present study examined the role of pregnancy, personality and cultural factors in women's post traumatic stress symptoms following recent reproductive loss. A total of 287 Hong Kong Chinese women who experienced various forms of reproductive loss participated in the present study. Results of hierarchical multiple regression analysis showed that the various factors accounted for 44% of the variance in women's post traumatic stress symptoms. A strong sense of antenatal emotional attachment, high level of negative affectivity, an emphasis on the instrumental function of child bearing, and a large degree of gender role internalization predicted women's post traumatic stress symptoms.

OS7

## Track : 'Socioeconomic Factors, Culture & Health'

*Chair (s) : Linda Baumann*

## Track 'Socioeconomic Factors, Culture & Health'

OS7-1

### UNEMPLOYMENT AND SUICIDE: SELECTION OR CAUSALITY?

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The study objective was to assess the significance of selection or causation in explaining the association between unemployment and suicide. The data were based on an 11% sample of Finns with an over-sample covering 80% of suicides in the periods 1987-1991 (5% general unemployment rate), 1992-1996 (15% unemployment) and 1999-2003 (9% unemployment), and included 25-64 -year-old men. Four exposure categories were formed: stably and unstably employed, recently and long-term unemployed. Age- and socioeconomic-status adjusted hazard ratios were calculated

using Cox regression models. In addition to a long follow-up, suicide was followed for four-month intervals.

Both recently unemployed and long-term unemployed had very high relative suicide risk compared to the stably employed, and also the unstably employed had a higher risk. When the general unemployment rate was 5%, the hazard ratio for recently unemployed (HR=3.43) was as high as for long-term unemployed (HR=3.30), but during the period of 15% general unemployment being long-term unemployed carried a significantly higher suicide risk (HR=3.86) than being recently unemployed (HR=2.70). During the time of 9% unemployment the relative risks for both unemployed groups were higher than before (HR 4.10 and 4.66).

The relative suicide risk for the unemployed was similar during both very low and high unemployment, despite the fact that selection and possible stigmatization associated with unemployment are more likely to explain excess suicide rates at lower levels of unemployment. Increased suicide risk in the first months following unemployment may signify that becoming jobless is a stressful life-event, but we found little support for this short-term causal effect hypothesis. Together these findings indicate that unemployment may cause excess suicide risk, and these effects are possibly due to long-term factors related to e.g. accumulation of financial difficulties and loss of workplace social contacts.

OS7-2

### SOCIOECONOMIC DIFFERENCES IN HEALTH BEHAVIOURS AMONG EMPLOYEES FROM BRITAIN, FINLAND AND JAPAN: THE CONTRIBUTION OF PSYCHOSOCIAL WORKING ENVIRONMENT

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Background Health behaviours are key determinants of public health problems, and they are socially, economically and culturally constrained. We compared socioeconomic differences in health behaviours and obesity among female and male employees from Britain, Finland and Japan, and examined the contribution of psychosocial working conditions to these differences. Methods Comparable cohorts of public sector employees (ages 45-60) from the British Whitehall II Study (n=3397), the Finnish Helsinki Health Study (n=6070) and the Japanese Civil Servants Study (n=2213) were analysed. Socioeconomic position was categorised into two to four hierarchical occupational classes. Health behaviours were current smoking, heavy drinking, unhealthy food habits, and obesity. Working conditions included working overtime and Karasek's job strain. Results Lower class employees were more likely to smoke than their upper class counterparts in Britain and Finland, but not in Japan. Similar class differences were also found for obesity, physical inactivity and unhealthy food habits with some variation between the British and Finnish cohort. However, lower class employees were less likely to be heavy drinkers. In Britain adjusting for job strain led to somewhat larger socioeconomic differences in smoking and for women also in physical inactivity and unhealthy food habits. The effects of working overtime on the class

differences in health behaviours were negligible. Conclusions Unhealthy behaviours tended to be more common among lower than upper class employees from Britain and Finland, but upper class employees had heavier drinking habits. Similar patterning of unhealthy behaviours was not observed among Japanese employees. In Britain job strain modestly strengthened the socioeconomic differences in health behaviours. The patterning of health behaviours is likely to differ between national contexts, with western countries showing larger and more consistent socioeconomic differences than Japan. Promoting healthy behaviours needs to consider social, economic and cultural factors and their variation across different national contexts.

### OS7-3

#### **MALAYSIAN MOTHERS' KNOWLEDGE AND ATTITUDES TOWARDS PREVENTING CERVICAL CANCER THROUGH HUMAN PAPILLOMAVIRUS VACCINATION: A QUALITATIVE STUDY**

**Wong L P**

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**Introduction:** It has been a little more than a year ago since the prophylactic vaccine against human papillomavirus (HPV) was released in Malaysia. Little is known about parental knowledge and acceptability of the vaccine. We investigated mother's knowledge and attitudes towards HPV vaccination. **Methods:** Fifty-two mothers took part in 9 focus group discussions carried out between October and November 2007. **Results:** Respondents have extremely poor knowledge about the newly release vaccine and the link between HPV and cervical cancer. When provided with information about HPV and cervical cancer, mothers were in favor of protecting their daughters from cervical cancer using the vaccine. Nevertheless, conservative Malay and Indian mothers concerned that the STI-related vaccine would promote sexual activities and some opposed making vaccination mandatory. As with any new vaccine, efficacy and safety was the major concern, particularly when the vaccine is recommended to children as young as nine years old. Almost all participants expressed concern about the high cost of the vaccine and hope that the inoculation could be at least partially subsidize by the Malaysian government. Another important factor for the acceptance among the Muslim was the halal issue of HPV vaccine. Many mentioned they would not receive a non-halal vaccine unless it is regarded as halal and approved by the relevant Islamic authority. **Conclusion:** Apart from the major concern about safety and efficacy, affordability, and acceptability of vaccination young children, religious and ethnic backgrounds were important considerations when recommending the HPV vaccine. These issues need to be urgently addressed before mass vaccination is pushed forward to the Malaysian public.

### OS7-4

#### **BIOPSYCHOSOCIAL PREDICTORS OF PSYCHOLOGICAL ADJUSTMENT TO INFERTILITY AMONG A SAMPLE OF INDIAN WOMEN**

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**Background:** This study investigates the biopsychosocial predictors of psychological adjustment to infertility.

**Methods:**

**Sample:** A consecutive sample of 85 (response rate 91%) heterosexual women booked for either an IVF cycle or ICSI cycle.

**Setting:** Three clinics in Chandigarh and New Delhi.

**Data collection and analysis:** A range of scales were completed at baseline to measure the following: neuroticism; perceived internal locus of control; adult attachment style; meaning of parenthood; intrinsic religiosity; marital relationship quality; social support; state-trait anxiety. Biological variables included duration and type of infertility. Psychological adjustment was measured using the Fertility Adjustment Scale. Hierarchical multiple regression analyses were used to analyse the relative predictive value of the independent variables.

**Results:** Intrapersonal attributes (a reduced tendency towards an avoidance type of adult attachment and an increased tendency towards intrinsic religiosity) were associated with more positive adjustment to infertility, both directly and indirectly (via the impact on the interpersonal variables of sexual satisfaction and perception of familial social support.) Familial social support was inversely related and sexual satisfaction was directly positively related to adjustment. Consulting a larger number of physicians improved women's adjustment.

**Conclusions:** These data should prove useful when designing counselling services in developing countries which are witnessing increases in the demand for fertility services, such as India. The finding about the inadequacy of the family in meeting the needs of women highlights the necessity for developing alternative support systems. This may be especially important for women living in families where there is enormous social and familial pressure to conceive.

### OS7-5

#### **LACK OF BASIC AND LUXURY GOODS AND HEALTH-RELATED DYSFUNCTION IN OLDER PERSONS; FINDINGS FROM THE SMILE STUDY**

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**Background** More so than the traditional socioeconomic indicators, such as education and income, wealth makes socioeconomic ranking manifest and visible to the outside world. While the lack of basic goods, such as a refrigerator, may affect health biologically, the lack of luxury goods, such as an LCD television, may affect health indirectly through psychosocial mechanisms. We set out to examine, firstly, the relevance of both basic and luxury goods in explaining health-related dysfunction in older persons, and, secondly, the extent to which these associations are independent of traditional socioeconomic indicators and prevalent diseases. **Methods** Cross-sectional and longitudinal data from 2,067 men and women aged 55 years and older who participated in the Study on Medical Information and Lifestyles Eindhoven (SMILE) were gathered. Logistic regression analyses were used to study the relation between a lack of basic and luxury goods and health-related function, assessed with two sub-domains of the

SF-36. Results The lack of basic goods was closely related to incident physical (OR=2.32) and mental (OR=2.12) dysfunction, even when the traditional measures of SES, i.e. education or income, were taken into account. There were, however, no effects of the lack of luxury goods on health-related dysfunction. Conclusion Even in a relatively wealthy country like the Netherlands, the lack of certain basic goods is not uncommon. More importantly, lack of basic goods, as indicator of wealth, was strongly related to health-related dysfunction also when taking into account traditional measures of SES. In contrast, no effects of luxury goods on physical or mental dysfunction were found. However, future longitudinal research is necessary to clarify the mechanisms underlying these effects.

#### OS7-6

### THE IMPACT OF ENGAGEMENT IN CULTURAL ACTIVITIES ON CAUSE-SPECIFIC MORTALITY: PROSPECTIVE STUDY OF INDUSTRIAL EMPLOYEES

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**Objective:** To determine whether there are associations between engagement in cultural activities and the main causes of mortality among full-time employees. **Design:** A prospective cohort study (the Still Working Study). Engagement in cultural activities (arts and culture, activities in clubs or associations, societal action, reading literature, studying) was assessed with a questionnaire at the baseline. **Setting:** A forest industry enterprise in Finland. **Participants:** 7922 initially healthy male and female industrial employees aged 18-65 at the baseline. **Main outcome measures:** The International Classification of Diseases was used to identify deaths from all-cause (n=692), cardiovascular diseases (n=309), cancer (n=213), alcohol-related causes (n=60), and external causes (n=111) during a mean follow-up of 18.1 years using computerized record linkage to the National Death Registry. **Results:** High engagement in cultural activities was independently associated with a decreased risk of all-cause (hazard ratio 0.7, 95% CI 0.6-0.9; P<0.01), cardiovascular (hazard ratio 0.7, 95% CI 0.5-1.0; P<0.04), and external causes of death (hazard ratio 0.5, 95% CI 0.3-0.9; P=0.05) after adjustment for age, sex, marital status, education, occupational status, mental disease, diabetes, and hypertension. After further adjustment for physical activity, smoking, and binge drinking, the effect of cultural activities on cardiovascular mortality was lost, whereas the associations with all-cause mortality and deaths from external causes remained. Engagement in cultural activities was not associated with cancer-related, alcohol-related, or other causes of mortality. **Conclusions:** Better overall survival of culturally engaged employees is largely attributable to their lower risk of death from external causes.

#### OS8

### Track : 'Measurement and Methods'

*Chair (s) : Carina Chan*

### Track 'Measurement and Methods'

#### OS8-1

### DEVELOPMENT OF PSYCHO-SOCIAL DISCOMFORT SCALE AMONG JAPANESE FEMALE BREAST CANCER PATIENTS

**Tsuchiya M, Horn S A, Ingham R**

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**Objective:** The aim of this study was to develop a new Quality of Life measure for Japanese women with breast cancer, taking account of social interactions, and to examine the psychometric properties. **Methods:** A new scale in Japanese was developed based on the findings of a qualitative study; psycho-social discomfort was assessed by twenty-seven questions using five-point Likert scales. Following the confirmation of the face validity (n = 21), a cross-sectional postal survey was conducted in Japan; questionnaire packages including demographics, breast cancer treatment, the new scales, and WHO QOL-BREF Japanese version, were distributed to 608 women with breast cancer. Three hundred patients returned questionnaires (response rate 49.3 per cent). **Analysis:** Excluding cases with stage IV and missing values, factor analysis (principal axis with promax rotation) was performed (n = 295), and internal consistency was examined by Cronbach's Alpha. Divergent and convergent validity were examined using Spearman's R (one-tail test). **Results:** The factor analysis extracted three factors; twelve items were highly loaded on factor 1 ("psychological impacts of perceived social norms"; Alpha = 0.74), five items were highly loaded on factor 2 ("social disclosure of breast cancer"; Alpha = 0.83), and nine items were highly loaded on factor 3 ("resources to live with breast cancer"; Alpha = 0.70). The factors were moderately correlated: the correlation between factors 1 and 2 was 0.36, between factors 1 and 3 was -0.20, and between factors 2 and 3 was -0.38. All subscales were negatively and significantly correlated with all domains in WHOQoL-BREF (r = -0.15 to -0.43). **Conclusions:** The psycho-social discomfort scale had three factors with good internal consistency, and the sub-scales can measure the same concept as WHO QoL, but can measure different aspects of QoL from those that the WHO QoL-BREF has defined, with good convergent and divergent validity.

#### OS8-2

### DOES THE JOB CONTENT QUESTIONNAIRE REALLY MEASURE STRUCTURAL AND ORGANISATIONAL FEATURES OF THE WORK ENVIRONMENT?

**Persson R (1), Hansen A M (1), Garde A H (1), Ohlsson K (2), Nordander C (2), Balogh I (2), Orbaek P (1)**

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The theory behind the Job Content Questionnaire (JCQ) presumes that behavior to a significant extent is generated by

social environments and that the “objective” social environment is measurable. Accordingly, the intent behind JCQ is to describe structural and organizational aspects of the work environment. If this approach is valid, it is expected that workers who share employer, workplace and have similar work tasks should give coherent responses and not substantially disagree. Yet, no study seems to have evaluated this basic assumption. For this reason we re-analyzed JCQ-data from two companies (C1:  $n=95$ ; C2:  $n=119$ ) where men and women shared employer, job title and performed highly similar machine paced job tasks under the same roof. A representative occupationally active population sample ( $n > 7,900$ ) served as reference group. Because responders to JCQ are thinking persons making active decisions, it is a necessary (but not sufficient) condition for the “JCQ-position” that the dispersion (i.e. standard deviation, SD) around the mean scores should be much smaller in specific study samples when compared with population samples.

All demand and control scores fitted a normal distribution. The SD's for demand and control scores in C1 and C2 were at least 80% of the SD's observed in the population sample. Next, dividing scores so as to reflect the overall tendency to agree or disagree with JCQ-statements within a dimension, 45 % (C1) and 56 % (C2) gave reports consistent with high job demands. Regarding job control scores, 57% (C1) and 32% (C2) gave report consistent with high job control.

Taken together, the machine-paced work, the normally distributed scores, and the large dispersion of scores (which mostly is non-random due to thinking responders), suggest that JCQ-scores are highly personalized end-points. Individual difference (e.g. in learning history, perceptions, cognitions and motivations) play a far greater role than commonly endorsed.

#### OS8-4

### HEALTH GOALS PREDICT PHYSICAL ACTIVITY INTENTIONS AND BEHAVIORS: COMPARING THE HEALTH GOAL ORIENTATION MEASURE WITH IDIOGRAPHIC GOAL ASSESSMENT

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Goals with the most direct influence on everyday behavior tend to be situation-specific (e.g., health) and the type of goals that people pursue can affect health protective actions. Guided by self-regulation theory, approach goals (motivating individuals to move towards desired states) and avoidance goals (motivating individuals to move away from feared states) may have distinctive influences in predicting intentions and health behaviors. The approach-avoidance distinction, has been measured idiographically using free-response techniques and this approach poses limitations. The newly developed self-reported Health Goal Orientation Measure (HGOM) is composed of two internally consistent factors relating to approach and avoidance goal orientations. This study examined the differential influence of approach/avoidance goals in predicting physical activity intentions and behaviors using these two methodologies. Inactive participants ( $N=182$ ) reported their personal goals for increasing physical activity and completed the HGOM prior to participating in a 4-week physical activity intervention. Measures on intentions and physical activity were assessed at baseline and Week 4. Participants reported more approach than avoidance goals and scored significantly higher on the approach than avoidance subscale on the HGOM. Results showed that approach motivations measured by the HGOM predicted greater intentions at baseline ( $\beta = .26$ ), more leisure time exercise ( $\beta$

$= .26$ ) and total energy expenditure ( $\beta = .24$ ) at Week 4 whereas avoidance motivations predicted less intentions ( $\beta = -.23$ ); all  $p$ 's  $< .05$ . However, comparable predictions were not demonstrated using the free-response technique. Greater proportions of approach or avoidance goals (assessed idiographically) did not predict any of the behavioral measures. This research highlights the value of assessing approach and avoidance goals in a situation-specific context and examining the impact of approach goals in other health behavior domains. The HGOM provides a convenient and comprehensive way to assess common situational (health) goal orientations for increasing physical activity and opens up opportunities to explore motivational dynamics in health behavior change.

#### OS8-5

### THE EARLY DETECTION OF SLEEP PROBLEMS IN CHILDREN: DEVELOPMENT AND VALIDATION OF A SCREENING INSTRUMENT.

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Sleep problems in very young children have both short- and long-term behavioral and cognitive consequences. Despite this, childhood sleep problems frequently go undiagnosed. We report on the development and validation of a parent-report screening instrument for the early detection of sleep problems in children aged 2 to 5 years, 11 months. Parents of 73 children referred to the Sleep-Medicine Unit of Sydney Children's Hospital, and parents of 458 non-referred children (accessed from schools and pre-schools) participated in the study. All referred children, and a subset of non-referred children, also undertook a polysomnographic sleep evaluation to confirm or disconfirm the presence of sleep pathology. The final scale contained 28 items contributing to scores on five factors, labelled as Sleep-Breathing Problems, Sleep Initiation Problems, Sleep Maintenance Problems, Kinetic and Nociceptive Problems, and Parasomnias. Total scale internal consistency reliability was .93, and subscale reliabilities ranged from .93 to .71. Test-retest reliability was .87. The scale had a high correlation with the Sleep Dimension of the Child Behavior Checklist (.7), and significantly predicted internalizing and externalizing behavior problems. All subscales significantly discriminated between referred and non-referred children. Although the scale was developed using approaches derived from classical test theory, the results of a Rasch analysis will also be reported.

OS9

**Track :  
'Psychophysiological Disorders & Sleep'**

*Chair (s) : Ulrike Ehler*

**Track 'Psychophysiological Disorders & Sleep'**

OS9-1

**SEASONAL VARIATION IN SLEEP LENGTH AND SLEEP QUALITY: RESULTS FROM THE SEASON STUDY**

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Sleep is the major path for restitution. Even mild insomnia may result in impaired quality of life. Various types of sleep problems are used as outcome measures in occupational health research. However, little is known about natural variations in sleep in healthy work populations. The aim of this study was to elucidate seasonal variations in sleep length and sleep quality.

Twenty-four participants (16 women / 8 men) in active work as administrators or caretakers in Southern Sweden completed the Karolinska Sleep Diary (KSD) once every month during a year. Self-ratings of sleep length, disturbed sleep index (DSI, 5 items) and an awakening index (AWI, 3 items) were calculated. The index scores ranged from 1 to 5, and higher scores represented better sleep. Seasonal variation was tested in a cyclic, parametric model, using sine and cosine, with subject as random effect with the mixed procedure. Biological variation was estimated in a variance component model.

There was no seasonal variation for any of the outcome measures. The average self-reported sleep length was 6:59 hours (SD=1.06 hours). The average scores of DSI and AWI were 1.43 (SD=0.68) and 2.64 (SD=0.99). The between subject variation in sleep length, DSI and AWI over a year were 10.5%, 14.4%, and 57.8%. The within subject variation for the same parameters were 12.1%, 21.3% and 39.6%.

Thus, no seasonal variation was observed for the length of the sleep, disturbed sleep or how refreshing the sleep was. The absence of seasonal variation despite distinct seasonal variations in climate and daytime light in Southern Scandinavia, suggest that time of year is not crucial in designing and interpreting studies of sleep length and sleep quality. However, there was a considerable variability both within and between subjects over a year.

The study was partly funded by the Swedish Work Environment Authority

OS9-2

**MATERNAL SEPARATION AND GUT INFLAMMATION SYNERGISTICALLY ALTERS SEXUALLY DIFFERENTIATED STRESS RESPONSE IN RATS**

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**Aims** Neonatal maternal separation (MS) is a well-characterized model of early life stress as well as intestinal dysfunction. Early life stress has been implicated as a risk factor for irritable bowel syndrome (IBS). The physiological response to stress is controlled by the hypothalamic-pituitary-adrenal (HPA) axis, which develops during early life. This study characterizes changes in behaviors and neuroendocrine parameters following MS and in early phase trinitrobenzene sulfonate (TNBS) induced colitis. We tested the hypotheses that MS and gut inflammation synergistically induce 1) hyperactivity in male rats and anxiety-like behaviors in female rats, and 2) activation of HPA-axis in female rats and deactivation of HPA-axis in male rats. **Methods** Wistar rat were cross-fostered on postnatal day (PND)1. Pups were randomly assigned to 4 groups; 1) Control, 2) TNBS, 3) MS, and 4) MS+TNBS. Pups were separated from their dams for 180 min daily from PND 2 to PND14. Early phase colitis was induced by colorectal administration of TNBS on PND 8. The elevated plus-maze (EPM) test was performed at 7 weeks and on the other day tonic colorectal distension (CRD) was performed at 60 mmHg for 15 min. Plasma adrenocorticotrophic hormone (ACTH) and serum corticosterone were measured by radioimmunoassay under baseline and after 15 min CRD. **Results** Male MS+TNBS rats showed significantly increased exploratory behaviors than controls or TNBS rats (ANOVA,  $F_{3,54}=5.026$ ,  $p=0.004$ ). In female rats, MS+TNBS at baseline showed significantly elevated plasma ACTH than TNBS or MS (ANOVA,  $F_{3,27}=5.186$ ,  $p=0.006$ ). **Conclusion** (1) Maternal separation and gut inflammation induced hyperactivity in male rats but not in female rats. (2) Maternal separation and gut inflammation induced increase in plasma ACTH in female rats but not in male rats. These findings suggest that maternal separation and gut inflammation synergistically induce hyperactivity under novel environment or exaggerated HPA axis function depending on gender.

OS9-3

**SLEEPING PROBLEMS AS A RISK FACTOR FOR SUBSEQUENT MUSCULOSKELETAL PAIN AND THE ROLE OF JOB STRAIN; RESULTS FROM A ONE-YEAR FOLLOW-UP OF THE MALMO SHOULDER NECK STUDY COHORT**

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The impact of sleeping problems and job strain on the one-year risk for neck, shoulder, and lumbar pain was investigated in a prospective study of a healthy cohort of 4,140 vocationally active persons ages 45 to 64, residing in Malmo, a Swedish city. Self-administered questionnaires were used at baseline and follow-up. Sleeping problems were assessed by an index based on four items. Job strain according to the demand-control model and mechanical exposure were also assessed at baseline. Neck, shoulder, and lumbar pain were determined by the Standardised Nordic Questionnaire. At follow-up, 11.8% of the men and 14.8% of the women had developed pain. The odds ratios (OR) for pain at follow-up and sleeping problems at baseline were in men 1.72 (95% confidence interval: 1.13 to 2.61), and in women 1.91 (1.35 to

2.70). Regarding exposure to job strain, the odds ratios were 1.39 (0.94 to 2.05) for men and 1.63 (1.18 to 2.23) for women. The statistically significant risk estimates remained so when controlled for each other and for possible confounders. A modest synergistic effect was noted in women with concurrent sleeping problems and job strain, but not in men. It was concluded that one in 15 to 20 of all new cases of chronic pain in the population could be attributed to sleeping problems, and that no evidence was found for a causal chain with job strain leading to musculoskeletal pain by the pathway of sleeping problems.

#### OS9-4

##### **EFFECT OF RETIREMENT ON SLEEP DISTURBANCES: A FOLLOW-UP OF 17,955 EMPLOYEES IN THE GAZEL COHORT.**

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**Objectives:** Retirement is a major life event, yet there is little longitudinal evidence on its consequences to health and functioning. In the present paper we explored the effect of retirement on sleep disturbances. **Methods:** A prospective cohort study. Participants were 14,026 men and 3,929 women, employed by France's national gas and electricity company in 1989 and retired in 1990-2006 at the mean age of 54.9 years (SD 2.7). Perceived sleep disturbances were obtained for up to 10 years prior to, and 10 years after, retirement with yearly measurements. **Results:** During the 10 years prior to the year of retirement, the odds of disturbed sleep increased gradually in both sexes, being 1.3-1.4 times higher (95% CI 1.2-1.5) in one year prior to retirement than 10 years before. Following retirement, there was a sharp decrease in sleep disturbances, the odds ratio in year 1 being 0.8 (0.7-0.9) in men and 0.9 (0.8-1.1) in women. During the 10 years after retirement, the odds of disturbed sleep increased slowly but remained on a lower level than prior to retirement. This retirement-related improvement in sleep was replicated across occupational grades and was not attributable to differences in demographics, health or work characteristics. **Discussion:** Retirement, a major life event, seems to be associated with a sizable improvement in sleep quality. The possibility that the health and well-being of employed individuals is significantly worse than following retirement and older age presents a great challenge to improve the quality of work life in western societies where increasing numbers of working age population are seeking permanent retirement benefits.

#### OS9-5

##### **WORK OVERLOAD AND STRESS-RELATED PROCESSES IN THE BRAIN -LOWER DECISION LATITUDE PREDICTS THE RESPONSE OF THE ROSTRAL ANTERIOR CINGULATE CORTEX TO ACUTE INTEROCEPTIVE STRESSOR-**

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Work overload has emerged as a major psychosocial influence on physical and mental health over recent decades. Chronic work overload can have long-lasting consequences on the brain dysfunction and behavior. We examined in this study the following hypotheses: (1) Individual differences in daily workload would be associated with acceleration of activation in regions known to be involved in acute stress responsibility, including the anterior cingulate cortex. (2) These differences would also be associated with attenuation of activation in regions known to be involved in the adaptation systems to acute stress, including the hippocampus. Subjects were 36 individuals (20 males and 16 females) without any organic diseases. Among them, 21 had no gastrointestinal symptoms and 15 met Rome III criteria of irritable bowel syndrome. To assess work overload in daily life, participants were asked to fill in the job content questionnaire (JCQ) before scanning. A barostat bag was inserted in the rectum and intermittently inflated with 0, 20, or 40 mmHg at random for 80 seconds. H 2 150 positron emission tomography of the brain were performed. Changes in regional cerebral blood flow (rCBF) were analyzed using statistical parametric mapping. After controlling for other individual difference measures, job strain score were positively correlated with rCBF in rostral anterior cingulate cortex (ACC) ( $p < 0.001$ , uncorrected) during acute rectal distention, compared with the non-distention condition. On the other hand, job strain score negatively correlated with rCBF in the right precuneus ( $p < 0.001$ , uncorrected) and the periaqueductal gray (PAG) matter ( $p < 0.001$ , uncorrected). These findings connect epidemiological findings on job strain and health/disease with neurophysiological findings in brain imaging studies, suggesting that central processing patterns that rostral ACC hyperactivation and PAG deactivation may be the key components of physical and/or mental disorders induced by work overload.

#### OS9-6

##### **THE EFFECT OF INSOMNIA AND SLEEP DURATION ON WORK DISABILITY**

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**Background:** Both insomnia and sleep duration have

previously been linked with a range of adverse outcomes, but no studies have explored their relative effect on subsequent work disability. Aim: To investigate the contribution of insomnia and sleep duration to later long-term work disability. Methods: Data on insomnia, sleep duration and potential confounders were gathered from 7849 working persons (40-45 years). The outcome was award of disability pension 18-48 months later, as registered in the National Insurance Administration. Results: Insomnia was a strong predictor of permanent work disability (OR 3.98), and this effect remained significant in the fully adjustment model. Reduced or excessive sleep duration was not significantly associated with subsequent work disability in the fully adjusted model; only in the crude model did sleeping less than 5.5 hours predict work disability (OR=1.75). Conclusion: The present study provides evidence that insomnia is a strong and independent risk factor work subsequent work disability, while at the same time ruling out that this association is caused by reduced or excessive sleep duration.

## OS10

### Track : 'Violence/Victimization/PTSD'

*Chair (s) : Gunilla Krantz*

### Track 'Violence/Victimization/PTSD'

## OS10-1

### IS DATING VIOLENCE A RISK FACTOR FOR EARLY INITIATION OF SEXUAL BEHAVIOR? RESULTS FROM A LONGITUDINAL STUDY.

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Background: Dating violence is an important public health problem due to cost and prevalence. Thousands of women are injured or killed each year as a result of violence, many by someone they are involved with or were involved with intimately. Nearly one-third of female homicide victims are killed by an intimate partner. Cost estimates range from \$1.7 billion to \$10 billion annually, but they are believed to underestimate the true economic impact of this type of violence. According to recent studies, 1 in 4 adolescents reports some form of dating violence each year. Dating violence among high school adolescents has been linked with sexual risk taking, substance use, and suicidality. However, the association between dating violence and sexual risk over time among young adolescents has rarely been studied. Methods: Dating violence questions were asked as a part of It's Your Game, Keep it Real, an HIV, STI, pregnancy intervention study for urban middle school 7th grade students. Youth were aged 12 (SD=.59); 45% Hispanic, 41% African American, and 14% another ethnicity. One-third reported physical violence and two-thirds reported verbal violence. Longitudinal data was collected through the 9th grade. Results: After adjusting for race, ethnicity, gender and intervention status, those reporting any physical dating violence were more likely to have initiated sex by the 9th grade (OR=2.12; 95% CI=1.51-2.99) and to be currently sexual active (OR=2.51; 95% CI=1.71-3.69) at 9th grade follow-up. A history of verbal dating violence was also associated with sexual initiation (OR=2.47; 95% CI=1.69-3.61) by ninth grade and being currently sexually active

(OR=1.96; 95% CI 1.27-3.03) at follow-up. Conclusions: The prevalence of dating violence is high, even during early adolescence. Dating violence appears to be associated with early initiation of sexual behavior; however, few interventions address this likely determinant. Early interventions that prevent dating violence are needed.

## OS10-2

### PREVALENCE AND INCIDENCE OF DATING VIOLENCE AMONG AFRICAN AMERICAN AND HISPANIC MIDDLE SCHOOL YOUTH

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Background: Dating violence (DV) among adolescents has received increased attention. Recent studies suggest that 25% of adolescents report DV. DV is linked to risk behaviors such as substance use, suicidal thoughts and risky sexual behavior. DV among adults is predominantly a concern among women, but affects both genders in adolescence. Studies vary in prevalence estimates among minority populations; few have examined DV among younger populations. Most studies are cross-sectional and unable to estimate incidence. This study examines the prevalence and incidence of DV among urban, African-American and Hispanic middle school students as they transition into high school.

Methods: Data from a longitudinal intervention study testing an HIV, STI, pregnancy prevention curriculum for urban 7th-grade students were used. Youth were aged 12.6 years (SD=.64); 55% Hispanic, 45% African-American. The control cohort (n=316) was used to estimate prevalence and incidence over an 18-month follow-up period. DV questions asked about occurrence in the previous year. Prevalence and incidence rates were calculated by gender and ethnicity.

Results: In 7th grade, the overall prevalence of physical and verbal violence was 20.6% and 45.9%, respectively. Males reported a significantly higher prevalence of physical violence in 7th grade (26.2% vs. 16.0%); however, males and females had a similar prevalence in 9th grade (14.7% vs. 16.6%). While the prevalence of verbal violence by gender in 7th grade did not differ; a significant gender difference was observed in 9th grade (males 26.5%, females 42.4%). The 18-month incidence of physical and verbal violence was 16.0% and 30.0% respectively, with no significant differences observed by gender or ethnicity.

Conclusions: The prevalence of physical and verbal DV is extremely high for 12-year-old youth. This study finds no ethnic differences, however boys report twice the prevalence of physical abuse in 7th grade. Early interventions promoting healthy relationships are needed for both genders.

## OS10-3

### TELEMEDICINE IN OUTPATIENT FORENSIC PSYCHIATRY AND PROBATION: A TELEPHONE-LINKED CARE (TLC) PROGRAM AS AN ADJUNCT TREATMENT FOR MANAGING IMPULSIVITY AND MINIMIZING VIOLENCE

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**Background:** Most outpatients in Swedish forensic psychiatric care and one in five probation clients have been sentenced for violent crimes. Optimal treatment for violence management involves multi-modal programs that engage the individual over a period of at least a year and often much longer. Telephone-Linked Care (TLC) systems are totally automated programs that emulate patient-professional conversations. TLC monitors outpatients, reports to responsible clinicians, and promotes patient self-care. Our research group has developed a TLC system for impulsive and violence-prone forensic outpatients and probation clients.

**Aims:** We present an ongoing six-month pilot study including 30 participants and 30 matched controls.

**Materials and methods:** All study participants and controls are assessed for violence risk in a personal interview. Baseline self-reported assessment covers alcohol and drug use, attachment, impulsivity and social network patterns, with follow-up every three months. Registry data are extracted regarding past violent criminal acts as well as follow-up data six months after the end of the pilot study. TLC calls up participants 1-7 times a week, depending on personal preferences and needs, and participants are also able to access the system at will, 24 hours a day, 7 days a week. Participants are encouraged to practice new skills, with automated follow-up after one week for each exercise chosen. The TLC system connects the patient directly to a human counselor if necessary.

**Results:** Preliminary results are presented on baseline data as well as system user patterns.

**Conclusions:** Forensic psychiatric outpatients and probation clients need more support than staff resources allow. TLC is a low-cost, user-friendly tool that may enhance participants' sense of security, increase their social and cognitive skills, as well as increasing surveillance of participant status. The long-term goal of the project is to reduce the number and intensity of violent incidents perpetrated by this group.

#### OS10-4

### **DOES EXPOSURE TO FAMILY VIOLENCE MODERATE THE CYBERBULLYING-DEPRESSIVE SYMPTOMOLOGY RELATIONSHIP AMONG ADOLESCENTS?**

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Technological advancements in the 21st century have reconfigured conventional issues surrounding the adolescent. One such issue that has shifted from the school compound to that of cyberspace is bullying. Cyberbullying, which is bullying through the use of information and communications technology (ICT), can be dichotomized into three domains, namely sexual harassment, direct verbal aggression and indirect aggression. Synonymous to the consequences of family violence victimization, social learning theory explains that adolescents exposed to family violence were found to be more aggressive than those not exposed to family violence. This paper seeks to establish a relationship between cyberbullying and depressive symptomology among cyberbully-victims. Also, an association between exposure to family violence and depressive symptomology among

cyberbully-victims is expected. Putting these into perspective, exposure to family violence as a moderator on the cyberbullying-depressive symptomology relationship is predicted. Preliminary findings based on 1800 adolescents aged between 13 and 17 years old from Singapore will be presented to highlight the importance of the peer (cyberbullying) as well as family (exposure to family violence) domains on the child (depressive symptoms); thus, emphasizing the importance of the latter two domains on the psychological development of the adolescent.

#### OS10-5

### **HOW DOES ADVERSITY AND TRAUMA AFFECT HEALTH?**

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**Aims:** In order to understand the relations between childhood adversity and other negative experiences on mental and physical health in adulthood, we conducted a number of studies during the past few years where negative experiences in family and other potentially traumatic experiences were evaluated. **Method:** The studies included college students (n = 250) professional school students (n = 100), adults in community (n = 200), colonial war veterans (n = 350), in a total of 900 participants. **Measures included:** 1. A developmental history and socio-demographic questionnaire; 2. PTSD scale (McIntyre, 1993); 3. Brief Symptoms Inventory (Derogatis, 1993); 4. Health risk behaviors check list 5. Rotterdam Scale (Haes et al., 1990). **Results:** In all the groups the correlation between adverse exposure, psychopathology and health variables (symptoms, health risk behaviors, reported illness), was significant and regression analysis showed that the variance of health variables is significantly explained by adverse experiences and psychopathology. These results will be presented and discussed considering the different variables that are related to symptoms, and the special contribution of Posttraumatic Stress Disorder symptoms to some of the health outcomes. **Conclusion:** It is clear from all the studies that participants with more adverse histories show worse mental and health status, with more complaints, more health risk behaviors and more reported illness. Theoretical models relating stress experiences to physiological and psychological processes can be used to conceptualize the results, and interventions should consider health behaviors and problems as a whole in the life of those who are involved.

#### OS10-6

### **DOES WITNESSING PARENTAL VIOLENCE AS A CHILD INCREASE THE WOMEN'S RISK OF INTIMATE PARTNER VIOLENCE AND POOR HEALTH? A POPULATION-BASED STUDY FROM RURAL VIETNAM**

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**Background:** This study investigates the role of witnessing interparental violence as a child for women's risk of intimate

partner violence against women and poor health later in life. A more tolerant attitude to violence is tried as an explanatory factor. Methods: Structured interviews were carried out with 883 married women, aged 17 to 60, in a rural Vietnam, following a questionnaire developed for violence research. Associations between witnessing interparental violence as a child and lifetime and past year physical/sexual violence and four health variables, general health, pain/discomfort, sadness/depression and suicidal thoughts, were investigated. Results: 16.3 percent of the women had witnessed interparental violence as a child. The risk of lifetime and past year physical and sexual violence respectively was significantly higher for those who witnessed interparental violence during childhood as compared to those who had no such experience (OR 2.84; 1.82, 4.41 and 2.04; 1.11, 3.75, respectively). Women who were exposed to violence between parents were in general more tolerant to the use of violence within an intimate relationship. Of the health effects, it was found that women who witnessed interparental violence were at a higher risk of sadness and depression (OR 1.74; 1.12, 2.70) than those without such experience, also when controlled for socio-demographic factors. The combined effect of witnessing interparental violence as a child and past year physical/sexual violence elevated this risk for sadness/depression with a synergy index of 1.44 (SI 6.34, 2.48, 16.27). Conclusion: women in rural Vietnam who have witnessed interparental violence during childhood were significantly more likely to report physical and sexual violence and poor health. Witnessing parental violence acts synergistically with physical / sexual violence to aggravate the health outcome. This underscores the importance of curbing intimate partner violence as it affects not only the involved persons but also the children in the family.

## OS11

### Track : 'Work Related Health'

*Chair (s) : Akizumi Tsutsumi*

### Track 'Work Related Health'

## OS11-1

### WORK STRESS AND CORONARY HEART DISEASE- WHAT ARE THE MECHANISMS?

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Aims: To determine the biological and behavioural factors linking work stress with coronary heart disease (CHD).

Background: Stress at work is associated with an increased risk of CHD but the mechanisms underlying this association remain unclear. This study addresses the following questions: (1) Is the accumulation of work stress associated with higher risks of incident CHD and risk factors? (2) Is this association stronger among working age populations? (3) Does work stress affect CHD directly through neuroendocrine mechanisms and/or indirectly through behavioural risk factors for CHD?

Methods and Results: 10,308 London-based male and female civil servants aged 35-55 at phase 1 (1985-1988) of the Whitehall II study. Exposures included work stress (assessed at phases 1 and 2). Outcomes included behavioural risk factors (phase 3), the metabolic syndrome (phase 3), heart rate

variability, morning rise in cortisol (phase 7) and incident CHD (phases 2 to 7) based on CHD death, non-fatal myocardial infarction or definite angina. Chronic work stress was associated with CHD and this association was stronger among participants aged under 50 (RR 1.68, 95% CI 1.17-2.42). There were similar associations between work stress and low physical activity, poor diet, the metabolic syndrome, its components, and lower heart rate variability. Cross-sectionally, work stress was associated with a higher morning rise in cortisol. Around 32% of the effect of work stress on CHD was attributable to its effect on health behaviours and the metabolic syndrome.

Conclusions: Work stress may be an important determinant of CHD among working age populations which is mediated through indirect effects on health behaviours and direct effects on neuroendocrine stress pathways.

## OS11-2

### PROGNOSTIC FACTORS ASSOCIATED WITH RETURN TO WORK FOLLOWING MULTIDISCIPLINARY VOCATIONAL REHABILITATION

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Objectives: The number of people on long-term sick leave and disability pension due to musculoskeletal complaints and psychological health problems is increasing, in the Western countries. The main objective of this study was to examine if fear-avoidance beliefs (FABQ), illness perceptions (IPQ), subjective health complaints (SHC), and coping were prognostic factors for return to work after multidisciplinary vocational rehabilitation, and to assess the relative importance and interrelationship between these factors. Methods: A prospective cohort study with 1-year follow-up period was performed. 135 individuals on long-term sick leave (87 females (64 %), mean age 45 years (sd=8.4)) participated in a 4-week inpatient multidisciplinary vocational rehabilitation program. The participants had been out of work on an average of 10.5 months (sd=2.8). At entry 44 % of the participants had a musculoskeletal diagnosis, 32 % had a psychiatric diagnosis and 23 % had unspecific diagnoses (ICPC). Participants were tested with a comprehensive questionnaire at baseline, and data on return to work and sick leave were collected 3 months and 1 year after the intervention. Results: Fear avoidance beliefs about work was the most important risk factor for not returning to work, both 3 months (OR: 3.8 [CI=1.30-11.32]) and 1 year (OR: 9.5 [CI=2.40-37.53]) following the intervention. 48 % of the variance in Fear avoidance beliefs were explained by subjective health complaints, illness perceptions and education. Coping explained only 1 % of the variance. Conclusion: Our findings indicate that interventions for these patients should target fear of returning to work and the illness perceptions about subjective health complaints underlying fear avoidance beliefs.

## OS11-3

### WORKING CONDITIONS AND SICKNESS ABSENCE

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**Background:** The importance of working conditions to sickness absence behaviour is not well understood. This study examined associations of physical and psychosocial working conditions as well as work arrangements with subsequent sickness absence. **Methods:** Survey data on working conditions were collected in 2000-2002 among 5,470 female and 1,464 male employees of the City of Helsinki (response rate 67%). These data including four physical working conditions, five psychosocial working conditions and three work arrangements were linked to the employers sickness absence records until the end of 2005 (mean follow-up time 3.5 years). Short-term (up to 14 days) and long-term (15 days or more) sickness absence was examined separately. **Results:** When all working conditions were considered simultaneously, all work arrangements were associated with short-term sickness absence. Shift-work and long working hours increased short-term sickness absence whereas having a temporary work contract decreased it. Among physical work factors heavy physical work load increased short-term sickness absence most. Among psychosocial working conditions only job dissatisfaction increased short-term sickness absence in men but in women also job strain and bullying slightly increased short-term sickness absence. None of the work arrangements were associated with long-term sickness absence. Among physical working conditions, heavy physical work load and hazardous exposures increased sickness absence while doing computer work decreased it among men. Among psychosocial working conditions bullying strongly increased sickness absence in men but not in women, while job dissatisfaction and job strain had weaker effects in both genders. **Conclusions:** Working conditions affecting short-term and long-term sickness absence were partly different. A number of working conditions had effects on short-term sickness absence while on long-term sickness absence physical working conditions had most effects. Since the effects of working conditions tend to overlap, considering their joint effects is important for proper understanding of their role in sickness absence behaviour.

#### OS11-4

##### **EXCESS OVERTIME WORK INCREASES THE RISK OF METABOLIC SYNDROME IN YOUNG HOSPITAL EMPLOYEES**

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**Objective:** To clarify if overtime work increases the risk of metabolic syndrome in a cohort of hospital employees. **Subjects and method:** We studied 2108 employees of 39 Rosai Hospital groups (185 clerks, 22 doctors, 629 technical experts, 1161 nurses, 111 technical assistants). The age ranges from 34 to 58 yrs (mean 44) and 29.4 % of the cohort were men. Annual overtime work hours were calculated from overtime work salary. Subjects were classified as metabolic syndrome, pre-metabolic syndrome or others according to annual health check up data. Diagnosis of the metabolic syndrome or pre-metabolic syndrome was based on body mass index 25 kg/m<sup>2</sup> or over with at least two risk factors or only one among high blood pressure, hyperglycemia or dyslipidemia. We examined the relationship between annual overtime work hours and the metabolic or pre-metabolic conditions in the next year. Subjects were followed for 2 to 5 yrs. Pooled logistic regression analysis was used for the statistical method. **Results:** The 150 hrs of annual overtime work, the median

value, did not increase the risk of metabolic condition. The 500 hrs of annual overtime work, however, significantly increased the risk of metabolic conditions (odds ratio 2.05, 95% CI;1.45-2.88,P<0.001). The effect was significant in the group of 40 yrs or younger (odds ratio 3.44, 95% CI;1.96-6.03,P<0.001) and in the group aged from 40 to 44yrs (odds ratio 2.68, 95% CI;1.50-4.79,P<0.001) but was not significant in the groups of 45 yrs or over. **Conclusion:** More than 500 hrs of annual overtime work increases the risk of metabolic syndrome in the young hospital employees.

#### OS11-5

##### **UNDEREMPLOYMENT, WORK-RELATED STRESS AND HEALTH-RELATED QUALITY OF LIFE**

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A large number of studies provide evidence on increasing levels of global underemployment and document the negative impact that underemployment and nonstandard employment have on health. This study explores the impact of the underemployment forms on stress, job satisfaction and health related-quality of life and controls for impact of demographic characteristics, social class and often-unobserved variables related to locations, hazards and discomforts at work. Empirical assessment of the basic assumption applies a mixed methodological approach that uses quantitative data analysis of the Canadian Work and Lifelong Learning Survey, the US General Social Survey and qualitative analysis of interviews from the Education-Job Requirements Matching Survey. Obtained evidence confirms the main assumption regarding the significant impact of underemployment on employees' greater experience of job-related stress, job insecurity and lower job satisfaction. The study also shows that employees' social class and quality of work environment as well as lower control over work are strongly associated with stress, job satisfaction and health-related quality of life. The study reveals significant associations between underemployment and other measures of socio-economic status as well as strong associations of underemployment with increased discomforts and exposures to risk from work environment (subjective underemployment, F= 5.317; education-job mismatch, F= 41.134; credential underemployment, F= 2.703; performance underemployment, F= 2.973, involuntary type of employment, F= 26.3548 and Involuntary Hours, F= 30.044). The obtained evidence confirms the assumption that stress and health-related quality of life of underemployed people is significantly associated with their employment and social position that determines living conditions, work characteristics, labour relations and quality of work environment including less favourable locations, higher risks and greater discomforts at work.

#### OS11-6

##### **THE ASSOCIATION OF WORK STRESS WITH WELL-BEING IN RELATION TO LIFE ASPIRATIONS**

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**AIM OF THE STUDY:** The aim of this study was to analyse the association of work stress with well-being in relation to

intrinsic (e.g. personal growth and relationships) and extrinsic (e.g. financial success and appearance) life aspirations. **METHODS:** The economically active sample was taken from the Hungarostudy Epidemiological Panel 2006, which is a cross-sectional sample representing the Hungarian society in gender and age (n=2100). Work stress was measured by the shortened version of the Effort-Reward Imbalance (ERI) questionnaire, life aspirations by the Shortened Aspiration Index and well-being by the WHO Well-being Scale. Binary logistic regression adjusted for sex, age and education attainment was used to determine the effect of work stress on well-being. **RESULTS:** The results showed higher ERI and overcommitment significantly predicted lower well-being (OR=2.1-2.41; p<0.01). Significant interactions between work stress and life aspirations were found on well-being (p<0.01). Those who reported both high work stress and more intrinsic aspirations had higher chance to have lower well-being (OR=3.3,2; p<0.01) compared to those who had work stress and mainly extrinsic aspirations. **CONCLUSION:** The results suggest that work characteristics are much more relevant to well-being among employees with intrinsic aspirations. Workers with intrinsic life aspirations may have more emotional investment in their work, leading to stronger effects of work stress on well-being. This finding is somewhat in contradiction with previous findings and indicates that workers with predominantly intrinsic life aspirations may be more prone to suffer from negative effects of the actual work setting.

## OS12

### Track : 'Cardiovascular & Pulmonary Disorders'

*Chair (s) : Gunilla Burell*

### Track 'Cardiovascular & Pulmonary Disorders'

## OS12-1

### INDEPENDENT ASSOCIATION BETWEEN LOWER LEVEL OF SOCIAL SUPPORT AND HIGHER COAGULATION ACTIVITY BEFORE AND AFTER ACUTE PSYCHOSOCIAL STRESS

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**Background:** Lower social support is associated with higher basal coagulation activity and greater norepinephrine stress reactivity, which in turn, is linked with hypercoagulability. However, it is not known if social support interacts with stress to further increase coagulation reactivity or if norepinephrine affects this association. These findings may be important for determining if low social support influences thrombosis and possible acute coronary events in response to acute stress. **Objective:** To investigate the relationship between social support and coagulation parameter reactivity to mental stress in men and to determine if norepinephrine is involved. **Methods:** We measured perceived social support in 63 medication-free non-smoking men (mean age (SEM):36.7 (1.7)) who underwent an acute standardized psychosocial stress task combining public speaking and mental arithmetic in front of an audience. We measured plasma D-dimer,

fibrinogen, clotting-factor-VII activity (FVII:C), and plasma norepinephrine at rest, as well as immediately after and 20 min after stress. **Results:** Lower social support predicted greater increases in fibrinogen (beta=-.36,p=.001; delta R<sup>2</sup>=.12), and D-dimer (beta=-.21,p=.017; delta R<sup>2</sup>=.04), but not FVII:C (p=.83) from rest to 20 min after stress independent of body mass index (BMI), mean arterial blood pressure (MAP), and age. General linear models revealed significant main effects of social support and stress on fibrinogen, D-dimer, and norepinephrine (ps<0.035). However, controlling for norepinephrine did not change the significance of the reported associations between social support and the coagulation measures D-dimer and fibrinogen. **Conclusions:** Our results suggest that lower social support is associated with greater coagulation activity before and after acute stress, which was unrelated to norepinephrine reactivity.

## OS12-2

### FACTORS AFFECTING BEHAVIOUR RISK MODIFICATION IN PATIENTS WITH ESTABLISHED CORONARY HEART DISEASE

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#### Objective

Despite meaningful progress in the identification of risk factors, deaths from cardiovascular disease continue to increase worldwide. The objective of this study was to identify factors that affect risk modification behaviours of those with established coronary heart disease.

#### Methods

A quasi experimental study, with a pre-test, post-test design, was conducted at the National Hospital of Sri Lanka (NH SL) from July 2005 to August 2006. Patients admitted with a myocardial infarction (MI) to the Institute of Cardiology and patients undergoing Coronary Artery Bypass Graft surgery were invited to participate in a behaviour risk modification programme. Control group consisted of patients admitted with a MI to all medical wards at the NHSL and only had access to usual clinic care. An interviewer administered questionnaire with details on diet, physical activity and socio-economic variables was used to collect data. All study participants were invited for a follow up at six months.

#### Results

91% of those who participated in the intervention (n=167) and 75% of the controls (n=168) were followed up at six months. There were significant changes in the risk profiles at six months in both groups when each group was taken separately. However, the absolute changes were seen only with regard to serum LDL cholesterol level (9.7%), quality of diet (19.3%), physical activity levels (22.2%) and smoking status (16%). On multivariate analyses, the behaviour risk modification programme was a significant independent predictor of improvement in serum LDL cholesterol level (OR=1.9), better quality of diet (OR=2.1) and increased physical activity levels (OR=7.7), irrespective of the individual's socio-demographic milieu.

#### Conclusion

Participants of the behaviour risk modification programme had modified behavioural risk factors favourably when compared to a control group. Intensive behaviour risk modification programmes should be integrated to on going cardiac rehabilitation programmes to obtain best results in

rehabilitating cardiac patients.

### OS12-3

#### **DEPRESSION AND ANXIETY PREDICT THE DECLINE OF PHYSICAL HEALTH FUNCTIONING OF PATIENTS WITH HEART FAILURE: A SIX-MONTH FOLLOW-UP ANALYSIS**

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**BACKGROUND:** Recent studies have demonstrated that depression is prevalent among individuals with heart failure. This study examined: (1) whether two types of psychological distress, depression and anxiety, were concurrently or prospectively associated with the physical health functioning of patients with heart failure, and (2) whether social support or being married buffered the detrimental effects of distress. **METHODS:** Participants were 131 men (66%) and women (34%) diagnosed with heart failure with a mean age of 54 (SD=10) years. Hierarchical linear regression analyses were conducted to examine whether depression and anxiety symptom severity at baseline were associated with concurrent physical functioning and whether they predicted the follow-up physical functioning at 6 months while controlling for covariates including age, gender, education, marital status, NYHA classification of cardiac patients, and baseline physical functioning. **RESULTS:** The findings are summarized as follows: (1) After controlling for age, gender, education, marital status, and NYHA class, depression severity ( $\beta=.58$ ,  $p<.001$ ) and anxiety levels ( $\beta=.47$ ,  $p<.001$ ) were each concurrently associated with the baseline physical functioning. (2) After controlling for baseline physical functioning and standard covariates, depression ( $\beta=.34$ ,  $p<.001$ ), as well as levels of anxiety ( $\beta=.25$ ,  $p<.01$ ), significantly predicted physical functioning at 6 months in separate models. (3) When both anxiety and depression were considered simultaneously in the multivariate model with covariates, depression severity ( $\beta=.23$ ,  $p<.05$ ), but not anxiety ( $\beta=.11$ , ns), remained a significant predictor of deteriorated physical functioning at 6 months. (4) The effects of psychological distress on follow-up physical functioning were not buffered by perceived social support or being married. **CONCLUSION:** Psychological distress, especially depression, appears to present a significant risk for the deterioration in physical functioning among individuals with heart failure.

### OS12-4

#### **A PRACTICE-BASED RANDOMIZED CONTROLLED TRIAL OF MOTIVATIONAL INTERVIEWING AND MEDICATION ADHERENCE IN HYPERTENSIVE AFRICAN AMERICANS.**

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**Background:** Poor adherence to medication is a significant problem in hypertensive African Americans. Although motivational interviewing (MI) is effective for adoption and maintenance of health behaviors in patients with chronic diseases, its effect on medication adherence remains untested in this patient population. **Objective:** To test the effect of a practice-based MI counseling versus usual care (UC), on medication adherence and blood pressure (BP). **Design:** Randomized controlled trial. **Setting:** Community-based primary care practices. **Patients:** 190 hypertensive African Americans (88% women; mean age 54 years). **Intervention:** Standard medical care plus MI counseling session every 3 months versus usual medical care alone. **Measurements:** The primary outcome was adherence measured by electronic pill monitors; the secondary outcome was within-patient change in office BP from baseline to 12 months. **Results:** Baseline adherence was similar in both groups ( $56.2\% \pm 35.5\%$  and  $56.6\% \pm 34.1\%$  for MI and UC respectively  $p = 0.94$ ). Based on intent-to-treat analysis using mixed regression, a significant time X group interaction with model-predicted post-treatment adherence rates of 43% and 57% were found in the UC and MI groups respectively ( $p = 0.027$ ) with a between-group difference of 14% [95% CI, -0.2% to -27%]. The between-group difference in systolic and diastolic BP was -6.1 mm Hg ( $p = .065$ ) and -1.4 mm Hg ( $p=.465$ ) respectively, in favor of the MI group. **Limitations:** The study sample was mostly low-income women, thus limiting the generalizability to all African Americans. **Conclusion:** A practice-based MI intervention led to steady maintenance of medication adherence over time, compared to significant decline in usual care patients. This effect was associated with a clinically meaningful net reduction in systolic BP in favor of the MI group.

### OS12-5

#### **CHANGES IN DEPRESSION AFTER HEART TRANSPLANTATION: A 5 YEAR FOLLOW-UP**

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**Background:** Studies indicate that heart transplantation (HTx) is associated with depressive symptoms that increase the risk of mortality. However, little is known about factors that may influence changes in depressive symptoms in HTx-patients over time. This study examines predictors of changes in depressive symptoms in a cross-sectional, prospective study with a minimum of 5-year follow-up. **Methods and results:** At baseline, symptoms of depression were assessed in 147 HTx-patients using the Beck Depression Inventory (BDI). Of these, 39 (24.5%) died during the follow-up, whereas 78 of the 108 survivors (72.2%) participated at the 5 year follow-up. The average level of depression increased during the follow-up ( $p=.01$ ). At baseline, mild to severe depressive symptoms (BDI=10) were observed in 13 patients (16.9%), and this had increased to 30 patients (39.0%) at the follow-up. During the follow-up period, only two patients experienced a remission of depressive symptoms. In analyses of selected baseline predictors, socio-demographic variables and somatic and lifestyle risk factors were unrelated to changes in depression, whereas worse self-rated physical functioning and less social support were associated with increased depression at follow-up. **Conclusion:** A very high proportion of the HTx-patients

had mild symptoms of depression at the follow-up, indicating that depression is under-diagnosed and under-treated. As symptoms of depression predict mortality independently of somatic and lifestyle risk factors in HTx patients, this group of patients should be screened regularly for depressive symptoms.

#### OS12-6

### DEPRESSION AND IMPAIRED QUALITY OF SEXUAL RELATIONSHIP IN WOMEN WITH CORONARY HEART DISEASE.

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Impaired psychological well-being is common in patients with coronary heart disease. This affects quality of life and can interfere negatively with rehabilitation and secondary prevention. Quality of sexual and intimate relationships is an often neglected issue, especially in CHD women who are rarely offered counselling on this topic. The present study assessed the association between depression and changes in quality of sexual relationships in CHD women. Baseline questionnaire data were obtained from a stress management intervention trial including 198 women with coronary heart disease, mean age 61. Depression was assessed by the Comprehensive Personality Rating Scale (CPRS), and changes in frequency and quality of sexual activity by a self-rating scale designed for the intervention study. The depression scale included 13 subscales. The participants were divided into two groups: no changes in satisfaction, and deterioration of sex life. Generally, the participants rated satisfaction with sexual activity as significantly poorer after their coronary event. Women who experienced deterioration also reported significantly more depressive symptoms on 12 out of the 13 CPRS subscales compared to women who reported no changes in quality. Quality of intimate relationships is an important part of quality of life, and an often neglected issue in cardiac rehabilitation, especially for women. Helping patients to cope with sexual difficulties may contribute to increased quality of life and decreased depression, thereby enhancing positive effects of cardiac rehabilitation and improving prognosis.

#### OS13

### Track : 'Diabetes/Metabolism/Nutrition/Obesity/ Eating Disorders'

*Chair (s) : Alan Delameter*

### Track 'Diabetes/Metabolism/Nutrition/ Obesity/Eating Disorders'

#### OS13-1

### EFFECTIVENESS OF A MAINTENANCE TAILORED OBESITY INTERVENTION

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Background: Behavioral interventions for weight loss are often successful in the short term (6 mo.), but weight is usually regained within one to three years. Aim: The aim of this study was to evaluate the efficacy of a maintenance-tailored treatment for improving long-term weight loss. Methods: 213 obese men and women  $\geq 18$  years of age and with body mass index (BMI)  $\geq 30.0$  and  $\leq 37.0$  were randomly assigned to Standard Behavioral Treatment (SBT) or Maintenance-Tailored Treatment (MTT). The SBT intervention was a state-of-the-art behavioral intervention and encouraged daily weighing, monitoring of calorie intake and expenditure, and use of several behavior modification strategies. The MTT intervention encouraged the same techniques, but also taught participants to change from one weight loss strategy to another in 8-week segments with 4-week breaks in between. The primary dependent variable in the study was change in body weight. Results: Study participants were 48.8 yrs. old, 53% female, 71% Caucasian, and above average in education. Mean BMI was 34.9 at baseline. Mean weight changes (- = loss, + = gain) in the SBT and MTT groups in successive 6-month intervals from baseline were -7.6 kg vs. -5.9 kg ( $p < .01$ ), -3.2 kg vs. -2.6 kg (NS) and +1.7 kg vs. -0.3 kg ( $p < .01$ ). Homework completion, which was strongly associated with weight loss success, was substantially greater in MTT than SBT (52 vs. 33%,  $p < .01$ ). Conclusion: To the best of our knowledge, continuing weight loss for 18 months is unprecedented in the behavioral treatment literature. These unique findings may offer significant insights for better understanding and addressing the persistently difficult problem of weight loss maintenance.

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#### OS13-2

### DIABETES SELF-CARE IN UGANDAN ADULTS WITH TYPE 2 DIABETES

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The purpose of this study was to describe diabetes self-care behaviors in Ugandan adults with type 2 diabetes, and to

examine how self-care relates to health beliefs and physiological outcomes of diabetes control. The self-regulation model of illness was used to guide this research. A modified version of the diabetes self-management assessment tool (D-SMART) was used to measure physical activity, diet, medication taking, blood glucose monitoring, problem-solving, reducing risks of complications, and emotional adjustment. Participants were 340 Ugandan adults who were recruited from two diabetes clinic sites in Kampala Uganda. A bilingual research assistant invited clinic patients to participate in a 30-40 minute interview. Informed consent was obtained verbally. Physiologic measures were obtained from clinic records. At the end of the interview each participant was given a foot care handout. Participants had a mean age of 54 years, 58% were female, 47% had a primary education level or less, and 80% reported inadequate income. Results revealed that 54% of patients report activities of daily living as their form of exercise, most had very limited food choices with diets largely of carbohydrates, and no one self-monitored blood glucose. Half the sample reported negative emotions associated with having diabetes. Physiologic data showed that 82% had a fasting blood glucose level that exceeded 100 mg/dl, 77% had a waist circumference that exceeded the norm, and over half were overweight or obese. Although the 73% believed that diabetes was a life-long condition that can be cured, open-ended comments suggest that diabetes may still be viewed as an acute illness condition. The unique challenges of conducting diabetes research and education in a resource poor setting will be discussed.

#### OS13-3

##### **SELF-PERCEPTIONS AND QUALITY-OF-LIFE BELIEFS FOLLOWING GASTRIC BANDING SURGERY**

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This study examined weight, physical self-concept, and health-related quality of life before and after laparoscopic adjustable gastric banding (LAGB) surgery. Participants were 30 obese adults with a mean age of 41 years, a mean weight of 108 kg, and a mean body mass index of 39. Baseline measures were taken one week prior to surgery and included the NEO Five-factor Inventory (Costa & McCrae, 1992), the Physical Self-Description Questionnaire (Marsh et al., 1994), and the Social Physique Anxiety Scale (Hart et al., 1989). All measures except the NEO-FFI were taken again at monthly intervals for 6 months post-surgery. ANOVAs revealed the following changes during the 6 months following LAGB surgery: (a) a significant loss of weight (Mean = 11.5 kg,  $p < .001$ ); (b) a significant decline in physique-related anxiety ( $p < .001$ ); (c) a significant increase in global self-esteem ( $p < .02$ ); (d) significant improvements in multiple dimensions of physical self-concept, including perceived appearance ( $p < .001$ ), perceived endurance ( $p < .001$ ), and perceived health ( $p < .002$ ); and (e) significant improvements in multiple quality-of-life dimensions, including vitality/energy ( $p < .001$ ), performance of role-related activities ( $p < .001$ ), and general physical functioning ( $p < .001$ ). With only a few minor exceptions, these positive self-perception changes occurred regardless of the amount of weight lost or the individual's personality type.

#### OS13-4

##### **THE RELATIONSHIPS OF EATING BEHAVIOURS AND GENERAL SELF-CONTROL WITH OBESITY**

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**Purpose:** In modern societies characterized by palatable, accessible and plentiful foods, self-control has a central part in the regulation of body weight. We examined the associations of eating behaviours (restrained, uninhibited and emotional eating) and general self-control with adiposity variables (BMI, waist circumference and weight change during adult life) in a representative population sample.

**Methods:** The study participants were 25-74-year-old Finnish men ( $n=2,325$ ) and women ( $n=2,701$ ) from the national health survey (FINRISK) conducted in 2007. Eating behaviours were measured with the Three Factor Eating Questionnaire R-18 and general self-control with the Self-control Scale. Participants' weight, height and waist circumference were measured in a health examination, and weight change was the difference between the self-reported highest and lowest weight during adult life.

**Results:** Women reported higher levels of restrained, uninhibited and emotional eating compared to men, but the level of self-control was similar in both genders. All three eating behaviours increased by BMI level (normal weight, overweight and obese) among males and females. On the other hand, general self-control decreased by BMI status. Higher self-control scores were related to higher restraint and lower uninhibited and emotional eating scores.

The correlations between restrained eating and adiposity variables varied according to BMI level in both genders. Cognitive restraint was positively associated with BMI, waist circumference and weight change among normal weight men and women, but it was negatively related to BMI and waist circumference in obese women. In contrast, general self-control correlated negatively with BMI, waist circumference and weight change among overweight and obese males and females.

**Conclusion:** Obese and overweight subjects have to concentrate more on their eating, which probably increases their scores on restrained, uninhibited and emotional eating. These higher scores combined with lower general self-control scores could indicate unhealthy food habits.

#### OS13-5

##### **AN ECOLOGICAL APPROACH TO BODY IMAGE: AVERAGE-SIZE MODELS IN THE MEDIA.**

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Media content analyses have consistently demonstrated an over-representation of images depicting unrealistic ultra-thin and ultra-muscular models in the mass media. Furthermore, a strong relationship has been found between exposure to these images, poor body image and disordered eating behaviours. However, despite there being a consensus that the mass media contributes to poor body image, researchers have taken a primarily individualistic approach and there has been little attempt to enact change in the sociocultural environment. The aim of this two-part study was to take an ecological approach to body image by investigating the advertising effectiveness of

average-size models and their impact on body image. In study one, men and women aged 17-25 years (n= 296) were systematically assigned to one of three female model image exposure conditions: no models, ultra-thin models and average-size models. Participants then viewed nine advertisements, which were created for the purpose of this study, rated the effectiveness of these advertisements and completed a series of body image measures. Study two replicated study one, however, participants were assigned to one of four male model image conditions: no models, average-slim models, average-large models and ultra-muscular models. Study one analyses showed that for women exposure to average-size female models was associated with a significantly more positive body image state than exposure to ultra-thin female models, with no significant difference between exposure to average-size and no models. For men there was no significant difference in body image state between conditions. Average-size female models were rated by men and women as equally effective in advertisements as ultra-thin and no models. Data collection is in progress for study two. The results of this study suggest that increasing the use of average-size models in the media could provide an effective advertising alternative to ultra-thin and ultra-muscular models, whilst not negatively impacting upon body image.

#### OS13-6

### **“JAPAN AND US HOUSEHOLD FOOD PURCHASES: COMPARISON OF EXPENDITURES FROM 2005 FROM HOME AND AWAY SOURCES AND SPECIFIC FOOD CATEGORIES”**

**French S A**

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#### Background

Japan and the United States (U.S.) are two of the most affluent countries in the world. However, the prevalence of overweight is much higher in the U.S. (70%) compared with Japan (23%). Food purchasing patterns may contribute to individual dietary intake that promotes energy balance. This study examined differences in household food purchases between Japanese and US households using national consumer expenditure survey data collected in 2005.

#### Methods

Data collected from Japan and U.S. national consumer surveys were compared. Food expenditure categories included fish, meat, cake/candy, fruit vegetables, and beverages. Home and away from home expenditures were computed. Japan and U.S. food expenditures by household demographics were compared.

#### Results

Japanese households spent more of their total household expenditures (22.7%) on food compared with U.S. households (15.8%). However, the percent of food expenditures eating out was lower among Japanese households (20.6%) compared with US household (44.8%). Compared to U.S. households, Japanese households spent more on fish (12.2% vs 3.3%), and vegetables (14.3% vs 7.6%), and less on meat (9.9% vs 17.8%) and sweets (8.2% vs 13%). The purchase of “other” beverages (including sugar sweetened beverages) was lower among Japanese households (54% of beverage purchases) compared to US households (83%).

#### Conclusions

Compared to US households, Japanese household food purchases are more likely to be from grocery store sources and to consist of food considered more healthful with regard to energy balance. Further research is needed to examine whether

these food purchasing patterns are associated with body weight change over time.

#### OS14

### **Track : ‘Health Behavior’**

*Chair (s) : Elizabeth Eakin*

### **Track ‘Health Behavior’**

#### OS14-1

### **SOCIAL SUPPORT IS A PRIMARY INFLUENCE ON HOME FRUIT, 100% JUICE AND VEGETABLE AVAILABILITY**

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Children tend to eat more fruit and vegetables when more are available in the home. This paper proposes and tests a model that predicts the availability at home (hereinafter termed “home availability”) of fruit, 100% juice and vegetables, using new measures of frequency of food shopping, purchase and comparative purchase outcome expectancies (i.e. the perceived benefits and costs of purchasing fruit and vegetables), home food pantry management practices, family social support for purchasing fruit and vegetables, food shopping practices, and body mass index. Participants (n=98) were recruited in 2004 in front of grocery stores and completed two telephone interviews. Cross sectional hierarchical regression was employed with backward deletion of non-significant variables. Despite many statistically significant bivariate correlations between the new variables and home fruit, 100% juice and vegetable availability, social support was the primary predictor of home fruit availability in multivariate regression. Body mass index (BMI) and home 100% juice pantry management were the primary predictors of home 100% juice availability. Social support, BMI, and shopping practices were the primary predictors of home vegetable availability. Social support for purchasing fruit, 100% juice and vegetables was an important consistent predictor of home availability. These findings need to be replicated in larger samples.

#### OS14-2

### **DIRECT, MEDIATED AND MODERATING EFFECTS OF HOUSEHOLD DEPRIVATION WITHIN THE THEORY OF PLANNED BEHAVIOR ON BREASTFEEDING**

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This research assessed the direct, mediated and moderating effects of household deprivation on relationships in the theory of planned behaviour (TPB) in relation to breastfeeding. A longitudinal questionnaire design was employed. Components of the TPB, additional variables (descriptive norm, moral norm, self-identity), and sociodemographic variables (age,



household deprivation, ethnicity, education) were assessed and used to predict breastfeeding at four time points (during hospital stay, at hospital discharge, 10 days postpartum, and six weeks postpartum). The sample were women selected from defined areas of economic hardship (N = 248). A model containing the TPB, additional variables and demographic factors provided a good prediction of behaviour, breastfeeding at birth (88.6% correctly classified; household deprivation, intention, attitude significant), at discharge from hospital (87.3% correctly classified; intention, attitude significant), 10 days after discharge (83.1% correctly classified; education, intention, attitude, descriptive norm significant), and 6 weeks after discharge (78.0% correctly classified; age, household deprivation, ethnicity, moral norm significant). The direct effects of household deprivation on breastfeeding were partially or completely mediated by TPB variables. There were few moderating effects of household deprivation on relationships with the TPB. Models attempting to predict health behaviours might usefully incorporate both socio-structural variables and social cognition variables.

#### OS14-3

##### STAGES OF CHANGE FOR REDUCING FAT AMONG ADULTS IN BANDAR ABBAS, IRAN

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**Introduction and Objective:** Consumption of fatty foods particularly in the midlife is one of the risk factors of cardiovascular diseases (CVD), diabetes, high blood pressure and obesity. The aim of this study was to determine stages of change for reducing fat among adults in Bandar Abbas, Iran. **Methods:** A population-based cross sectional study was conducted in 2006. A total of 1600 people over 15 years were selected using cluster sampling method. Data were collected using a questionnaire. Stages of change were determined by dietary fat stages of algorithm for adults. According to Prochaska and Diclemente Model stages of change consisted of precontemplation, contemplation, preparation, action and maintenance. Data were analyzed by SPSS13. **Results:** 49.4% of subjects were male and 50.6% female with mean age of  $40.3 \pm 15.3$ . The percentage of participants classified into each stage was as follows: precontemplation 53%, contemplation 3.4%, preparation 1.1%, action 2.8%, and maintenance 39.6%. There was no significant relationship between males and females regarding stages of change of fatty foods ( $p = 0.15$ ). The stages of change were statistically correlated with age and education ( $p < 0.001$ ). In specific age groups, people in 15-30 years were mostly in precontemplation (60.4%), and people above 60 were in maintenance (62.9%) stage. **Conclusion:** present study shows that more than half of subjects were in precontemplation stage; it means that people in this stage have not thought to reduce the consumption of fatty foods and change it in any way. Moreover, less percentage of contemplation, preparation and action stages indicate that the process of behavior change from precontemplation to maintenance is very slow. Hence, it is recommended to plan suitable food messages and prepare campaign to aware the people particularly who are in risk and groups who are in precontemplation stage. **Keywords:** stages of change, fat, Bandar Abbas, Iran

#### OS14-4

##### IMPACT OF HEALTH RELATED RESEARCH COMMUNICATED THROUGH MASS MEDIA ON HUMAN HEALTH BEHAVIOR.

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**Objective:** To determine the impact of health related research communicated through mass media (HRRCTMM) on health behavior of north Indians. **Methodology:** A cross-sectional study was conducted in August 2007 involving interviews of university students, geriatric people, nursing students and families of medical institute's employees (50 each) regarding their exposure to HRRCTMM and resultant change in behavior. A focus group discussion (FGD) was also conducted among 10 Master's of Public Health students on HRRCTMM. **Results:** Some (24%) respondents reported that they usually skip HRRCTMM; 23% read entire health related articles; 59% gained health related knowledge from media, 62% changed their behavior after coming across HRRCTMM (addiction, sex behavior, diet related behavior, exercise and yoga related behavior and environment related behavior.) It emerged from the FGD that people visualize media as source of entertainment only and do not take health related messages seriously. Credibility of health related messages in media was questioned. The HRRCTMM messages were labeled as selective and misleading. Impact of health related messages in media was told to be very less since habits were difficult to change. Some impact of HRRCTMM was also reported. "After watching exercise sessions on TV many people have started yoga practices". Health related messages in media were also told to often produce ambiguity & confusion. Contrasting views about health impacts of mobile phone use were reported. Respondents opined that "Vested interests of companies sponsor report biased research". **Conclusion:** Selective impact of health related messages through mass media was reported and some doubts were expressed regarding the credibility of health related information in mass media.

#### OS14-5

##### THE LOGAN HEALTHY LIVING PROGRAM: A TELEPHONE COUNSELLING INTERVENTION FOR PHYSICAL ACTIVITY & DIETARY BEHAVIOUR CHANGE

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**Introduction:** The Logan Healthy Living Program is one of the first large-scale Australian studies to evaluate a telephone counselling intervention for physical activity (PA) and diet. It targeted patients with type 2 diabetes and hypertension from a disadvantaged community.

**Methods:** Using a cluster-randomised design, 10 practices

were randomised to a Social-Cognitive Theory-based telephone counselling intervention (TC) or usual care (UC). Electronic medical records were used to identify condition-eligible patients. TC participants received a workbook, pedometer and 18 tapered calls over 12 months. Data were collected via telephone at baseline, 4- and 12-months, by staff separate from the intervention, using validated measures for PA (total min/wk; Active Australia) and diet (total fat, saturated fat, serves of vegetables/fruit, fibre; ACCV Food Frequency Questionnaire). Preliminary intention-to-treat analysis was conducted using separate repeated measures mixed models.

**Results:** 434 patients consented to participate (TC n=228, UC n=206); mean age =  $58 \pm 12$  years; 61% female; 60% \_ three chronic conditions; 84% overweight or obese; 66% \_ high school education. Analysis of 12-month data (n = 341) revealed that 91% of TC participants received > 10 of 18 calls. Significant intervention effects (TC v UC) at 12-months were found for % energy from total fat ( $-1.9 \pm 0.3$  vs  $-0.7 \pm 0.3$ ,  $p=0.003$ ) and saturated fat ( $-1.5 \pm 0.2$  vs  $-0.6 \pm 0.2$ ,  $p<0.001$ ), serves of vegetables ( $1.1 \pm 0.1$  vs  $0.4 \pm 0.1$   $p<0.001$ ) and fruit ( $0.5 \pm 0.1$  vs  $0.2 \pm 0.1$ ,  $p=0.001$ ). At 12-months, TC and UC participants both increased total PA similarly ( $77 \pm 10$ mins).

**Conclusions:** This study evaluated a broad-reach intervention modality (structured, behaviourally-based telephone counselling); targeted multiple health behaviour change in a socially-disadvantaged chronic illness sample; and, collected detailed implementation data. As such, it makes an important contribution to the physical activity and dietary intervention literature. Results suggest that telephone counselling is a promising approach to physical activity and dietary change, with the potential for wider spread application.

## OS15

### **Track : 'Infectious Diseases/SARS/HIV/AIDS' 'Pain, Musculoskeletal and Neuromuscular Disorders'**

*Chair (s) : George Bishop*

### **Track 'Infectious Diseases/SARS/HIV/AIDS'**

## OS15-1

### **COPING, GOAL ADJUSTMENT AND PSYCHOLOGICAL WELL-BEING IN HIV-INFECTED MEN WHO HAVE SEX WITH MEN**

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**OBJECTIVES** - The aim of the present study was to find out which factors were related to psychological well-being in HIV-infected men who have sex with men. These factors could subsequently be used in the development of an intervention program for HIV-positive people. **METHODS** - Respondents were contacted through the Dutch national organization for people with an HIV-infection. The

organization mailed the request to participate to its members. 104 HIV-positive men who have sex with men participated and received a mail questionnaire with a return envelope. Among others, the questionnaire included the Cognitive Emotion Regulation Questionnaire (CERQ: Garnefski, Kraaij, & Spinhoven, 2001), the COPE (Carver, Scheier, & Weintraub, 1989), the Goal Obstruction Questionnaire (Kraaij & Garnefski, in press) and the Hospital Anxiety and Depression Scale (HADS: Zigmond & Snaith, 1983). The mean age of the respondents was 50 years, and almost all had the Dutch nationality. On average people had known about their HIV-positive status for 10 years and the majority was on HIV-medication. Pearson correlations and Hierarchical Regression Analyses were performed. **RESULTS AND CONCLUSIONS** - The findings suggested that cognitive coping strategies had a stronger influence on well-being than the behavioral coping strategies: positive refocusing, positive reappraisal, putting into perspective, catastrophizing and other-blame were all significantly related to symptoms of depression and anxiety. In addition, withdrawing effort and commitment from unattainable goals, and reengaging in alternative meaningful goals, in case that preexisting goals can no longer be reached, seemed to be a fruitful way to cope with being HIV-positive. These findings suggested that intervention programs for people with HIV should pay attention to both cognitive coping strategies and goal adjustment. A self-help intervention program was developed including these elements.

## OS15-2

### **THE EFFECTS OF AN INDIVIDUALIZED INTERVENTION ON REPORTS OF FATIGUE IN A LARGE SAMPLE OF HIV-INFECTED MEN AND WOMEN**

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**Background:** Fatigue is common among persons coping with chronic conditions such as HIV, and can interfere with quality of life. The current analysis examined the effects of a 15-session, individualized intervention, focusing 1st on stress and coping; 2nd on sexual risk reduction; 3rd on adhering to care, on fatigue among HIV-positive men and women on antiretroviral therapy (ART) in four US cities.

**Methods:** intent to treat analysis compared those randomized to the intervention (n=319) versus a lagged control condition (n= 330). The intervention was delivered in three modules of 5 sessions each over the course of the first 12-15 months. Outcomes were reports of presence of fatigue, degree of bother from fatigue and causal attributions of fatigue on a symptom checklist at 10, 15, 20, and 25 months post baseline.

**Results:** Despite comparable levels at baseline, compared to controls, fewer participants in the intervention reported fatigue at 10 months (69% compared to 81% in the control group,  $p<0.01$ ), following the stress and coping intervention. Those in the intervention reported lower mean bother scores for fatigue at 10 months ( $p<0.05$ ) and were less likely to attribute fatigue to HIV medications ( $p<0.05$ ). There were no differences at subsequent follow up.

**Discussion:** This individually administered intervention resulted in reductions in reports of fatigue among persons living with HIV. However, the reductions were short-lived when compared to controls. Decreased attribution of HIV medications as the cause of fatigue in the intervention

condition suggests that coping interventions can address cognitive appraisals of causality of fatigue in the process of coping with the stress of chronic HIV disease. Ongoing intervention to maintain improvements warrants investigation in light of the short-term intervention effect.

### OS15-3

#### **ASSESSING MATERNAL KNOWLEDGE AND PRACTICES REGARDING CHILDHOOD IMMUNIZATION IN GAUTENG PROVINCE, SOUTH AFRICA.**

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##### **Objectives**

To determine the maternal knowledge and practices concerning immunization.

##### **Methods**

A descriptive survey was carried out in 3 districts proportionally selected according to size in Gauteng Province. Interviews of mothers with children under 5 years were performed using a structured questionnaire. The questionnaire consisted of questions on knowledge and practices of mothers regarding immunization. Surveys were conducted in 25 out of 30 random sampled health facilities in Gauteng Province. A total sample of 175 mothers were interviewed.

##### **Results**

The results of this study show that, the level of immunization knowledge among mothers is limited. About 68 percent of respondents stated that children who are sick should not be immunized. About 50 percent of the respondents had a fair knowledge regarding vaccine preventable diseases but poor knowledge regarding the disease prevented by immunization. Fifty percent of the respondents reported having taken their children for immunization during National Immunization days; however 36 percent of the respondents believe that children who are already immunized should not be taken on National Immunization Days.

##### **Conclusion and recommendations**

It is therefore important to address maternal knowledge and possible barriers to childhood immunization when developing public health interventions for promoting childhood vaccination. Study results showed that, fathers, siblings, grannies and housemaids are also playing a role by bringing children for immunizations, it is therefore important to educate them too so that they can be knowledgeable on vaccine preventable diseases.

##### **Key words**

Immunization, education, Knowledge, Practices, vaccination.

#### **Track ‘Pain, Musculoskeletal and Neuromuscular Disorders’**

### OS15-4

#### **DISABILITY IN THE POPULATION: TESTING AN INTEGRATED MODEL OF COGNITIONS AND IMPAIRMENTS, INCLUDING CHRONIC PAIN IMPAIRMENT**

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**Objective:** To date work that aims to understand disability has tended to employ either impairment based models or psychological models of behaviour. The International Classification of Functioning, Disability and Health (ICF) is an impairment based model that conceptualises disability as behaviour in the form of activity limitations and participation restrictions. Consequently, it is possible to integrate psychological models, such as the Theory of Planned Behaviour (TPB) into the ICF. This project developed and tested such an integrated model of disability. In this integrated model the cognitions within the TPB mediate the relationship between impairments and activity limitations. **Design:** A random sample of the adult population in three geographical areas in Scotland was sent a postal questionnaire that measured the ICF and the TPB. **Participants:** 628 adults in 3 cities in Scotland, mean age 58.9 years (sd 16.2). **Main Outcome Measures:** walking behaviour and activity limitations. **Results:** Impairment, in the form of chronic pain (CP) accounted for 4% and 19% of the variance in walking and activity limitations respectively. The TPB accounted for 27% and 40% of the variance in walking and activity limitations. Control perceptions predicted walking behaviour and activity limitations, intention predicted walking behaviour only. Individuals who expressed higher perceptions of control over walking were less disabled. 51% of the sample reported CP and structural equation modelling demonstrated that the integrated model accounted for a greater proportion of the variance in activity limitations (62%) in the CP sample than either the ICF or the TPB alone. **Conclusion:** An integrated model of disability that supports a role for biologically based impairment and psychological factors accounted for the majority of variance in disability. The integrated model may provide a useful interdisciplinary theoretical framework for the development and testing of complex interventions to reduce disability in the population.

### OS15-5

#### **NAVIGATING THE BORDERLANDS OF PATIENT-CENTRED GOAL PLANNING: A GROUNDED THEORY INVESTIGATION**

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**PURPOSE:** This study employed constructivist grounded theory to investigate the application of goal planning to interdisciplinary inpatient rehabilitation for people with stroke. **METHOD:** Data was collected from two hospitals and involved 46 participants (nine patients, seven family members, 28 health professionals, and two physiotherapy students). Participants were selected by purposeful and theoretical sampling. Audio-data from recordings of participant interviews (including patients, family members, and clinicians), team meetings, family meetings, and patient-clinician interactions were transcribed and analysed along with field notes, using constant comparative methods. Patients were followed throughout the course of inpatient rehabilitation and followed up four months after discharge. **FINDINGS:** Twenty-eight hours of audio-date was gathered, along with the field notes from two four-month observation periods in the

rehabilitation facilities. The findings revealed that certain goals (characterised by short timeframes, conservative estimation of progress, and an orientation to physical function) were prioritised or “privileged” over others. Involvement of patients and family members in goal planning appeared to result in interactional dilemmas for health professionals when the objectives, skills and perceived capacity of patients or family members did not align with these privileged goals. Clinicians attempted to resolve these dilemmas by the use of rhetorical strategies that supported a patient-centred discourse while re-orientating the objectives of therapy back to privileged goals. Furthermore, when privileged goals did align with the objectives and capacity of patients, greater patient involvement in goal planning still did not always influence clinical reasoning or change the course of interventions provided. **DISCUSSION AND CONCLUSION:** This study raises questions about how “patient-centred” current goal planning practices are in inpatient rehabilitation, and whether a “patient-centred” approach is possible in inpatient rehabilitation for stroke given the way it is current funded and structured.

OS15-6

**PAIN, PHYSICAL FUNCTION AND DEPRESSION IN OLDER ADULTS WITH OSTEOARTHRITIS: A LONGITUDINAL STUDY IN SHANGHAI, CHINA.**

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**Aim:** The role of psychosocial factors that impact on Osteoarthritis (OA) is insufficiently understood as most of the research had been on Rheumatoid arthritis (RA). The reciprocal relationship of pain and functional disability in Osteoarthritis (OA) has mostly been studied using cross-sectional data, which does not allow the temporal connections to be ascertained. Older adults with impairment of physical functions report higher levels of depression. The aim of the study was to tease out the temporal associations between, pain, functional disability and depression using a cohort of older adults with clinically diagnosed OA in Shanghai, China. **Method:** A cohort of OA patients (n=176) were examined at baseline and after an interval of six months to collect data on pain, functioning and depressive symptom. Path analysis models were used in the analyses. **Results:** The path model showed good model fit (Chi square 5.3 ; df =6 ; P > 0.5; NFI =0.99; CFI= 0.99; RMSEA= 0.017). The model accounted for 70% of the variance in functional disability at follow up and the significant predictors were: Pain at follow-up ( $\beta = 0.79$ ); functional disability at baseline ( $\beta = 0.29$ ) and pain at baseline ( $\beta = -.20$ ). Depression was associated with functional disability at baseline ( $\beta = 0.21$ ; P =0.01) but was not significantly associated to pain or functional disability at follow-up. **Conclusions:** The close association of pain to functional disability in OA found in this study is similar to other studies. Pain at baseline, has both a direct and indirect path (through function disability at baseline) that effects functional disability at follow-up. Depression is not a significant predictor of level of disability. Further studies are required seek modifiable behavioural variables such as self-efficacy and coping strategies that mediate these relationships.

## Track 'Adherence'

P-001-T

### COMPLIANCE WITH ANTIRETROVIRAL TREATMENT BY HIV POSITIVES & MARC ASSESSING THE SOCIOECONOMIC NEEDS FOR CHILDREN IN LOW INCOME SETTINGS

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Hope came to people living with HIV and AIDS since the advent of Antiretroviral. However, this hope is attainable if and only if, people living with HIV/AIDS highly comply with antiretroviral treatment. Lack of compliance or adherence has made ARVs ineffective for HIV/AIDS patients. Though there is not a clear definition of compliance with ARV, there is a consensus that for antiretroviral treatment to be effective, 95% of compliance is needed. Given the case of children, the situation is more than compliance, due to the low interest for producing children doses of ARVs. In low-income settings, gaining access to ARVs in general is very difficult due to scarcity. Thus, children in these settings suffer even the more when it comes to treatment. To be able to attain a 95% adherence level all PLWHA need socioeconomic help and even enormously in the case of children. The aim of this paper is, to assess the socioeconomic needs of children with HIV/AIDS on antiretroviral treatment in low-income settings. Literature review was conducted to ascertain the magnitude of the subject, 10 articles out of 100 were assessed for socioeconomic needs of children compliance with ART in low-income settings. Four categories of articles were identified among the 10. The assessment shows that none of the article directly deals with the subject. Thus, recommendations are made and further researches proposed. The conclusions are; Paediatric ARV and ART are very less developed areas in biomedical research and health care. The aspect of Health Economics seems non-existing currently. Ongoing researches identified are all in high-income settings. Children with HIV/AIDS in low-income settings have not been given attention regarding treatment hence the inadequate prevention of vertical transmission. Key Words: Antiretroviral, Antiretroviral Treatment, Compliance, HIV/AIDS Paediatric, Socioeconomic, Low-income Settings

P-003-T

### PROGRAM OF ADHERENCE IMPROVEMENT IN A GROUP OF PATIENTS WITH CANCER)

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Therapeutic adherence is a very important phenomenon in health management, as a part of the active participation of patients in medical regimen. Different elements related to adherence have been studied, for example compliance with medical appointments, nutrition indications and medication regimen, etc. These elements are specific for every illness with particular medical indications, in the field of health psychology have been studied aspects as coping styles, beliefs related to illness, information of illness and treatment, social support, and the quality of the relationship between physician and patient. In the oncology department of Juarez Hospital in Mexico city, it was designed a three psychology interviews program for patients with recent cancer diagnosis.

The objective was to improve the assistance to medical appointments to conclude the diagnosis studies and start the treatment. 29 patients participated voluntarily. There were evaluated aspects related to adherence as beliefs of illness, social support, coping style, socioeconomic and educational levels. All these aspects were registered in formats created specially for this purpose. A Friedman test was run to four different emotions, anxiety, sadness, anger and fear, with the multiple comparison procedure the difference was identified between fear and sadness, and fear and anger. A test of Q of Cochran was applied among the three sessions, sadness shows reduction with  $df=2$  and  $p=0.005$ . The medical field was revised three months later and 26 patients were regular in their appointments, three leave the medical attention in the hospital. In the subjective report all patients argued that psychological session helped them to adjust to the process of study and diagnosis. Emotional response is an important factor in the diagnosis and treatment of any illness and it affects the behavior related to keep in medical attention.

## Track 'Aging'

P-004-T

### PSYCHOLOGICAL INFLUENCES ON SUBJECTIVE WELL-BEING AND HEALTHFUL HABITS AMONG CHINESE ELDERLY PATIENTS WITH DIABETES: A FIVE-YEAR FOLLOW-UP STUDY

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Subjective well-being is more strongly associated with deaths due to diabetes than to other diseases (Benjamins, Hummer, Eberstein, & Nam, 2004). Hence, the present study longitudinally examined Chinese diabetic patients' quality of life and healthful habits, which were assumed to be closely associated with survival rate of the patients. It aimed at investigating any psychological predictors of eight domains of quality of life and eleven healthful habits among Chinese patients five years later. The participants were recruited and interviewed at an outpatient diabetes and endocrine center of a large regional hospital in Hong Kong at Time 1 (T1) and then re-interviewed on phone five years later (Time 2, T2). Sixty elderly Chinese patients with type 2 diabetes (Mean age = 67 years; Men=35, Women=25) were successfully interviewed in both phases. Previously validated inventories such as SF-36 Health Survey, Diabetes-related Habits Scale, Multidimensional Health Locus of Control Scale, Self-efficacy toward Healthy Behaviors, and Health Value Scale, were used in the present study. As expected, perceived self-efficacy (T1) was significantly associated with quality of life (T2), especially in the aspect of mental health. On the other hand, internal and doctor health locus of control (T1) was negatively correlated with social functioning and mental health respectively. It was also found that number of healthful habits practice at T2 increased with health value (T1) and self-efficacy (T1). Female participants were more likely to report worse physical and mental health than their male counterparts, but the length of diabetic history was not significantly associated with the self-reported quality of life and healthful habits. The present findings provide support to the long-term impacts of the sense of control on not only subjective well-being, but also the maintenance of healthful habits which are essential for the diabetic control among elderly patients.

P-005-T

**BEING ACTIVE AND SOCIALLY INTEGRATED MAY DECREASE THE RISK TO DEVELOP DEMENTIA IN THE ELDERLY: RESULTS FROM THE KUNGSHOLMEN PROJECT**

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**Objective:** To investigate whether an active and socially integrated lifestyle may protect elderly people against dementia. **Design:** Prospective cohort study. **Methods:** Three examinations have been completed during 1987 - 1996 in the Kungsholmen Project, Stockholm, Sweden. A cohort of 776 home-dwelling women and men, aged 75 years and above, with good baseline cognition and still non-demented at the second examination was further followed for an average of 3 years to detect incident dementia cases. Dementia diagnosis was made according to the DSM-III-R criteria at each examination. Lifestyle variables were assessed through personal interview at the initial survey of the Project. **Results:** Among a set of variables, social network, membership, mental activity, social activity, and productive activity, principal components analysis revealed that physical activity, emotional support, and intellectual stimulation were the underlying factors. Each of these factors showed a protective effect on dementia development. When these three factors were combined into an active and socially integrated lifestyle index, a dose-response association was found between risks of dementia and levels of activity and social integration: the higher level of activity and integration the lower risk of dementia. The relative risk (RR) of dementia was 0.56, 95% confidence interval (CI)=0.35-0.89 for low level of activity and social integration, 0.34, 95% CI=0.20-0.59 for high level of activity and social integration, and 0.29, 95% CI=0.11-0.78 for the highest level of activity and social integration. These associations were independent of age, sex, education, comorbidity, symptomatic depression, as well as cognitive and physical functioning. **Conclusions:** An active and socially integrated lifestyle may protect the elderly people from dementia through physical activity, emotional support, and intellectual stimulation.

P-006-T

**THE EFFECT OF TRUST AND CHANGE IN TRUST ON SELF-RATED HEALTH: A LONGITUDINAL STUDY AMONG AGEING PEOPLE**

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This study examines whether baseline trust predicted subsequent self-rated health over time among ageing people, and whether changes in trust were associated with self-rated health. Longitudinal, questionnaire-based data were collected from three age cohorts (born in 1926-30, 1936-40, and 1946-50) living in the Province of Pijti-Hme, southern Finland. The response rate at the baseline in 2002 was 66 % (n=2,815). The follow-up was carried out in 2005, with 52 % of eligible individuals participating (n=2,216) study in the both years. Logistic regression analyses were used to investigate the associations. The results indicate that high trust predicted good self-rated health markedly, though adjusting to background variables attenuated the association. In addition, good self-

rated health was most common among men with sustained high trust. The results remained statistically significant even after adjustment to all the covariates. Among men improvement in trust was associated with good self-rated health, but it was insignificant when the adequacy of income was taken into account. Sustained high trust had the highest odds ratio of good self-rated health among women, but the results did not reach a statistical significance after adjustment to baseline self-rated health. In conclusion, longitudinally trust is an important contributor to self-rated health among ageing people. Moreover, improvement of trust but also the stability of high trust especially among men indicate better self-rated health. These findings are significant suggesting that trust has a positive effect on health and should therefore be seen as a significant element in health promotion.

P-007-T

**HARDINESS, ANXIETY, DEPRESSION AND OPTIMISM: CONTRIBUTIONS TO SELF-PERCEIVED QUALITY OF LIFE (QOL) IN HEALTHY OLD SUBJECTS**

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Quality of Life is a concept that is considered to be of high interest in old people, as it is presumably one of the main determinants of life satisfaction and longevity. The aim of this study was to examine, at old subjects, the relative contribution of hardiness, anxiety, depression and optimism to the self-perceived quality of life (QoL).

54 healthy old people (32 men and 22 women) (60-75 years old; mean age 64,62) were tested for QoL by using SF-36 questionnaire, hardiness (Funk questionnaire), anxiety and depression (HAD Scale), and optimism (Life Orientation Test - LOT). Correlations between all these variables were all examined at a threshold of  $p < 0.05$ .

Men's self-perceived QoL was better than women's ( $p < 0,05$ ). Women reported more anxiety ( $p < 0,01$ ) and depression (ns) than men. QoL correlated significantly with all independent variables studied (hardiness ( $p < 0,01$ ), anxiety ( $p < 0,05$ ), depression ( $p < 0,05$ ) and optimism ( $p < 0,01$ )). These correlations remained significant after controlling for age and gender.

Hierarchical regression analysis showed that the biggest contributor to the variance of QoL was hardiness (13.43%), followed by the psychiatric symptoms (anxiety and depression) (8.81 %) and optimism (4.84 %). Other variables (age, gender) did not contribute significantly to the variance of QoL.

Hardiness, anxiety, depression and optimism explain together 27.08% of the variance in quality of life, as reported by healthy old people, aged 60-75. However, the direction of association should be investigated separately, especially for parameters such as current anxiety and depressive symptoms.

P-008-T

**HAPPY AGING: A FOUR-YEARS NATIONAL REPRESENTATIVE FOLLOW UP STUDY**

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**Purpose of the study:** The aim of the present study was to analyse the psychosocial predictors of subjective happiness in the aging Hungarian population, and to identify gender differences in this respect. **Subject sample and methods:** Participants in the nationally representative Hungarostudy 2002, who consented to be contacted again, were revisited in 2006 within the frame of the follow-up Hungarostudy 2006. 190 men and 317 women were interviewed again, who in 2002 were above the age of 69. In 2006 subjective happiness was recorded by a 10 point rating scale. In 2002 socio-economic and psychosocial measures, self-rated health, depressive symptoms, WHO well-being, negative affect, self-efficacy, religious practice and health behavioural factors were included into the analysis. **Summary of the results:** In 2006 61.8% of men and 53.3% of women scored 6-10 on happiness score, meaning relative happiness. In both genders high WHO wellbeing score, especially feeling relaxed, fresh awakening, interesting things in everyday life significantly predicted happiness above score 5, while Beck Depression Score (BDI) and negative affect were significant predictors of low happiness score. Among women several characteristics recorded in 2002 predicted relatively lower happiness in 2006, such as boredom, distrust, anomie, anxiety, vital exhaustion, hopelessness, and illness intrusiveness. Property of the family, purposes in life and good sleep quality in 2002 predicted happiness in 2006 only among women. Among men trustfulness, low number of hospital days in the previous year, and regular wine consumption in 2002 predicted happiness in 2006. Age, education, marital status, self-rated health and smoking in 2002 were not significantly related to happiness among these elderly people. **Conclusion:** There were considerable gender differences according to predictors of happiness, more psychosocial factors were significantly connected with happiness among women than among men four years later.

#### P-009-T

### DIFFERENT LEISURE TIME ACTIVITIES AND COGNITION IN AVERAGE 23 YEARS LATER--RESULTS BASED ON SWEDISH NATIONAL RANDOM SAMPLES

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Many studies of the relation between factors earlier in life and late-life cognition have a short follow-up time, often less than 10 years. Since cognitive decline can be present up to 20 years prior to dementia it is difficult to distinguish the direction of the relationships with a short follow-up. We analyse the association between different types of leisure time activity at baseline and cognition 21 to 24 years later (average 23 years). A wide range of activities are included--political, mental, socio-cultural, social, physical, and organisational activities. Baseline studies are random Swedish samples aged 46-75 years (mean 57.4) (n = 1,643) interviewed in 1968 or 1981. Persons interviewed in 1968 are followed until 1992, those interviewed 1981 until 2002 or 2004. Age at follow-up was 69-98 years. Cognition is based on items from the minimal state examination. Activity indexes are based on 2-6 questions. Ordered logistic regressions are used. Controlling for age, age-square, sex, follow-up-time, mobility problems, depression and psychological problems, employment status, education, own and fathers' social class (based on occupation), there was a significant association between later cognition and

earlier political, mental, and socio-cultural activities. Physical activities have a significant association with cognition only among women. Organisational activities are significant when only controlling for age, age-square, sex, and follow-up-time and not for other covariates. Social activities have no significant association. Including all controls and all leisure activities simultaneously, only political and mental activities were significantly related to cognition. Physical activities were significant on the 10-percent level among women. These findings add support to the notion that various forms of engagement in mid-life can protect against cognitive decline.]

#### P-010-T

### DECREASED PREVALENCE OF POOR SELF-RATED HEALTH AFTER RETIREMENT: EVIDENCE FROM THE GAZEL COHORT

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**Background:** Relatively few studies so far have investigated health effects of retirement. Most recent studies have not found the negative effects earlier hypothesised, but rather no or positive effects, especially on mental health. **Material and methods:** Using data from the French GAZEL cohort study, we followed the development of self-rated health for 17,359 workers (78.6% men) for up to 10 year prior to, and 10 years after, retirement with yearly measurements (217,593 observations). Scores of 5-8 on an 8-point scale (1=good...8=poor) were defined as suboptimal self-rated health. The mean age of retirement was  $54.8 \pm 2.7$  years. We used multi-level modelling, adjusting for sex, occupational grade, retirement age, millennium, and self-reported medical status at baseline. **Results:** We found two superimposed trends. One was a monotonously increased prevalence of suboptimal self-rated health with increased age (average increase 0.8 percentage points per year). The other was a sharp decrease in prevalence of suboptimal self-rated health at retirement, approximately corresponding to a ten-year gain in perceived health. Between the second year before retirement and the second year after retirement, the estimated prevalence of suboptimal health fell significantly ( $p < 0.0001$ ) from 20.5 % [19.7-21.2] to 12.6 % [12.0-13.2]. This retirement-related improvement was found in both sexes and across occupational grades and was lasting throughout the ten-year follow-up period. **Discussion:** The results can be interpreted as a real effect on health of either the removal of exposure to work or positive changes in lifestyle, but also as changing ratings standards due to adjusted expectations or lowered demands on health. No matter which of these interpretation are true, the results indicate a sizable improvement in self-rated health in relation to retirement in the studied cohort. Because of the commonly demonstrated association between self-rated health and mortality, these findings could have important policy implications.

P-011-T

**OLDER PEOPLE'S OPTIMISTIC BIAS REGARDING FALLING**

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According to qualitative research findings, many older people do not believe that information and strategies to prevent falls are relevant to them, yet this age group experience the most falls. This suggests that older people might underestimate their chance of falling compared to others (optimistic bias). The aim of this study was to determine if older people living in the community were optimistically biased regarding their chance of falling, and whether experiencing one or more falls influences this.

The South Australian Department of Health collected cross sectional data via a computer assisted random telephone interview, across South Australia. The response rate was 75%. Of the group aged 65 years and over and living in the community, 267 participants answered questions about their own chance and other people's chance of falling in the next 12 months (scale of 0 to 10), and their history of falls in the past 12 months.

Significantly more participants were optimistically biased (48.3%) than pessimistically biased (9.4%,  $p < .001$ ). Those who had fallen in the past 12 months had lower optimistic bias than those who had not fallen ( $p = .003$ ); and in the past three months, those who had fallen more than once had lower optimistic bias than if they had a single fall ( $p = .02$ ). Knowing other people who had fallen in the past 12 months did not influence bias.

Almost half of respondents were optimistically biased, and would be likely to ignore risk reduction messages. Falls prevention messages should be more successful amongst older people who have fallen and different messages should be developed for those who have not fallen.

P-012-T

**THE EXPLORATION OF THE HUMAN-ANIMAL BONDING PROCESS BETWEEN ELDERS AND COMPANION ANIMALS IN THE COMMUNITY**

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The purpose of the qualitative study was to explore the human-animal bonding process between elders and companion animals in the community. A purposive sampling was employed to collected data through face to face interviews and participant observation. Ten elders with caring the dogs for a long time who being a primary Caregiver. The results showed that including four bonding stages and three impact factors. The stages as following: (1) the unexpected visitant in the life; (2) falling into a dilemma (gladness and burden); (3) a attachment and social support advanced; (4)being a ever-company. The impact factors as following: (1)emotion displacement; (2)empowerment in the life. (3) Reorientation a role for the companion animals in the family. The results of this study could provide information for understanding the bonding process between elders and companion animals in the community. The findings could be as the references of policy

making and enhance advanced care for the community elderly life.

P-013-T

**THE QUALITY OF SEXUAL LIFE ALTERATIONS DURING HORMONAL REPLACEMENT THERAPY**

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The aim of this multicentric prospective study was to identify the frequency and intensity alterations of some quality of life (QoL) factors during transdermal estradiol hormonal replacement therapy (HRT). We studied 616 peri- and postmenopausal women (mean age 50.7 y.). The data were obtained only from women, which HRT didn't applied so far. Women with serious psychic and somatic diseases were excluded. For data collection we used The Anamnestic Questionnaire, which was filled in by gynecologist before application of HRT, and Quality of Life Questionnaire (37 items), which was filled in by examined women before, after 3 and after 6 months HRT application. The basic demographic factors and some factors of health status were used as a differentiated factors. The date were analysed by statistic program SPSS-Win. We have faund significant reduction of sexual problems from the aspect of all examined women. But we have found, that there are three critical groups of women which significantly worst replied on HRT, in sexual problems meaning - the group of women with diabetes mellitus, the group of 39 years old and younger women and the group of 60 years old and older women. Also the item "sexual problems" has been appeared as the most resistant item during therapy in compare with other psychosomatic items. Conclusions: The factor "sexual problems" is affected not only by the changing of hormonal levels, but also by others health difficulties and various psychosocial circumstances, which need not relate to menopausal status. Our findings suggest the need of the better education in all levels of prevention and interdisciplinary gender sensitive health care approaches.

P-014-T

**EFFICACY OF APPLYING BEHAVIORAL ANALYSIS BASED TRAINING METHOD FOR DEMENTIA CARE WORKERS IN DAY CARE SETTINGS**

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People who have dementia often pose severe behavior management problems for those who provide care. While these behaviors may be related to damage of the brain, and, thus, there is no treatment to prevent this disease getting worse, there is a way to manage their behaviors by applying behavioral principles. While behavioral analysis based treatment has successfully been applied to modify behavioral disorders associated with developmental disabilities in children, its use in people with dementia is far less prevalent. The aim of this study was to apply behavioral analysis based training program in care workers and examine its efficacy and



feasibility in dementia day care settings. Twelve care workers from two dementia day care center and one short-stay service participated in this study. Also, three patients who had been diagnosed with mild dementia and experienced behavioral managing problems were chosen by the care workers in order to modify their disruptive behaviors. During the 5-session course, care workers were taught strategies to enable them to reduce disturbing behaviors as well as to promote desirable behaviors. After each participant selected target behaviors to manage, tailored intervention strategy was carried out for the target behaviors through behavioral functional analysis. After the program, seven workers were reported successful in improving target behaviors performed by their clients, while nine workers improved their efficacy in dementia care and believed that they were able to manage disruptive behavior performed by their patients more effectively. In addition, descriptive qualitative evaluation revealed five categories of program effects. They were understanding behaviors, awareness of the problem, relationship change, and increase in motivation. These outcomes suggest that behavioral analysis approach may be as useful for dementia day care settings as it has been for children with developmental disabilities.

## Track 'Alcohol/Smoking/Substance Abuse'

### P-015-T

#### SUBSTANCE ABUSE AND SMOKING BEHAVIOUR AMONG THE STREET CHILDREN

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Among the total 70 substance abusers, 49 had history of alcohol intake, 48 had history of smoking, 42 had history of tobacco chewing and 3 had history of injectable drugs as mentioned in figure 9. Similarly, fifty-one subjects had history of addiction to various other drugs like tadi, pan, silo Chan, gutkha, Tab. alprazolam and cannabis. Out of the 49 alcohol abusers most of them i.e. 32, started consuming between 13-16 years. The minimum age of beginning alcohol was 7 years in 2 subjects, while 8 subjects consumed alcohol only once in life. Among the 42 tobacco users, 10 subjects started tobacco chewing at the age of 13 years, 7 started at 12 years, 5 each started at 10 and 11 years and rest at different age. The minimum age to start tobacco chewing was 7 years where as one subject was unaware of the age he had started tobacco chewing. All the 42 subjects continued abusing tobacco. Most of the subjects i.e. 19, used bhang at the age of 15, 14 and 13 years i.e. 8, 6, and 5 subjects. Similarly, 4 subjects started using bhang at 10 years, 2 started at 12 years, 1 each started at 16 and 18 years and 2 subjects were unaware of their age of beginning bhang abuse. The minimum age to start these addiction was 7 years and two subjects informed that they had used the substance only once in life. Conclusion: Substance abuse in the form of drugs or tobacco is very common among the street children.

### P-016-T

#### LONG-TERM PSYCHOSOCIAL EFFECTS OF HEAVY DRINKING IN ADOLESCENCE: A 16-YEAR FOLLOW-UP STUDY FROM ADOLESCENCE TO ADULTHOOD

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**Aims:** The aim of the study was to investigate whether heavy drinking in adolescence has long-term consequences on early adult and adult health, problem behaviour and life situation. **Methods:** All 16-year-old ninth-grade school pupils of one Finnish city completed questionnaires at school ( $n=2194$ ). Subjects were followed up twice using postal questionnaires when aged 22 ( $n=1656$ ) and 32 years ( $N=1471$ ). Drinking at age of 16 was defined as heavy if the frequency of alcohol consumption was monthly or more often and if subjects also reported being intoxicated at least four times during the past four months. Adult outcomes examined were health (self-rated general health, mental health), problem behaviour (excessive alcohol use, daily smoking and problems with the law) and socioeconomic and family status. **Results:** Adolescent heavy drinking was associated with most of early adult outcomes measured at 22 years. After adjustment for parental socioeconomic status, heavy drinking was associated with excessive alcohol use, daily smoking, problems with the law, having children and low socioeconomic status among both genders. In addition, adolescent heavy drinking predicted an increased risk of early adult distress symptoms and poor general health status among females. The associations between heavy drinking in adolescence and adult outcomes were similar to those in early adulthood. The effect of adolescent heavy drinking on all indicators of problem behaviour and low socioeconomic status among both genders persisted up to the age of 32, when parental socioeconomic status was controlled for. This was also the case for distress symptoms among females. **Conclusions:** Adolescent heavy drinking is a risk behaviour pattern associated with significant long-term adversity and poor psychosocial outcomes. Early interventions for adolescent excessive drinking might prevent problem behaviour, social adversity and poor psychological health from adolescence through early adulthood to adulthood.

### P-017-T

#### CIGARETTE SMOKING AMONG VIETNAMESE AMERICAN COLLEGE STUDENTS.

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The purpose of this study was to identify the factors associated with smoking behavior among Vietnamese American college students. The Vietnamese group was selected not only for their size and representation in the US and Houston Asian communities, but also because Vietnamese Americans have a high prevalence of smoking. Data were collected with a cross-sectional survey administered through mail to Vietnamese college students. The final participants of this study were those 251 students who completed responses to the smoking questions. Most participants were young (mean age 22.1 years,  $SD=3.1$ ) ranging from 18 to 38 years old and were born in Vietnam (54.7%). The average length of US residency for participants was 17.4 years, with majority of them describing themselves as being equally Vietnamese and Americanized (66.0%), followed by very Americanized (29.3%). Majority of

the participants had never been married (86.3%). Approximately one-quarter of participants (24%) were current smokers. Multivariate analyses revealed that having poor English language skills, being less acculturated, and being a binge drinker were significantly associated with an increased likelihood of smoking among study participants. Implications of the study findings will be discussed.

**P-018-T**

**AN INTERACTIVE AND EMPOWERING SCHOOL BASED PROGRAM AGAINST SMOKING FOR THE ADOLESCENTS IN JAPAN**

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Background: After the opening of the market to foreign tobacco in 1985, the smoking prevalence of young people increased in Japan, resulting in 37% in 12th grade boys in 1996. It decreased to 22% in 2004 but seemed still high. Unfortunately Japan has a law which promotes tobacco sales. So the school based anti-tobacco program is very rare. Purpose: Our object is to establish an interactive and empowering school based program against smoking. So we experimented with a multi-disciplined approach mainly with peer education and investigated the effectiveness. Material: 6400 high school students took part in the program since 2004. We estimate the effectiveness of the program by questionnaires from 968 students (10th grade) in 5 schools, which had the program during fall semester in 2006. Methods: The program consists of a lecture and time for looking around 4 hands-on displays. A: The social background. We show the tobacco packages, posters, and TV commercials from other countries. B: The effects on body. Medical Doctors and university students work together. C: The nature of addiction. We offer information on how to quit and how to reject tobacco. D: Quiz and Catch copy competition. We encouraged the university students to talk to the high school students as much as possible. Results: Most of the students took part in the program and really enjoyed it even students who smoke. We realized the smoker wanted to know the unbiased facts of tobacco. Their knowledge of the harmful effects of smoking was insufficient before the program and improved through the program. Smoking prevalence between before and 3 months after the program did not change (before 5.4%: after 5.1%), although 10th grade is the age of rapid increase in the prevalence. Conclusion: This experience-based program has a clear effect on preventing smoking of adolescents.

**P-019-T**

**TELEPHONE SUPPORT FOR PREVENTING RELAPSE INTO ADDICTIVE BEHAVIOURS**

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Background. Periodical telephone contacts of health service staff with patients have been used in several studies for reducing relapse into addiction by consumers of both licit and illicit drugs. The two randomized controlled studies here presented used telephone support after intensive cognitive-behavioral treatment in order to maintain or improve

behavioral self-control in abstaining from alcohol abuse (Study 1, AGATA) and from cigarette smoking (Study 2, RESPIRO LIBERO). Method. Study 1. In a selected sample of consecutive alcohol abusers, a Day Hospital program for self-monitoring and self-management was developed and implemented in the first two weeks after detoxification. Monthly telephone contacts were arranged with patients, to maintain motivation, provide support and counseling throughout the following year, while control group patients underwent usual medical routine. Study 2. In selected a sample of cigarette smokers volunteering to quit, a three months' Course for smoking cessation was provided (treatment group) while a manual was given to the control group. Monthly telephone contacts were arranged with both groups with the same procedure and aims as in Study 1, but only for nine months. Results: In Study 1 the contact of patients of the experimental group with staff resulted significantly higher than those in the control group and so was the number of days free from abuse. In Study 2, the telephone support did not improve the short term results (cessation rate and n. of cigarettes smoked at the end of the experimental period), but allowed to maintain the positive outcomes obtained in both groups. Conclusion: Structured phone contacts for providing support and counseling have demonstrated to be significantly effective in helping people addict to both tobacco smoke and alcohol to maintain the main results in their efforts to control the problem behaviors.

**P-020-T**

**MOTHERS PERCEPTION ABOUT ADDICTION PREVENTION AMONG ADOLESCENT, ZAHEDAN, IRAN**

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Introduction: The fight against drug abuse is a priority in WHO and numerous countries particularly in Iran, because of many young population. One of the most important factors for prevention of adolescent drug abuse is family, especially parent which mother has the most important role. This study aimed to consider mothers perception about different aspects of prevention of adolescent addiction. Material and method: In a cross-sectional study, 246 mothers were selected randomly from urban health centers in Zahedan, Iran. They completed a questionnaire by interview, then data was analyzed by SPSS software. Results: About 19% of mothers were illiterate. Their perception about methods of addiction prevention was different. The most way reported was control of comings and goings adolescent with friends (37.9%). Mothers suspected when their adolescents had delay or in doubt comings and goings. The important sign of adolescent addiction was pale. They reported that the best ways to prevent addiction are encourage to education, remove economic problem, and conversation with teen. About 62% of mothers believed that they have ability to solve their teenager problems. Conclusion: The results showed that mothers have diverse perception about drug abuse among teenagers; therefore, it should be pay more attention to crucial role of mothers in harm reduction by more training course for them through different media.

P-021-T

**THE EFFECT OF THE INTERACTION BETWEEN COPING AND STRESSOR ON THE GRAY-ZONE**

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**Introduction:** Drug abuse is pervasive among adolescent in Japan. Therefore it is said that the prevention of drug abuse should target not only drug abuser but also gray-zone(who do not use the drug, but be at higher risk for using the drug). Previous studies reported that stress influences much effect on drug abuse. The purpose of this study was to examine the effect of the interaction between stressor and coping on gray-zone. **Method:** Participants were 72 high school students(20 boys ,49 girls, 3 unclear). Participants were requested to perform stressor scale and TAC-24 for Adolescent. TAC-24 for Adolescent explain the coping structure by three-dimensions comprehensively, and it is divided into eight factors (EPB: Information seeking, APC: Abandonment, EEC: Wishful thinking, EPC: Planning, AEC: Avoidant thinking, AEB: Distraction, EEB: Catharsis, APB: Responsibility shifting). **Result:** To examine the effect of interaction between the stressor and coping on gray-zone, two-way ANOVA was conducted with gray-zone as the dependent variable. As the result , there were interactions between high stressor about friend and low APC coping, and high stressor about community and high EPC coping (APC:  $F[1, 72]=4.36, p<.05$ , EPC:  $F[1, 72]=6.60, p<.05$ ). The stressor about teacher had main effect on gray-zone in any coping type(EPB:  $F[1, 72]=7.66, p<.01$ , APC:  $F[1, 72]=8.49, p<.01$ , EEC:  $F[1, 72]=13.44, p<.01$ , EPC:  $F[1, 72]=14.23, p<.001$ , AEC:  $F[1, 72]=9.89, p<.01$ , AEB:  $F[1, 72]=7.34, p<.01$ , EEB:  $F[1, 72]=9.19, p<.01$ , APB:  $F[1, 72]=14.60, p<.01$ ). **Conclusion:** It is concluded that gray-zone changed by the interactions of stressor and coping. But the students who had high stressor about teacher have the risk for gray-zone despite of coping.

P-022-T

**A STUDY ON THE RELATION BETWEEN DRINKING OR SMOKING HABITS AND SLEEP**

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**Background**Many Japanese use alcohol habitually to sleep. About half of Japanese male still smoke cigarettes. Some of them feel relieved from mental stress by smoking. It is very important for coping with stress or relaxing to sleep well. How do Japanese male drinkers or smokers sleep? There are not so many reports about this question. **Purpose** This study examines the influence of smoking and alcohol on the sleeping-pattern of Japanese middle-aged men. **Subjects** The subjects were 1270 middle-class male employees aged 45 to 54 years who had general medical check-ups. **Methods** Information was collected by a self-administered questionnaire. We divided the subjects into three groups by smoking status, i.e. never-smoker (NS), ex-smoker (ES), current-smoker (CS). The relationships between smoking and sleeping-pattern were analyzed by an ANOVA, and alcohol consumption and sleeping-pattern were analyzed by linear regression model. **Result** The mean number

of days of drinking in a week was  $4.0 \pm 2.8$ . The more days of drinking, the more frequently they woke up during the sleep. Daily drinkers go to bed earlier than non drinkers and occasional drinkers. The bedtime of CS was significantly later than both NS and ES. Overall, the subjects kept late hours, with the mean bed time being  $23.58 \pm 1.11$  and the mean duration of sleep  $6.86 \pm 0.97$  hours. **Conclusion** Japanese male smokers go to bed late and don not get enough sleep. They are misled to think they get relieved by smoking without taking a real rest. Although daily Japanese drinkers sleep longer, their quality of sleep was revealed to be bad because they wake up several times during the sleep. We must be skeptical about the beliefs that alcohol helps sleep and smoking makes smokers relax.

P-024-T

**TRAINING HEALTH PROFESSIONALS IN SMOKING CESSATION METHODS**

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**BACKGROUND** The majority of smokers would like to quit but stopping smoking is not easy because of considerable physical, psychological and social addiction. Health professionals have a unique opportunity since even brief simple advice increases the likelihood of quitting. Physicians and nurses in Finland bring up smoking in patient contacts, but have low expectations on the results. There is a controversy between lack of time and aimed task of advising. One reason is the lack of practical tools and that the chain of care is unclear. **REALISATION** An internet database and toolkit as well as a model for tobacco and health, tobacco addiction and tobacco cessation training for health professionals has been developed in Finland. The model is tailored for pre- and postgraduate learners, including physicians, dentists, nurses and pharmacists. The model format includes a seminar day as well as pre- and post- seminar assignments online as individual or group work. The pre-seminar assignments include theory on tobacco and health, addiction and the cessation process as well as a test with interactive multiple choice questions. The seminars concentrate on practical tools and are conducted in a multidisciplinary setting. After the seminar students participate in an internet based multidisciplinary small group assignment to reflect on what they have learned and get a comprehensive picture of tobacco control. **CONCLUSION** The training model and tools has been received well by students and the multidisciplinary approach has been especially useful. As an additional benefit a broad network of professionals with the competence and willingness to educate their own colleagues about tobacco cessation is created. There are surprisingly few public guidelines and tool kits on practical smoking cessation targeting the needs of health professionals on the internet. Broader international collaboration in this field would be beneficial.

## Track 'Cancer'

P-025-T

### SUICIDAL IDEATION AND MAJOR DEPRESSION IN CANCER PATIENTS

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**Background:** Major depression is frequently observed, however, it is underestimated in cancer patients. Major depression is a major risk factor for suicide and for requests to hasten death in cancer patients. Suicidal ideation should prompt a comprehensive evaluation. **Aims:** The purpose of this study was to develop a simple battery for screening major depression and suicidal ideation in cancer patients. The aim of this study was to investigate the prevalence of and factors associated with major depression in cancer patients. **Methods:** 239 cancer patients of the Odessa Regional Cancer Hospital participated in the research. They did not have past history or family history of mental disorders, drugs or alcohol abuse. Each patient was assessed in a common protocol via a structured clinical interview (demographic data, biomedical factors, social support, mental adjustment to cancer, personality traits), psychiatric interview and standardized psychological tests. **Results:** The standardized psychological tests have potential in assessing depressive symptoms and suicidal ideation in cancer patients, and can be used by nonpsychiatric trained professionals. Multivariate analysis showed that younger age, longer education, female sex, physical symptoms (severe pain), severe fatigue, cancer therapy (chemotherapy, radiotherapy), use of steroids, greater concerns about financial issues were the risk factors for major depression in our cancer patients. Multivariate analysis showed that older age, severe pain and major depression were the risk factors for suicidal ideation in cancer patients. **Conclusion:** Research has shown what factors underlying major depression are multifactorial. Early diagnosis and intervention to treat major depression may prevent suicidal ideation.

P-026-T

### SEXUAL FUNCTIONING OF CHINESE MARRIED WOMEN: A LONGITUDINAL STUDY FOLLOWING TREATMENT OF GYNECOLOGIC CANCER

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**Objectives.** The aim of this study was to evaluate sexual functioning of Chinese married women following treatment of gynecologic cancer. **Method.** Fifty-seven women with diagnoses of gynecologic cancer were individually interviewed prior to treatment, and thirty-seven women returned 12 months after treatment for follow-up interviews. Sexual functioning was assessed with subscales of the Derogatis Sexual Functioning Inventory (DSFI). Results were compared to thirty-six women treated for benign gynecologic condition. **Results.** At pre-treatment, over 90% of the women were sexually active. The Cancer group had more sexual fantasy but lower sexual drive than the Benign group. At 12 months after treatment, compared to 88% of the women in the Benign group, only 65% of the women in the Cancer group had resumed sexual intercourse. Relative to the Benign Group,

the Cancer group also took longer time to become sexually active again, reported lower sexual drive, and experienced more sexual symptoms at post-treatment. Across time, the Cancer group showed deteriorations in sexual functioning. Compared to pre-treatment, the Cancer group became less sexually active, were less able to experience orgasm, had lower sexual drive, and reported fewer sexual fantasy at post-treatment. For the Benign group, no significant change was found on various aspects of sexual functioning across time. Age, number of children, and post-treatment sexual symptoms were significant correlates of sexual functioning at post-treatment. **Conclusion.** Sexual functioning of Chinese women deteriorated following treatment of gynecologic cancer, although sexual satisfaction was minimally affected.

P-027-T

### PERCEIVED STRESS AND SURVIVAL IN CANCER: A PROSPECTIVE STUDY

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**AIM:** To investigate the association between perceived stress and survival in a group of cancer patients. **METHODS:** 118 consecutively recruited patients with various cancers (lung: 62.7%, ovarian: 21.1%; bladder: 14.4%, sarcoma: 1.7%) completed the Perceived Stress Scale (PSS) and the Cancer Behavior Inventory (CBI), measuring cancer-related self-efficacy prior to chemotherapy. Patients were censored 43 mo. after inclusion of the first patient and 16 mo. after inclusion of the last patient. **RESULTS:** During the observation period 80 patients (68%) died. A multiple Cox regression showed perceived stress scores to be significantly associated with an increased mortality (Hazard Ratio (HR): 1.04; 95% CI: 1.01-1.08;  $p < 0.02$ ) after controlling for age, sex, comorbidity, stage, and performance status. Scoring above the median on the PSS (score=14) was associated with an increased risk of mortality corresponding to a HR=1.6 (95%CI: 1.07-2.80). Patients scoring above the median on PSS and below the median on the CBI had significantly higher mortality (81%) than the remaining patients (63%) (Chi2 (Mantel-Cox): 7.8;  $p < 0.01$ ). Higher neutrophil counts at baseline and after the 2nd and 3rd chemotherapy cycle was significantly associated with increased mortality. The mediation analysis method of Baron & Kenny (1986) showed that the association between stress and mortality was partly mediated by neutrophil cell counts after the 3rd chemotherapy cycle. **CONCLUSION:** In contrast to most previous studies investigating the role of stressful life events in breast cancer, we found perceived stress to be independently associated with increased mortality in patients with other cancers. The results suggested that the association was partly mediated by higher neutrophil counts. We also found that in patients with high levels of stress, high cancer-related self-efficacy seemed to be a protective factor. Further studies including other cancers than breast cancer as well as potential moderators and mediators are needed.

P-028-T

**NON-VEGETARIAN HABITS AND ORAL CANCER: A CASE-CONTROL STUDY IN PUNE, INDIA**

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**Abstract** The aim of this study was to investigate the association between non-vegetarian habits and oral cancer in a group of Indian patients. **Methodology:** A hospital-based, case-control study was conducted in the Oncology Department, Morbai Naraindas Budhrani Cancer Institute, Inlaks & Budhrani Hospital, Pune, India, during 2005-2006. A total of 700 subjects (350 known cases of oral cancer and 350 people apparently healthy as a control) were selected using simple random sampling procedure. Data related to demographic status, tobacco, alcohol and dietary habits was collected from subjects after taking their written informed consent using interview and structured questionnaire. Data were analyzed by SPSS software, calculating crude and adjusted odds ratio. **Results:** In general, past and current non-vegetarian consumption was significant difference between cases and controls ( $p < 0.05$ ). Past and current non-vegetarian consumption was associated with increased risk of oral cancer, odds ratio=1.7; 95% confidence interval=1.4-2.0, after controlling for the effect of tobacco and alcohol. Current heavy consumption of red meat was associated with OR=2.3; CI=1.5-3.4, after adjusting for tobacco and alcohol drinking. Furthermore, the joint effect of smoking and chewing tobacco and ever consumption of non-vegetarian was associated with a high risk of oral cancer, OR=20.3; CI=9.5-43.5, using the referent category of never users. In terms of joint effect of drinking and ever consumption of non-vegetarian, association was OR=8.1; CI=4.9-13.5. The results show that in non-vegetarians, tobacco had more effect on develop oral cancer compare to alcohol. In conclusion, non-vegetarian intake predominantly, red meat could have an important role in oral cavity carcinogenesis. It was more significant if it has taken in combination with tobacco and alcohol. Thus, reducing red meat intake and appropriate prevention and planning strategies for tobacco and alcohol might lower the risk for these neoplasms. **Keywords:** oral cancer, non-vegetarian, case-control study

P-029-T

**PROVIDING PSYCHO-SOCIAL SUPPORT AT THE END OF ADJUVANT TREATMENT**

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**Purpose** End of treatment has been shown to be a difficult time for patients, as they feel vulnerable with less frequent contact, anxious about recurrence and under stress regarding picking up the pieces of their life after cancer. (eg, Ganz et al. 2004, Cimprich et al. 2005). Psycho-educational groups have been proposed as a method of easing the transition and reducing healthcare utilisation (e.g. Simpson et al 2001). **Methods** A literature review was conducted of formats of interventions, topics patients describe as difficult to cope with and the

predictors of distress at the end of treatment. A focus group was conducted with a sample of patients who had finished active treatment in the previous year. A six session group programme resulted. Each week consists of a psycho-educational slot, with specialist guest speakers, followed by a therapeutic session. Topics included diet, exercise, relaxation, managing emotions, relationships, returning to work and preparation for ongoing symptoms. The group was facilitated by a social worker and a counsellor. The group was evaluated using the Hospital Anxiety and Depression Scale and the Mental Adjustment to Cancer Scale, administered pre and post group. Participants were also asked to subjectively evaluate the group. **Results** The overall usefulness of the group was rated on a Likert Scale of 0 = not useful, to 10 = extremely useful. The average rating from the group was 8.4 (n=13) indicating members had subjectively found it very beneficial. The group was shown to be beneficial in all areas of assessment pre and post, including anxiety, depression and mental adjustment (n=23). (Up to date data will be presented) **Conclusion** Results are encouraging and as more patients attend the data will become more robust. The group will run on a quarterly basis. This project is possible thanks to the Wessex Cancer Trust

P-030-T

**HOW DID SOCIAL INTERACTIONS AFFECT THE EXPERIENCE OF LYMPHOEDEMA AMONG JAPANESE BREAST CANCER PATIENTS?**

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**Objective:** The aim of this analysis was to explore how perceptions of lymphoedema among breast cancer patients are formed in Japanese society.

**Methods:** Two inclusion criteria were predetermined: (1) women with breast cancer having reported arm swelling in a survey (n = 56/165) and (2) the women providing their contact details (n = 18/56). Three focus groups (N = 10) were conducted in Japan using a semi-structured question route covering four main topics: (1) the concept of a good life, (2) arm complications, (3) changes before and after breast surgery and the onset of lymphoedema, and (4) perceptions toward a present and future life. All group discussions lasted two hours and were audiotaped. Written consent was obtained beforehand.

**Analysis:** All audiotapes were transcribed verbatim. Following an inductive thematic analysis, a conceptual analysis was performed using symbolic interactionism theory.

**Results:** Two main themes were extracted by the conceptual analysis: (1) self-esteem and adjustment to lymphoedema in breast cancer contexts and (2) interaction with society and social support for lymphoedema. On the first theme, perceptions of lymphoedema were interpreted in comparison with their experiences of breast cancer; participants who had spiritual gains as a result of breast cancer were more likely to accept lymphoedema than those did not. On the second theme, breast cancer disclosure or help-seeking behaviours were constrained by negative reactions from others and feelings of guilt towards family members. Consequently, though women reported several physical constraints, they had surprisingly little social support.

**Conclusions:** In this sample, experiences of lymphoedema were evaluated by comparing them with what breast cancer had brought participants. Help-seeking behaviours were constrained by significant others' viewpoints, with the result that little social support for lymphoedema was provided. The findings may reflect issues that patients are encountering in

Japanese society. The implications for treatment and care of these patients are discussed.

**P-031-T**

**QUALITY OF LIFE IN CHINESE WOMEN WITH GYNECOLOGICAL CANCERS**

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The objective of the study was to examine the quality of life in Chinese women with gynecological cancers. One hundred and seventy-eight women diagnosed with gynecological cancers were surveyed by telephone. Quality of life (QOL) was measured by the Chinese (HK) Specific MOS Short Form-12 Health Survey. Information on demographic and disease characteristics was solicited. Results suggested that the overall physical and mental QOL was moderate, with perceived functioning in vitality and mental health most affected. Significant differences in QOL emerged across subgroups of patients. Older patients reported poorer physical QOL but better mental QOL than younger patients. Patients receiving radiotherapy or a combined therapy had poorer QOL than patients receiving surgery. Patients in the advanced stage complained more about bodily pain than patients in the early stage. Short-term survivors had poorer QOL than long-term survivors. In addition, menopausal women had poorer physical functioning than non-menopausal women. Implications for intervention and future research are discussed.

**P-032-T**

**CORRELATES OF POSTTRAUMATIC GROWTH AMONG LONG-TERM CANCER SURVIVORS**

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Posttraumatic growth (PTG) has been conceptualized as enduring positive change subsequent to a serious stressor, but little is known about PTG in individuals long after the stressor has occurred. To examine this, a highly diverse sample of 560 individuals who had survived their first cancer diagnosis at least 10 years were assessed on a variety of demographic, clinical, and psychological variables. Correlational analysis was used to determine which variables were related to cancer-related PTG, as measured by the Posttraumatic Growth Inventory. A total of 46 variables were examined, including the Intrusion and Avoidance subscales of the Impact of Events Scale (IES) and depression as measured by the Center for Epidemiologic Studies Depression Scale. To reduce the Type I error rate, a p-value of .001 was used. Among significant correlates of PTG were depression and both the Intrusion and Avoidance subscales of the IES. All were positively related with PTG. Younger age and female gender were also related with higher posttraumatic growth. Variables not significant at a  $p < .001$  level included global quality of life, disease stage at diagnosis, ethnicity (dummy coded), and years since diagnosis. Results suggest that those who experience greater psychological distress 10-years after their cancer diagnosis report greater PTG as a result of their cancer, but that other factors thought to be associated with PTG may become less relevant in later years.

**P-033-T**

**SOCIODEMOGRAPHIC AND CLINICAL DETERMINANTS OF COMPLEMENTARY AND ALTERNATIVE MEDICINE (CAM) USE IN A NATIONWIDE COHORT STUDY OF DANISH WOMEN TREATED FOR LOCOREGIONAL INVASIVE BREAST CANCER**

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Aim: Characteristics associated with CAM use have been found to vary internationally and between cultures. Our aim was to explore sociodemographic and clinical factors associated with use of CAM in a nationally representative sample of Danish breast cancer patients. Methods: In an ongoing nationwide prospective study of the prognostic influence of psychosocial factors in breast cancer, baseline data were analyzed for the 3348 women included in the study (response rate: 68%). Use of CAM since the time of diagnosis was measured 12-16 weeks post-surgery. Sociodemographic variables were obtained via the Danish Civil Registration System, and clinical variables via the Danish Breast Cancer Cooperative Group. Results: 40.1% had used one or more types of CAM since the time of diagnosis. CAM use was found to be associated with younger age, age group 18-35 yrs (OR: 5.22,  $p < 0.0001$ ) compared to age group 60-69 yrs. Adjusting for age, logistic regression analysis of sociodemographic factors found use of CAM to be associated with having higher education, income, social status, and living in the Copenhagen center or suburbs ( $p$ -values  $< 0.05$ ). With respect to clinical factors, age adjusted regression analysis showed only chemotherapy to be a significant determinant (OR: 1.34,  $p < 0.05$ ). Suffering from physical comorbidities was predictive for less use of CAM (OR: 0.31,  $p < 0.05$ ). No association was found between CAM use and ethnicity, psychiatric history, tumor size, tumor grade, and type of surgery. Conclusion: This first nationwide study showed that use of CAM is more widespread among younger patients, those living in urban centers, and those having higher education, income, and socio-economic status. Apart from chemotherapy being a motivational factor, perhaps due to side-effects, disease- or treatment factors do not appear to be related to CAM use. Rather, CAM users seem to suffer from fewer diseases, which could perhaps indicate a generally healthier lifestyle.

**P-034-T**

**SOCIODEMOGRAPHIC-, DISEASE- AND TREATMENT CHARACTERISTICS PREDICTIVE OF THE USE OF ACUPUNCTURE, HEALING, AND DIETARY/VITAMIN SUPPLEMENTS IN A NATIONWIDE COHORT STUDY OF DANISH WOMEN TREATED FOR LOCOREGIONAL INVASIVE BREAST CANCER**

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Aim: Grouping many complementary and alternative medicine (CAM) therapies as one homogenous category when studying user characteristics may hide differences in user

patterns for individual therapies. Our aim was to explore sociodemographic and clinical factors associated with 3 different CAM therapies, acupuncture, healing, and vitamin/dietary supplements, among Danish breast cancer patients in a nationally representative sample. Methods: In an ongoing nationwide prospective study of the prognostic influence of psychosocial factors in breast cancer, baseline data were analyzed for the 3348 women included in the study (response rate: 68%). Use of CAM since the time of diagnosis was measured 12-16 weeks post-surgery. Sociodemographic variables were obtained via the Danish Civil Registration System, and clinical variables via the Danish Breast Cancer Cooperative Group. Results: 1306 (40.1%) had used one or more types of CAM since the time of diagnosis. 895 (27.5%) had used dietary/vitamin supplements, 232 (7.1%) acupuncture, and 173 (5.3%) healing. Use of all therapies were found to be predicted by younger age,  $p < .000$ . Adjusting for age in a series of logistic regression analysis, use of dietary/vitamin supplements was found to be predicted by being divorced,  $OR: 1.45, p = .001$ , higher education,  $OR: 2.05, p < .000$ , social status,  $OR: 1.52, p < .05$ , income,  $OR: 1.54, p = .005$ , 1-3 axillary lymph node involvement,  $OR: 1.22, p < .05$ , and negative hormone receptor status,  $OR: 1.32, p < .005$ . Acupuncture use was predicted by higher education,  $OR: 1.90, p < .05$ , social status,  $OR: 5.09, p < .000$ , income,  $OR: 3.20, p < .000$ , living in the capital area,  $OR: 1.70-1.77, p < .05$ , 1-3 axillary lymph node involvement,  $OR: 1.57, p < .005$ . With  $p$ -values  $< .05$ , acupuncture users were, further, more likely to be pre-menopausal, in chemotherapy, and having tumor grad II or III. Younger age was found to be the only significant predictor of healing,  $OR: 3.97, p < .000$ . Ethnicity, children, psychiatric history, tumor size, type of surgery, and physical comorbidities did not predict use of any of the therapies. Conclusion: Our findings suggest that different characteristics are predictive of use of individual therapies.

#### P-035-T

### THE EFFECT OF COMMUNICATION SKILLS ON COMMUNICATION APPREHENSION OF STUDENT NURSES IN TERMINAL CARE SITUATIONS

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Background: Communication skill (CS) deficiency of student nurses when they are exposed to the expression of emotions by cancer patients is one of the factors causing communication apprehension (CA) in terminal care situations. Therefore, communication skill training (CST) has been actively implemented. However, the effect of student nurses' improvement in CS on their CA has not been adequately characterized. Objectives: To compare the effect of student nurses' improvement in CS on their CA between terminal care situations and other-care situations during nursing training. Methods: The subjects were 88 third-year students at colleges of nursing. They were divided into a terminal care group and another-care group. The students received a Social Skills Training-based CST as a part of their practical training and evaluated their own CA and CS before and after the CST. Results: A two-way analysis of variance, where before/after the CST and the type of care situation were considered as the two factors, showed: (i) a significant main effect of

before/after the CST in CS and CA; the students acquired CS and thereby reduced their CA in both of the care situations, (ii) a significant main effect of the care situations in CA; students' CA level was higher in the terminal care situations, and (iii) a significant interaction in CS; the students acquired CS through the CST more effectively in the terminal care situations than in other-care situations. Discussion: In contrast to other-care situations, in terminal care situations, the extent to which students could reduce their CA was relatively less than the extent to which they could improve their CS. This suggests the possibility that students' CA is influenced by other factors that may arise from their improvement in CS.

#### P-036-T

### THE RELATIONSHIP BETWEEN CANCER-RELATED WORRIES AND IRRATIONAL BELIEF IN CANCER SURVIVORS WITH STOMA

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Introduction: In recent years, the psychological and physical cares for individuals with stoma have been increasingly needed, as the number of patients affected with colorectal cancer is increasing. Many cancer survivors are more likely to be detracted from QOL, because psychological problems (for example, anxiety about recurrence of cancer) are maintained for a long time. For this reason, this psychological problems accompanying cancer should be considered. Especially, anxiety is the most important issue that cancer survivors confront. It is emphasized that anxiety is related to irrational beliefs that is a distortion of a thought in Rational Emotive Behavior Therapy (REBT). Therefore, the present study examined the relationship between irrational beliefs and worries that is the content of anxiety for cancer survivors with stoma. Methods: Participants were 49 women (mean age:  $53.12 \pm 11.30$  years old). The cancer-related worries were assessed by the Brief Cancer-related Worry Inventory (BCWI). BCWI is constructed by 3 factors (Future prospects, Physical and symptomatic problems, and Social and interpersonal problems). In the present study, 3 items uniquely-developed were used to assess stoma-related worries, and 3 items constructed Problems related to stoma. Irrational beliefs were assessed by the Japanese Irrational Belief Test-20 (JIBT-20). JIBT-20 is constructed by 5 factors (Self expectation, Dependence, Problem avoidance, Ethical blame, and Helplessness). Results: As a result of Pearson correlation analysis, there are significant and low correlations among Future prospects, Social and interpersonal problems, Problems related to stoma and Dependence of JIBT-20 ( $r = 0.34$  to  $0.38, p < 0.05$ ), and Social and interpersonal problems and Ethical blame of JIBT-20 ( $r = -0.37, p < 0.05$ ). The present study revealed that worries of cancer survivors with stoma is related to irrational beliefs. The implications for psychological support for cancer survivors with stoma were discussed from a perspective of Cognitive Behavioral Therapy.

P-037-T

**EXPRESSIVE WRITING INTERVENTION AND CANCER-RELATED DISTRESS - A POPULATION-BASED, RANDOMIZED, CONTROLLED STUDY OF BREAST CANCER PATIENTS**

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**AIM:** Expression of emotions has been shown to have beneficial effects on psychological distress and some biological factors in healthy volunteers, but little is known about the effects in cancer patients. Preliminary results of a population-based, randomized, controlled, phone-based Expressive Writing Intervention (EWI) in breast cancer patients following the procedure developed by Pennebaker are presented. **METHODS:** Danish women treated for primary breast cancer at the 16 largest surgery departments in Denmark between March and August 2006 (N=939) were contacted by phone. Of these, 449 women (48%) agreed to participate and were randomly assigned to write about their most traumatic experience (N=213) or a neutral topic (N=236) for 20 minutes once a week for three weeks. To maximize compliance, all women were contacted by phone immediately prior to and following each writing session. Cancer-related distress was assessed by the Impact of Event Scale (IES) before randomization and 3 month after the last writing session. The Danish Breast Cancer Cooperative Group (DBCG) provided data on eligible patients and disease-, and treatment related variables. Non-normally distributed data were log-transformed. **RESULTS:** There were no differences between groups with respect to demographic, disease-, or treatment-related variables. Univariate ANCOVAs of change scores, controlling for baseline values, showed a greater reduction in IES total scores in the EWI group than in controls [ $F(2,390)=3.88$ ,  $p=0.05$ ], corresponding to a small effect size (Cohens  $d=0.14$ ). Further analyses revealed significant group effects for the IES subscale of avoidance [ $F(2,390)=4.84$ ,  $p=0.03$ ] ( $d=0.02$ ), but not intrusion [ $F(2,391)=0.10$ ,  $p=0.32$ ] ( $d=0.05$ ). **CONCLUSIONS:** Our preliminary results showed that EWI was associated with reduced cancer-related distress 3 months after the intervention, an effect that was primarily driven by a reduction in cancer-related avoidance. Further analyses of moderating and mediating factors could reveal how and for whom EWI works.

P-038-T

**CAN THE EXPRESSION OF NEGATIVE EMOTION BE THERAPEUTIC FOR CANCER PATIENTS?**

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Previous research with cancer patients suggests that the expression of negative emotional states can be therapeutic and some claim it can lead to increased survival (Spiegel, Bloom, Kraemer & Gottheil, 1989). Incorporating Pennebaker and Chung's (2005) A to D Emotion Theory, and applying Pennebaker and Beall's (1986) written disclosure methodology, this study focussed on understanding the types and nature of emotions expressed during a therapeutic writing

intervention. Using a case-study, longitudinal design, 9 cancer patients with mixed diagnoses wrote for 30 to 45 minutes per week for 4 weeks about topics identified by patients as discrete stages of their cancer experience (diagnosis, treatment, awaiting results, remission). Consistent with Pennebaker and Beall's (1986) methodology, patients were asked to explore their very deepest thoughts and emotions in their writing. To facilitate this process, participants were provided with an emotion chart that displayed a range of linguistic labels reflective of the 6 primary human emotions described by Parrot (2001). Participants completed the State-Trait Personality Inventory (STPI; Spielberger, 1995), the Depression, Anxiety and Stress Scale (DASS; Lovibond & Lovibond, 1995), and the General Health Questionnaire (GHQ-12; Goldberg, 1992) on 6 occasions (i.e. 8 months before commencing the writing intervention, each week during the intervention, and at the end of the intervention). Results indicated that specific emotional states (e.g., anger, depression, anxiety) varied systematically as a function of the writing topic perhaps indicative of the emotions experienced at particular times of the cancer journey. Overall, patients showed slight decreases on some distress measures, however, this was sometimes associated with the expression of positive emotional states. Further research is required to assess whether the expression of negative emotions alone, is truly therapeutic.

P-039-T

**UNDERSTANDING THE PSYCHOSOCIAL AND SUPPORT NEEDS OF CANCER PATIENTS: AN EXPLORATORY STUDY.**

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It is well established that the provision of quality psychosocial support to cancer patients assists in minimising the physical and psychological impact of cancer; yet only a small proportion of those affected by cancer seek support and/or utilise established support services (The Cancer Council, 2005). In this study, the focus was on understanding the cancer experience with a particular emphasis on establishing the extent of referral/uptake of support services and on identifying any unmet psychosocial and/or support needs. Twenty cancer patients (mixed diagnoses) were interviewed using a semi-structured interview. Interview questions focussed on patient experiences with respect to: communication with medical professionals and family/friends; support services; treatment experiences; psychosocial/emotional needs. The interviews were transcribed and emergent themes summarised. The results indicated a limited uptake of established support services (N=2) and typically patients could not recall being offered referral or information about available services. When recounting communication experiences, patients framed their responses with respect to discrete stages of their illness experience such as diagnosis; treatment; awaiting results/visiting with specialists; and, remission/last appointment. Patients described their communication experiences with both health professionals and family/friends as overemphasising physical aspects of their illness. Patients also reported not being honest with others with respect to how they were feeling and felt pressured to maintain a positive spirit. Practical support from family/friends was plentiful during the treatment phase, however, once treatment was finished many patients felt isolated and alone. The final appointment with specialists was described by many patients as disappointing and several reported a sense of apprehension



and loss. Patient need for intervention and support service delivery appear to differ according to the discrete stages of the cancer experience identified. Recommendations proposed include the development of a patient centred health plan which could be established during the last appointment with specialists.

**P-040-T**

**BENEFIT-FINDING, RELIGIOUS COPING AND PSYCHOLOGICAL DISTRESS AMONG USA AND UK BREAST CANCER SURVIVORS**

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Most individuals who are confronted with serious illnesses are able to find benefits or personal growth in their ordeal, including an enhanced sense of spirituality, deepened interpersonal relationships, and an overall increased appreciation for life. Moreover, these positive psychological responses to illness are associated with better adjustment and lower distress. This was examined in two demographically comparable samples of female early-stage breast cancer survivors, one in the USA (n = 169) and one in the UK (n = 150). The USA sample was followed for four years beginning at the end of initial treatment, one year later and three years later. The UK sample was studied 3 days, 3 months and 12 months post-surgery. Both samples completed measures of religiosity, religious coping, benefit-finding and psychological distress. In both studies, most of these indicators remained fairly stable over time, with a decline in religiosity and religious coping in the UK sample at 3 months post-surgery and an increase in benefit-finding at 12 months. In the USA sample, dispositional optimism at end of treatment predicted benefit-finding and stress-related growth four years later. However, women with high fear of recurrence who coped through finding benefits or religious coping had lower levels of distress than those who did not use these strategies or those with low levels of fear of recurrence. Across both samples, finding benefits in the illness was a more useful strategy than religious coping once initial treatment has been completed.

**P-041-T**

**EFFECTS OF ACUPRESSURE ON FATIGUE AND DEPRESSION IN HEPATOMA CHEMOTHERAPY**

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There are several symptoms such as fatigue and depression while receiving chemotherapy. This study aims to improve these problems and further to research how acupressure point massage can improve and solve exhausted problems of patients. This research uses a vertical experiment. Patients with hepatoma were divided into two groups: comparison and experiment by random (One receiving an acupressure, another receiving normal care). The process of this study was proceeding to several parts. The first part was before the chemotherapy of hepatoma. The patients did not only fill in

the basic survey but also start to record their symptoms including before the chemotherapy of hepatoma and the exhausted situations between the first week and the forth week within the therapy. The procedure of collecting information is from the before of doing the chemotherapy to the end of the whole therapy. As for the experiment group, there were five days' acupressure per week. Within the chemotherapy, patients would have twice acupressure point massage every day on 8 different points. Each point continued 30 seconds and it took 4 minutes every acupressure. Two groups were measured by exhausted table every day and were verified by the change of visual measure table. The physical reaction focused on the life phenomenon after the chemotherapy every day. But physical fatigues aimed at measuring life phenomenon using "one exhausted and visual measure table" to ask the exhausted situations of patients after the chemotherapy every day. Through this study, we can understand the fatigue and depression curve while receiving chemotherapy, and it can reduce patients fatigue and depression chemotherapy by acupressure. We expect to build up one scheme to improve the exhausted and disconsolate symptoms advanced in the further in order to improve patients' living quality.

**P-042-T**

**TRANSCULTURAL COMPARISON OF LAY THEORIES OF HEALTHY INDIVIDUALS ABOUT CANCER**

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Subjective theories of illness undoubtedly have some influence on patients' compliance as well as on the use and the success of medical treatment. But although it is generally assumed that lay theories on health and illness differ from culture to culture, there are still hardly any empirical findings regarding the extent of these differences nor are there sufficient recommendations towards information policy and design of medical treatment taking into account these influences. To narrow this information gap different European cultures were compared with respect to their corresponding views on health and illness, especially with respect to cancer (228 Germans, 103 Spaniards, 100 Greeks and 83 Norwegians). The questionnaire mainly included subjective ratings of the likelihood getting cancer, causal attributions and control beliefs as well as treatment effectivity. Cancer patients have illness-related subjective theories, but also healthy individuals do. These theories somehow differ between different cultures, even within Europe. As a basic result the comparison of the four countries shows no significant difference in subjective cancer risk. But Greeks and Germans primarily stress the psychoetiology of cancer, Spaniards and Norwegians the somatic causes. People in Spain show the strongest beliefs in treatment efficacy, Greeks the least. Germans expect that internal control beliefs will influence the course of cancer, Norwegians particularly focus on progress of medicine. Finally, it will be discussed what possible implications these cultural differences might have for the health system in multicultural societies, especially with regard to medical treatment programmes as well as to preventive measures.

## Track 'Cardiovascular & Pulmonary Disorders'

P-043-T

### ANGER, SOCIAL SUPPORT, AND METABOLIC SYNDROME IN HEALTHY MIDDLE-AGED ADULTS: THE ROLE OF PERCEIVED STRESS

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Psychosocial factors such as high anger (Ang) and low social support (SS) have been associated with cardiovascular diseases (CVD) incidents. The metabolic syndrome (MetS) refers to a cluster of risk factors in CVD pathogenesis. The present study investigated the role of perceived stress in the intermediate link between psychosocial factors and MetS.

Our sample consisted of 339 healthy individuals (52% men) with an average age of 35.5 (SD= 9.1) and a mean body mass index (BMI) of 27.2 (SD= 4.6). Subjects participated in a study assessing physiological responses to behavioral and cognitive stressors for CVD risk indices and completed self-report demographic and psychosocial assessments. Trait Ang was assessed using the Spielberg State-Trait Anger Expression Inventory, perceived SS was assessed using the Social Provisions Scale, and stress levels were measured using the Perceived Stress Scale.

A structural equation model (SEM) examined if two latent variables derived from the psychosocial measures: Ang (i.e., anger-out, trait anger inventory total, and anger-control) and perceived SS (i.e., reliable-alliance, guidance, attachment, social-integration, and reassurance-worth) predicted a latent variable of MetS (i.e., BMI, insulin sensitivity index, total cholesterol/HDL ratio, and resting mean arterial pressure), and if PSS mediated the relationship between Ang, SS and MetS. The model fit the data [Chi-square (55)= 62.01,  $p = .24$ ]. Results revealed that lower SS ( $Z = -2.64$ ,  $p < .01$ ) was associated with higher MetS, but Ang was not. However, higher Ang and lower perceived SS were associated with higher perceived stress ( $Z = -2.39$ ,  $p < .01$ ;  $Z = 3.13$ ,  $p < .001$ , respectively), which was associated with a greater risk of MetS ( $Z = 2.21$ ,  $p < .05$ ). The findings indicated that perceived stress mediated the relationship between psychosocial predictors and MetS, providing evidence for the role of perceived stress in the pathogenesis of MetS.

P-044-T

### DEPRESSION - A RISK FACTOR OF HEART FAILURE

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Background: Depression in patients with CHF is associated with worse quality of life and worse compliance. Aim of study was to compare survival of the patients with regard to the presence and grade of depression.

Patients and methods: 410 patients (358 males), with mean age  $47 \pm 17.1$  years were included. In 60% dilated cardiomyopathy and in 33% ischemic heart disease were reported as primary causes of heart failure. 52% of pts were in functional class NYHA III and 33% in NYHA II. Mean left ventricular ejection fraction was  $21 \pm 4.5\%$ . Presence and intensity of depression were examined using BDI II. Patients were identified as depressive if BDI score was  $\geq 10$ . Cumulative Kaplan-

Mayer survival curves were constructed and differences tested. Results: Depression was present in 226 (55%) of patients. Out of them, mild depression was present 136 (60%), moderate 73 (32%) and severe 17 (8%). There were 60 deaths in group of patients without depression and 107 deaths with depression during whole follow-up period. Median of survival of patients with depression vs those without was 974 (SE = 103, CI = 771-1177) vs 1331, SE = 120, CI = 1076-1546) days. (Log Rank = 2.09,  $P = 0.15$ ). In group of patients with moderate and severe depression ( $n = 90$ ) median of survival was 881 (SE = 225, CI = 440-1322) days. Comparison with patients without depression showed a significant decrease of survival (Log Rank = 4.1,  $P = 0.04$ ).

Conclusions: Depression is common in patients with advanced CHF (prevalence more than 50%). Moderate and severe depression predicts significantly worse prognosis for these patients. Identification and management of depression should be included into complex diagnostic and therapeutic program of CHF.

P-045-T

### ILLNESS PERCEPTIONS IN HEART-TRANSPLANTED PATIENTS

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Background: Illness perceptions have previously been identified as important predictors of both rehabilitation attendance and return to work in a range of illnesses and conditions, including myocardial infarction (MI). While patients undergoing heart transplantation have previously been shown to have elevated levels of depressive symptoms and reduced quality of life, no studies have looked at personal beliefs about their illness in this group of patients. The purpose of the present study was to assess illness perceptions in a large sample of heart transplanted patients. We also wanted to explore the relationship between illness perceptions and physical and psychological functioning in this sample. Methods: The sample comprised 220 (179m/41f) Norwegian heart transplanted patients from the period 1983-2005. All patients were assessed during an annual routine follow-up control using the Brief Illness Perceptions Questionnaire (B-IPQ), and data on quality of life and psychological functioning was collected using the Short Form 36, the Symptom Checklist 90-Revised, and Beck Depression Inventory (BDI). We also collected data on work status. Results: Heart transplant (Tx) recipients reported significantly longer illness duration and less personal and treatment control of their illness compared to patients with MI. Both reduced quality of life and reduced psychological functioning were significantly correlated with all items in the B-IPQ (except timeline). Patients suffering from mild depression (BDI  $\leq 10$ ) scored significantly less favorable on the B-IPQ on all subscales compared to non-depressed patients. Patients who were still working after the transplantation reported fewer consequences, more personal and treatment control compared with non-working patients. Time since the transplantation was unrelated to the B-IPQ. Conclusions: The present study provides the first characteristics of illness perceptions in patient undergoing

heart transplantation. Illness perceptions were related to work status, and may be a useful tool in rehabilitation following heart transplantation, as previously shown in MI-patients.

## Track 'Cross Track and Other'

P-047-T

### WHAT IS THE BENEFITS AND HARM OF USING A SOCIAL NETWORK SERVICES FOR PEOPLE WITH DEPRESSIVE TENDENCIES? : CONTENT ANALYSIS

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[Background]Users of social network services (SNS) are members of burgeoning internet communities based on shared interest and activity. Various SNS have emerged among people with certain diseases. A survey was conducted of members of an SNS comprised of people with depressive tendencies: using content analysis we considered hidden benefits and harm to its participants.[Methods]All participants in the SNS (n=108) were surveyed online and a database was compiled during March 2007. Survey categories included age, gender, self-rating depression scale (SDS), and frequency of SNS usage. Furthermore, a descriptive open-answer question, "What are the positive and, or negative aspects of participating in your SNS?" was analyzed using Grounded Theory. [Results]There were 32 valid respondents to the open-answer question (29.6%) including 12 males (37.5%) and 20 females (62.5%), with an average age of  $37.0 \pm 7.6$  (Mean  $\pm$  SD). Their positive comments revealed that the SNS ensured anonymity and ease, creating a domain where participants could face each other honestly and obtain peer support. Peer support enabled them to understand themselves and feel reassured and positive. Some participants may even have changed their treatment as a result. The open-answers indicated that peer support helped network members, (1) realize others suffer from a similar disease, (2) increase their company of peers, (3) acquire information about their disease, treatment, and experiment, and (4) support themselves, through online interaction. Solely posting text messages and dependency from depressive tendencies were identified as negative aspects that encumbered some members with additional psychological burdens. Such increases in psychological burden could subsequently trigger a downward depressive spiral, with the SNS exacerbating certain members' symptoms.[Conclusion]SNS have hidden benefits and harm. The hidden benefits were that some participants became more social and their symptoms improved because of peer support. The hidden harm was that others' depressive tendencies were exacerbated.

P-048-T

### PERSONALITY TRAITS AMONG BULLIED EMPLOYEES AND WITNESSES TO BULLYING IN THE MANUFACTURING INDUSTRY

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The documentation as regards to what degree bullied people in active work show signs of being habitually emotionally imbalanced is limited. Accordingly, the foundation for understanding bullied persons self-images and subsequent consequences is weak. For this reason, this study aimed to examine and describe to what degree occupationally active persons report being bullied, or being witnesses to bullying, showed deviations on a personality test when compared with their non-bullied work colleagues.

Men and women (n=247) from 19 to 64 years of age, and in manual labour, completed a questionnaire concerning the psychosocial work climate, bullying and personality. Based on the participants responses to a set of bullying questions from the General Nordic Questionnaire for Psychological and Social Factors at Work (QPS-Nordic), three groups were defined: bullied (n=14), witnesses (n=31), and non-bullied colleagues (n=202). The Swedish universities Scale of Personality (SSP) was used to assess personality traits related to the three major dimensions of neuroticism, extraversion, and aggressiveness.

Bullied persons had higher scores on all 6 scales within the neuroticism dimension as well as higher irritability and impulsiveness scores within the aggressiveness and extraversion dimension, respectively, when compared with their non-bullied work colleagues (p-values < 0.028). The largest differences were observed for the psychic trait anxiety, embitterment and mistrust scores (T-scores above 60). Bullied persons had higher scores than witnesses on 5/6 scales within the neuroticism dimension, but not on scales relating to the extraversion or aggressiveness dimensions.

In conclusion, bullied persons appear to have established a self-image that is dominated by mistrust and embitterment as well as irritability and impulsiveness. As previous studies primarily has examined bullied persons who have withdrawn from the labour market, and perhaps ended in socially disabling circumstances, the results emphasize that bullied persons heightened neuroticism scores are independent of work status.

P-049-T

### HEALTH AND ENVIRONMENTAL, AND RESIDENTIAL DISTRIBUTION OF INHABITANTS IN DIFFERENTLY POLLUTED AREAS OF SLOVAKIA

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Eastern Slovakia is a heavily polluted region by PCBs and health problems are evaluated using many approaches. The data on 2045 adults, 319 children (aged 8 and 9 years, and after four years), and 1130 women living and giving birth in Michalovce and Svidnik districts were treated using the Geographic Information System (ARC VIEW). Entered were

places of residence and PCBs serum concentration. Each introduced group was characterized by mean and median of sum PCBs in serum concentration as follows in adults Mean: 1955, Median: 1065, in children aged 8 and 9 years Mean: 528, Median: 321, in age of 12 and 13 Mean: 353, median: 216. In mothers from the Mother child cohort the Mean: 620, Median: 430. Visualization of data was arranged in the following way: Each place of residence was denoted by a circle. The area of the circle was proportionate to the number of included subjects. Each circle was divided into four segments, the size of each corresponding to the percentage of subjects belonging to the respective quartile of PCB serum concentration. This display of data indicates clustering of cases with extremely high PCBs in serum concentration in some places of residence. The data showed, the levels of PCBs in serum concentration are higher in high polluted areas but the health problems correspondent more strikingly with socially poorer areas.

#### P-050-T

### FACILITATING ACTIVITY FOR WELL-BEING IN PEOPLE WITH MULTIPLE SCLEROSIS: A PILOT STUDY

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The Facilitating Activity for well-Being (FAB) Programme is a new, theoretically-driven and evidence-based approach aiming to facilitate people with MS to engage in physical activity. It incorporates activity scheduling with explicit management of the barriers/facilitators to activity identified by people with MS (such as fatigue management, symptom perceptions and self-efficacy). A modular approach balances individualisation and standardised delivery. Key objectives of the pilot were to: test the feasibility of the FAB programme; explore its acceptability to people with MS and clinicians; and refine the programme in preparation for a definitive trial. Six people with MS were purposefully selected (aiming for diversity in age, gender and disability) to take part in the eight week FAB programme delivered by a qualified neurological physiotherapist. Participants were interviewed twice and completed a brief questionnaire. Clinicians completed weekly reports and took part in a focus group on completion. Participants enjoyed taking part, particularly valuing the face to face time with clinicians and individuality of the programme. Clinicians reported the programme to be highly acceptable and challenging to their conventional practice methods. They reported being able to develop a stronger therapeutic relationship with their client than that normally established in clinical settings. Participants and clinicians saw benefit in the programme being home-based; making it accessible and more responsive to the individual needs of clients. Feedback highlighted some areas for refinement of content and structure (such as simplifying the activity diary and extending the programme to ten weeks). Physical inactivity places people with MS at increased risk of secondary conditions and reduced physical and mental health. Interventions which facilitate such populations to engage in physical activity should result in considerable health gains, and by enhancing adherence are likely to enhance the positive effects achievable in more traditional "exercise" programmes.

#### P-051-T

### EMOTION REGULATION IN EVERYDAY SITUATIONS BY LISTENING TO MUSIC

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Musical stimuli are among the most intensive stimuli capable of triggering emotions. Music is used extensively to treat a variety of mental and physical conditions. However, the exact mechanisms of how music exerts its influence on mind and body are poorly understood. One of the processes that has been proposed to be involved in this interaction is emotion regulation. We therefore investigated whether and how subjects use music to regulate their emotions in everyday situations. In a pre-study (N = 72), 20 music stimuli and 16 emotionally laden situations were determined. In the main study, 89 subjects (aged 20-30 years) were presented the music stimuli via head phones. They were indicating on a computerized visual analogue scale how likely they would choose these music stimuli in a given emotionally laden situations. In addition, all subjects were asked to fill out an inventory for the assessment of emotional regulation strategies. Analyses of our data by means of multidimensional scaling (MDS) show that specific music stimuli were preferred in emotionally congruent situations. Furthermore, there were modulating influences of dispositional emotion regulation styles on individual music preference: e.g., the choice of positively evaluated music in situations characterized by negative valence, and high arousal was correlated with emotion moderating regulation style. In this study, we were able to show that music is chosen in emotional situations in a very specific manner. What is more, we demonstrated that dispositional regulation styles might influence the choice of music pieces characterized by specific emotions. Our findings are among the first to elucidate the important role emotion regulation might play in the choice of music in everyday emotionally laden situations. These results may serve to better understand the underlying processes of the effectiveness of music therapy.

#### P-052-T

### CAUSAL REASONING IN ILLNESS PREDICTION

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Cognitive processes in human causal reasoning have attracted significant research in the area of psychology. Much research has focused on the way individuals determine how likely it is that a certain consequence (nausea, allergy, etc) is caused by specific events (food intake, medication, contact with pets, etc), and the role of previous experiences in this process. Dickinson and Burke's (1996) associationist account proposes that previous experiences of event coincidence establish "within-event" associations between available cues (e.g., foods) and outcomes (e.g., an allergic reaction). Subsequent experiences with elements of these experiences may result in a re-evaluation of inferred causal relationships in predictable ways. The research presented here investigated the validity of this model in predicting how individuals infer health consequences at any point in time, given current and previous experiences. Participants were required to play the role of an

allergist who examined hypothetical clients' diets and their history of different allergic reactions in order to determine how likely it is that certain foods caused certain allergic reactions. The results provided support for novel predictions derived from Dickinson and Burke's model. Implications for understanding an individuals own beliefs about their health behaviours, and the process of professional reasoning, will be discussed.

**P-053-T**

**METAPERCEPTION AND SELF-LEAKAGE IN SOCIAL ANXIETY: EXAMINATION OF THE MODERATED MEDIATION MODEL BY SIMULTANEOUS ANALYSIS OF MULTIGROUP.**

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**Purpose:** Individuals with social phobia fear one or more social situation(s), partly because they believe others may notice their inner disturbances, which they think express on their appearance in those situations (metaperception). Self-leakage is a subjective sense that one's inner state (i.e., emotions, thoughts) is leaking out to others without intentional or verbal expression. Given that individuals with social phobia may have negative metaperception in feared situations, it is reasonable to think that they feel stronger self-leakage for their disturbances in those situations.

In previous research, Sasaki & Tanno (2003) reported that about a half of healthy undergraduates had experienced self-leakage to some extent, so we followed this analogue method in the present study. We hypothesized 1) that self-leakage might have a relation to negative emotions in general, but the relation is mediated by other-directed apprehension (public self-consciousness, fear of negative evaluation) and 2) that these relations are moderated by a sense of self-acceptance (self-esteem). To examine these hypotheses, we constructed a Structural Equation Model.

**Method:** In this study, we measured following questionnaires, (1) Neuroticism, (2) STAI-T, (3) Public Self-consciousness, (4) Fear of Negative Evaluation(FNE), (5) Self-leakage scale, and (6) Self-esteem. Participants were all undergraduates (N=138, Mean age=18.97).

**Result:** We obtained 102 dataset without any missing value. First, we conducted multiple regression analyses, then performed SEM. We put Neuroticism and STAI-T indexing the latent valuable "ANXIETY-PRONE", Public Self-consciousness and FNE indexing "OTHER-APPREHENSION", and frequency scale and painfulness scale of Self-leakage indexing "EXHIBITION". SEM indicated that our hypotheses were partially supported.

**Conclusion:** Results suggested that the relation between ANXIETY-PRONE and EXHIBITION was partially mediated by OTHER-APPREHENSION, and the path from OTHER-APPREHENSION to EXHIBITION was moderated by self-esteem. Namely, OTHER-APPREHENSION has influence on EXHIBITION in low self-esteem group, but does not in high self-esteem group. Self-esteem seems important to control over negative metaperceptions in social anxiety.

**P-054-T**

**ENGAGING PEOPLE WITH BRAIN INJURY IN GOALSETTING: PILOT EVALUATION OF TWO NOVEL APPROACHES.**

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Goals are a ubiquitous rehabilitation intervention with little evidence as to the most effective approach, particularly in complex neurological conditions. This study piloted two recently developed interventions, both informed by self-regulation theory. 1) Goal Management Training (GMT) facilitates listing and rehearsal of all steps associated with a goal related task prior to attempted performance to reduce goal failures. 2) Identity Oriented Goalsetting (IOG) uses metaphor to aid the participant in identifying meaningful goals. We aimed to test the acceptability, utility and perceived impact of these interventions from the perspective of both people with brain injury and rehabilitation practitioners. An exploratory trial using qualitative methods (observation, individual interviews and focus groups) was carried out with participants recruited from inpatient and community rehabilitation facilities. Clinical staff within the facilities were trained in intervention delivery and supported throughout the 6-8 week intervention period by the research team with data about the acceptability of the intervention collected on completion and at follow-up. Twenty-five people were randomised to one or other novel strategy. Interview data suggested both IOG and GMT were acceptable to the majority of participants with many reporting improved mood and goal attainment as a result of involvement in meaningful goal-related activities. Practitioners found working in a different way with their patients both challenging and rewarding with both approaches enhancing a focus on the persons own goals, rather than practitioner/team goals. IOG seemed particularly helpful in engaging people in the goal setting process with GMT particularly helpful in providing a structured framework for error prevention in attempting goal performance. New approaches to goalsetting are not simple and further work is needed to establish the level of provider-training required, to test outcome and, establish cost effectiveness.

**P-046-T**

**"THE INDIVIDUAL PSYCHOTHERAPEUTIC PROCESS WITHIN THE GROUP SETTING IN ORDER TO PREVENT AND HEAL PSYCHOTIC BEHAVIOUR." AN INTRODUCTION TO THE ALMA-METHOD FOR ART THERAPY, WITH THE ANALYTICAL THEORIES OF C.G. JUNG AND OBJECTRELATIONTHEORIES OF D.W. WINNICOT**

*Svensson J*

*Art Therapist, leg. Psychotherapist*

In the Book Bildterapi enligt Almamethoden (Art Therapy according to the Alma-method), Solrosens Forlag 2002, Sweden, I have in several places described the suffering and healing processes of clients, with severe psychiatric diagnoses, as they can be shown in Art Therapeutic work according to the Alma-Method of Art Therapy.

These deep psychological processes I relate to and reflect over in relation to the analytical psychological theories of C.G. Jung and objectrelation theories of D.W. Winnicott.

In this speech I will use and show five days Art Therapeutic work with the inner process and painted pictures from one

client who was suffering from a severe trauma when she started her inner healing journey through individual Art Therapy within a Group setting according to the Alma-Method of Art Therapy.

The following Concepts of C.G. Jung will be discussed in the Case Study: Complex, Archetype, Conscious, Personal- and Collective Unconscious, Shadow, The Inferior Function, Feeling, Emotion, Symbol, Transformation

The following Concept of J. Svensson will be discussed in the Case Study: Process analysis

The following Concepts of D.W. Winnicott will be discussed in the Case Study: Transitional Area, Transitional Phenomena, Transitional Object, Mirror-role of Mother

## Track 'Health Behavior'

P-056-T

### NURSES' EXPERIENCES CONCERNING PATIENTS' HIGH RISK BEHAVIOR IN PSYCHIATRIC WARDS .

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Hospitalization in psychiatric wards , the obligatory stay in these centers , restrictions , environmental changes , severity of disease signs , not relying on treatment team are all predisposing factors for the hospitalized patients to manifest high risk behavior such as violence, aggression and suicidal trials . This issue acts as a stressful background for psychiatric nurses .Nurses' attitude approach ,education and experience toward this problem can affect patients' high risk behavior ]. So ,regarding the facts above and high prevalence of these behaviors in psychiatric wards , the researcher has tried to describe nurses' experience concerning patients' high risk behaviors in psychiatric wards in Isfahan .Methods and materials :In this qualitative research conducted in a phenomenological design , 11 nurses working in psychiatric wards attended . The data were collected through unstructured in-depth interviews with the participants . After the obtained data were saturated , they were analyzed by Collaizi seven stage method .Result : Three main themes as situational crisis , environmental control and management and time management were emerged from the findings of this study . Sub themes of suicide , aggression , violence and nursing care were also discussed .Discussion :Awareness from nurses' experiences reveals their occupational stress needs and can help them have a better self cognition. Understanding nurses' experiences deeply concerning patients' high risk behaviors in psychiatric wards highly affects them enhancement of their professional ability and capability .Keywords : Experience , nurse , high risk behaviors , psychiatric patient.

P-057-T

### A COMBINATION OF COGNITIVE-BEHAVIORAL THERAPY AND FHARMACY THERAPY IN DELUSIONAL DISORDER: A REPORT OF SINGLE-SUBJECT DESIGN (ABA TYPE)

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Delusional disorder is one of the types of Psychotic disorder. The incidence of delusion disorder has been estimated about

0/03 percent. The disorder may create serious occupational, social and marital problems for people who suffer from it. There are two approaches in etiology and treatment of it, including pharmacotherapy and psychosocial one. The controlled results of studies have indicated those patients with delusional disorders who resist to pharmacotherapy can advantage of a combination of pharmacotherapy and cognitive-behavioral interventions; because this combination lead to a short-term treatment courses, a reduction or elimination of symptoms and prevention form recurrence of symptoms. Thus, the object of present study was treatment of a subject with delusional disorder, erotomatic type, by using a combination treatment method (Cognitive - behavioral and pharmacotherapy).The method of current study was single-subject design (ABA). The techniques which was used were including: Cognitive - reconstructing by correcting subject's beliefs, interpretations about events, reinforcing logical thinking, evaluating of evidences, teaching of problem solving, behavioral- cognitive copying strategies, relaxing, positivism and pharmacotherapy. The results indicated that the combining method was highly effective in eliminating the symptoms and preventing from its recurrence in a 6 months period. One of the points about efficacy of cogitative- behavioral and pharmacotherapy techniques in treating of delusional disorder was the role of teaching of effective copying strategy in reduction of problems related to social function in above-mentioned patients and preventing from recurrence of symptoms.

P-058-T

### PATIENTS RELIGIOUS EXPERIENCES AT THE TIME OF CARDIAC PAIN.

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Pain is a worldwide heath problem existing from birth to death. The fear from pain suffers human equal to fear of death.It is a mysterious and complicated phenomenon that includes many influencing factors such as cultural background of the people. In this background the role of religions beliefs is more dominant. It plays a major role in tolerance since, religious beliefs are the basics in sedation of cardiac patients pain investigation of true religious experiences in the clients at time of cardiac pain is essential.Methods:This is a descriptive phenomenological study in that the participants have been selected from hospitalized patients in CCU wards of Nour and Chamran hospitals. There were 12 voluntary participants who purposefully entered the study. The data were collected and processed through unstructured interviews and analysed by collaizzi method.Results:The findings of this study yielded eight thematic clusters from participants interviews including.1)God exam 2) peace 3) leaning to God 4) hope 5) fate 6) holly things 7) repent and 8) death.Discussion and conclusion:The findings of the study showed that the patients believed cardiac pain as God exam.Some felt mentally and physically peaceful and relieved by begging God for peace.The findings also showed that some participants experienced hope to survive through thinking about God and hopelessness in form of confusion. Since, cardiac pain is severe and not tolerable resulting in death the participants believed that as the fate imposed by God. They also mentioned pray, spiritual communication with God and imams and, charity could diminish their pain.Key words: Experiences, religious beliefs, cardiac pain.

P-059-T

**AN INVESTIGATION ON WOMEN EXPERIENCES CONCERNING SOCIAL FACTORS AFFECTING THE DIVORCE DEMAND AMONG THE WOMEN REFERRING TO ISFAHAN COURT.**

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**Introduction:** Since family is like a system disturbance in each of its members can result in whole family system disorder. Generally the phenomenon of divorce demand is considered as a demand for help and as a way to express the problems that the person can not directly state this is also considered as a solution for familial problems and crisis. It goes without saying that a family in which the spouses do not have mutual understanding is a burning hell physically and mentally affecting the members. This research has tried to investigate the women experiences on social parameters affecting divorce demand. **Methods and materials:** In this qualitative research conducted in a phenomenological design, 10 women attended. The data were collected through unstructured in-depth interviews with the participants. After the obtained data were saturated, they were analyzed by Colaizzi seven stage method. **Results:** The findings show that regarding the subjects mentioned by the participants it is inferred that divorce demand is used for various reasons as violence addition, corruption, paranoid thoughts and lack of reliance. **Discussion:** Regarding the findings of the research the families with physical social and mental violence, one specifically put in crisis unfortunately one of the social problems in human societies is mostly marital disputes that disturb the family and endanger its members mental health.

P-060-T

**EFFECTS OF ANGRY TENDENCY AND ANGER COPING ON MENTAL HEALTH**

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**Introduction:** Some researches have recently suggested that not only one's tendency to get angry but anger coping style is an important factor for mental health problems (e.g., depression: Martin et al., 1999; Swaffer & Hollin, 2001). However, as these researches have used a very narrow definition of anger coping (expressing anger vs. suppressing anger), they still have limitations for suggesting intervention for anger-related mental health problems. In the present study, we examined the effects of angry tendency and anger coping on mental health using a multidimensional model for anger coping (Linden et al., 2003).

**Methods:** Three hundred and fifty-three undergraduate students completed the following questionnaires; (a) Anger scale of Japanese version of the Buss-Perry Aggression Questionnaire (Ando et al., 1999), which measures angry tendency, (b) Japanese version of the Behavioral Anger Response Questionnaire (Arimitsu et al., in submission), which measures multidimensional anger coping styles (direct anger-out, avoidance, assertion, support-seeking, diffusion, and rumination), and (c) Japanese version of the Zung's Self-

Rating Depression Scale (Fukuda & Kobayashi, 1983).

**Results:** The effects of angry tendency and anger coping on depression were examined by hierarchical multiple regression analysis. We entered angry tendency into the first level, and six anger coping styles into the second level. In the first level, angry tendency significantly predicted depression ( $R^2 = .05$ ,  $\beta = .21$ ,  $p < .01$ ). In the second level, amount of change of  $R^2$  was significant (.10,  $p < .01$ ), and only rumination significantly predicted depression among of six anger copings ( $\beta = .31$ ,  $p < .01$ ).

**Discussion:** Results showed that rumination would impair mental health. The effect of rumination was greater than that of angry tendency. Based upon these results, we should consider not only angry tendency but anger coping, especially rumination, to deal with anger related mental health problems.

P-061-T

**RELATIONSHIPS BETWEEN SENSE OF COHERENCE AND EMOTION-RELATED VARIABLES IN PSYCHIATRIC NURSES**

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**Purpose:** To elucidate the relationships between sense of coherence (SOC) and emotion-related variables in psychiatric nurses. **Subjects:** Psychiatric nurses ( $n = 115$ ; 74 females and 41 males;  $38.7 \pm 1.6$  years old) working at two hospitals located in Tohoku district, Japan. **Methods:** Self-administered questionnaire survey was performed in June 2007. For measuring SOC, the questionnaire with 13 items and five-point rating (Togari, et al, 2005) was used. The emotion-related variables used were Multiple Mood Scale (MMS with eight subscales; Terasaki, 1994), Buss-Perry Aggression Questionnaire (BAQ with four subscales; Ando, et al, 1999), and Stress Arousal Check List (J-SACL with two subscales; Hatta, 1995). Spearman's rank correlation coefficients among those variables were estimated. Multiple linear regression analyses were performed when each of the emotion-related variables was used as response variable. **Results:** SOC showed significant correlation coefficients with three subscales of MMS: Depression ( $r = -0.33$ ), Hostility ( $r = -0.45$ ), and Boredom ( $r = -0.39$ ). SOC also showed significantly correlated with three subscales of BAQ: Anger ( $r = -0.40$ ), Hostility ( $r = -0.49$ ), and Physical aggression ( $r = -0.27$ ). Moreover, SOC showed significantly correlated with two subscales of J-SACL: Stress ( $r = -0.47$ ) and Arousal ( $r = 0.38$ ). Multiple linear regression analyses revealed that SOC influenced in some emotion-related variables, such as MMS subscales (Depression, Hostility, Liveliness, Well Being, Startle, and Boredom), BAQ subscales (Anger, Hostility, and Physical Aggression), and J-SACL subscales (Stress, Arousal), to a greater degree than other explanatory variables. **Conclusion:** This study suggested that SOC predominantly influences the emotional states of psychiatric nurses.

P-062-T

### **PHYSICAL ACTIVITY AMONG MEDICAL SCIENCES STUDENTS: A STUDY FROM BANDAR ABBAS, IRAN**

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**Introduction and Objective:** Participation in regular physical activity offers substantial physiological and psychological benefits. It reverses the increasing prevalence of overweight among adolescents and adults. The aim of this study was to determine physical activity and factors associated with it among a sample of students in Bandar Abbas, Iran. **Methods:** In this cross-sectional survey a total of 249 students who were studying in nursing, midwifery, health and medicine in Hormozgan University of Medical Sciences were selected randomly. Exercise behavior was assessed using physical activity staging questionnaire. Self-efficacy were assessed using self-efficacy scale. Regular Physical activity was defined at least 30 minutes at a time per day, and be done at least four days per week. The intensity of activity does not have to be vigorous but should be enough to increase heart rate or breathing level somewhat. Data were analyzed by SPSS13. **Results:** Of all Students, 46.2% were male and 53.8% were female with the mean age of  $21.7 \pm 2.7$  ranging from 18-39 years. Only 26.5% students had regular physical activity. 26.1% of male and 26.9% of female students had regular physical activity and there was no significant difference between them ( $p=0.89$ ). There was no relationship between age and physical activity ( $p=0.81$ ). Self-efficacy and planning for exercise had positive correlation with regular physical activity ( $p<0.001$ ). **Conclusion:** In general regular physical activity in students, especially among male students, was low. Students in medical Sciences are expected to have enough physical activity behaviors because most of them will be health educator in future. To increase physical activity among students, it is recommended to promote their self-efficacy and motivate them to have planning for exercise. **Key words:** Physical activity, self-efficacy, medical Sciences students, Bandar Abbas, Iran

P-063-T

### **THE RELATIONSHIP BETWEEN NURSE CAREGIVING BEHAVIOR AND PRETERM INFANT BEHAVIORAL RESPONSES DURING THE BATH**

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The lower number of newborns and high incidence of preterm birth drive caregivers in neonatal care to think about what the best caregiving practice is for these fragile infants. The study was to explore the relationship between nurse caregiving behavior and preterm infant behavioral responses during the tub bath. The first purpose of this study was to explore the relationships between nurse caregiving behaviors and preterm infant behavioral responses during tub baths. Second, the investigators were to determine whether there were significant differences in nurse caregiving behavior while

bathing infants with low infant stress and those with high stress. Finally, the purpose was to ascertain if differences occurred in the behavior of infants who received low supportive care and those who received high supportive care during their baths. This study was a descriptive correlational design. Twenty four preterm infants were bathed a total of 124 times by 14 nurses. Indirect observation was adopted to collect behavioral data. Two major approaches were employed to examine the relationships between nurse caregiving behavior and infant behavioral responses: Pearson coefficient correlation and One-Way Analysis of Variance. The results showed as nurses provided more support, the infants reduced stress and enhanced their self regulation during the bath. The provision of rough, fast and hurried caregiving was accompanied by the occurrence of the infant stress. There are significant relationships between nurse caregiving behavior and preterm infant behavioral responses. How nurses take care of the preterm infants would influence their responses to caregiving stimuli. Caregivers must be sensitive to preterm infant responses, and modify caregiving to fit the infant's needs and development. **Keywords:** preterm infant behavior, nurse behavior, relationship, developmentally supportive care, caregiving

P-064-T

### **THE EFFECTS OF A PROGRAM TO PREVENT DEMENTIA IN THE COMMUNITY**

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The present study was to examine the effects of a program to prevent dementia (Takeda & Tajime, 2005) in the community. The subjects were 40 elderly persons consisting of some groups based on their community. The program was carried out for seven months by group work to perform once a month and personal activity to perform every day. Group work consisted of confirmation of the daily activity to prevent dementia, relaxation exercises, reading aloud, a game, and a meeting to decide a game. The personal activity consisted of twelve activities to reduce risk factors of the dementia. To evaluate the program, we performed Kana-hiroi test and Hospital Anxiety and Depression Scale (HADS) before and after the completion of program. After the intervention, an improvement of Kana-hiroi test scores increased significantly. But no significant improvement was noted for HADS. These results suggest that this program is able to carry out between local inhabitants and appears to maintain or improve cognitive functions.

P-065-T

### **FACTORS ASSOCIATED WITH BMI CHANGE OVER FIVE YEARS IN A SWEDISH ADULT POPULATION**

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The aim with the present study was to examine BMI change over five years in a Swedish population in relation to different lifestyle-, demographic- and psychosocial work related factors. A panel consisting of 9913 persons responded to an identical survey in year 2000 and 2005. BMI change over the period was examined in relation to gender, age, educational level, physical activity, job strain, and baseline BMI. Mean BMI in the panel increased over the five years from 25.1 to 25.6 kg/m<sup>2</sup>. The prevalence of overweight increased from 35.6 % to 37.3%, and the prevalence of obesity from 10.2% to 13.0%. Overweight and obesity increased more among younger (<40 years) women and men. In all groups but younger women, BMI increase was greatest in the lowest baseline BMI quartile. In all groups, at both baseline and follow up, those with the lowest education had significantly higher BMI compared to the higher educated. Among younger women, low education was also associated with greater BMI increase over the study period. Regular exercisers had significantly lower BMI compared to sedentary persons at both baseline and follow up. Exercise pattern over time was also significantly associated with BMI change among young and middle-aged men and women. The greatest BMI increase was found among those who had given up on exercise during the study period, while those who had taken up exercise during the study period was the only group who did not show a significant BMI increase over the study period. Job strain was not associated with BMI or BMI change. Mean BMI in the panel increased over the five years. Young persons increased more than older, and the least BMI increase was found among those who had started to exercise between the two measurement points.

#### P-066-T

### HISTORY OF REMITTED DEPRESSION AND HEALTH BEHAVIORS IN WOMEN WITH DIABETES

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Depression in diabetes interferes with health behaviors. Less is known about whether a history of depression continues to interfere with health behaviors after depression remission. 59 nonsmoking postmenopausal women with type 2 diabetes (age=61 ± 9; 85% White) with no current mood disorder, no antidepressant use, and no other major medical problems were recruited from the community; women with history of fully remitted depression were over-sampled. 22 had a history of major depressive disorder, 37 were never depressed. Depression history was assessed by Structured Clinical Interview for DSM-IV. Physical activity was assessed with the Framingham Physical Activity scale (FPA); self-monitoring of blood glucose (SMBG) was measured with the Measure of Invasiveness and Skipping SMBG (MISS). In ANCOVA, after controlling for age and diabetes symptoms, women with a history of depression showed significantly lower FPA scores (M=31.3, SE=0.3) than their never depressed counterparts (M=33.8, SE=0.6),  $F(3,59)=5.86$ ,  $*p<.05$ . This difference was due to fewer hours per day of moderate activity (e.g. housework, gardening, walking) among the previously depressed women. In ANCOVA, after controlling for health insurance and diabetes treatment regimen, women with a history of depression showed significantly more frequent skipping SMBG (M=1.99, SE=0.7) compared to their never depressed counterparts (M=0.1, SE=0.5),  $F(3,50)=4.50$ ,  $*p<.05$ . These findings suggest that women with a history of depression show poor self-care behaviors, even in the absence of current mood disorder. Additional health behaviors such as diet and medication adherence should be examined.

Interventions to improve health behaviors for this population may be indicated.

#### P-067-T

### SOCIAL AND EMOTIONAL RELEVANCE FOR DEVELOPMENT IN INFANTS ENVIRONMENTALLY EXPOSED TO NEUROTOXINS.

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The aim of this study was to find out the relations between PCBs in serum concentration and the neurobehavioral development in 16 months old infants. In the study funded by NIH were included 1130 newborns. Blood samples in newborn, 6, and 16 months of age were analyzed for PCBs. The neurobehavioral examination: a) nonverbal intelligence test Raven, administered to mothers after the delivery in hospital, b) the Bayley Developmental Scale (Mental and Motor), administered to infants in age of 16 months. The quality of home environment, and emotional development were analyzed using the HOME questionnaire. The significant correlations between PCBs in serum concentrations in age of 16 months, PCBs in mothers at delivery, and PCBs in cord blood were found. In the regression analysis other major potential confounders were also follows: gestational age, duration of breast feeding, spontaneous delivery, parity, chronic diseases, age of mother at delivery, alcohol consumption/smoking habits during pregnancy, maternal intelligence score, and social background of family. Results of this cohort study showed associations between PCBs in serum concentration in 16 months old infants and poor motor development (PDI), low emotional stability between mother and infant and poor social conditions in the family. The similar relations, but no significant, were found between negative social and emotional variables and poor cognitive developmental parameters (MDI) in the same infants. Conclusion: Neurobehavioral and emotional development is significantly dependent on the positive emotional relation between mother-child and on objectively positive social conditions in family. Then the environmental exposure to neurotoxins can play a secondary importance.

#### P-068-T

### MALAYSIAN WOMEN'S AND THEIR HUSBANDS' EMPATHY FOLLOWING BREAST CANCER SURGERY

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**BACKGROUND AND OBJECTIVES:** Interpersonal relationship aspect such as empathic response from family members is important for patients fighting chronic diseases. This paper aims to observe the pattern of empathy between breast cancer patients and their husbands overtime (prior to, during and post-chemotherapy) as well as the effect of ethnicity on their empathic response. **METHODS:** The sub-scale of Empathy in the Revised Barrett Lennard Relationship Inventory (different version for patients and their husbands)

was utilized to rate 157 couples empathic response prior (seven weeks after diagnosis or three weeks after surgery), during (14 weeks after diagnosis or 10 weeks after surgery) and post-chemotherapy (23 weeks after diagnosis or 19 weeks after surgery). High scores indicate better empathic response from spouse support. To cater to the multicultural ethnicity in the Malaysian population, the scale was translated to the Malay, Chinese and Tamil languages. Socio-demographic data and medical information were also obtained from patients. RESULTS: Mean age of the women and their husbands were 48.29 ( $\pm 8.85$ sd) and 52.21 ( $\pm 9.01$ sd) years old respectively with duration of marriage 22.61 ( $\pm 9.9$ sd) years. Fifty seven percent (n=91) of patients were diagnosed with stage two breast cancer and 52% (n=83) were premenopausal. Women empathy significantly increased from prior to (41.45 $\pm 7.57$ sd) to during (43.40 $\pm 6.67$ sd) and dropped off post-chemotherapy (38.96 $\pm 5.90$ sd). Similarly, husbands empathy significantly rose from prior to (40.69 $\pm 6.89$ sd) to during (43.06 $\pm 5.27$ sd) and diminished post chemotherapy (42.08 $\pm 4.99$ sd). Ethnicity did not influence women and husbands empathic response. CONCLUSION: Women and their spouse showed similar patterns of empathic response overtime where both empathy were high during chemotherapy. Doctors and para-medics should tackle both patients and their spouses in their counseling.

#### P-069-T

### COMPARISON OF PHYSICAL, COGNITIVE AND PSYCHOLOGICAL FUNCTIONS AND THEIR EFFECTS ON EXERCISE HABITS BETWEEN YOUNG-OLD AND OLD-OLD

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**PURPOSE:** We surveyed the influence of exercise habits on physical, cognitive and psychological functions in young-old and old-old community-dwelling subjects, and evaluated the association among these items. **SUBJECTS:** The subjects were 181 elderly residents, aged 65 years or older, in a rural area. **METHODS:** As measurements of physical functions, we evaluated the grip, lower limb muscle strength, flexibility of the body and walking ability. As measurements of cognitive functions, we evaluated intellectual function and attentional function. As measurements of psychological functions, we evaluated subjective well-being and the degree of satisfaction with life. Statistical analysis of group measurements with and without an exercise habit was performed by analysis of covariance with adjustment for age. **RESULTS:** Exercise habit: Eighty-one subjects performed regular exercise (young-old: 52, old-old: 29), and 100 did not (young-old: 44, old-old: 56). For young-old group, physical functions (such as lower limb muscle strength and walking ability) and cognitive functions (such as intellectual function and attentional function) were significantly better in the group with exercise habits than in the group without, but in grip strength and psychological functions we could not find any significant differences. For old-old group, physical functions, cognitive functions and psychological functions were significantly better in the group with exercise habits than in the group without. **CONCLUSION:** These results suggest an association between regular exercise and health promotion in old-old. In particular, regular exercise may improve physical functions such as lower limb muscle strength and walking ability and inhibit an age-associated decrease in attentive function, which is useful for

the prevention of falling. Regular exercise, which may also have inhibitory effects on the development of dementia and increase the mental health state, is expected to be an effective measure for care prevention.

#### P-070-T

### PHYSICAL ACTIVITY BEHAVIOUR AMONG WOMEN WITH A RECENT HISTORY OF GESTATIONAL DIABETES MELLITUS.

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**Background:** Women with previous gestational diabetes mellitus (GDM) have an increased risk of developing type 2 diabetes mellitus (T2DM). Current GDM management guidelines include patient education on managing their increased T2DM risk after pregnancy. Studies have shown that physical activity (PA) can reduce the risk of developing T2DM, and that exercise interventions are effective in improving metabolic control. This study aims to describe the prevalence of PA and associated psychosocial variables among women with recent GDM pregnancy.

**Method:** Cross-sectional telephone survey of women with recent (3 years prior) GDM pregnancy in Queensland, Australia (N=331). PA was assessed using Active Australia Questionnaire. "Sufficient activity for health benefit" was defined as 150min moderate-intensity PA, 5 times/week. Recall of health professionals' advice on how to manage the increased risk of developing T2DM were sub-categorised by specificity of the advice recalled (recall/not recall type/amount of PA recommended). Self-efficacy and social support for PA were also assessed.

**Results:** The prevalence of sufficient PA for health benefit was low (37.2%). Most women (76.7%) recalled receiving advice from a health professional on how to manage their increased T2DM risk, but only 6.6% recalled specific PA recommendations. Recall of general management advice and specific PA advice were not associated with sufficient PA. Social support and self-efficacy for PA were significantly associated with sufficient PA, both independently (social support OR=1.05, 95%CI 1.02-1.08; self-efficacy OR=1.07, 95%CI 1.04-1.10), and after adjusting for each other (social support OR=1.04, 95%CI 1.004-1.07; self-efficacy OR=1.06, 95%CI 1.03-1.09).

**Conclusion:** The low prevalence of PA emphasizes the need for interventions to promote PA to this high-risk population. This study suggests self-efficacy and social support for PA may be important factors to target in strategies aimed at increasing PA levels in this population group.

P-071-T

**CONTINUATION OF BREASTFEEDING: IS THIS A PROBLEM IN SOUTHEAST OF IRAN?**

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Background: Despite widely knowledge about breastfeeding benefits for mothers and neonates, duration of breastfeeding is decreasing in most of countries. Many factors effect on continuation of breastfeeding.Objective: This study aimed to evaluate breastfeeding duration and its associated factors in rural and urban children of Zabol-Iran. Methods: In a historical cohort study, health files of 1264 Iranian children under three-year-old were selected by cluster sampling method in Zabol district located on southeast of Iran. Two lists of rural and urban health centers based on their distance were prepared and separately by systematic sampling technique three centers were selected in each list. Tables, Kaplan-maire figure, median and mean (sd) used for data description and Log-Rank test for data analysis.Results: The mean duration of exclusive breastfeeding was 5.6 (sd=1.3) months and mean of breastfeeding was 20.8 (sd=4.69) months. All children had had started breastfeeding at the birth. Breastfeeding continuation at six, 12, 18; 24 months were 98%, 92%, 76% and 0.97% respectively. Maternal age, mothers' job, education level, residency place, child's birth weight, child's birth rank, birth intervals, age of onset of supplementary food, except child's sex, had significant relationship with breastfeeding continuation. Conclusion: Results indicated some risk factors for breastfeeding continuation that should be pay more attention in education programs in health system to pursue healthy behaviors among people.

P-072-T

**A COMPARISON OF PSYCHOLOGICAL RESPONSE EVOKED BY MUSIC IN PROBLEM-FOCUSED COPING AND EMOTION-FOCUSED COPING OF COPING STYLE**

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The purpose of the study was to examine the differences of Problem-focused coping and Emotion-focused coping on psychological response evoked by background music.Participants were 32 healthy college students (mean age=21.5 ± 2.60) in Japan.They were divided into two groups according to their Stress Coping Inventory(16 in Problem-focused coping,16 in Emotion-focused coping).The half of both groups were given only visual stress stimulus(no music group).The other half of both groups were given visual stress stimulus with music(music group).Mozart's Requiem was used in this study.All of them asked to complete Profile of Mood States(POMS) and rate experiences at each session.The mean scores of each factors of POMS for the each group before and after the experimental session are calculated.In,"tension-anxiety"of POMS,There was tendency that the changes before and after the experimental session in music group was higher than that in no music group.It was suggested that there were the difference of Problem-focused

coping and Emotion-focused coping on psychological response evoked by background music.If we focus on the differences in the effect of background music,the study and practice of background music will develop more and more.

P-073-T

**RELATION BETWEEN AUTOTELIC PERSONALITY AND TIME PERSPECTIVE**

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The concept of Autotelic Personality is defined as the tendency to seek for its own sake according to the degree of time spent in the flow state. People with Autotelic Personality are supposed to have time management skills to spend much time in the flow state. However, Autotelic Personality has received little attention in past studies and relation between Autotelic Personality and time perspective has been left unsolved. This study examines the degree of the time perspective such as Time Management and Goal Directedness in Autotelic Personality. The questionnaire consisting of Flow Experience Checklist, Time Management Skill Scale, and Goal Directedness of the Experiential Time Perspective Scale was completed by 323 Japanese college students (155 men and 168 women, M=20.27, SD=1.59). The result of analyses of variance suggested Autotelic group has the ability to manage time more systematically compared with the other two groups (Non-autotelic group and Average group). In addition, Autotelic group has a clearer goal for the future and feels more directed to purpose in life compared with the other two groups. Therefore, Autotelic people regulated time better to ensure flow activities and direction toward goals to overcome the psychological constraints among everyday life activities.

P-074-T

**UNWANTED PREGNANCY AND ITS CONSEQUENCES ARE REPORTING; WHAT ARE THE REASONS?**

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Introduction:One of the most important reason for unsuccessful family planning program is unwanted pregnancy. It has a negative effect on mother and newborn health. This study intended to identify this problem and associated factors.Material and method: A cross-sectional study was undertaken in rural health centers in Gonabad district, Iran. Three hundred and twenty mothers with under 2-year-old baby completed a questionnaire by interview. Then data were entered and analyzed by SPSS software. Results:The average age of women was 27 year and the average of their literacy was about 2.9. The main reason for reporting pregnancy as unwanted was birth space less than two years. Totally, 25.9% of pregnancy was reported unwanted which near the half of them had not used contraceptives. From whom used contraceptives 62% used it incorrectly. The most important reason for not using of contraceptives was the harm of usage, about 20% of women with unwanted pregnancy tried

to terminate their pregnancy. Between unwanted pregnancy and mothers age ( $p=0.002$ ), mothers job ( $p=0.01$ ), literacy of mother and her husband ( $p=0.001$  and  $p=0.04$  consequently), the style of contraceptive usage ( $p=0.04$ ), and the number of their children ( $p=0.001$ ) were a significant relationship. However, there was no relation with her husbands job. Conclusion: The results demonstrated that one of four pregnancy is unwanted that the main reasons of them can be changed by appropriate education program.

#### P-075-T

### EMOTIONAL RESPONSE IN THREE GROUPS OF CHRONIC DEGENERATIVE PATIENTS

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Mood of persons with Diabetes Mellitus type 2, hypertensives and both illness as a risk factor were studied. Chronic degenerative illnesses create conditions to high emotional intensity. Intense emotional responses may interfere with patients quality of life and with their possibilities of improve or control their sugar or arterial tension. Two hundred seventy one outpatients from a hospital were studied, 89 suffered from Diabetes Mellitus type 2, 99 hypertension and 83 had both pathologies. Their ages were from 25 to 94, 153 were females and 118 males. They responded voluntarily three tests: one of hostility (six factors and total score), other of anxiety (5 factors and total score) and the third one of depression (six factors and total score), when they assisted to their routine consultation. Results by ANOVA showed no differences between diabetics and hypertensives but they do between these and group with both illnesses: in hostility all comparisons had a probability = .04, in anxiety, factors of dispersion, sensibility and total  $p=.03$ , and in depression: demotivation, irritability and total score  $p=.04$ . In all cases emotional response was stronger in females than in males  $p=.005$  or less. Age tendency showed more response intensity in the younger groups, in hostility all factors were significant  $p=.004$ , in anxiety also all factors produced results  $p=.007$  and in depression all but one had  $p=.01$ . Results show differences produced by group of illness, age and sex that can shed light over what direction work with these patients in order to teach them to self regulate their emotional responses for helping them to achieve better conditions of life and health.

#### P-076-T

### FACTORS RELATED TO PREHYPERTENSION IN CHINESE ADULTS

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Objectives: The goal of the investigation is to identify factors that are related to prehypertension in an adult population in Guizhou, China. Methods: A subset of a sample from the China Health and Nutrition Survey data 2006 were categorized based on the guideline on classification of blood pressure of JNC 7 from National High Blood Pressure Education program into those with prehypertension and those with normal blood pressure for this analysis. Potential predictors were first examined using univariate logistic regression analyses. Based

on the results from univariate analyses, multivariate models were tested and predictors examined. Fractional polynomial analyses were applied to examine the scales of continuous covariates. The necessity to include interaction effects was also assessed. Results: 324 (36.12%) prehypertensive and 573 (63.88%) subjects with normal blood pressure were observed. The model identified that one dichotomous main effect covariate (gender), and three linear continuous covariates (age, BMI, waist circumference) were significant predictors of prehypertension. The odds of being prehypertensive for males is estimated to be 1.57 times larger than the odds for similar (with respect to other covariates in the model) females (95% CI: 1.17, 2.11). Holding all other covariates constant, for every increase of 1 year in age, 1 cm in waist circumference, or 1 unit in BMI, prehypertension increases 1.02 (95% CI: 1.01, 1.03), 1.03 (95% CI: 1.01, 1.05) and 1.05 (95% CI: 1.00, 1.11) times respectively. Conclusion: Prehypertension is highly prevalent among adults in Guizhou, and is related to gender, age and BMI. Lifestyle and dietary changes that may reduce BMI or waist circumference may lessen the risk of prehypertension.

#### P-077-T

### THE JAPANESE STUDY TO ORGANIZE PROPER LIFESTYLE MODIFICATIONS FOR METABOLIC SYNDROME (J-STOP-METS): PRELIMINARY RESULTS

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Objective: To examine the behavioral characteristics of the metabolic syndrome by means of a questionnaire in a large cohort of patients with metabolic syndrome and the control subjects. Subjects and methods: Three hundred and ninety nine patients with metabolic syndrome (292 men and 107 women) and age and sex matched 401 healthy control subjects were studied. Diagnosis of the metabolic syndrome was based on waist circumference 85 cm or over for men and 80 cm or over for women, with at least two cardiovascular risk factors among high blood pressure, hyperglycemia or dyslipidemia. All subjects received a self-reported questionnaire on their work, degree of physical activity in daily life (graded from 1st to 4th level), dietary characteristics, work and home stress, type A behavior and depression. Results: Self-assessed "big eater" was more frequently observed in metabolic syndrome than in the control for both men (17 vs. 5 %,  $p<0.05$ ) and women (12 vs. 3 %,  $p<0.05$ ). Self-assessed "fast eater" was more frequently observed in metabolic syndrome for men (57 vs. 42 %,  $p<0.05$ ). Frequency of "excess eating" under stress condition also was higher in metabolic syndrome than in the control (13 vs. 4 %,  $p<0.05$  for men and 14 vs. 4 % for women). Frequency of lowest physical activity (grade 1) was higher in metabolic syndrome than in the control (42 vs. 29 %,  $p=0.05$  for men and 48 vs. 34 %,  $p<0.05$  for women). Conclusion: Our data showed that metabolic syndrome is characterized by an excess dietary behavior under stress and low physical activity in daily life. These data may be useful for life style guidance for metabolic syndrome.

P-078-T

**THE STABILITY OF AUTOBIOGRAPHICAL MEMORIES IN DEPRESSION AND ANXIETY**

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The purpose of this study was to investigate the influences of depression and anxiety on repeated recall of autobiographical memories. Subjects were 6 male and 16 female university students. In initial experiment, the subjects were asked to write down 10 impressive personal memories: 5 positive and 5 negative ones. They also answered the Self-rating Depression Scale and the State-Trait Anxiety Inventory. These questionnaires were used to evaluate their anxiety and depressive symptoms. A follow-up experiment was conducted one month later, and subjects were unexpectedly asked to repeat the same tests. The results of 2 (Depression: high, low)  $\times$  2 (Anxiety: high, low) analysis of variance revealed that there was the main effect on depression; the positive memories and the negative memories were more likely to be recalled twice ( $p<.001$ ;  $p<.05$ ). This indicated that subjects with a high depressive tendency were more likely to recall the same memories of both positive and negative events compared to subjects with a low depressive tendency. In conclusion, it was very difficult for people with a high depressive tendency to change their autobiographical memories. In other words, their autobiographical memories were stable. In addition, there is possibility that the firm memories have been implicated in the maintenance of depression because people make personality and who they are now by the accumulation of autobiographical memories. Therefore, the stable autobiographical memories need to be worked on in order to reduce depression. In future, this method will be the effective intervention for depression. However, depressed people are more likely to retrieve overgeneral memories when asked to recall memories of specific autobiographical events. Future works need to investigate that the results of the present study are influenced by whether the stability of autobiographical memories or overgeneral memories.

P-079-T

**MATERNAL PARENTING BEHAVIORS IN CHILDHOOD RELATE TO WEIGHT STATUS IN YOUNG ADULTHOOD**

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Background: There is growing evidence that parenting styles can affect weight status during childhood, but little is known about relation of parenting behaviors to later weight status of the children as young adults.

Objectives: 1) Examine the association between parenting styles as perceived by U.S. college students versus by mother. 2) Determine relationship of the mother's parenting style during elementary school to the child's later weight status as young adults.

Methods: Participants were a convenience sample of 87 US college students (28 males; 18-24 yr; not majors in nutrition or exercise science) and their mothers. The student measurements included demographics, height, weight and parenting style

(parental acceptance, psychological control and behavioral control) of their mothers during childhood. By mail, the students' mothers completed the same 30-item parenting questionnaire (scores could range 10-30 with 30 indicating the most acceptance or control).

Results: Mother-Student dyads demonstrated significant correlations in scores for each parenting construct (correlation coefficients ranged from 0.261 to 0.405,  $p<0.05$ ). Students rated maternal psychological control higher than their mothers did ( $15.1 \pm 4.1$  vs.  $13.1 \pm 3.1$ ,  $p<0.001$ ). The students' mean Body Mass Index (BMI: Weight (kg)/height (m)), were  $25.8 \pm 5.5$  (male) and  $23.4 \pm 4.4$  (female). Compared to mothers of non-obese students (BMI<30), mothers of obese college students (BMI $\geq$ 30) reported higher psychological control ( $12.8 \pm 2.5$  vs.  $16.1 \pm 6.1$ ,  $p=0.005$ ) and lower behavioral control ( $22.2 \pm 2.7$  vs.  $19.7 \pm 3.6$ ,  $p=0.025$ ) when their child was in elementary school.

Conclusion: Students' perceptions of maternal parenting styles were similar to the mothers' perceptions of their own parenting styles, but students perceived they were psychologically more controlled as children by mothers than the mothers reported. Higher psychological control and lower behavioral control by mothers might be a risk factor for obesity in young adults.

P-080-T

**THE RELATED FACTORS OF SUBJECTIVE SYMPTOMS IN JAPANESE YOUNG ADOLESCENTS**

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This study was conducted to clarify the relationship between the subjective symptoms and the factors including daily behavior, human relations, eating habits and school life among Japanese junior high school students. Data were collected from 81 boys and 78 girls between twelve and fifteen years of age, Hyogo Prefecture, Japan. An average age of the boys was  $13.3 \pm 1.4$  years, and for the girls it was  $13.1 \pm 1.5$  years. The subjects were classified into two groups: a group with a high level of subjective symptoms and a one with a low level. The magnitude of the relation was evaluated by the odds ratio (OR) with the 95% confidence interval (CI). The results of multiple logistic regression analysis, using stepwise method, indicated that factors such as "I do not live with my father (OR=5.57, 95%CI=1.43-21.68)" and "I have dinner by myself (OR=2.97, 95%CI=1.01-8.74)" were significantly correlated with an increase in subjective symptoms. It was indicated that the absence of father and having dinner by him/herself were related to the emergence of subjective symptoms in Japanese junior high school students. It suggests that attention to these issues would be needed. However, this research was cross-sectional study, and we could not clarify the causal relationship. We would like to carry out a follow-up study in the near future.

## Track 'Childhood & Adolescence'

P-081-T

### MEDITATION FOR CHILDREN WITH ADHD

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**Objective:** To investigate whether a meditation technique which focuses on the experience of mental silence has a beneficial effect in improving ADHD behaviour of children. **Materials and Methods:** A mental silence orientated form of meditation was used in an exploratory clinic for 48 children with ADHD and their parents in a 6 week programme of twice-weekly clinic meditation sessions and regular meditation at home. **Results:** Pre-post assessments showed significant improvements in the parents ratings of the core ADHD behaviours. Benefits were described by children at school (better concentration, less conflict) and at home (improved sleep pattern and anxiety). Parents reported feeling happier, less stressed and better able to manage their child's behaviour. **Conclusion:** The eastern concept of meditation is that of a state of mental silence characterised by the elimination of unnecessary thought, effortless attention on the present moment and alert awareness. Meditation is thus thought to be well suited to reduce the severity of the features that are typically impaired in children with Attention Deficit-Hyperactivity Disorder (ADHD). There are several potential mechanisms of action of SYM on ADHD behaviours that will be discussed. Meditation has been suggested to relax the sympathetic nervous system by activating parasympathetic-limbic pathways. Improvements in hyperactivity may thus be related to the relaxation effect of meditation.

P-082-T

### PROBLEM SOLVING INSTRUCTION FOR PARENTS AND ITS EFFECT ON CHILDREN MISBEHAVIOR

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Problem solving skills play a significant role in parent-child relationship. Despite the fact that most people are potentially able to solve their everyday problems, they do not have the skills to apply problem solving in real life situations. For this reason, the instruction of problem solving strategies seems to be necessary. The purpose of this research was to evaluate the efficacy of problem solving workshops on parenting styles and children misbehaviors. In these workshops, parents become familiar with problem solving skills and they learn to practice such skills in real life. Following every session of the workshop, parents work on assignments to practice problem solving with their children. The workshop consists of ten sessions, two hours each. In each session, problematic situations related to parent-child relationship and children challenging behaviors are introduced to parents, requiring them to use various problem solving strategies. A total of 213 parents were instructed in groups of 20-25 participants. The present study utilized a quasi-experimental research method with pre and post test without control group. Two questionnaires were developed by the researchers: Parenting Styles Questionnaire and Child Behavioral Problems Inventory. Analysis of data indicates that teaching problem solving strategies to parents had positive effects on their parenting styles and children misbehavior. **Key words:** parent education, parent training, problem solving strategies,

behavioral problems.

P-083-T

### EFFECT OF ANGER MANAGEMENT TRAINING ON MOTHER-CHILD INTERACTION

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Anger has always been recognized as a common and natural emotional experience of human beings. However, in recent years attention has been given to the inappropriate expression of anger as a major problem in human relation. Furthermore, anger is an emotion that parents frequently experience in their relationship with their children. A body of research suggests that parents' uncontrolled anger toward their children is strongly associated with child abuse and family conflicts. On the other hand, research findings have revealed that anger management training programs, based on cognitive-behavioral approach, are effective in controlling and moderating of anger in parent-child relationship. The purpose of the present research is to examine the efficacy of anger management training on the interaction of mothers and their mildly mentally retarded and slow learner children. The design of this study is quasi-experimental with pretest-posttest control group. This study was conducted on 46 mothers who were equally divided into experimental and control groups. Data were collected utilizing three questionnaires including Anger Evaluation, Multidimensional Anger Inventory and parent-child Relationship Inventory. The anger management training based on cognitive-behavioral approach was implemented on experimental group during seven sessions. Data were analyzed using Analysis of Covariance method. Findings of this study revealed that anger management training decreased the intense of anger in anger-eliciting situations and anger arousal factors, increased the use of anger control strategies and improved parent-child relationship.

P-084-T

### MATERNAL MENTAL STRESS DURING PREGNANCY AND CHILDHOOD ATTENTION-DEFICIT/HYPERACTIVITY DISORDER: A PRELIMINARY STUDY IN JAPAN

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**Objective:** To examine the relationship between attention-deficit/hyperactivity disorder (ADHD) and maternal mental stress during pregnancy. **Method:** A total of 61 couples of children with ADHD and their mothers were investigated as ADHD group, as well as a total of 205 couples of children with mild physical disorders and their mothers as control group in clinical setting of outpatients, through October 2007. Diagnosis of ADHD was made by specialists for childhood psychiatry or pediatric neurology in accordance with DSM-4 diagnostic criteria. Information regarding maternal lifestyles

during pregnancy was obtained from the mothers using self-reported questionnaire followed by a semi-structured interview. The self-reported questionnaire includes socioeconomic status of the parents, maternal tendency of ADHD, as well as maternal lifestyles during pregnancy and ADHD symptoms of the children. The maternal mental stress during pregnancy was assessed using a relevant item included in the SF-8 Japanese version. Results: Maternal mental stress during pregnancy was statistically significantly associated with the ADHD of offspring even after controlling for the other confounding factors. Conclusion: Maternal mental stress during pregnancy may be a possible risk factor of ADHD. The sampling of ADHD and controls is still continued, and the newest results will be shown in the presentation.

**P-085-T**

**NATURAL DISASTERS AND CHILD HEALTH: PREDICTORS OF SOMATIC SYMPTOMS IN CHILDREN 21 MONTHS AFTER A MAJOR HURRICANE**

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Natural disasters contribute to significant posttraumatic stress symptoms (PTSS) in children months and even years after a destructive disaster. However, little attention has been paid to the potential health consequences of exposure to disasters. This study examined the effects of a Category 4 Hurricane (Charley, 2004; with sustained winds of 145 mph) on child reports of PTSS and somatic symptoms, 9- and 21-months postdisaster (T1 and T2, respectively). At each time point, 220 children (55% girls; 85% Caucasian; M age = 8.7 years) completed: the Hurricane Related Traumatic Events-Revised that assessed perceived life-threat, objective life-threatening events that occurred during the hurricane, and loss/disruption events that occurred after the hurricane; the PTSD-Reaction Index for Children that assessed PTSS; and items from the Youth Self Report that assessed health/somatic symptoms. Children reported moderate levels of PTSS (T1 M = 19.81; T2 M = 17.71), and numerous somatic symptoms (T2 M = 7.26). Regression analyses evaluated predictors of somatic symptoms 21 months after the hurricane, controlling for age, gender, and ethnicity. Hurricane experiences (objective life threat, perceptions of life-threat, ongoing loss/disruption) accounted for 7.2% of the variance in somatic symptoms at T2 ( $p = .001$ ). T1 PTSS also significantly predicted T2 somatic symptoms ( $\beta = .40$ ,  $p = .001$ ), but hurricane experiences were no longer significant. Further analyses revealed that T1 PTSS mediated the relationship between hurricane experiences and T2 somatic symptoms. Thus, findings indicate that children report persistent somatic symptoms almost two years following a major disaster, which appear to result from hurricane-related traumatic experiences and which are mediated by PTSS. This study is one of the first to examine physical reactions to natural disasters among children. Further study of health consequences of disasters in children is important and desirable.

**P-086-T**

**POTENTIAL PEER INFLUENCES ON RISKY SEXUAL BEHAVIORS AMONG ADOLESCENTS: PEER CROWDS, ROMANTIC RELATIONSHIPS, AND FEELINGS OF SOCIAL ANXIETY**

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Little is known about peer influences on risky sexual behaviors among adolescents, although peers significantly influence other health behaviors (e.g., smoking, drinking). Two studies evaluated associations between adolescent peer relations and risky sexual behaviors. Study 1 examined adolescent peer crowd affiliations (e.g., Populars, Brains, Burnouts, Jocks) and positive and negative qualities of romantic relationships as predictors of dating and sexual risk-taking behaviors. 518 adolescents (58% girls; 16-18 years) completed the Peer Crowd Questionnaire and the Survey of Risk Taking Behavior; 223 (43%) who had a romantic partner also completed the Network of Relationships Inventory-Revised. Popular and Burnout adolescents and male Jocks reported having significantly more dating partners in the past year than other teens, and among adolescents with a romantic partner, high proportions Burnout (75%) and Loner (71%) crowds were sexually active. In addition, lower contraceptive use was significantly predicted by more negative qualities and fewer positive qualities in adolescent romantic relationships. In Study 2, 762 adolescents (59% girls; M age = 15.7 years) completed the Social Anxiety Scale for Adolescents and the Survey of Risk Taking Behavior. In regression analyses controlling for age, gender and ethnicity, higher levels of social anxiety were related to having significantly fewer sexual partners ( $\beta = -.015$ ,  $p = .001$ ); however, among adolescents who were sexually active (40%), high social anxiety predicted lower levels of condom use ( $p = .05$ ). Together findings indicated that affiliating with certain peer crowds, having a poor quality relationship with a romantic partner, and feeling socially anxious each may contribute to risky sexual behaviors that could place an adolescent at risk for sexually transmitted diseases. The implications of these and other results for the development of preventive interventions and for future research will be discussed.

**P-087-T**

**FEASIBILITY AND EFFICACY OF INTERNET-BASED SELF-MANAGEMENT INTERVENTIONS FOR CHILDREN AND ADOLESCENTS WITH RECURRENT HEADACHE.**

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On the basis of a successfully evaluated group training for children with headache we developed a 6-session internet self management intervention addressing the age group from 10 to 18 years. The interventions comprised education on headache, stress management, relaxation, cognitive restructuring and self assurance strategies. The participants downloaded the training modules on a weekly basis and worked on it according to given guidelines. Additionally they were offered 6 weekly email contacts with the trainer. A randomized controlled trial was conducted comparing the efficacy of this intervention to an applied relaxation program and psycho-education ( $n=68$ ). As main outcome measures headache activity (assessed by a diary and pain catastrophizing were assessed. Contrary to other internet intervention studies a relatively low drop-out

rate was observed. Significant reductions in headache activity were found in the two treatment groups from pre- to post-treatment. Especially CBT led to a significant decrease in pain catastrophizing. Changes were maintained at 6-month follow-up. The internet format appears to be a viable treatment option, particularly when clinical face-to-face treatment cannot be made available.

**P-088-T**

**EMOTION-BASED MEDIATION OF CANCER-RELATED ATTITUDES AND BEHAVIORAL OUTCOMES IN ADOLESCENTS: IMPACT OF THE RE-MISSION VIDEOGAME**

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The Re-Mission videogame was developed as a behavioral intervention to improve health outcomes in adolescents and young adults (AYA) undergoing treatment for cancer. A randomized controlled trial showed that Re-Mission significantly accelerated acquisition of cancer-related knowledge and self-efficacy in AYA cancer patients, and produced greater adherence to prescribed antibiotic and oral chemotherapy regimens. To identify psychological mediators of treatment effects, the present study assessed changes in emotions, cancer-related knowledge, and control beliefs as determinants of subsequent attitudes towards chemotherapy and intent to adhere to a prescribed treatment in 107 healthy undergraduates. Participants completed questionnaires before and after being randomly assigned to 45 minutes of Re-Mission game-play or a control commercial videogame. Immediately post game-play, the Re-Mission group showed relative increases in both arousal-related negative affect (nervous,  $p = .05$ ; scared,  $p = .008$ ) and positive affect (inspired,  $p = .007$ ; attentive,  $p = .033$ ) compared with the control group. Re-Mission game-play also induced more positive attitudes towards chemotherapy ( $p = .019$ ) immediately post game-play. One month later, participants who had played Re-Mission (versus the control game) reported higher perceived control over cancer ( $p = .042$ ) and greater intentions to use chemotherapy if ever diagnosed ( $p = .072$ ). Statistical mediation analyses indicated that up to 50% of Re-Mission's positive effect on attitudes towards chemotherapy could be attributed to affective changes. In contrast, perceived control and cancer-related knowledge did not significantly contribute to the effect. Ongoing studies are examining whether similar effects occur in AYA cancer patients and testing whether these affective changes might mediate subsequent changes in adherence behavior outside the laboratory. Overall, results suggest that in-game emotional experience, rather than knowledge acquisition, might represent a key determinant of Re-Mission's effects on AYA's attitudes toward cancer and related treatments.

**P-089-T**

**PARENTAL CANCER AND CHILDREN'S EMOTIONAL AND BEHAVIOURAL FUNCTIONING: A MULTI-NATIONAL STUDY**

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**AIM:** To assess factors (parental depression and family functioning) associated with emotional and behavioural problems in children aged 4-17 years living with a parent with cancer. **METHODS:** Participants were 350 ill parents (73 male), 250 partners (182 male), and 352 children (155 boys) from 6 European countries. Patients were diagnosed with various types of cancer, the majority with breast cancer (61.7%). Both parents completed the Child Behavior Checklist (CBCL), Beck Depression Inventory (BDI), and the General Functioning sub-scale (FAD-GF) of the Family Assessment Device. Adolescents (11-18 years) completed the self-report version of the CBCL, the Youth Self Report (YSR). **RESULTS:** Multivariate analyses showed that CBCL scores of internalizing, externalizing, and total problems were significantly associated with BDI scores of ill parents (Beta: 0.16-0.30;  $p: 0.001-0.01$ ), BDI scores of healthy parents (Beta: 0.20-0.28;  $p: 0.001-0.01$ ), and FAD scores of ill parents (Beta: 0.12-0.25;  $p: 0.001-0.05$ ). CBCL externalizing, and total scores were significantly associated with FAD scores of healthy parents (Beta: 0.15-0.21;  $p: 0.01-0.05$ ). YSR internalizing, externalizing, and total scores were significantly associated with BDI scores of ill parents (Beta: 0.21-0.26;  $p: 0.01-0.05$ ). YSR externalizing scores were significantly associated with FAD scores of ill parents (Beta: 0.20;  $p < 0.05$ ). **CONCLUSION:** Parental depression and family dysfunction were associated with emotional and behavioural problems in children, as evaluated by both ill and healthy parents. Family dysfunction was in particular related to behavioural problems and parental depression to emotional problems. An association between parental depression and child outcomes was found for the reports of both parents and adolescents themselves, indicating that the evaluation of children's problems by their parents was not explained by an overrating of problems by the depressed parents. Further prospective studies are needed to assess the causal direction of the associations.

**P-090-T**

**CHILD WELL-BEING IN LOW SOCIO-ECONOMIC NEW ZEALAND SCHOOLS**

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Child well-being is an important and somewhat over-looked factor in educational environments. To address the needs of eight local lower socio-economic primary schools an



intervention programme was developed to promote child-well being. The intervention in various forms, sometimes known as Circle Time, has been widely implemented in schools claiming to increase a wide range of variables such as happiness, health and academic performance. However, although popular, these types of interventions in whole school environments have received very little research attention. The present study surveyed parents and children at the beginning and end of year to assess child well-being (n = 669). Academic data was also collected for a cohort of children. Beginning of year surveys found that liking school, according to both parents and children, was more highly correlated with school related variables (liking the teacher, celebrating good things, having interesting work) than friends, health or even bullying. A regression analysis found that liking school could be explained by teacher helpfulness, classroom fun, interesting work, being proud of school and helping other children (p<.001). In general children were very happy, had lots of friends, felt safe, and stimulated, both before and after the intervention. The intervention programme made small significant positive changes in child well-being. Cost-benefit analysis and academic results will also be discussed.

#### P-091-T

### THE ASSOCIATION OF INTELLIGENCE TESTS SCORES AND SCHOOL ACHIEVEMENT WITH SUICIDE IN A 40-YEAR FOLLOW-UP OF A COHORT OF SWEDISH MALES AND FEMALES

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**Background** There is growing evidence that low cognitive abilities are associated with an increased risk of suicide. Several studies of the association of intelligence test scores with suicide have been restricted to males and have used tests carried out at the time of conscription to the military. This study uses longitudinal data with a follow up period of 40 years and includes data on both males and females. **Aim** The aim of this study was to investigate associations of IQ tests and school grades recorded at age 13 with later suicide and to analyse if associations are mediated by psychosis amongst people with low cognitive abilities **Methods** A random sample of 21 809 Swedish men and women born in 1948 and 1953 who completed IQ- and school tests at age 13 years have been followed until 2003. Information on socioeconomic position (fathers education), in-patient care for psychosis and cause of death has been linked through the Swedish personal identification number. Logistic regression models were used to analyse the data. **Results** There were 180 suicides amongst subjects with IQ measures. High IQ was associated with reduced suicide risk among males [OR per unit increase in IQ in age adjusted model 0.90 95% CI 0.83-0.99] while there was no statistical evidence of an association in females [OR 1.04 95%CI 0.90 to 1.20]. Controlling for psychosis among males with a history of psychosis, high IQ was associated with an increased risk of suicide [OR per unit increase 1.22 95% CI 0.98-1.52] compared to those without [OR 0.87 95% CI 0.79-0.96] Per unit increase was related to a nine-unit Stanine scale **Conclusions** Low childhood IQ at age 13 is associated with an increased risk of suicide in males but not females,

however amongst those with psychosis low IQ appears to be protective.

#### P-092-T

### ITS YOUR GAME KEEP IT REAL: LONG-TERM RESULTS FOR AN HIV, STI, AND PREGNANCY PREVENTION PROGRAM FOR MIDDLE SCHOOL STUDENTS

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**Background:** Teen pregnancy and sexually transmitted infections are serious public health issues among U.S. adolescents. Early initiation of sexual intercourse is of particular concern and it has been associated with an increased risk of these health issues. Effective HIV, STI, and pregnancy prevention interventions at the middle school level are needed to help delay early sexual activity.

**Methods:** We developed and evaluated an innovative classroom and computer-based HIV, STI, and pregnancy prevention program for middle school students, entitled Its Your Game Keep it Real (IYG). IYG was developed using Intervention Mapping, a process that incorporates empirical and theoretical research. IYG was evaluated in a randomized controlled trial conducted in 10 Texas urban middle schools. Students completed follow-up surveys administered on laptop computers. Measures included sexual behavior and psychosocial variables.

**Results:** Baseline sample was 57.1% female, 43.5% black, 41.9% Hispanic, mean age was 12.5 (SD=0.69) years. At the 9th grade follow-up survey (n=907), 10% of intervention students reported initiation of oral sex compared to 17.58% of control students (OR = 0.52; 95% CI: 0.34, 0.80). Similarly, 3.74% of intervention students reported initiation of anal sex compared to 9.92% of control students (OR = 0.35; 95% CI: 0.19, 0.67). 14.79% of Hispanic students in the intervention group reported initiation of vaginal sex compared to 24.05% in the control group (OR = 0.55; CI: 0.32, 0.95). There was a sustained positive impact on beliefs about abstinence, beliefs about sex, and perceived friends beliefs about sex compared to control students.

**Conclusions:** IYG is an effective HIV, STI and pregnancy prevention program for middle school students. Few evaluation studies of other middle school programs have assessed their impact on behavioral and psychosocial outcomes into high school. Programs such as IYG are critical tools in reducing HIV, STI, and pregnancy among early-aged youth.

#### P-093-T

### PREVALENCE OF DEPRESSION AMONG VERTICALLY-HIV-INFECTED AND HIV-NEGATIVE THAI ADOLESCENTS

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**Background:** As the paradigm of HIV care shifts towards chronic care management as a result of increased survival from antiviral therapy, vertically-infected Thai children may be at increased risk of depression, similar to children with

other chronic diseases.

**Methods:** Between May and October 2007, we screened vertically-HIV-infected teens and HIV-negative controls aged > 13 years old for depression using a confidential, self-administered, written questionnaire containing the Thai version of the Children's Depression Inventory and additional questions written by the study team. A cut-off score > 20 was used to define depression. All children who tested positive will be retested and if positive again, will be provided referrals for psychiatric counseling.

**Results:** Thirty-eight vertically-HIV-infected Thai adolescents (52.6% female, median age 14.7 years) at Chiang Mai University Hospital and 165 age-matched Thai controls from a local school (53.9% female, median age 15.4 years) participated. Among HIV-infected adolescents, 5 (13.2%) teens met our criteria for depression, compared to 34 (20.6%) controls ( $p=0.3$ ).

Among HIV-infected teens, 5 (13.2%) had contemplated suicide in the previous year, 2 had planned a suicide (5.3%), and 2 (5.3%) had previously attempted suicide, compared to 29 (17.6%), 16 (9.7%), and 16 (9.7%) of controls, respectively (all differences non-significant).

**Conclusions:** Vertically-HIV-infected Thai teens are not at an increased risk of depression compared to their peers. Ongoing monitoring is warranted, as an increased risk of depression in patients with chronic disease is well documented. A much higher than expected proportion of Thai teens had previously attempted suicide.

#### P-094-T

### SLEEP AND ACADEMIC PERFORMANCE, LIFESTYLE AND SLEEP EDUCATION MENUS IN HIGH SCHOOL STUDENTS IN JAPAN

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**Introduction:** One in four Japanese high school students was self-perceive insufficient sleeper. Recent studies of the relation to sleep and academic performance showed that students with more regular sleep-wake patterns reported higher academic performance, whereas students with lower grades reported increased daytime sleepiness (Curcio et al., 2006, Tanaka et al, 2007). The purpose of this study was to examine the relation between sleep lifestyle and academic performance in high school students, and to make sleep education menus for students who delayed or irregular sleep-wake patterns. **Method:** The relation between sleep and academic performance was examined in 500 students in three high school of different academic ranking (study 1). These Scores of Common scholarship test were compared academic subjects (English, Mathematics, Japanese). Total score of A Higher rank school is 178.5 point. These of B High rank school is 133.9 point. Total score of Common school is 99.8 point. In study 2, the survey was carried out for 4533 high school students of Hiroshima prefecture. The questionnaire involving lifestyle and sleep health was used to make sleep education menu. **Results & Discussion:** Study 1 results showed that many high school students delayed or irregular sleep-wake patterns. Results of the relation to sleep and academic performance of all high School showed that students with more regular sleep-wake patterns reported higher academic performance. Results of A higher rank school showed students with higher grades of academic performance of English and mathematics reported earlier bed times on school nights. Study 2 results showed that irregular of sleep pattern are related to the lifestyles such as not taking the nap after school, such as exercise, regular eating

habits. Furthermore, arousal levels at least 2 hours before bed times occupy important position to the sleep education menus.

#### P-095-T

### EFFECTS OF RUMINATION ON TENDENCIES OF DEPRESSIVE DISORDERS AND ANXIETY DISORDERS IN CHILDREN

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The rumination exercises its influence not only on the depressive symptoms but also on the maladjustive symptoms such as anxiety (e.g., Watkins, 2007). However, the most of studies are targeted at adults, and there are only few studies which have discussed the relationship between the rumination and childhood mental disorders. To investigate the effect of rumination on the subjective childhood maladjustive symptoms, the relationship between the rumination and the symptoms of depression as well as the anxiety in Japanese elementary school children were examined. Rumination Scale for Children (RS-C), The Japanese version of Depression Self-Rating Scale for Children (DSRS), and The Japanese version of Spence Children's Anxiety Scale (SCAS) were administered to 379 elementary school children (190 boys and 189 girls with mean age  $\pm$  SD of  $11.1 \pm 0.9$ ). The analyses for current study were conducted followed by the result of factor analysis for RS-C which we have presented in our first report. RS-C consists of 8 items, and accounts for the two subscales of "negative rumination" and "analytic rumination". Correlation coefficients between the each of dimensions in RS-C, symptoms of depression and symptoms of anxiety were examined. The result revealed that the correlations between all variables were positive. Also to investigate the effect of rumination on maladjustive symptoms, a multiple regression analysis was conducted with the score for two subscales of RS-C as explanatory variables and the score for both DSRS and SCAS as criterion variables. From the analysis it was observed that the "negative rumination" predicted the depression after controlling for anxiety ( $\beta = .41, p < .001$ ). Both "negative rumination" and "analytic rumination" were associated with the anxiety after controlling for depression ( $\beta = .24, p < .001$ ;  $\beta = .23, p < .001$ ). The results of this study suggested that the rumination in children has negative effects on their psychological adjustments.

#### P-096-T

### META-ANALYSIS OF NEUROFEEDBACK FOR ADHD

**Nestoriuc Y**

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Attention deficit/hyperactivity disorder (ADHD) represents one of the most common psychiatric disorders in childhood and adolescence, resulting in serious impairments across multiple areas of life. Neurofeedback constitutes a promising non-pharmacological treatment alternative. Numerous studies have shown positive effects of neurofeedback with improved behaviour and/or cognitive performances concomitant with

improvements in dysfunctional electroencephalogram patterns. However, due to the great methodological diversity of these studies, no structured and comprehensive meta-analysis has yet evaluated the efficacy of neurofeedback for ADHD. The aim of this meta-analysis was to evaluate neurofeedback in the treatment of children and adolescents with ADHD. A literature research of the past twenty years of research activity in this area resulted in 50 treatment studies. Relevant study characteristics according to methods, patients, treatments, results and study validity were coded with a structured coding-form by two independent reviewers (interrater reliabilities ranged from: .78 to .98). A total of 38 studies met inclusion criteria. Effect sizes were calculated, for pre-post as well as controlled comparisons using Hedges unbiased estimator d (Hedges and Olkin, 1985). Effect size integration was carried out separately for each relevant outcome domain using random effect models. Averaged across different feedback modalities and training parameters, the main result with respect to cognitive improvements through neurofeedback was a statistically reliable and robust medium to large average effect size ( $d = 0.74$ , CI: 0.55 - 0.93). Behavioural symptom measures resulted in average improvements of medium size, while the confidence interval for this effect integrated small to large effect sizes. In addition effect sizes were calculated for psychophysiological outcome, and long-term effects of neurofeedback evaluated in five studies. The results of this meta-analysis confirm the efficacy of neurofeedback in the treatment of ADHD. For analyses of treatment specificity and relevant moderators future research evaluating controlled trials with sufficient power are needed.

#### P-097-T

##### **SNACKING AS POSSIBLE SELF-MEDICATION IN ADOLESCENTS.**

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Adolescents food habits have changed towards more unhealthy snacking. Obesity is an increasing problem in young people in many parts of the world, which will have an impact on future health for millions. The aim of this study was to examine the relationship between psychological well-being and the consumption of items high in sugar and fat. 984 boys and girls aged 13-14 years taking part in a health intervention answered a questionnaire about self-rated health, empowerment, stress, and psychosomatic symptoms. About 17 % of the adolescents consumed soft drinks and candy daily. Daily intake of soft drinks and candy was more common among those with low self-rated general health. High self-rated stress was associated with more frequent consumption of soft drinks, candy, fries, and potato chips. Depressive feelings were associated with higher intake of soft drinks and candy, and 40.5 % of those reporting depressive feelings reported eating candy daily. Girls reported significantly higher levels of psychosomatic symptoms, depressive feelings, and lower self-rated psychological well-being than boys. However, there were no gender differences in general health and physical symptoms. Low self-rated health and high levels of stress were associated with higher consumption of soft drinks and candy. Fat food was also associated with lack of well-being, however, sugar

items was a more prevalent dietary problem in this study. Gender differences were demonstrated for psychological symptoms but not for physical or general health. It is possible that frequent consumption of sugary snacks may increase stress levels by its effects on insulin metabolism, but also that adolescents with symptoms of stress and lack of well-being use soft drinks and candy to decrease feelings of stress. In either case, these adolescents are at risk for future serious health problems.

#### P-098-T

##### **EMOTIONAL AND BEHAVIOURAL PROBLEMS IN SUBGROUPS OF CHILDREN WITH CHRONIC ILLNESS. RESULTS FROM A LARGE-SCALE POPULATION STUDY.**

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Background: Children with chronic illness are known to have an increased risk of emotional and behavioral problems. In the present population-based study children with asthma, neurological disorders and other chronic illnesses were compared to children without chronic illnesses to assess if emotional and behavioral problems were specific to illness groups. Methods: 537 children with parent-reported chronic illness in the Bergen Child Study (BCS) were categorized into three groups: asthma, neurological disorders and other chronic illness. Emotional and behavioral problems were assessed by the Strengths and Difficulties Questionnaire. Results: All three illness groups had an increased rate of emotional and behavioral problems, as well as increased probability of a psychiatric disorder compared to children without a chronic illness. Most children with asthma and other chronic illnesses did not have emotional and behavioral problems, and effect sizes were small in both groups. In children with neurological disorders the effect sizes ranged from moderate to large, with emotional problems, inattention-hyperactivity and peer problems being the most frequent problems. Conclusions: The increased rate of emotional and behavioral problems in children with chronic illness, especially neurological disorders, emphasizes the importance of early detection of mental health problems in these children.

#### P-099-T

##### **SLEEP IN CHILDREN WITH CHRONIC ILLNESS, RESULTS FROM A POPULATION BASED STUDY**

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Background: Children with specific pediatric disorders have previously been reported to have a high rate of sleep problems. However, epidemiological studies in pediatric sleep are scarce and little is known about the sleep of children with chronic illness. Methods: The Bergen Child study is a longitudinal,

total population study. In the newly finished second wave of the study, sleep was assessed by both parent and self-report (N = 5682). 6.8 % (n=287) of the children had a chronic illness, which were categorized into subgroups by a pediatrician. Results: Children with a chronic illness had equal sleep duration as children with no chronic illness as reported by both parents and self-report. The concordance between parent and child report of sleep duration was high. Children with chronic illness had a significantly higher rate of both sleep onset insomnia and sleep maintenance insomnia. When the analyses were conducted separately for children with asthma, somatic and neurological disorders, both neurological and asthmatic children had an increased rate of sleep onset insomnia and sleep maintenance insomnia. Also, the sleep problems were highly correlated with emotional and behavioural problems. Conclusions: Sleep duration in children with chronic illness does not differ from children without chronic illness. However, children with neurological disorders and asthma have a higher rate of both sleep onset insomnia and sleep maintenance insomnia. The relationship between emotional and behavioural disorders and sleep problems underlines the importance of early detection and intervention in this group of children.

#### P-100-T

##### **DETERMINANTS OF PSYCHOSOMATIC COMPLAINTS IN TAIWAN SCHOOLCHILDREN**

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**OBJECTIVE:** This study investigated the association between psychosomatic complaints (PSC) and background factors from children in Taiwan. The model assumed that variables were working on background, the family, psychosocial factors, social support, and school life. **METHODS:** Data were obtained from a large cross-sectional survey on children's health behaviors in Taiwan. A questionnaire was sent to representative sample of 2,759 children aged ten to twelve years and their caretakers. The analysis included a multivariate analysis using the LISREL program. **RESULTS:** The best predictors of PSC were gender, social support, parental health status, social competence of schoolchildren, and SES. Families with low education, and low income were found to be most vulnerable. High risk factors could be influenced by other intervening protective factors. **CONCLUSION:** The results also confirm that the determinants of PSC are multidimensional. Longitudinal studies are needed to clarify the comp

#### P-101-T

##### **INTELLECTUAL FUNCTION AND MENTAL HEALTH IN CHILDREN WITH A CHRONIC PHYSICAL ILLNESS**

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**Background:** The aim of the present study was to explore the contribution of IQ as a moderator between chronic illness (CI) and mental health in children. **Methods:** The sample consisted of 312 children aged 8-10, who participated in the third phase

of the Bergen Child Study (BCS). 101 of these children had a CI and were assigned to one of the following subgroups: a group of neurological disorders (n = 26); a group of atopic illnesses (n = 51); and a group of somatic illnesses (n = 24). Information about CI and psychiatric disorders was measured by the Kiddie-SADS-PL, and IQ by the full scale score from the WISC-III. Results: Children with neurological disorders had a higher frequency of psychiatric disorders and lower mean IQ-scores than children in the two other illness groups. Also, children with atopic illnesses had a higher frequency of psychiatric disorders and lower mean IQ-scores than children with somatic illnesses. ANOVA showed that IQ had a statistical significant main effect on mental health in the group as a whole, with a moderate effect size. Conclusion: IQ seemed to have an important role as a protector of psychiatric disorders in children with CI.

#### P-102-T

##### **A SYSTEMATIC REVIEW OF INTERVENTIONS FOR CHILDREN AND ADOLESCENTS WITH DISFIGURING CONDITIONS DOES THIS METHODOLOGY CONTRIBUTE TO OUR UNDERSTANDING?**

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A systematic review of interventions for children and adolescents with visible differences yielded 3696 papers, of which 269 abstracts and 67 full papers were identified as being suitable for double review. The inclusion criteria were participants aged 5-18 years of age, psychosocial interventions delivered in any style, format or setting and psychosocial outcomes measured quantitatively, this yielded a total of 9 studies. Although the review highlighted promising outcomes, it also revealed the dearth in reporting of rigorous interventions. Existing studies suffer from a number of methodological difficulties, including small sample sizes, inadequate measures, a lack of control groups and the absence of follow-up data. Further research and evaluation are recommended. However, the potential contribution of qualitative methodologies in pointing the way forward should also be considered. In a recent study, 15 adolescents with chronic skin conditions took part in a series of synchronous (real time) on-line discussion groups and asynchronous message board exchanges. Both methods generated numerous examples of the giving and receiving of support between participants, however, the synchronous groups were particularly notable for the dynamism and immediacy of these supportive exchanges. Emoticons were used liberally in these real time groups, facilitating the additional expression of emotions. An evaluation of the support groups indicates that this medium is particularly attractive to adolescents. The technique also avoids some of the attributes of face to face support groups which have been reported as barriers to participation by patient groups with a variety of disfiguring conditions.

At this early stage in understanding the efficacy of interventions for adolescents with visible disfigurement, it is necessary to evaluate methods and findings from studies generated from a broad range of epistemologies.

P-103-T

**IDENTIFYING VARIABLES RELATING TO PSYCHOSOCIAL CONCERNS BY UTILIZING DATA REGISTERS IN SWEDEN.**

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**Purpose:** Utilize different data registers in Sweden to ascertain possible differences in variables that can influence psychosocial health concerns between individuals with cleft in comparison with the general population.

**Methods:** Data were obtained from the Swedish National Service Enrolment Register for the years 1991-97, relating to 335 men with cleft lip with/without palate and 88 with cleft palate, who were compared with a control group of 272 879 men. The objective was to report the weight, stature, body mass index (BMI), and muscular strength of men around 17 - 19 years old with cleft lip and palate and their general intellectual capacity.

Furthermore, data were obtained from the Swedish Medical Birth Register for the years 1973-86 that was linked to the Swedish School Grade Register, concerning 511 individuals with palate, 651 individuals with cleft lip and 830 individuals with cleft lip and palate, who were compared with a control group consisting of 1 249 404 individuals, in order to report on academic achievement at the time of leaving compulsory education.

Risks are presented as odds ratios (OR) with 95% confidence intervals (95% CI) estimated by a test based method.

**Results:** The data indicate that clefts have an effect on the physical characteristics of young adult men. Attention to these differences may contribute to an expanded base for clinicians in their complete care of patients with clefts. Furthermore it was established that there are deficits in general intellectual capacities for the group with cleft palate compared with controls, while academic achievement of adolescents with cleft is significantly reduced, particularly in the group with cleft palate.

**Conclusion:** The data register is a valuable resource in establishing differences in variables between a target group and the general population, which need to be considered when designing health and behavioural interventions.

**Track 'Diabetes/Metabolism/Nutrition/Obesity/Eating Disorders'**

P-104-T

**DOES DOCTORS KNOWLEDGE OF INFLAMMATORY BOWEL DISEASE PATIENTS PSYCHOLOGICAL STATUS AFFECT PATIENTS CLINICAL OUTCOMES: A PILOT RANDOMISED CONTROLLED TRIAL**

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**Objective:** Patients with inflammatory bowel disease (IBD) often suffer from psychological co-morbidities that may affect their response to standard treatment. Moreover, research has

reported very poor medication compliance in these patients which could potentially be enhanced by recognition and treatment of these psychological disorders. Thus, the aim of this pilot study was to explore whether improving gastroenterologists knowledge of patients psychological status might impact patients clinical outcomes. **Methods:** As part of a larger cohort prospective study, 25 depressed and/or anxious IBD patients were identified. The psychological status of half the group (n=13) was revealed to their treating clinician. Over the ensuing year, physical and psychological measures were made three monthly (HADS, SCL90, SF-12 and disease activity measures). Clinical and psychological outcomes between the experimental and the control group were assessed using a two-way repeated measure ANOVA. **Results:** Anxiety decreased significantly for the first nine months in both groups (p=0.020). Experimental and control groups did not differ in their total prevalence of anxiety (p=0.226), total prevalence of depression (p=0.192) nor in the number of IBD relapses (p=0.412). There were six doctors interventions directed at improving patients psychological status in the experimental group compared with only one intervention in the control group. However, the difference was not statistically significant (p=0.166). **Conclusion:** In this pilot study no relationship between doctors knowledge of patients psychological co-morbidities and clinical outcome has been established. The study is underpowered and a larger sample size is clearly needed before concluding that this intervention is not effective.

P-105-T

**PSYCHOLOGICAL STATUS AND THE COURSE OF THE DISEASE IN PATIENTS WITH INFLAMMATORY BOWEL DISEASE (IBD), IRRITABLE BOWEL SYNDROME (IBS) AND HEPATITIS C (HCV): A COHORT PROSPECTIVE MANAGEMENT TRIAL**

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**Objective:** Diseases of the digestive tract frequently coexist with psychological disorders. However, a temporal relationship between psychological problems and physical outcomes in patients with these disorders has not been widely researched. Thus, our aims were 1) To observe and compare prospectively the course of inflammatory bowel disease (IBD), irritable bowel syndrome (IBS) and chronic hepatitis C (HCV) in relation to psychological co-morbidity and, 2) To test the hypothesis that patients with psychological co-morbidities are less likely to have a satisfactory response to standard treatment at 12 months. **Methods:** Overall, 139 patients were enrolled in this cohort prospective management study. Over the ensuing year, physical and psychological measures were made three monthly (HADS, SCL90, SF-12 and disease activity measures). A logistic regression was conducted to observe a relationship between baseline characteristics and patients medical outcomes after 12 months. **Results:** In the whole cohort of patients, there was no statistically significant change over time in the tendency to relapse. There was no significant difference between disease groups in their likelihood to relapse over time, either. However, at one point of time older participants were more likely to relapse than younger participants (p=0.005), patients with higher levels of physical

quality of life were less likely to relapse than those with lower physical quality of life ( $p=0.007$ ) and IBD patients were less likely to relapse than IBS participants ( $p=0.018$ ). Conclusion: In contrast to previous investigations, this study suggests that there is no temporal relationship between psychological problems at baseline and medical outcomes over time. Longer and larger prospective studies are needed to better understand this result.

**P-106-T**

**THE DIFFERENCE OF EATING BEHAVIOR BETWEEN AUSTRIAN AND JAPANESE FEMALE STUDENTS**

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Many studies reported differences in eating behavior between males and females. In Japan and also in Austria females have a stronger desire to get slim than males. It was identified that this desire is related to stress in Japan (Katou, 2007) but not in Austria. The degree of stress in Japanese female students is higher than in Austrian students and females in Japan have more positive attitudes toward sweets and tend to eat more sweets in stressful situations than in Austria. Even though there are no differences in BMI values, Japanese females experience themselves as too big or too small (depending on the estimated body parts), they are less satisfied with their body image and have lower body self-esteem than Austrians. Japanese females' concerns about their body image are related to both the dimensions of the DEBQ (Dutch Eating Behavior Questionnaire) questionnaire, used in Japanese and German and the attitudes towards sweet. In Austria females' body image is only related to the dimensions of the DEBQ. We hypothesized that there are no differences in eating behavior between Austrian and Japanese female students. But the degree of stress and the body image concerns effect eating behavior, which showed significant differences between Austrian and Japanese female students.

**P-107-T**

**DIABETES SELF-CARE IN VIETNAMESE ADULTS**

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Successful management of diabetes requires knowledge and motivation to engage in self-care. The purpose of this study was to describe 7 diabetes self-care behaviors (being active, healthy eating, taking medication, monitoring blood glucose, problem-solving, reducing risks and healthy coping), anthropometric measures, and fasting blood glucose (FBG) in Vietnamese adults with type 2 diabetes. Participants were 314 patients who attended the outpatient clinic at the National Hospital of Endocrinology in Hanoi. Participants consented to a 30-40 minute interview and to have their height, weight, and waist circumference measured. Blood pressure and FBG values were obtained from the clinic record. The majority of patients reported positive dietary changes, 44% had a daily exercise regime, and 97% took either oral medication or insulin. Of the 24% who monitored blood glucose at home, only 1% did so on a daily basis. The major problem solving strategies were reducing dietary sweets and fats and seeing a physician. Although laboratory monitoring was reported with

regular frequency, the least frequent risk reduction strategies reported were having feet examined and receiving diabetes education. Coping with diabetes involved a number of negative emotions as well as interference with work, school and family relationships. Over one-third of patients had a BMI in the overweight range, 88% had a FBG that exceeded 6.1 mmol/L, and 72% had a blood pressure greater than 130/80. Women had more abdominal obesity compared to men, however there were no gender differences in BMI. Results suggest specific targets for diabetes education interventions as well as implications for developing more effective chronic care strategies within the health care system.

**P-109-T**

**THE RELATIONSHIPS BETWEEN THE ABNORMAL EATING BEHAVIORS OF JAPANESE FEMALE COLLEGE STUDENTS AND THEIR BODY IMAGE DISSATISFACTION: A STUDY FROM A SELF-CONSCIOUS VIEW POINT**

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Recently, cases of eating disorders have been increasing among Japanese female college students. Diet behavior, body image dissatisfaction and various psychological factors causing and influencing eating disorders have been discussed. This study aimed to research the relationships between control of food-intake, body image dissatisfaction and self-consciousness. Japanese female college students ( $N=231$ ) participated in this study. These participants were contained 162 (the mean age was  $19.10 \pm 1.43$ ) students for analysis. The following measurements were used. (1) The Abnormal Eating Behavior Scale (Yamatsuta & Nomura, 2008), (2) The Body Image Dissatisfaction Scale (Yamatsuta & Nomura, 2005) and (3) The Self-consciousness Scale (Sugawara, 1984). Scale (1) consisted of 6 items for measuring control of food-intake. Scale (2) (19 items) measures dissatisfaction with their body image, namely, it scales how much they are dissatisfied with their fatness and how much they are dissatisfied with others' views on it. Scale (3) includes 21 items for a public and a private self-consciousness. The participants were classified according to the average scores of Scale (2) and (3). If the scores of the scales were higher than the average, they were considered to belong to the high group and the rest of them to the low group. The three-way ANOVA (dissatisfaction with body image groups vs. public self-consciousness groups vs. private self-consciousness groups) was performed on control of food-intake scores. The results showed a significant main effect of their public self-consciousness (dissatisfaction with fatness:  $F(1,146)=.83$ , n.s. public self-consciousness:  $F(1,146)=5.39$ ,  $p<.01$  private self-consciousness:  $F(1,146)=1.09$ , n.s.). Moreover the results showed a significant main effect of dissatisfaction with others' views on their fatness (dissatisfaction with others' views on their fatness:  $F(1,134)=7.44$ ,  $p<.01$  public self-consciousness:  $F(1,134)=2.40$ , n.s. private self-consciousness:  $F(1,134)=.16$ , n.s.). These results suggest that dissatisfaction with others' views on their fatness and high public self-consciousness may lead them to abnormal diet behaviors.

P-110-T

**DEVELOPMENT OF A SCALE FOR DETERMINANTS OF PHYSICAL ACTIVITY AND NUTRITIONAL BEHAVIOR IN WOMEN WITH PREVIOUS GESTATIONAL DIABETES MELLITUS**

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**BACKGROUND** In Australia it is estimated that between 2-9% of pregnant women develop gestational diabetes mellitus (GDM). Seven to ten years postpartum 30% of these women develop diabetes or impaired glucose tolerance, and this risk is even higher in certain ethnic groups. Eating healthy and getting sufficient physical activity would help to reduce the risk of developing diabetes in these women. **OBJECTIVE** To develop a questionnaire to investigate determinants of physical activity and nutrition in women with previous GDM. **METHODS** Women who had GDM 6-24 months previously and were neither currently pregnant nor diabetic were eligible for participation. A multicultural sample of sixty women participated in qualitative in depth telephone interviews that focused on physical activity, diet, weight and diabetes. Based on the results of the interviews, scientific literature and behavioral theory, an expert panel used a consensus method to determine selection and wording of items for the questionnaire. The newly developed questionnaire was administered to a second group of 160 women to identify scales with good internal consistency and construct validity, which were included in the final version of the questionnaire. **RESULTS** The final version of the questionnaire measures the following determinants of physical activity: self efficacy (9 items,  $\alpha=0.81$ ), social support (9 items,  $\alpha=0.78$ ), barriers (11 items,  $\alpha=0.74$ ), and environmental factors (4 items,  $\alpha=0.53$ ). Included determinants of nutrition were: self efficacy (8 items,  $\alpha=0.81$ ), social support (7 items,  $\alpha=0.77$ ), and barriers (9 items,  $\alpha=0.87$ ). The questionnaire also included 12 items on perceptions of the women's body weight ( $\alpha=0.85$ ) and their perceptions of diabetes and GDM (7 items,  $\alpha=0.65$ ). **CONCLUSION** This newly developed questionnaire will help to better profile women with previous GDM and to accurately measure the effectiveness and mechanisms of lifestyle interventions in this high risk population.

P-111-T

**CLINICIAN COMMUNICATION STRATEGIES WITH PATIENTS WHO HAVE DIABETES IN AMERICAN SAMOA**

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**Background:** Prevalence rates of diabetes have grown tremendously in the U.S., which has extended to the U.S.

territory of American Samoa where it has escalated to almost 20% in 2002 (Keighley et al., 2005). High rates of obesity have been noted, which have been attributed to changes in diet and physical activity with modernization. We conducted qualitative interviews with clinicians as part of a cultural translation process in advance of a randomized clinical trial to test the effectiveness of a community health worker-based intervention for adults with type II diabetes. **Method:** A qualitative interview protocol was used to explore clinicians' communication strategies that are appropriate within Samoan culture and for patients who have diabetes. Fourteen health-center clinicians were interviewed including 7 nurses, 3 outreach workers, 3 physicians, and 1 diabetes educator; one non-clinician was also interviewed. QSR NVivo 7 was used in the analysis. **Results:** Several common themes related to clinician communication were identified including the need for providing education about basic diabetes self-management behaviors, involving the extended family in daily self-management behaviors, encouraging healthy but still culturally appropriate food choices, communicating with culturally appropriate expressions of respect when providing advice, and using messages that remind patients of healthier behaviors of their ancestors, including diet and physical activity. **Conclusion:** Clinician communication strategies for diabetes self-management in American Samoa should emphasize family involvement in education, use of healthy local foods and physical activity patterns more common among Samoan ancestors, and use of culturally appropriate expressions of respect. This information will be used for cultural translation of a diabetes intervention in American Samoa through healthy eating, physical activity, medication management, healthy coping, problem solving, risk reduction (alcohol and smoking), and blood glucose monitoring. This intervention is being developed to be sustainable within the public health infrastructure of the territory.

P-112-T

**ADMINISTERED LEPTIN DECREASES ANXIETY-LIKE BEHAVIOR IN OB/OB OBESE MICE**

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**Background and aims:** Leptin, the ob gene product, is known to be a satiety signal from peripheral adipocytes to the hypothalamus, which is involved in control of energy balance. Previous studies have shown that leptin decreased food intake and body weight, and increases metabolic rate. However, little is known about the effect of leptin on anxiety. We investigated whether or not administered leptin influences anxiety-like behavior in ob/ob obese mice, which is a known genetic model of obesity and diabetes. **Methods:** Obese (ob/ob) C57BL/6J mice (62-69 g, Shionogi Co., Ltd., Shiga, Japan) were used. Repeated intraperitoneal administrations (3 nmol/mouse every 12 hours) were continued for 5 days. The mice were administered daily at 7:00 AM and 19:00 PM. Anxiety was assessed in the standard elevated plus maze 50 cm above the ground at the end of the experiment. The time spent in the open arms was expressed as a percentage of total entry time (100\*open/open+closed) and the number of entries in the open arms was expressed as a percentage of total number of entries (100\*open/total entries). **Results:** Repeated intraperitoneal administrations of leptin significantly increased the percentage of the total number of entries in the open arms (% entry) compared with saline-treated controls. The number of total entries, a crude measure of overall locomotor activity, was

significantly increased. The body weight of ob/ob obese mice was significantly reduced by 13.2 % after 5 days of leptin treatment. Conclusions: Leptin treatment ameliorated not only obesity but also anxiety in ob/ob mice. Our results indicate that the treatment of obesity may lead to the solution of psychological problems.

#### P-113-T

### GHRELIN INDUCES ANXIETY-LIKE BEHAVIOR IN MICE

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Ghrelin, an endogenous ligand for growth-hormone secretagogue receptor (GHS-R), was identified in the rat stomach. Previous studies have shown that ghrelin potently increases growth hormone (GH) release and food intake. We examined the effects of the gastric peptide ghrelin on anxiety-like behavior in association with the hypothalamic-pituitary-adrenal (HPA) axis in mice. Both intra-third cerebroventricular (ICV) and intraperitoneal (IP) administrations of ghrelin potently and significantly produced anxiogenic activities in the elevated plus maze test. Corticotropin-releasing hormone (CRH) receptor antagonist significantly inhibited ghrelin-induced anxiogenic effects. Peripherally administered ghrelin significantly increased CRH mRNA expression, but not urocortin mRNA expression in the hypothalamus. Furthermore, IP injection of ghrelin dose-dependently produced a significant increase in the serum corticosterone levels. These findings suggest that ghrelin may have a role in mediating neuroendocrine and behavioral responses to stressors and that the stomach could play an important role not only in the regulation of appetite but also in the regulation of anxiety.

#### P-114-T

### OUTLINE OF A STUDY TO PREVENT DIABETES AMONG FEMALE PAKISTANI IMMIGRANTS IN OSLO NORWAY, WITH SPECIAL FOCUS ON PHYSICAL ACTIVITY, COPING AND LIFESTYLE CHANGES. THE INNVADIAB-DEPLAN STUDY.

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Background: Pakistani immigrants in Oslo have a high prevalence of overweight and Type 2 Diabetes (T2D), conditions that may be prevented through lifestyle changes. There is a lack of research on the preventive potential of a culturally adapted approach (CAA) with the aim of increasing the level of physical activity, and improving coping strategies. Aim: To increase awareness and knowledge about physical activity, blood glucose regulation and coping strategies, to promote physical activity, to improve T2D-related variables (fasting serum glucose concentration, HbA1C, BMI, BP, waist circumference), to reduce musculoskeletal complaints and to improve coping. Methods: After a baseline screening, non-diabetic Pakistani women with increased risk of, or with newly diagnosed, T2D, were randomised to a control and a CAA

intervention group (N=100 in each group). The intervention had main focus on increasing understanding of how exercise and diet influence blood glucose concentration and health. We used the cognitive theory of stress model when we created the intervention for this group. There were six group teaching sessions, with emphasis on exercise physiology, coping, and a cognitive approximation to behaviour changes. The women performed light exercise by walking in groups twice a week for more than 6 months. Data were based upon blood samples, questionnaires, tread mill testing. Results: Preliminary results; (mean values  $\pm$  SD; n=123): Age (years):  $41.4 \pm 7.75$ , BMI (kg/m<sup>2</sup>):  $29.3 \pm 4.9$ , waist circumference (cm)  $95.8 \pm 11.7$ , SBP (mmHg)  $118 \pm 18$ , DBP (mmHg)  $80 \pm 10$ , HbA1C (%)  $5.4 \pm 0.5$ , fasting glucose (mmol/L; n=105)  $5.3 \pm 0.7$ , 2-hr OGTT-value (mmol/L)  $7.0 \pm 2.4$ . All data will be ready by February 2008. Conclusions: Knowledge and understanding of how the blood glucose concentration is influenced by physical activity is crucial for behavioural changes as regards physical activity and coping. We find a high prevalence of overweight and glucose intolerance despite a young age.

#### P-115-T

### PROMOTING EFFECTIVE MEDICINES MANAGEMENT? NURSE PRESCRIBERS COMMUNICATION ABOUT DIABETES MEDICINES IN THE UK

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Background In the UK, there are now over 10,000 independent nurse prescribers with virtually the same prescribing rights as doctors. Medicines management by people with diabetes is frequently less than optimal for best control of symptoms and prevention of long term complications. Patients medication beliefs are significant in predicting medicine-taking behaviour. Nurses who prescribe medicines in diabetes care have an important opportunity to improve patient medicine-taking behaviour through communicating with patients to influence their beliefs and improve their understanding about their medicines. The study We will present selected findings from a 2 year Diabetes UK study. The study aim is to evaluate the effectiveness of an educational intervention for nurse prescribers designed to improve medicine-taking in people with diabetes. The study will: 1. Deliver an educational intervention for nurse prescribers to improve their skills in negotiating diabetes patients medication beliefs. 2. Examine pre and post intervention changes in nurse prescribers skills using MEDICODE, RIAS and qualitative content analysis. 3. Investigate nurse prescribers views on implementing the medication beliefs approach in practice. 4. Investigate patients views of the effectiveness of nurses prescribing consultations. The study uses a before and after design with mixed methods, including: a) audio-recordings of pre and post intervention nurse prescriber consultations with diabetes patients (n=128). b) interviews with the nurse prescribers (n=16) at 1 month and 6 months post-educational intervention, and c) interviews with a random sample (n=64) of the audio-recorded diabetes patients. Study findings We will present findings from the analysis of baseline audio-recordings of nurse prescribers consultations using MEDICODE to illustrate the extent and frequency with which nurses are communicating a range of medicine details when prescribing for people with diabetes.



Findings will be discussed in relation to the potential of nurse prescribers consultations to influence patient medicine-taking behaviour.

**P-116-T**

**EFFECTS OF OBESITY ON SELF-IMAGE AND ANSWER AT FREIBURG PERSONALITY INVENTORY (FPI) TEST**

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Obesity represents a major problem of public health, the most recent estimates of WHO suggesting a global prevalence of at least 9,5-10%. A vast part of its negative consequences are psychological, including mood changes, anxiety or depression (Kopp, 2000).

In this study we investigated the impact of obesity on self-image (Body Image Questionnaire) and the answer to the Freiburg Personality Inventory (FPI), on a group of 48 obese patients (24 men and 24 women, mean age 33,2 years old), compared to a paired group of normals.

The results showed a significantly altered score at the self-image (BIQ) test in obese patients, compared to normals (18,34 vs. 9,35 (  $p < 0,01$  )). Significant differences were also recorded on scale 1 (nervosity, risk of psychosomatic disorders): 6,74 vs. 3,14 (  $p < 0,05$  ); 11 (emotional instability): 5,78 vs. 3,92 (  $p < 0,05$  ), and 12 (masculinity-femininity): 4,88 vs. 6,46 (  $p < 0,05$  ) of FPI test. Notably, differences in body image between young (less than 30) and old (over 50) obese patients were also significant (21,14 vs. 14,79 (  $p < 0,05$  )).

These differences argue in favor of a decrease in self-image in obese (especially young) patients. All obese patients are also characterized by a higher emotional instability and the tendency to passive coping strategies (according to the result at scale 12 of FPI), all being factors that may contribute to a modest treatment response. The superior score obtained by obese patients at the scale 1 of FPI illustrates their increased risk to associate other psychosomatic disorders.

Our results suggest that investigations designed to capture the psychological correlates of obesity can be useful, especially for avoiding negative therapeutic consequences such as non-adherence, or for tailoring psychological counseling to the needs of obese patients.

**P-117-T**

**COGNITIVE-BEHAVIORAL INTERVENTIONS FOR OVERWEIGHT AND OBESITY IN ADULTS: A SYSTEMATIC REVIEW**

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**Background**

Obesity is a multifactorial chronic disease with increasing frequency in many countries that can be characterized as an epidemic of major public health concern.

**Objectives**

To perform a systematic review of randomized controlled

trials of cognitive-behavioral interventions for adults with overweight or obesity.

**Methods**

The Cochrane Library, MEDLINE, PsycINFO and CINAHL were used to identify relevant trials. The latest search was November 2007. Selection criteria was randomized controlled trials of cognitive-behavioral interventions for adults (18 years or older) who were overweight or obesity (body mass index (BMI) more than 25 kg/m<sup>2</sup>), with one of the outcome measures of the study was weight change. Studies with participants who were diagnosed diabetes, schizophrenia and eating disorders were excluded. Data were extracted by two review authors independently, and the methodological quality of each study was assessed. Meta-analyses were performed using a fixed effect model.

**Results**

Twenty five studies (3174 participants) were included in the review. Behavior therapy was found to result in significantly greater weight reductions (weighted mean difference (WMD) -4.45 kg; 95% confidence intervals (CI) -4.57 to -4.33) and BMI reductions (WMD -2.13 kg/m<sup>2</sup>; 95% CI -2.57 to -1.68) than placebo when assessed as a stand-alone weight loss strategy. Cognitive-behavior therapy was found to result in significantly greater weight reductions (WMD -3.03 kg; 95% CI -3.51 to -2.54) and BMI reductions (WMD -0.98 kg/m<sup>2</sup>; 95% CI -1.15 to -0.80) than placebo when assessed as a stand-alone weight loss strategy. However, significant heterogeneity was indicated.

**Conclusions**

Behavior therapy and cognitive-behavior therapy can help people who are overweight or obesity to enhance weight reduction. There was not enough evidence to reach a conclusion about cognitive therapy and relaxation therapy.

**P-118-T**

**SELF-MONITORING BLOOD GLUCOSE IN T2DM: USE OF TECHNOLOGY TO IMPROVE SELF-MANAGEMENT AND POTENTIALLY INTEGRATE SYSTEMS CARE.**

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Type II Diabetes Mellitus (T2DM) requires that patients assume volitional control of a process regulated automatically in healthy individuals. Regular self-monitoring of blood glucose (SMBG) provides objective measurement of glycemic control and ability to assess effectiveness of self-management. Patients must be shifted away from somatic cues to objective readings as indicators of disease control to maintain valid behavioral control systems. They are also expected to understand and integrate complex educational instructions from health providers into self-management plans. This is particularly difficult for older adults, who likely have multiple chronic conditions. We report trial results of an automated self-management system (ASMM) that reminds diabetic individuals to perform SMBG as primary indicator of glycemic control. Methods: This randomized, delayed-control trial had half of participants using the ASMM immediately (IG), and half (DG) continuing usual care for six months before using ASMM. ASMM provided audio reminders to perform SMBG, take medication, gave feedback about glycemic control in real-time. Glycated hemoglobin (A1c) and survey data were collected at home visits every three months. Results: 44 diabetic men and women completed the 12-month trial. 60% were Caucasian, 32% African American, 8%

Hispanic, mean age 70. Mean baseline A1c was 8.1% + 1.0, and baseline cognition was 85 +/- 2.5 on the 3-MSE-R. A1c dropped to 7.3 +/- 1.0 by 9 months, with a 3-month lag observed in the DG ( $F=3.56$ ,  $p=.004$ ). Conclusion: Results indicate that providing older diabetics with audio reminders and feedback led to significant improvement in glycemic control over 12 months. This type of ASMM may in future be able to provide real-time feedback not only to patient users, but to the health care system, allowing better integration of provider recommendations with patient-centered action.

**P-119-T**

**MENU LABELING PRACTICES AT URBAN RESTAURANTS**

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Labeling low-fat menu items is a promising environmental intervention yet data concerning actual practice at community restaurants is lacking. For twenty-four St. Louis, Missouri zip codes, internet-based yellow pages were employed to enumerate the population of restaurants. A campaign involving a \$10 incentive for return mailing of menus, phone prompts and site visits enabled collection of menus at 80% of the identified restaurants ( $n = 202$ ). Using a detailed protocol, all menus were coded. For a 20% sub-sample, inter-rater exact agreement ranged from 93 to 100%. Seven percent of the menus labeled one or more entrees as heart healthy, 28% offered low fat salad dressing, 7% specified low-fat milk was available, and 12% provided other indications of the availability of low-fat foods. Larger restaurants and non-fast food restaurants labeled more often. Low frequency of menu labeling at urban restaurants indicates a strong need for additional environmental and policy programs.

**P-120-T**

**THE EFFECT OF COGNITIVE AND BEHAVIORAL INTERVENTION ON CHILDREN WITH TYPE 1 DIABETES**

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The insulin self-injection is important techniques for children with type 1 diabetes to control their diabetes. Furthermore, many studies (e.g., Ciechanowski et al., 2003) suggest the relationship between depression/anxiety and self-care behaviors. However, it is difficult for patients to gain because of fear and pain (Moore et al., 1995). The purpose of this study was to explore the effects of intervention focused to get insulin injection techniques for children with type 1 diabetes. Subjects were 11 children with type 1 diabetes, ages 7 to 10 years. This intervention was held in our camp. The components of the intervention were modeling, rehearsal, positive feedback, and homework. After the session, the token economy was introduced. The staffs were psychologist, pediatricians, nurses, and volunteer students. Nurse evaluated whether patients could self-injection or not. Patients were asked to fill out a set of questionnaire at the beginning and ending of the camp to measure general external-control and stress responses. All

patients got the techniques of self-injection after the intervention, and many patients' general external-control were decreased after the camp ( $t(10)=3.46$ ,  $p<.01$ ). To investigate the influence of patients' self-injection techniques level, we divided the subjects into two groups; "impossible of a self-injection group (ISG)" and "possible of a self-injection group (PSG)". The depression and anxiety in ISG were increased as much as PSG after the camp ( $F(1.9)=6.12$ ,  $p<.05$ ). The result of general external-control suggested that the immediate reinforcement for patients' action increased a tendency of the internal reversion by patients' actions. Moreover, ISG became well-controlled their stress responses because of the acquisition of the self-injection. The results of this study suggested this intervention was effective to gain the self-injection techniques. The future study should the maintenance of the effects of the intervention.

**P-121-T**

**PERFECTIONISM AND EATING ATTITUDES AMONG ELITE ATHLETES**

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The purpose of the present study was to explore the unique and combined contributions of positive and negative perfectionism to the prediction of disturbed eating attitudes. A sample of elite Australian athletes ( $M$  age = 18.8,  $SD = 3.99$ ) from 17 sports completed measures of positive and negative perfectionism (PANPS; Terry-Short et al., 1995) and eating attitudes (EAT-40; Garner & Garfunkel, 1979). HMRA revealed negative perfectionism explained 6% of the variance associated with disturbed eating attitudes, positive perfectionism contributed 5%, and the interaction term of negative and positive perfectionism contributed an additional 2% to the variance associated with disturbed eating attitude scores. Further analysis indicated the negative perfectionism and disturbed eating attitudes relationship increased under conditions of high positive perfectionism and decreased under conditions of low positive perfectionism. Results are discussed in terms of fit with existing literature.

**P-122-T**

**LEPTIN AS A SUBSTITUTE FOR INSULIN THERAPY IN INSULIN-DEFICIENT DIABETES: CORRECTION OF HYPERGLYCEMIA AND HYPERPHAGIA AND PROMOTION OF SURVIVAL WITHOUT DIABETIC COMPLICATIONS.**

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Objective: The aim of this study was to evaluate the effects of central leptin gene therapy on insulin-deficient diabetes. Methods: Adult mice were injected intraperitoneally either streptozotocin (STZ, 200 mg/kg) to induce diabetes or citrate buffer. A week later, diabetic STZ-injected mice (blood glucose > 350 mg/dl) were injected intracerebroventricularly (icv) a recombinant adeno-virus vector (rAAV) encoding

either green fluorescent protein (rAAV-GFP, control) or leptin gene (rAAV-lep). Citrate buffer-injected mice received no additional treatment to serve as non-diabetic controls. The non-immunogenic, non-pathogenic and replicative-deficient rAAV vectors were prepared and titred in the vector laboratory at University of Florida. Body weight (BW), food intake (FI), blood glucose and survival rates were monitored for up to 52 weeks after rAAV injections. Results: Whereas all control non-diabetic mice exhibited a normal age-related BW gain and stable FI during the 52 weeks of observation, diabetic STZ-GFP treated mice exhibited hyperphagia, loss of BW and died by week 6. In marked contrast, a single central rAAV-lep injection to raise hypothalamic leptin levels in STZ-treated mice rescued them from early mortality, gradually curbed hyperphagia to normalize FI by week 20, and maintained BW below control range. Blood glucose levels fell by week 2-3 and reached normal range by week 8. Further, STZ-lep mice did not develop diabetic complications during the 1 year of observations, however, they showed regeneration of pancreatic  $\beta$ -cells as evidenced by morphology and blood insulin attained in detectable range. Conclusions: Central leptin gene therapy is effective in suppressing FI and reinstating euglycemia for long periods in insulin-deficient diabetes, thereby providing an insight into novel therapeutic implications of central leptin as a substitute for insulin therapy.

#### P-123-T

##### **PHYSICAL AND PSYCHOLOGICAL FUNCTIONING IN MORBID OBESITY: WHAT DOES CHILDHOOD ADVERSITY EXPLAIN?**

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Background: Morbid obese have more psychopathology and a worse psychological en physical functioning than non obese. The aim of these work was to compare a group of morbid obese candidates to bariatric surgery and a group of non obese, study the prevalence of childhood adversity experiences and psychopathology and understand the relation of the negative events with actual functioning. Method: 75 morbid obese and 75 non obese filled Social-demographic and Life History Questionnaire, Adult Attachment Scale, Brief Symptoms Inventory, NEO-Five Factor Inventory, Ways of Coping Questionnaire. Results: 88% of the obese participants report at least one type of adverse childhood experience, 59% have psychopathology, and the anxiety attachment dimension is high. Adversity was positively related with psychopathology, attachment dimension "anxiety", neuroticism and negatively with direct coping. In regression analysis adversity explains a significant part of all these dimensions variance. The non obese report a lower number of adverse experiences and have normal scores in all dimensions of actual functioning with statistically significant lower psychopathology, anxiety and neuroticism and higher value in direct coping. Conclusions: Adverse childhood experiences are a significant predictor of maladaptative functioning in obese adults. Considering that bariatric surgery is sometimes unsuccessful to solve overeating and overweighting problems and that overeating can be a coping strategy to deal with negative emotions and emotional problems, these results should be taken in consideration in the evaluation and psychological intervention with bariatric surgery candidates.

#### P-124-T

##### **UTILITY OF RECEIPT MEASURE TO EVALUATE HOUSEHOLD FOOD PURCHASE BEHAVIORS IN A SAMPLE OF US HOUSEHOLDS**

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Purpose: Household food purchases play an important role in influencing individual food choices. One measure that captures household food expenditures was collected from 84 households as part of a community-based weight-gain prevention intervention. The purpose was to describe the food sources and types of foods purchased by households.

Methods: Receipt collection and annotation was completed by the main household food shopper for a continuous 4-week period. Receipts from grocery stores, restaurants and all other food sources were included. Food and beverage purchases were coded into categories. Category proportions were computed from the number of food and beverage items. Food category proportions were based on counts, ounces, and cost.

Results/Findings: The receipts from households showed that the main foods purchased (based on counts) from stores were sweets and snacks (31%), vegetables (19%), fruit (19%), and pre-packaged entrees (9%). Foods and beverages purchased from eating-out sources included entrees (37%), snacks and sweets (12%), french fries (8%), side order foods (8%), and sugar-sweetened beverages (11%). Main food sources included stores (53%), carry-out places (21%), restaurants (16%), and other (10%). Among the eating-out food purchases, households mainly spend (based on costs) their food purchase budgets on eat-out entrees (61%), sweets and snacks (8%), and sugar-sweetened beverages (4%).

Conclusions: Receipt measures provide detailed household-level food and beverage purchase information that can be examined in relation to individual dietary intake, household demographics and obesity.

#### P-125-T

##### **DEVELOPING A RECEIPT MEASURE TO EVALUATE HOUSEHOLD FOOD PURCHASE BEHAVIOR IN JAPANESE HOUSEHOLDS**

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Background: Comparing household food purchases can be helpful to understand cross-cultural differences in food purchase behaviors and dietary patterns. Methodologies for measurement of food purchasing behavior at the household level are currently limited.

Purpose: To develop a coding scheme for food purchases using grocery and restaurant receipts in Japan. The long-term goal is to develop a method to compare US and Japanese household food purchase sources and food types.

Methods: Three undergraduate students (a single woman; a household and a single man) collected grocery and restaurant receipts for 4 weeks. The coding categories were developed by the researchers prior to coding the receipts. Categories were formed based on the major foods and beverages present in the Japanese receipt data and captured all of the food and beverage items. One hundred sixty four items were available to evaluate inter-rater reliability of the Japanese food categories among three raters. The native Japanese rater (#1) was used as the gold standard in the computation of inter-rater reliability. Simple percent agreement among raters was computed by

dividing the number of items in agreement by the total number of food items.

Results: All food items were categorized into one of 27 food groups such as Noodle, Rice, Pan, Combination, Meat, Chicken, Fish and Shellfish, Egg, Cheese, Soybean, Beans, Vegetable, Fruit, Sweets, Snack food, Cereal, Soup/Soup stock, Sauce/Spice/Seasoning, Baking ingredients/Dry mix, Oil/Butter/Dressing/Fats, Milk/Yogurt, Alcohol, Sugar sweetened beverages, Juice100%, Water, Tea and Coffee. Overall inter-rater agreement rates were 84.8 % (#1 vs. #2) and 87.2 % (#1 vs. #3). Lower agreement was observed for the categories noodle, sweets and combination lunch box.

Conclusions: Coding of Japanese food items from receipts achieved a high level of agreement between coders. Further research is needed to improve coding reliability and to describe differences between Japanese and households in other countries.

#### P-126-T

### EVALUATION OF THE BALANCE DAY INTERVENTION; A MASS MEDIA CAMPAIGN ON THE PREVENTION OF WEIGHT GAIN.

**Crone M C**

*TNO Quality of Life*

Occupational retirement is a life event likely to induce lifestyle changes leading to a positive energy balance, and hence weight gain. We aimed to evaluate the effectiveness of a new energy balance intervention to prevent the unfavorable effects of retirement on waist circumference, body weight, body composition, physical activity, diet and related psychosocial determinants.

413 recent retirees were included in the study. The low-intensity intervention program was offered to the intervention group (n=209) over the course of one-year. It consisted of a toolbox, two CD-ROMs providing computer tailored feedback on (1) energy balance and related behaviors and (2) four options for behavioral change: physical activity, portion size, fat consumption and fibre intake. The intervention group also had access to all pages of the study website with an interactive weight management program (accessible for 6 months) and received newsletters. The control group (n=204) received newsletters and had access to a small part of the website. Effectiveness was evaluated after the one-year intervention period (0-12 months), one year after cessation of the intervention (12-24 months) and over the total two year period (0-24 months).

Waist circumference (WC (cm)) and body weight (BW (kg)) of the participants decreased after retirement. Although in men the changes were in favor of the intervention group (WC:  $-2.3 \pm 3.2$ ; BW:  $-1.9 \pm 3.1$ ), no significant differences with the control group (WC:  $-1.9 \pm 3.1$ ; BW:  $-1.6 \pm 3.0$ ) could be observed. Among women the decreases were larger in the control group than in the intervention group, but the groups were small and the differences were not statistically significant.

We could not demonstrate the intervention program to be effective in preventing accumulation of abdominal fat mass and weight gain among recent retirees. Both intervention and control group on average showed improvements in body composition and energy balance behavior(s).

## Track 'Gender and Health'

#### P-127-T

### EFFICACY OF PSYCHOLOGICAL INTERVENTIONS IN INFERTILE PATIENTS ON MENTAL HEALTH AND PREGNANCY RATE: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background: Two reviews were available which showed positive effects of psychological interventions on mental health (pre-post) but conflicting results on pregnancy rate. The purpose of this systematic review and meta-analysis was an integration of conflicting results by a more comprehensive and updated approach and to analyse data post intervention only. Methods: The databases of Medline, PsycINFO, PSYINDEX, Web of Science and the Cochrane Library were searched to identify relevant publications from 1978 to 2007. The literature search yielded 386 papers. 44 papers were included in the analysis. Most studies used non randomized allocation (19). Randomization was used in 16 studies, eight studies were uncontrolled studies. Effect sizes were calculated post treatment and combined in a random effects model using Review Manager 5.0. Preliminary results: The studies show low effect sizes in measures for mental health (ES lower .25). Largest effects were found for mental distress and state anxiety. The pregnancy rate was improved if patients received an additional psychological intervention (OR=2.15, CI 1.53-3.01). This effect was independent from type of analysis (intent to treat vs. follow up data). Conclusions: While pre post effects of psychological interventions are well proven, the comparison of an intervention group with controls after an intervention shows only low effects on mental health. This can also be attributed to the low baseline values of the couples. Our results show that psychological interventions are an important part of the multidisciplinary infertility treatment to improve pregnancy rates.

#### P-128-T

### MALAYSIAN MEN'S ATTITUDES AND PERCEPTIONS ON WOMEN'S SEXUAL REPRODUCTIVE HEALTH: A QUALITATIVE FINDINGS

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Introduction: In recent years, the importance of including men in women's sexual reproductive health matter has received increasing recognition. Little is known about Malaysian men's attitudes and perceptions on women's sexual reproductive health. Material and methods: Six focus groups (FGDs) consisting of fifty Malaysian men aged between 25-65 years of age. Issues relating to contraceptive use, abortion, sexual transmitted diseases (STIs), violence, sexual reproductive rights and reproductive health services were discussed. Results:

The men's understanding of women's sexual reproductive health were extremely poor. The participants mentioned that they played a dominant role in decisions regarding their spouses' choice of contraceptive methods. Knowledge of STIs, their modes of transmission and prevention was fairly low. Poor knowledge reported on women's health preventive services such as Pap smear and mammogram screening. Lack of knowledge on the availability of reproductive health services were also noted. The men felt that a wife has no rights to refuse sexual intercourse which inflicted on perception that men override women in sexual reproductive rights. Nevertheless, violence against women and abortion were viewed as unacceptable. Conclusions: The results of this study highlighted the urgent need in sensitizing Malaysian men to women's sexual reproductive health issues. A comprehensive reproductive health programme should emphasize on men playing a more active and positive role in women's sexual reproductive health.

**P-129-T**

### **CAREGIVING, HEALTH AND GENDER**

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Objective: The number of carers in the community is rising, and the importance of general practice in providing support for them has been highlighted. Caring for a disabled person has been shown to be harmful to the health of the caregiver. However, the overwhelming majority of care is provided by women. It is often invisible, usually accorded little value and only sometimes recognized as skilled. The purpose of this research is to examine sociodemographic, psychosocial and health related factors associated with caregiver burden and to analyze the differences between female caregivers and male caregivers in these factors. Methods: Data from a sample of paid caregivers who work in several institutes and care for old people. The questionnaires administered were about sociodemographic and health related factors, and the caregiver burden was assessed with Zarit Caregiver Burden Interview. The statistical package SPSS version 15.0 was used for logistic regression analysis. Results: Women's and men's caregiver burden have different sources, this is strongly suggested by the different association of sociodemographic, psychosocial and health related factors to caregiver burden. Conclusions: Women's caregiver burden judgments are based on a wider range of health related and non health related factors than are men's. This difference can explain gender differences. Key words: self-assessments of health, gender differences, physical functioning, caregiver burden.

**P-130-T**

### **GENDER AND ETHNIC DIFFERENCES IN STRESS REDUCTION, REACTIVITY, AND RECOVERY**

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It is widely recognized that although stress is universally experienced there are significant individual differences in how people respond to potential stressors. Research shows that gender differences are more pronounced among certain ethnic groups, and there are ethnic differences within each gender. Additionally, mechanisms remain unclear in physiological reactivity studies which report gender and ethnic differences, especially the incongruence of cognitive processes and

reactivity. Therefore, to assess whether American gender and ethnic subgroups differentially self-reported stress reduction, reactivity, and recovery, 313 undergraduate African American and Caucasian students at an urban northeastern American university were randomly assigned to one of three relaxation conditions which they utilized before and after being exposed to a visual stressor. Self-report measures of state anxiety were taken before and after each activity. Of the 111 African Americans, 20 (18%) were male, 91 (82%) were female. Of the 202 Caucasian participants, 64 (32%) were male, and 138 (68%) were female. Mean age for the overall sample was 19.45 years. Using mixed, repeated measures multivariate analyses of variance, gender and ethnic differences emerged, and unique patterns were observed for gender/ethnic subgroups. Females reported the most stress reduction, reactivity and recovery. Caucasian women reported unique reactions relative to other groups at all phases. Black males reported the least amount of cognitive reactivity to the stressor. Results from this study suggest that ethnicity should be evaluated with gender differences, affective reactions need to be better understood, and interventions for stress may need to be specifically tailored to unique groups rather than generally applied.

**P-131-T**

### **EVALUATION OF CAREGIVERS' CAPACITY TO CARE: COMPARISON BETWEEN A SPECIFIC MEASUREMENT (CUIDA) AND A MEASUREMENT OF GENERAL PERSONALITY (MIPS).**

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The research group EPSY (Psychological Styles, Gender and Health) work on the gender approach to health, and, specifically, in caregivers' health. Throughout their research stress has been placed on the need to evaluate subject variables which, presumably, modulate health problems recurring in caregivers. The group's interest at this time centres on evaluating personal characteristics related to the caregiver's ability to provide adequate attention and care for a dependent person. Therefore, the components of the research group have seen the need for exploring the best way of measuring this capacity, calculating what are the real values related to caregivers' health and designing intervention programmes to effectively improve it. The concrete aim of the research presented here is to find out whether a specific measurement (for example, a tailor-made test, such as CUIDA), more successfully evaluates capacity for caring than a general measurement of personality, such as MIPS (Millon Index of Personality Styles), which has proved effective internationally, and which can provide more complete information on the subject's capacity. A group of caregivers has been chosen and they were given the two measurements. The findings indicate that the information provided by the MIPS is as effective as that provided by the CUIDA, but much broader and complete. This enables complex differential caregiver profiles to be established with regard to the general population. This finding allows an instrument to be used with full awareness, one which has shown its efficacy in evaluating caregivers' qualities, and, thus, makes it possible to continue our research into caregivers' health and its relationships with other variables, including those of personality.

P-132-T

**THE CONTRIBUTION OF EXTERNAL CAUSES OF DEATH ON THE GENDER DIFFERENCES IN CHILD AND ADOLESCENT MORTALITY IN THE NORDIC COUNTRIES**

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**Background**

Unlike perinatal and infant mortality, there are only few studies on mortality of older children. The purpose of this study was to examine gender differences in child and adolescent mortality by country, age or socio-economic position in the Nordic countries and to examine the contribution of external causes of death on gender differences in mortality.

**Material and methods**

Data on all live born children were received from national population-covering birth registries from 1980 to 2000 (Denmark: n= 1 077 584, Finland: n= 400 442, Norway: n= 929 458, Sweden n=1 761 562). Mortality data until the age of 20 years were received from the national cause-of-death registers. Socio-economic position was defined by mother's and father's longest education (in years), and this data were received from national educational registers.

**Results**

The overall mortality was higher in Denmark and Norway than in Finland and Sweden both among boys and girls. Compared to girls, Denmark had the highest excess mortality for boys (32% higher), followed by Norway (28%), Sweden (27%), and Finland (24%). The boys' excess mortality varied by age and country. The mortality risk decreased by mothers' education among boys. For girls this was found systematically only in Finland and Norway. For paternal education, the differences were smaller. Every tenth of boys' and girls' deaths were due to external causes (avoidable deaths). The share of external death causes increased by age, and decreased by education, and the gender difference was larger, if the mother or father had a short education.

**Conclusion**

Boys have excess mortality and a steeper socio-economic gradient than girls. This excess is only partly explained by deaths from external causes.

P-133-T

**PERSONALITY STYLES THAT EITHER PROTECT OR MAKE HEALTH OF INDIVIDUALS MORE VULNERABLE: IS IT A GENDER QUESTION?**

**Dresch V**

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**Subject:** the aim of this study is to analyze the differences between men and women with regard to personality styles that either protect or damage health. **Method:** The sample consisted of 300 participants (150 men and 150 women), aged between 27 and 65 years, with a medium socioeconomic level, from Porto Alegre-RS (Brazil). The Millon Index of Personality Styles (MIPS; Millon, 2004), the Inventory of Situations and Responses of Anxiety (ISRA; Miguel-Tobal & Cano-Vindel,

2002), the Rosenberg Self-Esteem Questionnaire (RSE; Rosenberg, 1965), and physical health questionnaires were administered. **Results:** We found sex differences in all the personality scales associated with health. On the one hand, in the group of men, the correlation between personality and health was higher than in the group of women in the personality scales associated with better health (Modifying, Extraversion, Systematizing, and Outgoing). On the other hand, in the group of women, the correlation was higher than that of the men in the personality scales associated with poorer health (Preserving, Feeling, Yielding, and Complaining). It is noteworthy that the health of men was more positively associated with adaptive personality traits, and the health of women was more negatively associated with maladaptive personality traits. **Conclusions:** The health of women and men is different and unequal. Different, because, with regard to health and illness risk, certain biological factors (genetic, hereditary, physiological, etc.) are different in each sex. Unequal, because other factors, partially explained by gender, affect health of women unfairly.

P-134-T

**FEMALE STUDENT INTERACTION WITH MALE AND AFFECTED FACTORS, ZAHEDAN, IRAN**

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One of the humans problems that is not still solved, is how should be the relationship between men and women in society. None of the social and sexual theories in this respect has been successful practically. In Islam religion, this relation is more limited than other religion. This study, with focuses on ethical and behavioral aspects of this relation has assessed trend towards having relationship with male students among girls in universities. **Method:** A cross-sectional study was done on 384 single female students in different universities in zahedan city, in southeast of Iran in 2004. The participants were selected randomly in faculties and levels. A four parts questionnaire was designed and its validity approved by experts. Then they completed by female students after explaining about the goal of study and their agreement. Then data was analyzed by SPSS software. **Results:** The average age of students was 20.9. They often obtain their information about opposed sex from their friends. Sexual contact with opposed sex in 95.1% never occurred. Average of interaction showed significant relationship with different universities, year of study, and their field. Desire for watching illegal films, and following religious duties had also relationship with interaction. There was no significant relation between interaction and limitation in family and society. **Conclusion:** Results showed that increasing religious commitment could manage interaction between two sexes. In addition, it demonstrated that pressure by family and society cannot effect on their behavior, therefore it is recommended to have education program in universities to deliver necessary information to students about sex.

P-135-T

**PSYCHOLOGICAL LIAISON COUNSELING IN OBSTETRIC INPATIENTS: DEMAND AND OUTCOMES**

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**Purpose of the Study:** Despite considerable improvements in medical care in the fields of gynecology and obstetrics, still surprisingly little is known about the determinants of preterm birth and its successful prevention. In Western countries, approximately 11% to 12% of all births occur preterm (Simhan & Caritis, 2007), with major economic and psychosocial impact for affected families. The impact of psychosocial factors on preterm birth is still discussed in the literature (Rich-Edwards, 2005), and consequently, among other treatment options, psychological counseling (PC) is offered to some women in addition to medical treatment for preterm birth. However, not all women ask for and receive PC, and among those who do, the concepts of treatment vary. We sought to determine predictors of demand of psychological interventions in obstetric inpatients, standard interventions in those women who received treatment, and determinants of successful treatment. **Methods:** In the years between 2002 and 2007, 286 inpatients who were treated in the Department of Obstetrics at the University Hospital Zurich, Switzerland, received PC. About 2/3 of these patients received medical treatment in order to prevent preterm birth and attended M = 1.2 sessions. Medical records and psychological treatment protocols of all these patients were analyzed with regard to medical information (duration of pregnancy, medical diagnosis, medical treatment), number of PC sessions, PC treatment rationale, and PC methods. If available, duration of pregnancy at birth, birth weight and APGAR scores were analyzed as variables indicating treatment success. **Summary of Results:** Duration of pregnancy, medical diagnosis, and medical treatment were unrelated to the demand/ receipt of PC during hospitalization in order to prevent preterm birth. Treatment rationale and methods of PC were highly individualized, however mostly focused on emotion regulation and the reduction of anxiety. Data on treatment success are currently analyzed and will be presented and discussed at the conference.

P-136-T

**MULTIDISCIPLINARY USE OF BEHAVIOR INCENTIVE PROGRAM IN TREATMENT OF SEVERE AXIS-II PATHOLOGY IN FEMALE PRISON**

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The Valley State Prison for Women is the world's largest female correctional facility. Axis -II, particularly cluster B disorders, are common mental health problems among incarcerated females. The socioeconomic burden of these disorders is immense, and deeply impacts all prison staff: custody, medical, and mental health personnel. There is little evidence-based data of successful treatment, but optimal results have been obtained from structured psychotherapy, combined with psychopharmacotherapy. We present a

multidisciplinary use of Behavioral Incentive Program to treating this pathology in the setting of the Secure Housing Unit, a division for particularly violent inmates who have committed crimes within the prison. We present three cases of notorious inmates, known throughout the California correctional system for their long-standing aggressive behavior, involving injury of self and others. Four separate specialties: custody, medicine, psychiatry, and psychology were combined in a team to control these outrageous females. The treatment was based on DSM-IV diagnosis, biopsychosocial and psychodynamic formulation, and neuropsychiatric testing. The results included a significant decrease in self-destructive, assaultive, and manipulative behavior and a decrease in emotional lability among the subjects. Promising progress with these patients suggests that a multidisciplinary approach in using Behavioral Incentive Program is the optimal strategy for treating Axis II personality disorders in prison, which could serve as a model of operation throughout female correctional facilities.

P-137-T

**BODY IMAGE AND SEXUAL FUNCTIONING IN PREGNANT WOMEN**

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A certain amount of weight gain and body-shape change are inevitable biological processes accompanying pregnancy. Few studies have to date examined the potential importance of such changes on first time pregnant women's body image and sexual functioning throughout the course of the pregnancy term. Some authors have suggested that particularly in women going through a first pregnancy, body image may exert a significant impact on the quality of their pregnancy experience and adjustment to it (Devine et al. 2000). The aim of the present study was to investigate body image and sexual functioning in a cohort of pregnant women at various stages of pregnancy. A sample of 54, primigravida pregnant women aged 22 - 39 attending routine antenatal care outpatient appointments at the Royal Free Hospital in London were included in the study. Women were selected on the basis of pregnancy stage ie. 1st - 3rd trimester. In addition to a demographic questionnaire and informed consent form, participants were requested to complete the Body Image States Scale (Cash et al. 2002), the Body Image Quality of Life Inventory (Cash & Flemming, 2001), and the Derogatis Sexual Functioning Inventory (Derogatis 1978). Results indicated that women in the first and third trimester of their pregnancy reported greater body image satisfaction than women in their second trimester. Furthermore, women in the second trimester reported lower sexual desire and fewer sexual experiences compared with women in the first and third trimesters. Finally, women in the third trimester of pregnancy differed significantly from both those in the first and second trimester reporting greatest satisfaction with their body image and highest sexual functioning. Strategies to help improve the quality of the pregnancy experience in primigravida women in the second trimester of pregnancy would appear warranted.

P-138-T

**HISTORY OF DEPRESSION AND PERCEPTIONS OF SOCIAL RELATIONSHIPS IN POSTMENOPAUSAL WOMEN**

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Depression and its recurrence are risk factors for disease. This study investigated perceptions of social relationships in women with a remote history of fully remitted major depressive disorder. 34 nonsmoking postmenopausal women (age=63+9; 83% White) with no current mood disorder and no antidepressant use were recruited from the community; women with history of depression were over-sampled. 10 had a history of major depressive disorder, 24 were never depressed. Depression history was assessed by Structured Clinical Interview for DSM-IV. Current depressive symptoms were measured with the Centers for Epidemiological Studies Depression scale (CESD). Social support was measured with the Perceived Social Support Scale. The tendency to perceive challenges to self-presentation was measured with the Face Threat Sensitivity scale. The hostility scale of the Buss and Perry Aggression Questionnaire measured suspiciousness and resentment. In ANOVA, women with a history of depression showed significantly lower social support ( $M=59.0$ ,  $SE=4.2$ ) compared to their never depressed counterparts ( $M=70.1$ ,  $SE=2.7$ ),  $F(1,34)=4.88$ ,  $*p<.05$ . They also showed significantly higher face threat sensitivity ( $M=6.5$ ,  $SE=0.6$ ) vs ( $M=4.5$ ,  $SE=0.4$ ),  $F(1,34)=7.27$ ,  $*p<.05$ , and suspiciousness/resentment ( $M=22.0$ ,  $SE=2.0$ ) vs ( $M=16.3$ ,  $SE=1.3$ ),  $F(1,34)=6.10$ ,  $*p<.05$ . When CESD scores were added to the equation, the effect for history of depression became nonsignificant for suspiciousness/resentment, however the effect for history of depression remained significant for social support and face threat sensitivity. These findings suggest that women with a fully remitted history of depression are characterized by impaired social relationships. Suspiciousness/resentment may vary with mood states, however, low social support and face threat sensitivity may be more stable traits in women prone to depression. The temporal trajectories among these variables should be delineated so that risk factors for depression, its recurrence, and continued impairment after remission, can be modified.

P-139-T

**BREAST SELF-EXAMINATION AMONG WOMEN AT INCREASED RISK AND AT NORMAL RISK OF BREAST CANCER : PSYCHOLOGICAL ADJUSTMENT, STRESS, AND COPING.**

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Previous research has suggested that the experience of intrusive thoughts in women with familial histories of breast cancer can interfere with their preventive care. The purpose of the present investigation was to compare breast self-examination (BSE) practices in a sample of 32 first-degree relatives of breast cancer patients with a sample of 30 women at normal risk for the disease. The effects of perceived susceptibility, trait, health, and specific anxiety related to the performance of BSE on frequency of reported BSE were examined. Furthermore, the study explored the effects of cognitive-affective styles of coping and self-efficacy on

frequency of BSE as proposed by recent models of preventive health behaviour. Women in the high risk group were recruited from a local breast cancer support group with the Control sample being recruited from two GP practices also in the same area. All participants were asked to complete a demographic questionnaire, a Trait Anxiety measure (STAI; Spielberger, 1983), Health Anxiety Questionnaire (HAQ; Luccock & Morley, 1996), Miller Behavioural Style Scale (MBSS; Miller, 1980), a BSE Self-Efficacy Scale, and a questionnaire with items relating to anxiety in relation to BSE, frequency of BSE in past year, and two items adapted from the Health Belief Model assessing perceived susceptibility to breast cancer. Results indicated that only 18% of women in the high risk group reported performing the recommended monthly BSE while 44% reported never performing the procedure. Trait anxiety and anxiety related to BSE were negatively associated with adherence. Perceived susceptibility and self-efficacy were not found to be associated with adherence in either group, however, women in the high risk group reported a more avoidant coping style with threat.

P-140-T

**MARITAL STRESS AND DEPRESSION: THE CHICKEN OR THE EGG ?**

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Purpose of study: A primary aim of this study was to investigate the role of marital stress in connection with depression and vice versa, the role of depressive symptoms in connection with marital stress, based on Hungarian Epidemiological Panel 2006. Subject sample and statement of methods: Hungarian Epidemiological Panel (2006) is a four year follow up study ( $N=4524$ ). From this population were selected men (1282), and women (1732) who were cohabiting in both times of examination, aged 65 years or younger. Marital stress was measured with Shortened Marital Stress Scale (MS, Orth-Gomer, 2000, Balog 2006), and depression with Shortened Beck Depression Inventory (BDI, Beck, 1972, Kopp et al, 1998, Rozsa et al, 2001). Hierarchical logistic regression analyses were performed to study the effect of marital stress on depression, and vice versa, and we calculated odd ratios (OR) with 95% confidence intervals. Summary of results: In men, depression in 2002 (BDI 2002 higher than 10) was related to a higher risk of marital stress in 2006 (OR 1.54 (1.01-2.36), independently from age, education, marital stress measured in 2002 and also independently from depression measured in 2006. Marital stress measured in 2002 was not significantly related to depression measured in 2006 (OR 1.32 (0.86-2.01)). Similarly in women we found that the earlier depression (BDI 2002 higher than 10) was related to a higher risk of the latter marital stress (OR 1.41 (1.01-1.96)), independently from the above mentioned risk factors, but not vice versa. The earlier marital stress (2002) was not related to the latter depression (2006). Conclusion: In both gender we found the earlier depression (2002) to be related to the latter marital stress (2006), but not vice versa, the earlier marital stress (2002) was not related to the latter depression (2006).



## Track 'Pain, Musculoskeletal and Neuromuscular Disorders'

### P-141-T

#### AGE RELATED FACTORS AND LIMITATIONS IN ACTIVITIES IN PATIENTS WITH OSTEOARTHRITIS OF THE HIP OR KNEE

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**Objective:** To determine the relationship between physical impairments, co-morbidity and cognitive dysfunction on the one side and limitations in activities on the other, in elderly patients with osteoarthritis (OA) of the knee or hip. **Methods:** A cross-sectional cohort study was conducted. Patients (n=288) with hip or knee OA were recruited from rehabilitation centres and hospitals (departments of orthopaedics, rheumatology and rehabilitation). Apart from demographic and clinical data, physical impairments (pain, muscle strength, and range of joint motion: ROM), co-morbidity, cognitive impairments and limitations in activities (both self reported and observed) were assessed. Statistical analyses included univariate and multivariate regression analysis. **Results:** Self reported limitations in activities were significantly associated with ROM hip flexion ( $\beta = -0.132$ ), muscle strength knee extension ( $\beta = -0.118$ ), pain ( $\beta = 0.576$ ) and morbidity count ( $\beta = 0.139$ ). Observed limitations in activity (timed walking test) were significantly associated with ROM hip flexion ( $\beta = -0.240$ ), ROM knee flexion ( $\beta = -0.230$ ), pain ( $\beta = 0.195$ ), and age ( $\beta = 0.195$ ). **Conclusions:** Self reported limitations in activities are largely dependent on pain, and to a lesser extent on range of joint motion, muscle strength and co-morbidity. Observed limitations in activity are largely dependent on range of joint motion, and to a lesser extent on pain and other age-related factors. These findings point to (i) the importance of distinguishing between self reported and observed limitations in activity, and to (ii) the role to range of joint motion in limitations in activity in OA of the hip or knee.

### P-142-T

#### JOINT PROPRIOCEPTION, MUSCLE STRENGTH AND FUNCTIONAL ABILITY IN PATIENTS WITH OSTEOARTHRITIS OF THE KNEE

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**Objective.** To test the hypotheses that (i) poor knee joint proprioception is related to limitations in functional ability and (ii) poor proprioception aggravates the impact of muscle weakness on limitations in functional ability in osteoarthritis (OA) of the knee. **Methods.** Sixty-three patients with symptomatic OA of the knee were tested. Proprioceptive acuity was assessed by establishing the joint motion detection threshold (JMDT) in the anterior-posterior direction. Muscle strength was measured using a computer-driven isokinetic dynamometer. Functional ability was assessed by the 100-m walking test, the Get Up and Go (GUG) test, and the

WOMAC-questionnaire. Correlation analyses were performed to assess the relationship between proprioception, muscle strength and functional ability. Regression analyses were performed to assess the impact of proprioception on the relationship between muscle strength and functional ability. **Results.** Poor proprioception (high JMDT) was related to more limitation in functional ability (walking-time:  $r=.30$ ,  $p<.05$ , GUG-time:  $r=.30$ ,  $p<.05$ , WOMAC-PF:  $r=.26$ ,  $p<.05$ ). In regression analyses, the interaction between proprioception and muscle strength was significantly related to functional ability (walking time,  $p <0.001$  and GUG time,  $p <0.001$ ) but not to WOMAC-PF score ( $p = 0.625$ ). In patients with poor proprioception, reduction of muscle strength was associated with more severe deterioration of functional ability than in patients with accurate proprioception. **Conclusions.** (i) Patients with poor proprioception show more limitation in functional ability, but this relationship is rather weak. (ii) In patients with poor proprioception, muscle weakness has a stronger impact on limitations in functional ability than in patients with accurate proprioception.

### P-143-T

#### PHYSICAL FUNCTIONING BEFORE AND AFTER TOTAL HIP ARTHROPLASTY: PERCEPTION AND PERFORMANCE.

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#### Introduction

Self-report and performance-based measures of physical functioning in total hip arthroplasty patients seem to present different information. The relationship between these different measures is not well understood, and little information is available about changes in this relationship in time. The aim of the study is (1) to determine the relationship between self-report and performance-based measures of physical functioning before and after THA, (2) to assess the influence of pain on the above mentioned relationship, and (3) to determine whether the relationship changes over time.

#### Material and Methods

Seventy-five patients admitted for total hip arthroplasty were included and assessed before and at 6 and 26 weeks after surgery. Patients completed the WOMAC, a disease-specific outcome questionnaire, and gait analysis was performed. The relationship between the WOMAC physical function subscale and walking speed and gait variability was examined using generalized estimating equations, which included interaction with time and the WOMAC pain subscale.

#### Results

The relationship between self-report and performance-based measures of physical functioning is poor. Pain has a considerable influence on self-reported physical functioning. The relationship does not appear to change over time.

#### Conclusion

The influence of pain on self-reported physical functioning serves as an explanation for the poor relationship between self-reported and performance-based physical functioning. When using a self-report measure such as the WOMAC, one should realize that it does not appear to assess the separate constructs physical functioning and pain that are claimed to be measured.

P-144-T

**CAN PSYCHOSOCIAL FACTORS PREDICT THE OCCURRENCE OF MULTIPLE PAINS IN CHILDREN AND ADOLESCENTS? RESULTS OF A LONGITUDINAL EPIDEMIOLOGICAL STUDY**

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In an epidemiological study on more than 3600 German children and adolescents (10-17 yrs.) self-report data on pain in multiple locations was assessed (postal survey). Ss were asked for the frequency of pain in 10 different body locations (head, back, abdomen etc). About 18% reported recurrent pains (often, always pain) in at least 3 body regions. A combined score was used to define three groups (low, medium, high pain). Various potential psychosocial risk factors were assessed the year before this query: psychological variables of the children like depressiveness, dysfunctional coping, anxiety sensitivity etc, school stressors (e.g. being bullied by peers), leisure activities (e.g. TV watching, physical activities), family climate (e.g. open quarrelling) and social factors (e.g. SES, single parent family). First cross-sectional analyses demonstrated various significant associations between these factors and the affliction by multiple pains. Thus juveniles with high pain scores are characterized by various environmental stressors and emotional strains. Results of a prospective analyses will be presented investigating whether the assessed variables can predict of multiple pains to a significant degree.

P-145-T

**THE ROLE OF IMPULSIVENESS IN EARLY JUVENILE VIOLENCE**

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Impulsiveness is considered as one of key symptoms of Attention Deficit Hyperactivity Disorder (ADHD). On the other hand, Impulsiveness can be a constructive characteristic helping teens to make decisions spontaneously under dangerous circumstances. However, impulsiveness increases the probability of aggressive behavior associated to violence such as striking back, blaming others, and reacting with anger and fighting, etc. Reactive behavior of impulsiveness may play a significant role in the development of juvenile violence. This study assessed the relationship between reactive behavior of impulsiveness and violence among young adolescents. A school-based survey collected through self-administered questionnaires among young adolescents. Data were gathered from 415 students including 299 boys and 116 girls in the public junior high schools in north Taiwan. Similar to findings in studies of deviant behavior among adolescents, the results demonstrated that higher impulsiveness resulted in higher juvenile violence. Especially, reactive behavior of impulsiveness enforced the outcomes of juvenile violence. Moreover, the differences of reactive behavior of impulsiveness between boys and girls were also noted in the analysis. According to the results, implications for further study, model and prevention program related to adolescent violence were suggested in this study. Key Words: Impulsiveness, juvenile violence

P-146-T

**LIVING WITH OSTEOARTHRITIS: THE PSYCHOSOCIAL IMPACT OF REPORTED CHANGES IN BEHAVIOUR.**

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**Objectives:** This study aimed to investigate the personal, social and behavioural consequences of living with osteoarthritis (OA), whilst waiting for a total hip replacement. OA is the leading cause of disability and pain in older people. In aging societies the prevalence of hip OA is rising, with a concomitant increase in the number of people who undergo total hip replacement. **Design:** A qualitative research design was adopted in order to allow insights into the complex and contextual experience of living with OA. Data was collected via semi-structured in-depth interviews. **Methods:** Interviews were conducted with twenty-three participants on the waiting list for a primary total hip replacement (age range 55-84 years). Interviews took place between 4-6 months prior to participants total hip replacement. Interviews were conducted in participants homes, audio taped and transcribed verbatim. The data were analysed thematically using the constant comparison technique. **Results:** Participants reported changes in behaviour due to functional consequences of OA in terms of increased pain and reduced mobility. The participants described problems in many domains of activity and participation and increased dependency on others. The psychosocial impact reported by participants where characterised by changes in subjective feelings about their body, changes in personal perceptions of identity and a sense of loss of independence. **Conclusions:** The preoperative period of a total hip replacement was characterised as a time of reduced participation in day-to-day life. The psychological consequences of reduced participation can include increased isolation, anxiety and helplessness. These data suggest that there is a significant psychosocial impact of OA on individuals and draws attention to the need to go beyond disability and pain when assessing the impact of the condition.

P-147-T

**FACTORS ASSOCIATED WITH DEPRESSION IN INDIVIDUALS WITH MIGRAINE AND TENSION-TYPE HEADACHE**

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**(Introduction)** Pharmacotherapy is not effective for many headache patients with depression. Moreover, poor treatment effectiveness leads to chronicity and obstinacy of the symptoms (Jelinski et al., 2007). There are some studies which tried to identified factors associated with depression in headache patients, however, they mainly focus on biological aspects. Considering the suggestions that affective aspects and coping strategies with headache also influence depression in headache patients (Boothy et al., 1999), it is meaningful to clarify factors associated with depression in headache patients from multilateral aspects including psychological variables. The purpose of this study is to examine how demographic characteristics and clinical features of individuals with headache are associated with depression.

**(Method)** Participants: Eighty-two individuals with migraine

(n=6) and tension-type headache (n=76) (28 male, 54 female; mean age 27.78, SD=11.90). Measurement: 1.Headache Characteristics (including interview sheet, headache duration, intensity, frequency), 2.STAI-T, 3.SDS, 4.HIT-6 (Headache Impact Test): It measures headache-related daily disability., 5.CSQ (Coping Strategy Questionnaire)

(Results) In order to reveal which factors of individuals with headache were the most influential to depression, multiple regression analyses were conducted. The independent variables were all factors that positively or negatively correlated with depression (i.e., headache frequency, HIT-6, CSQ-catastrophizing, CSQ-avoidance, CSQ-ignoring pain sensation, perceived ability to decrease and control pain). And the dependent variable was the SDS score. The analyses revealed that HIT-6 and CSQ-avoidance were more influential to depression (HIT-6:  $\beta = .29$ ,  $p < .01$ ; CSQ-avoidance:  $\beta = .27$ ,  $p < .05$ ).

(Discussion) Our findings suggested that headache-related daily disability and avoidant coping with headache can be targets in psychosomatic intervention for headache patients with depression. Further studies are needed to clearly examine the factor and pathway which influence headache-related daily disability and avoidance.

## Track 'Work Related Health'

### P-151-T

#### CINS - CBT AND SEAL OIL FOR LONG-TERM LOW BACK PAIN PATIENTS

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Background: Brief interventions (BI) based on cognitive principles are clinically and cost efficient treatments for low back pain (LBP), but some patients (about 30%) do not return to normal social or working life. Cognitive behavioural therapy (CBT) is one of the treatments recommended in the European Guidelines for LBP ([www.backpaineurope.org](http://www.backpaineurope.org)). Patients with gastrointestinal problems have reported improvement of musculoskeletal complaints after treatment with seal oil. The aim of this trial starting in 2008 is to assess effect of a BI versus a CBT versus a nutritional supplement of seal or soy oil in patients with long-standing LBP. Method: 600 patients will be randomised to BI, BI + CBT, BI + seal oil, or BI + soy oil. All patients will be asked for saliva and blood tests at baseline and after 3 months. The saliva tests are to establish cortisol profiles and the blood tests to assess polyunsaturated fatty acids in the red blood cells. Interventions: The BI includes a thorough medical examination with explanation of findings and symptoms aiming to reduce fear of activity. The CBT represents a systematic development of the message from the BI and consists of 7 sessions, 6 treatment sessions over two months and a booster session after 6 months. The therapists will follow a systematic CBT manual describing the sessions. The patients randomised to seal or soy oil will take 20 capsules of 0.5 g oil every day for 12 weeks. Assessments will be at baseline, 3, 6, and 12 months. Register data on sick leave will be followed for all participants. Main outcomes are sick leave and cost effectiveness. Secondary outcomes are physical and mental function, prognostic factors, and possible changes in cortisol profiles.

## Track 'Pain, Musculoskeletal and Neuromuscular Disorders'

### P-148-T

#### THE EFFECTIVENESS OF AN EXERCISE AND EDUCATIONAL PROGRAM FOR PATIENTS WITH FIBROMYALGIA IN PRIMARY CARE.

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Background: In general, primary care programs are cheaper than the more common secondary or tertiary self-management treatments. More patients can benefit, close to their homes and with easy access. However, the effectiveness of these programmes is not clear until now. The purpose of this study was to evaluate the efficacy of a primary care exercise and educational program for patients with fibromyalgia (FM). Methods: 160 Subjects that met the American College of Rheumatology (ACR) criteria for FM participated in 24 group exercise sessions and in 8 educational group meetings. Exercise sessions included graded activity based, time-contingent training of muscle strength and endurance. Education addressed social support, self-management, effective communication techniques and keeping an active life-style. All meetings took place in physiotherapy practices. Before, directly after the program and 3 months post-program the overall impact of fibromyalgia symptomatology was assessed with the Fibromyalgia Impact Questionnaire (FIQ). Also the number of painful body sites was counted. Results: Mean age (SD) was 45.3 (11.2) years and 154 / 160 participants were female. The improvement in the mean total FIQ-score (1-100) pre-treatment and directly post-treatment was - 8.9 ( $p = 0.00$ ). On subscale level the physical impairment score decreased ( $p=0.00$ ), mean amount of days felt good in the last week significantly improved by 1.6 days and VAS scores for pain, tiredness and stiffness all decreased significantly, with 0.7, 0.9 and 0.9 respectively. The mean amount of painful body sites decreased from 12.4 to 11.0 post-treatment ( $p = 0.01$ ). At follow-up gains were persistent. FIQ-scores even slightly improved three months post-program compared to directly after treatment. Conclusion: Primary care self-management programs that combine group exercise with education can produce immediate and sustained benefits for patients with fibromyalgia.

### P-149-T

#### EFFECT OF COPING SELF-STATEMENTS ON PAIN EXPERIENCE: THE ROLE OF ANXIETY SENSITIVITY

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#### Introduction

"Coping self-statements", one of the subscales of the coping strategies questionnaire (Rosenstiel & Keefe, 1983), is a commonly used strategy for controlling pain. However, there

have been some reports that a degree of anxiety sensitivity (AS: the fear of anxiety and symptoms based on the belief that they will have harmful psychological, social, and physical consequences) influences the effect of coping self-statements on pain severity (Imai et al., 2007). This indicates that the person who employed high anxiety sensitivity and high coping self-statements exhibited high levels of pain severity. However, this has only been investigated by few studies till date. Therefore, this study aimed to examine the influence of the effect of coping self-statements on pain severity considering AS.

#### Methods

Participants: Two hundred and twenty undergraduate students (mean age 20.04, SD = 3.64).

Assessments: (a) the Japanese version of the Anxiety Sensitivity Index (Muranaka & Sakano, 2001), (b) the Japanese version of the coping strategies questionnaire (Otake & Shimai, 2002), (c) pain severity (0-100).

#### Results

Result of ANOVA, anxiety sensitivity (high group, low group : between)  $\times$  coping self-statements (high group, low group : between), revealed that a significant interaction existed between anxiety sensitivity and coping self-statements in pain severity ( $F [1,48]=4.17, p <0.05$ ). Simple effects analysis revealed that when in high anxiety sensitivity, high coping self-statements reported a high level of pain than low coping self-statements.

#### Conclusion

This result suggested that when we employ coping self-statements for management of pain, we should consider a degree of AS.

### P-150-T

#### A FACTOR ANALYSIS OF PERCEPTION OF AND PRESCRIPTION PATTERN OF ANALGESICS FOR OSTEOARITIS IN PRIMARY CARE

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**Aim:** The aim of this study is to explore the relationship between the doctors' perception of the 3 analgesics (paracetamol, non-selective NSAIDs and COX-2 inhibitors) and their choices of prescription for mild-to-moderate OA patients. **METHODS:** The analysis was based on a cross-sectional community doctor survey in 2005. 213 respondents gave ratings to each analgesic in 3 main areas: clinical functions, cost and overall for long term use. Factor analysis (principle component method) was performed to summarize the 15 items of the clinical functions and generate factor scores for further analysis. **RESULTS:** 5 factors were identified. Those considered paracetamol as the first-line treatment, had higher factor score in "effectiveness of paracetamol" ( $p < 0.01$ ). Similarly, the doctors who preferred COX-2 inhibitors, had higher factor score in "effectiveness of COX-2 inhibitors" ( $p < 0.01$ ). Compared with those would not prefer non-selective NSAIDs, the factor score of "effectiveness of non-selective NSAIDs" was not significantly higher ( $p > 0.05$ ) among those who would recommend it, but their factor scores of "effectiveness" of COX-2 inhibitors and paracetamol were lower ( $p < 0.05$ ), and the "drug safety of non-selective NSAIDs and COX-2 inhibitors" factor scores was higher ( $p < 0.01$ ). **CONCLUSION:** Doctors' perception about the effectiveness of different kinds of analgesics was the key factor associated with the doctors' choice of treatment. The perception about the "drug safety of non-selective NSAIDs and COX-2 inhibitors" would also affect the doctors' consideration of the

usage of non-selective NSAIDs.

### Track 'Somatoform Disorders/Chronic Fatigue/Medically Unexplained Symptoms'

### P-152-T

#### INTER-PROFESSIONAL EDUCATION IN BEHAVIORAL MEDICINE: TRAINING MEDICAL AND CLINICAL PSYCHOLOGY STUDENTS TOGETHER IN PRIMARY CARE FOR IMPROVED MANAGEMENT OF MEDICALLY UNEXPLAINED SYMPTOMS

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**Background:** About 15-30 % of all primary care consultations concern patients with medically unexplained symptoms. Interprofessional Education (IPE) strives to create a holistic health care by empowering professionals to cope with issues that surpass the scope of any one profession, via teamwork. An academic course brought medical and psychology students together in primary care, to learn behavioral medicine techniques as well as inter-professional collaboration.

**Aims:** This presentation describes the first and second courses given during the fall terms of 2006 and 2007.

**Material and Methods:** Students attended seminars on primary health care (PHC), psychiatric aspects of PHC, stress, depression, eating disorders, pain, motivational interviewing, gender issues, mindfulness, lifestyle changes, burnout, and sleep. The students met with one patient on three occasions under supervision by primary health care clinicians (physicians, psychologists, and psychotherapists). Examination consisted of collaborative papers, presentations to coursemates, and feedback to the primary care clinic. Results were measured by a course evaluation, questionnaires measuring changes in knowledge and attitudes about each others' professions, and qualitative analysis of project papers. **Results:** Both groups of students appreciated the clinical practicum course considerably. Knowledge of what the other profession does increased significantly over time ( $p < .05$ ), particularly for psychology students. Agreement with the statement that both physicians and psychologists are needed in primary care also increased significantly over time ( $p < .05$ ), particularly for medical students.

**Conclusions:** A behavioral medicine platform adequately addresses the biopsychosocial problems presented by a large proportion of modern primary care patients. One effective way to establish such a platform is a collaborative course for medical and clinical psychology students in primary care. The patient's sense of ontological security may increase when met by medical and psychological expertise at the same time, creating an optimal setting for a secure therapeutic alliance and facilitating more effective health promotion.

## Track 'Adherence'

### P-153-RT

#### FACTORS INFLUENCING THE ADHERENCE OF CAREGIVERS OF CHILDREN WITH ASTHMA

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**OBJECTIVE:** For the symptom management of pediatric asthma, it is essential to enhance caregivers' adherence. Based on the transtheoretical model, this study explored factors that influence 5 adherence behaviors of caregivers; outpatient regular visit, inhalation of corticosteroid, oral medication, asthma diary, and allergens elimination.

**METHODS:** Participants were 914 caregivers of children with asthma who visited researchers' outpatients and 806 caregivers of children with asthma recruited from some schools in Japan. Questionnaire with adherence stage and relevant factors explored originally was conducted.

**RESULTS:** As for outpatient regular visit, factor analysis identified 3 domains: "relationship with medical staff", "self-efficacy", and "perceived burden". By means of one-way ANOVA, significant difference was found between adherence stage in "relationship with medical staff" ( $F(2,1062)=16.41$ ,  $p<.01$ ), "self-efficacy" ( $F(2,1062)=13.77$ ,  $p<.01$ ), and "perceived burden" ( $F(2,994)=36.95$ ,  $p<.01$ ). "relationship with medical staff" and "self-efficacy" showed higher score in good adherence (maintenance stage) caregivers. On the other hand, "perceived burden" showed higher score in bad adherence (pre-contemplation stage) caregivers. As for inhalation 5 factors: "self-efficacy", "support", "perceived burden", "relationship with medical staff", and "anxiety" were identified. By means of one-way ANOVA, significant difference was found between adherence stage in "self-efficacy" ( $F(3,706)=50.61$ ,  $p<.01$ ), "support" ( $F(3,696)=1.36$ ,  $p<.01$ ), "perceived burden" ( $F(3,719)=8.47$ ,  $p<.01$ ), and "relationship with medical staff" ( $F(3,701)=46.69$ ,  $p<.01$ ). "self-efficacy", "support", and "relationship with medical staff" showed higher score in good adherence caregivers. On the other hand, "perceived burden" showed higher score in bad adherence caregivers. Similar analyses were conducted for oral medication, asthma diary, and allergens elimination.

**CONCLUSIONS:** Scores of "support" and "perceived burden" showed significant difference between adherence stages among most of adherence behaviors. It thought to be important for encouraging symptom management of pediatric asthma to provide sufficient support to caregivers and to ease caregivers' subjective sense of burden.

### P-154-RT

#### FACTORS INFLUENCING THE ADHERENCE OF CHILDREN WITH ASTHMA

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**OBJECTIVE:** For the symptom management of chronic disease like asthma, it is essential to enhance patients' adherence. Based on an applied behavioral model and the transtheoretical model, this study explored factors that influence 5 adherence behaviors of patients; outpatient regular visit, inhalation of corticosteroid, oral medication, asthma diary, and allergens elimination.

**METHODS:** Participants were 383 children with asthma who visited researchers' outpatient units and 501 children with asthma recruited from some schools in Japan. Questionnaire with adherence stage and relevant factors explored originally was conducted.

**RESULTS:** As for outpatient regular visit, factor analysis identified 5 domains; "recognition of needs", "self-efficacy", "relationship with medical staff", "perceived burden", and "indication by family". By means of one-way ANOVA, significant difference was found between adherence stage in "self-efficacy" ( $F(2,477)=7.13$ ,  $p<.01$ ), "relationship with medical staff" ( $F(2,486)=15.75$ ,  $p<.01$ ), and "perceived burden" ( $F(2,486)=5.76$ ,  $p<.01$ ). "self-efficacy" and "relationship with medical staff" showed higher score in good adherence (maintenance stage) caregivers. On the other hand, "perceived burden" showed higher score in bad adherence (pre-contemplation stage) caregivers. As for inhalation 4 factors; "self-efficacy", "support", "perceived burden", and "indication by family" were identified. By means of one-way ANOVA, significant difference was found between adherence stage in "self-efficacy" ( $F(3,349)=23.70$ ,  $p<.01$ ), "perceived burden" ( $F(3,352)=2.93$ ,  $p<.05$ ), and "indication by family" ( $F(3,347)=5.52$ ,  $p<.01$ ). "self-efficacy" and "indication by family" showed higher score in good adherence caregivers. On the other hand, "perceived burden" showed higher score in bad adherence caregivers. Similar analyses were conducted for oral medication, asthma diary, and allergens elimination.

**CONCLUSIONS:** Although there was no common factor relevant to patients' adherence, "self-efficacy" and "perceived burden" had significant associations with the adherence of regular visit and inhalation.

### P-155-RT

#### CHILDHOOD ASTHMA CONTROL AND ADHERENCE TO TREATMENT ADVICE

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**Rationale:** To achieve good control of symptoms in asthmatic children, the adherences of patients and their caregivers are very important. The aim of this study is to elucidate the relationship between asthma control and their adherence factors.

**Methods:** Eight hundreds and eighty four children (age: 9yo to 18yo) and 1720 caregivers (their children's age: 0yo to 18yo) completed the questionnaire to detect their adherence to treatment advice for asthma. We evaluated the relationship between the frequency of asthma attack and factors influencing their adherence those as the trust for a doctor, the self-efficacy, and the perceived burden of the treatment. The frequency of asthma attack was counted for 3 months just before collecting the data of this study.

**Results:** The patients who did not visit their doctors regularly showed lower score in the trust for a doctor, the self-efficacy, and higher score in the perceived burden than the patients who visited their doctors regularly. Especially, the patients who did not visit their doctors regularly in spite of having asthma attacks for the recent 3 months showed lower score of self-efficacy.

**Conclusions:** To achieve good asthma control of children by improving the adherence of children and their caregivers, it is important for doctors to establish the good relationship with them, reduce their perceived burden of the treatment and improve their self-efficacy.

## Track 'Aging'

P-156-RT

### THE PSYCHOLOGICAL AND IMMUNOLOGICAL EFFECTS OF HORTICULTURAL THERAPY ON ELDERLY PEOPLE LIVING IN A NURSING HOME IN HOKKAIDO, NORTHERN JAPAN

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**Introduction:** Previous research reports have shown that horticultural activities therapeutically improved psychological and physical functions. In Japan, horticultural therapy (HT) has been used since the 1990s. However, no empirical research has been undertaken to evaluate the immediate and sustained inclusive effects of HT. The purpose of this study was to examine the psychological and immunological effects of HT for the elderly.

**Method:** We conducted HT for 16 subjects and the control group without any intervention included 20 similarly matched subjects. The study design of this research formed a quasi-experimental design that we believe could be used in a clinical setting. We assessed the psychological functions before and after once-a-week therapy during a three month period with The Philadelphia Geriatric Center Morale Scale (PGC), the Geriatric Depression Scale (GDS), the Trait Anxiety Inventory (T-STAI). The State Anxiety Inventory (S-STAI) was used before and after each HT sessions. Salivary secretory immunoglobulin A (s-IgA) was used as the physiological evaluation.

**Results & Discussion:** The post PGC, GDS and T-STAI scores in the HT group were significantly better than the initial scores. These results suggested that contact with the natural environment and plants made all subjects lively, and reduced the anxiety which they felt in their everyday lives. A

significant numerical decrease of the s-IgA was shown in the control group. On the other hand, some numerical values rose in the HT group. Thus the maintenance of the immune function of the HT group represents an activity with real meaning for the care of the elderly.

## Track 'Alcohol/Smoking/Substance Abuse'

P-157-RT

### COUNTRY-SPECIFIC PREDICTORS OF SMOKING ONSET FOR EUROPEAN ADOLESCENT BOYS AND GIRLS

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This presentation is part of a study funded by the Dutch Heart Foundation

Objective of this study was to compare the importance of predictors of monthly smoking onset in Dutch adolescent boys and girls with adolescents from five other European countries. Data was collected within a school-based longitudinal European smoking prevention and cessation study (ESFA). At baseline, 8154 adolescents indicated to have never smoked and were included in subsequent analyses. One year later, their smoking status was reassessed. Logistic regression analyses were conducted to predict transition from never to at least monthly smoking. Possible predictors were measured at baseline and include demographics, motivational determinants and intention to smoke.

Results showed smoking onset in Dutch girls was predicted by a higher segment of their friends smoking; also found in Danish boys and British girls. For Dutch boys, more spending money and smoking parents were predictive of onset, while a higher intention to start smoking within the next year reached borderline significance. Spending money also predicted starting smoking in Spanish boys, as well as Finnish adolescents and British girls. Smoking parents also predicted onset in Danish boys and Finnish, Portuguese and British adolescents. Overall, social influence concepts were most predictive of onset, while attitudes and self-efficacy appeared to add little to the model. Intention to start smoking in the next year was a strong predictor of smoking at follow-up.

These results indicate that smoking prevention programmes should focus on influencing adolescents' perceived social environment. In addition these programmes should also take gender and country-related predictors into account.

P-158-RT

### ASSOCIATIONS BETWEEN ALCOHOL USE AND WELL-BEING. RESEARCH RESULTS AMONG THE BABY BOOM GENERATION.

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This abstract presents preliminary results from a study which examines associations of alcohol use with the use of medication and subjective well-being among representatives of the baby boom generation. The data used is based on "Ikihyvä

Päijät-Häme Research” from the years 2002 and 2005. The total number of respondents born in 1946 - 1950 was 908, 414 men and 494 women; the response rate averaged 64 %. The number of respondents in 2005 was 388 and 475 respectively. Both of the surveys were used cross-sectionally. Alcohol use was studied by examining regular consumption, average number of units consumed by an occasion and excessive drinking. Elements of well-being were attached to physical and mental health, social relations and to the experiences of ageing. Low mood and the experience of loneliness were attached to alcohol use among women. Also negative estimations of own life and negative experiences of ageing were somewhat associated with higher alcohol use. Use of alcohol was more common among those women who used sleeping pills and / or sedatives in comparison to those who do not use these medications. This was the most alarming result. As functional capacity attenuates along with age, the mixed use of medication and alcohol may multiply for instance falls and accidents.

**P-159-RT**

**ADOLESCENTS AND YOUNG ADULTS IN CYPRUS**

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Previous research supports a possible protective effect for physical activity against youth smoking. As a result prevention programs that focus on physical activity to address the problem of smoking are very promising. However, more research is needed to examine the relation of physical activity and smoking and how physical activity can be used in smoking prevention and intervention programs. To date no research has been conducted in Cyprus to investigate the prevalence and relation between physical activity and smoking. The aim of the study was to examine these factors along with the smoking habits of athletes and non athletes in adolescents and young adults in Cyprus. Participants were 1496 Cypriot adolescents and young adults who completed a packet of smoking and physical activity related questionnaires. Physical activity and smoking prevalence rates were analyzed in terms of the effect of several factors such as age, sex, place of residence, type of school/occupation, academic performance, and family's economic status. Generally, a consistent and negative relationship between physical activity and smoking emerged across both sex and age. The more intense the physical activity of youth (4-5 times per week) the less likely is to smoke. Athletes were found to smoke quantitatively less and were more likely to be non smokers or occasional smokers (1-5 days per month up to 5 cigarettes per day) compared to non athletes who smoke more. The more intense the physical activity the less likely is for athletes to be heavy or light smokers. Further analysis will follow to examine the psychosocial mechanisms by which physical activity has a protective effect on smoking in Cypriot youth. The results of this study highlight the importance of using physical activity as a preventive measure against smoking.

**P-160-RT**

**NON-MEDICAL USE OF PRESCRIPTION MEDICATIONS AMONG YOUNG ADULTS IN THE UNITED STATES**

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Previous research has documented modest rates of the non-medical use of prescription medications (i.e., without a physician's prescription) in young adults in the United States. Popular substances of abuse include pain medications and medications used for anxiety. These medications can be purchased without a prescription on the Internet and many are among the most commonly-prescribed medications in the United States. The relative availability of these prescription medications leads to the potential for abuse. Illicit use of prescription medication may be particularly dangerous when used in combination with traditional drugs of abuse. Previous work has not extensively examined the non-medical use of prescription medication in conjunction with other drugs of abuse and has not documented the motivations for use or sources of medication. In this study, a sample (N=200) of college students completed an anonymous survey assessing these factors. Overall, 44% of participants reported non-medical use of at least one prescription medication over their lifetime. The most commonly used type of drug was pain medication (e.g., Vicodin) 38%, followed by medication to enhance attention (e.g., Ritalin) 14%, anti-anxiety medication (e.g., Xanax) 13%, and sedatives (e.g., Ambien) 10%. The most commonly reported source for obtaining prescription drugs was friends (66%) followed by family (24%). Participants reported using the prescription drugs mainly for pain relief (24%) and to get high (21%). The non-medical use of prescription medication was correlated with alcohol use ( $\rho=.43$ ,  $p<.001$ ) and use of marijuana ( $\rho=.52$ ,  $p<.001$ ), ecstasy ( $\rho=.40$ ,  $p<.001$ ) and cocaine ( $\rho=.35$ ,  $p<.001$ ). Many participants reported combining non-medical use of prescription medication with the use of alcohol (20%) or street drugs (15%). Young adults in the United States are at risk for developing problems with addiction to prescription medications and may have medical complications resulting from combining prescription medication use with the use of alcohol or street drugs.

**P-161-RT**

**NATIONAL SMOKING BANS: IMPACT OF THE NATIONAL WORKPLACE SMOKING BAN ON SMOKING PROFILES IN IRELAND**

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Ireland became the first country to introduce a total workplace smoking ban, in 2004. Introduction of the ban followed extensive public debate on the health effects of secondary smoke. Evaluation of compliance with the law since then has shown very high public acceptance and high compliance by workplace settings. Studies have also shown positive effects on respiratory health for bar workers and on acute cardiac hospital admissions. SLÁN (Survey of Lifestyle and Nutrition) is Ireland's adult national health survey. SLÁN 2007 provided the first opportunity to assess population smoking status and behaviour concerning exposure to smoking in private households.

The survey involved home interviews with randomly selected adults aged 18+ (N=10,364; response 62%). Smoking status and home smoking 'rules' were established.

The overall rate of smoking was 29%; this did not differ statistically from levels in SLÁN 2002 (27%). Smoking was highest in younger people and in lower social groups. Most had home rules about smoking - 59% said smoking was never allowed; a further 23% only allowed smoking at certain times or locations in their homes. One in six (16%) said smoking was always allowed. Similar percentages of non-smokers and

former smokers (>70%) and 28% of smokers said smoking was never allowed inside their homes.

Findings provided a first profile of individual smoking status and private household rules concerning smoking following a national workplace smoking ban. While there were no pre-ban comparison statistics, it is likely that workplace restrictions experienced by the public are being replicated in private households. This would increase the legislated-for impact of non-exposure to secondary smoke by both smokers and non-smokers. The unchanged rates of smoking following the smoking ban signal the resistance to change of smoking itself. Qualitative and longitudinal analysis is needed to understand and track changes and advise policy regarding smoking restriction.

## Track 'Genetics/Environmental Interaction'

### P-162-RT

#### INTERACTIONS BETWEEN LIFE STRESSORS AND SUSCEPTIBILITY GENES (5-HTTLPR AND BDNF) ON DEPRESSION IN KOREAN ELDERS

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**Background:** It has been reported that the functional polymorphism in the serotonin transporter gene linked promoter region (5-HTTLPR) modifies the association between stressful life events (SLEs) and depression in child, adolescent, and adult populations. We sought to replicate this finding in elders and, additionally, to test modifying effects of the brain-derived neurotrophic factor (BDNF) val66met polymorphism.

**Methods:** In 732 Korean community residents ages 65, diagnosis of depression (Geriatric Mental State Schedule), information on SLEs, and genotypes for 5-HTTLPR and BDNF val66met were ascertained. Of those without depression at baseline, 521 (88%) were followed up 2.5 years later. Interactions between SLEs and the two genotypes were investigated for both prevalent depression at baseline and incident depression at follow-up.

**Results:** Significant interactions of SLEs with both 5-HTTLPR and BDNF genotypes were observed on risk of depression after adjustment for age, gender, education, and disability. A significant three-way interaction between 5-HTTLPR, BDNF, and SLEs was also found. The same findings were observed for predictors of incident depression in the prospective analysis.

**Conclusions:** These findings suggest that environmental risk of depression is modified by at least two genes and that gene-environment interactions are found even into old age.

**Key Words:** gene-environment interaction, brain-derived neurotrophic factor, depression, life stress, serotonin transporter.

## Track 'Cancer'

### P-163-RT

#### A LONGITUDINAL ANALYSIS OF PATIENT SATISFACTION AND SUBSEQUENT QUALITY OF LIFE IN CHINESE BREAST AND NASOPHARYNGEAL CANCER PATIENTS

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**Objective:** This study evaluated the longitudinal course of the relationship between patient satisfaction and QoL in Chinese breast and nasopharyngeal cancer patients. **Methods:** A sample of Chinese breast (n = 250) and nasopharyngeal (n = 242) cancer patients were assessed during their first outpatient visit (baseline) and at two follow-up interviews (FU1 and FU2). The Chinese version of the Functional Assessment of Cancer Therapy-General Scale (FACT-G (Ch)) was adopted to assess QoL. Patient satisfaction was assessed by the nine-item Chinese Patient Satisfaction Questionnaire (ChPSQ-9) and the cognitive subscale of the Medical Interview Satisfaction Scale (MISS-Cog). Linear mixed effects (LME) models were fitted to identify predictors of patient satisfaction and QoL. **Results:** The results showed that while recurrence after baseline ( $\beta = 0.58$ , 95% CI: 0.17, 0.98,  $p < 0.05$ ) was the only predictor of MISS-Cog, age ( $\beta = 0.01$ , 95% CI: 0.00, 0.02,  $p < 0.05$ ) and depression ( $\beta = 0.20$ , 95% CI: 0.10, 0.30,  $p < 0.001$ ) predicted ChPSQ-9. After adjusting for socio-demographic and psychosocial variables, both ChPSQ-9 ( $\beta = 0.13$ , 95% CI: 0.07, 0.19,  $p < 0.001$ ) and MISS-Cog ( $\beta = 0.07$ , 95% CI: 0.02, 0.12,  $p < 0.05$ ) predicted QoL scores. **Conclusions:** These findings suggest both general emotional support and informational support are important in predicting QoL among Chinese breast and nasopharyngeal cancer patients.

### P-164-RT

#### THE EFFECTS OF GUIDED WRITTEN DISCLOSURE ON DISTRESS AND QUALITY OF LIFE IN OVARIAN CANCER PATIENTS AND THEIR PARTNERS

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**Background:** This study tested the effectiveness of guided written disclosure of diagnosis and treatment on distress, quality of life and levels of CA 125 (a tumour marker) in ovarian cancer patients and their partners.

**Method:** In a randomized controlled trial, 102 couples were assigned to either guided written disclosure (about the patient's diagnosis and treatment) (n=53) or control writing (about what the patient did the previous day) (n=49), for 15 minutes per day over 3 days. Quality of life, perceived stress, intrusive thoughts, marital communication, illness-related couple communication, CA 125 levels and visits to health professionals were assessed at baseline, 3 and 6 month follow-ups. The writing was analysed using Linguistic Inquiry and Word Count.

**Results:** Repeated measures ANOVA showed the GDP increased intrusive thoughts in partners ( $p=.009$ ), and worsened patient quality of life ( $p=.04$ ) at 3 months; there were no effects of the GDP on any of the outcomes at 6 months. However, use of positive emotion words correlated



positively with patient improvement from baseline to three months (illness-related communication  $r=0.30$ , perceived stress  $r=-0.34$ ).

Discussion: Written disclosure may be detrimental short-term for ovarian cancer patients and their partners. Use of positive emotion words enhances improvement in patients.

#### P-165-RT

##### **PHYSICAL ACTIVITY AND PSYCHOLOGICAL ADJUSTMENT IN JAPANESE EARLY-STAGE LUNG CANCER PATIENTS AFTER SURGERY.**

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**PURPOSE:** There was no seldom study, which empirically confirmed a relationship between psychological adjustment and physical activity of cancer patients. Therefore, the aim of this study was to explore the relationship between physical activity and psychological adjustment in Japanese early-stage lung cancer patients after surgery using uniaxial accelerometry.

**METHODS:** The study design was one arm prospective study. The sample was consisted of 6 early-stage lung cancer patients after surgery with written informed consent for enrolment in the study. Physical activity was recorded by using uniaxial accelerometry (Lifecoder®, Suzuken, Co.Ltd), psychological adjustment was measured by Hospital Anxiety and Depression Scale (HADS) and other psychological scales.

**RESULTS:** The average age of the patients was 62.33 (S.D. = 8.14) and there were 4 males and 2 females. We compared the average steps by accelerometry and HADS score from hospitalization to discharge (T1 to T5). The average step during T1 was 8994.47 (S.D. = 5210.64) steps and T5 was 5226.74 (S.D. = 2153.38) steps. Repeated measures ANOVA revealed a statistically significant effect of time on the steps ( $F(4, 20) = 7.48, p < .01$ ). Spearman's rank order correlation between HADS total score and amount of change in steps from T1 to T5 was  $r = .37$ . Average of amount of change in steps from T1 to T5 in depressed group (HADS > 11) was 6014.13 and in non-depressed group (HADS < 11) was 2644.53.

**CONCLUSIONS:** We empirically confirmed significant impact of surgery on physical activity. The results imply that highly depressive patients might indicate greater decline of physical activity after surgery. To obtain reliable and validate results, we need to carry on further research using larger sample.

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#### P-166-RT

##### **CANCER-RELATED WORRY AND PSYCHOLOGICAL ADJUSTMENT IN JAPANESE LUNG CANCER PATIENTS.**

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**PURPOSE:** Few studies have shown a relationship between cancer-related worry and psychological adjustment in Japanese lung cancer patient. The purpose of this study was to examine the change in the cancer-related worry and psychological adjustment of lung cancer patients by collecting data at four different time points (before hospitalization: T1, after surgery: T2, about two weeks after discharge: T3, and about six weeks after discharge: T4).

**METHODS:** The study design was one arm prospective study. Six lung cancer patients (4 males and 2 females) participated in this study with written informed consent. We used two different scales to measure cancer-related worry. One was Brief Cancer-related Worry Inventory (BCWI) which measured content of cancer-related worry. The other was Cancer Worry Impact Inventory (CWII) which measured how cancer-related worry impacts the patients. We measured psychological adjustment with Hospital Anxiety and Depression Scale (HADS).

**RESULTS:** The mean age of the patients was 62.33 (S.D. = 8.14). In BCWI, future prospects score was increased two weeks after discharge (T3), the physical problems score decreased after surgery (T2), and the social and interpersonal problems score was gradually increased after discharge. The CWII score didn't vary. The HADS total score dropped down after surgery (T2). No variable reached to statistical significance in repeated measures ANOVA.

**CONCLUSIONS:** We found some change in lung-cancer patients' worry as their treatment went on. However, none of these changes were statistically significant. And how cancer-related worry impacts patients was not varied from surgery to discharge. In the future study, we need to explore relationship between cancer-related worry and psychological adjustment.

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#### P-167-RT

##### **A PRELIMINARY STUDY OF FUNCTIONAL AND DYSFUNCTIONAL COPING BEHAVIORS FOR THE DEPRESSIVE MOOD IN JAPANESE BREAST CANCER PATIENTS.**

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**OBJECTIVE:** Previous studies reported that functional coping behaviors brought the greater benefits for depressed cancer patients. The behavior activation model indicated that decreasing avoidance coping behaviors and enhancing adaptive coping patterns was useful for treatment of depression. The purpose of this study was to explore the relationship between coping behaviors and depressive mood in Japanese women who had cancer, based on behavioral activation model (Martell et al., 2001).

**METHODS:** Semi-structured interviews were conducted on 19 Japanese women with breast cancer. There were 3 domains of interview questions: the contextual triggers for depressive mood, responses elicited by such triggers, functional activities to cope with the depression, and dysfunctional ones. The interviews were audiotaped and transcribed. Using the content analysis, the transcripts of the 19 participants were systematically analyzed. The 13 patients of 19 participants were asked to respond to the Hospital Anxiety and Depression Scale (HADS) before surgery, at 1, 3 and 6 month after surgery

**RESULTS:** One hundred one categories were extracted for 5 themes: the triggers for daily depressive mood (N = 29), the response to them (N = 18), the functional coping pattern (N = 38) and dysfunctional coping pattern (N = 8), consequences of coping (N = 8). The almost participants had several functional coping behaviors. Of 13 eligible patients, the HADS scores of 7 patients were under the cut-off point for adjustment disorder (HADS<11) at 1 month after surgery, and the scores of 2 patients were under 11 at 3 months.

**CONCLUSION:** This study concretely revealed the details of antecedent of depressive mood, and functional and dysfunctional coping behaviors for the depressive mood. The findings have implications for further empirical researches with the behavioral activation model in breast cancer patients.

## Track 'Cardiovascular & Pulmonary Disorders'

### P-168-RT

#### RELATIONSHIP BETWEEN LEFT VENTRICULAR DIASTOLIC DYSFUNCTION AND INSULIN METABOLISM IN A MULTI-ETHNIC POST-MYOCARDIAL INFARCTION COHORT

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Left ventricular diastolic dysfunction (LVDD), often assessed by the ratio of early to late transmitral peak velocity (E/A) and which reflects cardiac compliance, is associated with increased morbidity and mortality in post-myocardial infarction (MI) patients. To date, few studies have investigated metabolic correlates of LVDD in this population. The present study examined relationships among markers of insulin resistance (IR) and E/A ratio in 186 post-MI patients residing in Miami (69.4% male; 81.7% Hispanic, 14% African American) with a mean age of 53.3 (SD= 8.8) years who had experienced MI 8.9 (SD=4.7) weeks prior to assessment. Patients' mean body mass index (BMI) was 29.6 (SD= 5.2) and 44% of the patients had type 2 diabetes. Fasting and postprandial glucose/insulin levels were obtained via an oral glucose tolerance test (OGTT) and used to calculate the homeostasis model assessment of IR (HOMA-IR). E/A ratio and ejection fraction were obtained using echocardiographic methods. Mean ejection fraction was 50.2% (SD=5.6) and the proportion of patients with an E/A

ratio <1 was 47.3%. Multiple regression analyses revealed that fasting insulin was independently associated with E/A ratio (b= -0.18; p<0.001) after adjusting for age, sex, ethnicity, and waist circumference; further adjustment for glycemic status and hypoglycemic medications did not alter the relationship. Fasting glucose, however, was not associated with E/A ratio. HOMA-IR was a robust independent predictor of E/A ratio after controlling for the above covariates (b= -0.026; p<0.01). The results of this study suggest that fasting insulin and insulin sensitivity levels: (1) are associated with impaired cardiac compliance in post-MI patients; and (2) may be used in developing strategies to prevent LVDD progression and its related morbidity and mortality risk.

### P-169-RT

#### DEPRESSION HISTORY AND BLOOD PRESSURE RECOVERY FROM ACUTE MENTAL STRESS IN POSTMENOPAUSAL WOMEN

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Women with a depression history show impaired cardiovascular functioning at rest. The relationship between depression history and cardiovascular functioning in response to laboratory mental stress is unknown. Twenty-eight nonsmoking postmenopausal women (age mean=61, 82% Caucasian, 32% hypertension-HTN) with no ischemic heart disease, nor current mood disorder, were recruited from the community; women with a depression history were oversampled.

Depression history (major, minor, dysthymia, NOS), was assessed by Structured Clinical Interview for DSM-IV. Current sub-clinical depression was measured by Center for Epidemiological Studies Depression scale (CESD). While reclining, subjects completed resting baseline, followed by 5-min mental arithmetic, and 20-min recovery. Systolic/diastolic BP (SBP/DBP) was assessed in mmHg under 3 conditions; at baseline, peak stress, and 20 minute post-stressor recovery. A 3 (condition) X 2 (depression history) repeated measures ANOVA was performed.

Controlling for ethnicity and HTN, a condition X depression history interaction was found,  $F(2,23)=4.07$ ,  $*p<.05$ . Women with a depression history did not differ from controls on DBP at baseline (mean [SE], 62.3 [4.7] vs 60.2 [2.7]), or peak stress (82.5 [4.2] vs 74.9 [2.4]), but did differ at 20-min recovery, (72.2 [4.0] vs 62.1 [2.3]). When CESD scores were entered in the equation, the interaction remained significant. There was no effect for SBP. These preliminary data suggest that even in full remission, depressive disorders are associated with BP recovery from mental stress. Current depressive symptoms do not account for the association. Further work is needed to investigate plausible biological mechanisms for this observation in a larger sample.

P-170-RT

**TRAJECTORIES OF DEPRESSION AFTER A CARDIAC EVENT: WHO GETS BETTER? WHO GETS WORSE?**

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**Introduction:** We have shown in past studies that while most patients improve over time, some experience worsening depression in the 12 months after their event. In the present study, we combined available data from two cohorts of patients to enable more accurate identification of the likely trajectories of depression in men and women after either acute myocardial infarction (AMI) or coronary artery bypass graft surgery (CABGS).

**Methods:** Two series of consecutively admitted patients were included (N=408): one comprised 226 female AMI and CABGS patients assessed in hospital and at two, four and 12 months post-event, and the other comprised 182 male and female CABGS patients assessed prior to hospitalisation and at two and six months post-event. Patients completed the Hospital Anxiety and Depression Scale (HADS) at each assessment. Growth mixture modelling was used to identify the trajectories of depression. Bivariate analyses were used to identify the patient characteristics associated with each trajectory.

**Results:** Three trajectories of depression were identified. Some patients showed high initial depression that improved over time ('resolved depression'; 12%), while others showed moderate initial depression that worsened over time ('worsening depression'; 12%). Patients who smoked at the time of their event tended to follow a trajectory of 'resolved depression', while patients with more severe disease tended to follow a trajectory of 'worsening depression'. The remaining patients (76%) followed a trajectory of low initial depression that remained relatively stable over the study period.

**Conclusions:** The combined data from two cohorts of patients provided the opportunity to identify likely trajectories and predictors of depression after a cardiac event. Strategies for supporting patients at risk of worsening depression need to be developed, implemented and tested.

P-171-RT

**CYNICAL HOSTILITY, ANGER EXPRESSION STYLE, AND ACUTE MYOCARDIAL INFARCTION IN MIDDLE-AGED JAPANESE MEN**

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**Objective:** This study investigated the relationship between cynical hostility, anger expression style, and acute myocardial infarction (AMI) in middle-aged Japanese men.

**Methods:** Seventy-six male patients with AMI (mean age 50.8 years) were compared with the control group of 77 healthy male workers (mean age 50.3 years). Cynical hostility and anger expression style (anger-out, anger-in, anger-control) were assessed by the Cynicism Questionnaire (CQ) and the Anger Expression Inventory (AX), respectively. Data of smoking status, cholesterol, and hypertensive status were also

obtained from both groups.

**Results:** The patients with AMI had higher score on CQ ( $t(151) = 2.5, p < .05$ ). Logistic regression analyses, controlling for age, smoking status, LDL/HDL ratio, and hypertensive status, demonstrated that categorized CQ scores (low, middle, high) were significantly associated with the presence of AMI. People scoring in the middle and high tertile of CQ were at 2.5- and 1.6-fold greater risk of AMI, respectively, relative to those scoring in the low tertile of CQ (middle scores: OR = 2.57, 95% confidence interval 1.01-6.54,  $p < .05$ ; high scores: OR = 1.69, 95% confidence interval 1.01-2.83,  $p < .05$ ). Moreover, logistic regression analyses revealed that anger-control scores, which were modeled continuously, were associated with a 21% decrease in risk of AMI (OR = 0.79, 95% confidence interval 0.63-0.98,  $p < .05$ ). Anger-out and anger-in scores did not differ between two groups.

**Conclusions:** These data clearly indicated that moderate and high cynical hostility increased the risk of AMI and that anger-control strategies (e.g. trying to understand others' situations, reconsidering one's responsibilities) could have some benefit to reducing the risk of AMI.

P-172-RT

**THE HUNGARO STUDY: AN ONGOING CHRONICLE OF SOCIAL & PSYCHOLOGICAL TRANSFORMATION**

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After the collapse of European Socialism in 1989, Central and Eastern European (CEE) countries went through an unprecedented series of economic and social transformations that are still continuing to have an impact on everyday life today. Recent WHO - data have documented some major adverse changes in health status, and morbidity and mortality patterns in most CEE countries. However, there have been only few systematic epidemiological studies to date to chronicle these tremendous social and psychological changes and to follow-up on the long-term physical, behavioral, and psychological consequences.

One of the largest studies to date is the continuing Hungaro Study. Begun in the early 1990's, this study was designed as a series of large, nationwide, representative, stratified samples of the population in 150 sub - regions of Hungary. The first data collection that constituted the basis of the current analyses was performed in 1995 (N=12,640), the second one in 2002 (N=12,668, a different sample), and a third one in 2006 (N=5,020, randomly drawn from the second sample).

The first analyses of the 1995 and 2002 samples paid particular attention to morbidity and mortality associated with chronic work stress and disability, and to quality of life, by age and gender. Analyses of psychological profiles, mood states, and quality of life (1995 sample) showed that a state of vital exhaustion (VE) was most prevalent by age and gender. VE was associated with perceived cardiovascular disease (CVD) problems and a history of CVD treatment. Importantly, depressed mood was associated with different morbidity patterns and psychological profiles than VE.

This series of posters will present in more detail some of these psychological and behavioral analyses, focusing on gender differences (Poster # 2), and on different patterns of negative affectivity, VE and maladaptive coping in recent CVD patients and controls (Poster # 3).

P-173-RT

**GENDER DIFFERENCES IN PSYCHOLOGICAL FACTORS ASSOCIATED WITH VITAL EXHAUSTION IN THE HUNGARO STUDY 2002**

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**Introduction:** Vital Exhaustion (VE) is an important measure of chronic stress. VE consists of unusual tiredness, irritability, sleep disturbances, and depressive symptoms (van Diest et al., 1991). In the Hungaro Studies (cf. Poster # 1), Kopp et al. (1998, 2006) showed women to score consistently higher than men on VE.

**Study Purpose:** To investigate psychological factors associated with VE and gender in the Hungaro Study 2002.

**Methods:** Data from the Hungaro Study 2002, a national, representative, health survey (Kopp et al., 2006; N=12,668). The sample was divided into gender (males N=5,666, females N=6,987), and age: 18-44, 45-64, and 65+. We used linear regressions: dependent variable: VE; independent: WHO Well-being, Beck Depression; and measures of: hopelessness, anxiety, sleep disturbances, self-efficacy, emotion-based and problem-based coping, positive and negative life events, illness intrusiveness, sense of coherence, positive affect, anomie, life purpose, marital stress, hostility, dysfunctional attitudes, pain symptoms and disablement, and physical activity.

**Results:** Regardless of age and gender, VE was associated with sleep disturbances, hopelessness, and well-being (inverse) (all  $p < 0.001$ ). Gender differences were more important and larger than age differences. Sleep disturbances, hopelessness, anxiety, well-being, pain symptoms and disablement were predictive of VE for both genders (all  $p < 0.001$ ). Depressive symptoms showed the strongest effect on VE in males ( $p < 0.001$ ), but no effect in females. Moreover, in males, illness intrusiveness, self-efficacy (inverse), anomie, physical activity, and marital stress (all  $p < 0.001$ ) were uniquely associated with VE. In females, this only held true for dysfunctional attitudes and number of negative and positive life events ( $p < 0.001$ ).

**Discussion and Summary:** In this representative sample of the Hungarian population, we found unique patterns of association between important psychological variables and VE in males and females. Therefore, gender, rather than age differences should be studied primarily in assessing VE in chronically stressed individuals.

P-174-RT

**NEGATIVE AFFECTIVITY AMONG HOSPITALIZED ACUTE MYOCARDIAL INFARCTION (AMI) AND STROKE PATIENTS IN THE HUNGARO STUDY 2002**

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**Introduction:** Several studies have shown negative affectivity (NA), especially anxiety and depression, to be risk factors for the development of atherosclerotic and cardiovascular disease (CVD) (Suls et al., 2005). Other reviews emphasize chronic stress, hostility, inefficient coping (Rozanski et al., 1999), and vital exhaustion (VE) as important CVD predictors (Appels et

al., 1993).

**Study Purpose:** To examine NA, hostility, and VE in recently hospitalized acute myocardial infarction (AMI) and stroke patients in the Hungaro Study 2002.

**Methods:** Data from the Hungaro Study 2002, a national, representative, health survey (Kopp et al., 2006, N=12,668). 139 Subjects had been hospitalized in the past year because of documented AMI or stroke. First, we compared mean scores on anxiety, depressive symptoms (BDI), hostility, and VE with age and gender - matched controls (randomly - selected, documented non - cases) from the entire sample (N=695; 5 controls to every single case), using independent-samples T-tests. Second, in order to analyze the predictive value of those 4 NA indicators and other variables, we used logistic regression: dependent variable: recent hospitalization because of AMI or stroke, independent: NA (anxiety, BDI, hostility, and VE); and self-efficacy, emotion and problem-based coping, illness intrusiveness, life purpose, and dysfunctional attitudes.

**Results:** First, mean scores on all NA indicators were significantly higher among AMI and stroke patients ( $p < 0.05$ ). Second, in logistic regression, illness intrusiveness was the strongest predictor of AMI and stroke, followed by BDI, anxiety, and VE ( $p < 0.001$ ). Interestingly, hostility showed no effect on AMI and stroke.

**Discussion and Summary:** In this representative sample, NA was significantly associated with CVD. Moreover, maladaptive coping with illness also seemed to be important predictive factors for AMI and stroke. However, more research is needed to formulate a more comprehensive psychological risk profile for CVD in the Hungarian population.

P-175-RT

**PSYCHOLOGICAL CONSEQUENCES OF CORONARY ARTERY BYPASS GRAFT SURGERY: A REVIEW.**

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Worldwide, Coronary Artery Bypass Graft (CABG) surgery is performed about 900,000 times per year. Nevertheless, compared to Acute Myocardial Infarction and Percutaneous Coronary Intervention procedures, little is known about the short and long - term physical and psychological consequences of this major surgery. This is most often attributed to the implicit assumption that patients will generally feel better and may experience improved physical health and quality of life (QoL) after CABG surgery. This may in particular apply to those patients who were incapacitated or invalidated due to coronary artery disease symptomatology for prolonged periods of time.

This review will address major methodological problems in this understudied area of research. These problems are: lack of pre - surgery data on physical and psychological functioning, in particular on the last months prior to surgery, and on concurrent well - being and QoL; considerable variance in surgical and operational procedures and in post - surgery rehabilitation practice; inclusion or exclusion of co - morbidity parameters; particular choice of reference groups (cardiovascular, surgical, or others), or none; length of follow - up (most often only 1 or 2 years); and age and gender of patients.

When taking these many limitations into account, a number of review studies results suggest that at least about 30% of post - CABG patients (mostly elderly) will suffer from significantly elevated levels of anxiety, depressed mood, and cognitive dysfunctioning for prolonged periods of time. Moreover,

physical and psychological functioning post - surgery to a large extent will depend on functioning prior to CABG surgery.

These findings urgently suggest that CABG - patients should be screened pre - surgery and, thus, may help to identify patients who will be at elevated risk for physical and psychological impairment and impaired QoL after CABG surgery.

#### P-176-RT

### **LIVING IN INSTITUTIONAL CARE AS A CHILD PREDICTS CARDIOVASCULAR RISK FACTORS IN ADULTHOOD**

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Research question: There is increasing and suggestive evidence to support that poor childhood socioeconomic circumstances represent an elevated risk for later cardiovascular morbidity and mortality. However, no previous study has examined whether living in foster care predicts cardiovascular disease or its risk factors in a later life stage. We aimed to investigate whether being in institutional care in childhood is associated with cardiovascular morbidity and its risk factors in adulthood.

Methods used: Data from the Hungarostudy 2002 nation-wide representative survey was analysed. Subjects reporting to have lived in institutional care in childhood (n=164) were compared to controls (n=12141) in terms of treatment for cardiovascular disease, depressive symptoms, vital exhaustion, anxiety, hostility, social support, body-mass index, smoking habits and physical activity using general linear models and logistic regression.

Results: After adjustment for sex, age, own and parents' education, subjects living previously in institutional care were characterised by higher levels of depressive symptoms ( $10.30 \pm 0.89$  vs.  $7.67 \pm 0.09$ ,  $p=0.003$ ), vital exhaustion ( $3.16 \pm 0.22$  vs.  $2.52 \pm 0.02$ ,  $p=0.004$ ), anxiety ( $6.37 \pm 0.40$  vs.  $5.32 \pm 0.04$ ,  $p=0.009$ ) and hostility ( $4.76 \pm 0.25$  vs.  $3.70 \pm 0.03$ ,  $p<0.001$ ) and by lower levels of social support ( $9.45 \pm 0.85$  vs.  $12.88 \pm 0.09$ ,  $p<0.001$ ) compared to those in the control group. They were more likely to be smokers ( $OR=1.77$  ( $1.19-2.64$ )) and physically inactive ( $OR=1.93$  ( $1.25-2.98$ )). Living in foster care was not associated with body-mass index ( $25.99 \pm 0.43$  vs.  $25.92 \pm 0.04$ ,  $p=0.93$ ) and with treatment for cardiovascular disease ( $OR=1.12$  ( $0.73-1.72$ )).

Conclusion: Living in institutional care is associated with psychosocial and lifestyle cardiovascular disease risk factors, but not with cardiovascular morbidity in adulthood.

Key-words: institutional care, cardiovascular disease

#### P-177-RT

### **ENHANCED BEHAVIORAL MULTI-COMPONENT TREATMENT OF HYPERTENSION**

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We are conducting a randomized controlled study of enhanced behavioral multi-component treatment of hypertension based

on the analysis of eating (diet and reduction of use of salt) and exercise behavior in connection to work and leisure time. In addition, smoking, use of alcohol, relaxation, and acceptance of emotional responses are targeted. The control group receives treatment as usual according to national Finnish treatment guidelines mainly based on giving information regarding hypertension and metabolic syndrome. The treatment program consists of 10 sessions for four months in the experimental group and 6 sessions in the control group for 1½ months each session lasting 1½ hours. Participants are 25 working individuals in both groups aged 18-65 years who have blood pressure (BP) above 140/90 mmHg. Exclusion criteria include cardiovascular diseases that affect BP and some serious diseases. BP will be measured with the standardized cuff method, using automatic monitoring during 24 hours, and by self-monitoring at home. The treatment of eating and exercise behavior in the experimental group will be done by using functional analysis of the treatment-relevant behaviors, problem solving, direct and precision teaching, values work with motivational interviewing, positive reinforcement by shaping, behavioural contracting, using step counters, and Nordic walking. Also, food diary (weekday and weekend day), exercise, sleep and relaxation diary will be used. The main aim of the study is to test new methods to improve life style modification in the treatment of hypertension. The dependent measures are BP (casual, ambulatory, self-measured), lipid profile, and well-being measured by psychological symptoms, emotional responses (such as anger, anxiety, and depression) using psychometric instruments, and sleep and life quality. Preliminary results of 11/14 participants show significant reductions in resting systolic and diastolic BP of 5.2/ 2.2 mmHg, respectively, in the experimental group and 2.5/ 1.0 mmHg, respectively, in the control group.

#### P-178-RT

### **GENDER MODERATES THE EFFECT OF ILLNESS PERCEPTIONS ON QUALITY OF LIFE AND MOOD AMONG PATIENTS IN A PULMONARY EXERCISE REHABILITATION PROGRAM**

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Prior research indicates that women with chronic obstructive pulmonary disease (COPD) exhibit more symptoms, poorer quality of life (QOL), and more negative emotions than men with COPD. Illness perceptions reflect beliefs about the causes and consequences of illness and, in turn, may influence physical and psychosocial functioning among patients with chronic illness. Due to gender differences in quality of life among patients with COPD, this study examined the influence of gender in the relationship of illness perceptions and quality of life. The sample included 98 adults (mean age  $64 \pm 10.7$ ; 44% male, 74% Caucasian) enrolled in an 8-week outpatient pulmonary exercise rehabilitation program. Participants completed pulmonary function testing, 6-minute walk test, and self-report questionnaires (UCSD Shortness of Breath Questionnaire, Medical Outcomes SF-36, State-Trait Anxiety Inventory, Center for Epidemiological Studies ? Depression Scale, Illness Perceptions Questionnaire) at baseline and at the conclusion of the program. Data were analyzed with analysis of variance to examine gender differences and with hierarchical multiple regression to evaluate the interaction of gender with illness perceptions (specifically perceived consequences of the illness) in predicting change in QOL and mood. Women were significantly younger than men ( $p = 0.05$ ) but did not differ in lung function (FEV1/FVC ratio of 0.49 for both), disease severity (both 43% predicted FEV1), program

attendance (21 of 24 sessions), or 6-minute walk distance at baseline (1135m vs. 1025m, n.s.). Regression indicated that gender moderated the relationship of illness perceptions at baseline with changes in QOL [(Physical Composite Score ( $\beta$  =1.06,  $p$ =0.04) of the SF-36], depression ( $\beta$  =-1.26,  $p$ =0.006), and anxiety ( $\beta$  =-1.57,  $p$ =0.002). Illness perceptions were strongly associated with QOL and depression among men but not among women. Thus, perceived negative consequences of COPD appear to have a greater effect on QOL and mood among men than among women participating in pulmonary rehabilitation.

#### P-226-RT

### DEPRESSION OR ANXIETY AS THE THERAPEUTIC FOCUS OF A PSYCHOSOCIAL INTERVENTION IN CORONARY HEART DISEASE?

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Results from large scale randomized controlled trials suggest that interventions may modify psychosocial risk factors in CHD. Psychological risk factors like depression have long been found to increase the risk and worsen prognosis in cardiac patients in terms of "cardiac events" and "mortality". However, depression is often preceded by symptoms of anxiety, which are rarely investigated along with depression. In our pilot intervention study we wanted to examine in which way these factors interact.

We developed an intervention model, which intended to counteract both depression and anxiety in cardiac patients and to provide tools for coping with the disease and stressful life situations.

Patients were enrolled from two clinics in Stockholm and Berlin. The methods were designed according to principles of cognitive behavioural intervention with an underlying theoretical framework derived from psycho-dynamic theory. 77 men (70.1 %) and women (29.1%) agreed to participate in the study. The possible influence of clinical risk markers on treatment outcomes including severity of the coronary disease (AMI), revascularization procedure (PCI), age, and gender was carefully controlled for in the statistical analysis. Anxiety and depression were assessed by the Hospital Anxiety and Depression Scale. Patients were followed for a total of 12 months, including the intervention program.

As a main result of the intervention both depression and anxiety scores were significantly reduced ( $p < 0.008$ ,  $p < 0.006$  respectively) and more strongly so in intervention as compared to control patients. After control for age, gender, index diagnosis of AMI, previous PCI and baseline level of anxiety and depression the intervention remained a significant independent predictor of change in anxiety ( $p = 0.05$ ) as well as depression ( $p = 0.0001$ ) scores over time. (model  $r$  square = .33 significant). Index diagnosis of AMI emerged as another independent predictor and baseline anxiety score showed borderline significance.

We conclude that anxiety needs to be assessed and treated along with depression and that behavioural interventions can be used to reduce both anxiety and depression. It remains to investigate in which way these findings correlate with life stress, coping abilities for disease and social support and whether these efforts have effects on cardiac outcome in the long run.

## Track 'Childhood and Adolescence'

#### P-179-RT

### PREVENTION PROGRAM FOR DEPRESSION IN 5TH GRADE CHILDREN

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Recently, a lot of studies reported that the number of children who tends to be depressed is increasing. Considering the circumstances mentioned above, the purpose of this study was to examine the approach made the children's negative cognition about depression change the positive one had the effect of decreasing the depression score.

Thirty-nine children in the 5th grade were divided into the CPE group, and got two CPE sessions, one session took 45 minutes. The purpose of the 1st session was to understand "The feelings are born of the events through the thoughts". The purpose of the 2nd session was to understand "Even if the event is same, the feeling will change when the thought changes". As the summary of the sessions, the main trainer explained "When you have badly, it is good to seek other thoughts in your daily life. If you find other thoughts, you may feel better."

The children of the CPE group (N=33), and the control group (N=70) were analyzed to clear the effects of the CPE classes for reduction of the depression. As the result, the main effect of the group was not significant at the post-test, but the DSRS score of the CPE group was significantly lower than the control group's DSRS score ( $F[1,100]=111.42$ ,  $p<.05$ ) at the follow-up test.

It was suggested that the execution of the CPE sessions promoted the change of the automatic thoughts of Beck model, and caused the reduction of the depression score by the function of controlling to bring about the negative automatic thought. The effectiveness of the cognitive behavioral therapy to the problem of depression of the children is unwavering. On the contrary, the accumulations of the basic studies like this are indispensable for the construction of the structures of the treatment packages.

#### P-180-RT

### THE PSYCHIATRIC BACKGROUND OF ADOLESCENT SOCIAL WITHDRAWAL IN JAPAN

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In recent years, mental health welfare service personnel in Japan have been encountering difficulties in dealing with a growing number of adolescents reluctant to interact with others for extended periods. It has been estimated that there are 260 thousands of people suffering from severe social withdrawal, so-called Hikikomori, in Japan (Koyama, et al., 2007).

We discussed about severe social withdrawal classifying into the following three groups: (1) the Consultation Group (the

subjects in this group came by themselves to one of the Prefectural Mental Health Welfare Centers and made use of its consultation and assistance services), (2) the Non-Consultation Group (only the subjects in this group were the ones whose family members came to the center for consultation, and the staff was unable to meet him/her), and (3) the Consultation-after-Family-Support Group (the subjects in this group are the ones in the Consultation Group whom the staff were finally able to meet after one year or more of consultations with their family members).

The first, we diagnosed and classified severe social withdrawal according to the DSM-IV. In the Consultation Group, 21 adolescents were in group (a); Schizophrenia, mood disorders, anxiety disorders, and the cases they need psychiatric treatment. The next 20 adolescents were in group (b); mild mental retardation and pervasive developmental disorders, and 30 adolescents were in group (c); personality disorders/trait, identity problem and the other cases they need psycho-social supports mainly.

The second, we showed that, compared with Consultation group, the subjects within the Non-Consultation Group and the Consultation-after-Family-Support Group, moreover, tended to exhibit even more serious problem.

#### P-181-RT

##### SUPPORT FOR DEPRESSIVE STUDENTS

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The first purpose of the study was to consider the function of the life skill as one of the methods to treat depressive students. And secondly, we tried to identify the concrete methods of the life skill as a strategy.

Beck Depression Inventory (BDI; Beck, 1979) and Life Skills Scale (Poole & Evances, 1988) were administered to 550 undergraduate students in metropolitan area (2007). Results were compared with the case studies of student counselling reports and we identified some effective training approach to treat depressive students.

Correlation coefficient between BDI and Life Skill Scale was .450 ( $p < .01$ ).

Result was factor analysed and four factors were extracted; Factor I : "Making a plan for future", Factor II : "Quest for possibility", Factor III : "Management human relation", Factor IV : "Spontaneous concerning for people".

Especially, high contribution was found in Factor I in the result.

The result shows the relation between level of social skills and depressive tendency.

It suggests that social skill training could be one of the methods for treatment of depression. From the basis of the factor analysis, we found that the case of having the element of Factor I and Factor II, making decision of occupation, learning of judgement, support for making decision could be considered to effective training. In the case of having the element of Factor III, technique of human relation, stress management, semantics training, communication skill could be effective. And having the element of Factor IV, self help, assertion training could be effective training. Thus specific strategies methods for any student can be selected by identifying the elements of the factors from the counselling case study.

#### P-182-RT

##### MENTAL HEALTH OF CHILDREN RECEIVING ASSISTANCE FROM THE CHILD WELFARE SERVICE

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##### Key Words

SDQ, clients, co-morbidity, parents, home

##### Background

While high levels of mental health difficulties have been reported for children in residential and foster care, less is known about the mental health of children receiving home based assistance. To secure these children appropriate help and support, more information about their mental health situation is essential. A better understanding of the children's own perception of their problems is particularly important

##### Purpose

The purpose of this study was to assess mental health difficulties among children aged 10-13 years, who received intervention from Child welfare service while living at home.

##### Methods

Data stem from a survey carried out in 2006 as part of a longitudinal population based study. Data was collected by questionnaires to children and parents. Mental health difficulties were assessed by the Strength and difficulties symptom scales. The 90th percentile was used as cut-off for identifying children with profound problems in the different domains.

##### Key Findings

Compared to their peers, the child welfare children had significantly more emotional problems, hyperactivity problems, conduct problems, peer problems, and total difficulties. Furthermore, more child welfare children stated that they experienced problems in their everyday life, that the problems distressed them in a high degree, and that the problems had lasted for more than a year.

##### Implications

The high level of mental health difficulties, have implications for practice, policy and research. Although the present findings underscore the need for increased competence on mental health issues among child welfare workers, the complex needs of these children and families cannot be solved by the child welfare system alone. Consequently, the results also point to the need for better cooperation and collaboration between the different services, especially between child welfare and child and adolescent mental health service.

#### P-183-RT

##### SOCIAL AND EARLY LIFE DETERMINANTS OF ANOREXIA NERVOSA

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Background: Aetiology of Eating Disorders (ED) such as Anorexia Nervosa (AN) remains unclear and longitudinal studies on how social, psychological and other factors interact in the development of these disorders are needed for better prevention and early intervention.

Material and methods: We studied determinants of AN in two large Swedish cohorts. The Stockholm Birth Cohort Study (SBC) includes men and women (N=14 294) born in

Stockholm 1953. The Uppsala Birth Cohort (UBCoS) includes men and women born in the Uppsala University Hospital (1915-1929) and their descendants. Register-based data on grandparental and parental social characteristics, school marks, deaths and emigrations were obtained from questionnaires and by linkages through unique personal identification numbers and covered a follow-up period from 1960 till end 2002. Associations of social characteristics and school performance with incidence of hospital-treated AN were studied in multivariable Cox regression.

Results: Among UBCoS females (N=14 338) born 1952-1989 (third generation), 30 women were hospitalised for AN at ages 12-28 years in 1988-2002. Women from families where maternal grandparents had higher education, and women with fathers who had university education were at the highest risk of hospitalisation for anorexia (HR for father's university vs. less than secondary education 4.5, 95% CI 1.2-17.0; adjusted for maternal education). Independent of parental education, women with highest school grades were more likely to become hospitalised for anorexia at age 15+ years. A particularly high risk was noted among women with the highest marks in Swedish language (HR 11.6, 95% CI 2.1-64.8, adjusted for parental education). Social gradients in incidence of AN and associations with school performance were generally less pronounced in the SBC.

Conclusions: Although the social patterning of AN might have changed over the last forty years, the results suggest an important role of internal and external demands in the aetiology of ED and AN.

#### P-184-RT

##### **A STUDY OF THE FORMATION OF PURPOSEFUL HAND BEHAVIOR OF THE RETT SYNDROME**

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Rett syndrome was described in 1966 by Andreas Rett. It is a progressive central nerve disorder the main symptoms of which are severe mental retardation with autistic manifestation, intellectual degradation, stereotypical hand movement, and progressive gait difficulty of various kind and degree. The research of Rett syndrome has been mainly of its medical etiology. Very little systematic research relating to education and psychology has been conducted and there has been little discussion regarding establishment of early intervention programs and the effectiveness of early intervention.

The object of the study is to form a request behavior of a Rett syndrome infant who lost purposeful behavior due to regression of physical function and stereotypical hand movement by using backward chaining and physical prompting.

As a result, the purposeful behavior of handing an object was formed. In addition, the formed purposeful behavior of handing appeared in high-frequency at home, pre-school and other places. As successful experiences in human interactions were gained, response generalization was recognized: a change in response to others as in increased frequency in approaching others, and picking up objects.

#### P-185-RT

##### **RELATIONSHIP OF HABITUAL PHYSICAL ACTIVITY BETWEEN PARENTS AND THEIR CHILDREN IN JAPANESE COMMUNITY**

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Physical activity (PA) is important factor for childhood health and parental support and modeling are relatively well accepted as possible mechanisms for parent-child aggregation of physical activity. Several reviews have summarized the research on association of physical activity behaviors between parents and children, but none have published on the association of physical activity behaviors between children and their parents. The objective of this study is to examine the relationship of habitual physical activity between parents and their children.

A cross-sectional design was used to assess 276 subjects of preadolescent (ages 9-11 years), 180 of adolescent (ages 12-14 years), and 486 of their parents recruited from 8 elementary schools and 3 middle schools in Tsuru, Yamanashi. Physical activity and daily energy expenditure in children were assessed with Life-corder EX (Suzuken, Japan) for 7 days, physical activity behaviors and health related habits in both children and their parents were assessed using self reported questionnaire. Data collection and analyses were conducted in April to July, 2007.

Among preadolescent group, results showed that children with strict parents tended to be more participated in sport-club activities than children with non-strict parents (mother;  $p=0.064$ , father;  $P=0.042$ ), and children with mother who is favorable to physical activity tended to be more favorable to physical activity than the counterpart ( $p=0.003$ ). Among adolescent group, children with physically active father showed smaller daily energy expenditure ( $p=0.040$ ) and less participation in sport-club activities than children with inactive father ( $p=0.006$ ). Children with mother who is physically active or favorable to physical activity showed higher participation in sport-club activities than children with mother who is inactive ( $P=0.077$ ) or not favorable to physical activity ( $p=0.079$ ). Children with mother who is favorable to physical activity seemed to be more favorable to physical activity than children with mother who is not favorable to physical activity ( $p=0.088$ ). And in both group, physical activity behaviors of children showed higher association with physical activity awareness of mother than their physical activity level. There was no significant difference between children with physically active parents and inactive parents in amount of physical activity (kcal/d) or daily walking steps. Physical activity awareness of parents showed no significant association with children's daily energy expenditure, amount of physical activity, or daily walking steps. There was no significant difference between children with strict parents and non-strict parents in physical activity awareness.

Above findings showed that the relationship of physical activity between parents and children were different in sex of parents and age of children (preadolescence, adolescence).



P-186-RT

**INFERENCE OF BYSTANDERS CONCERNING BULLYING BEHAVIOR**

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It is often suggested that the bully (the assailants) were to be blamed, but the bullied (the victims) also have some problems (Ono, 1996). The responses to bullying behavior from children and students around were revealed to reinforce bullying behavior (Sugiyama et al., 1997). "Hooting" is the most common among them. If bystanders think a victim deserves to be bullied, they are likely to incite assailant's bullying behavior. As part of researches on the onset and the maintenance of bullying behavior, the purpose of this study was to investigate what information concerning bullying influences the inference (cognitions) of bystanders. There are three kinds of bullying behaviors; direct assault, leaving in the cold, errand runner (Mifuji, 1999). Based on the classification, three kinds of bullying scenarios were developed. Each scenario included the description about the number of assailants, the duration of the bullying behavior, and the group size where the parties concerned belong. The responsibility of the victim and of the assailants, the severity of the bullying, and the amount of time for guidance to the assailants and the victim were measured as dependent variables. As results of ANOVAs, in the case of direct assault, when a single assailant was bullying in the short term, the victim was more likely to attribute to responsibility of the bullying. In the case of direct assault, there was a significant main effect of the number of the assailants for the severity of the bullying. In the case of leaving in the cold, a significant main effect of the number of the assailants for the time for instruction was found. No other interactions and main effects were significant. Consequently the information about the number of assailants, the duration of bullying behavior, and the group size doesn't have much effect on inference of bystanders.

P-187-RT

**THE RELATIONSHIP BETWEEN THE BOTH EXPRESSING AND DECODING SKILLS AND THE FEELING OF SCHOOL MALADJUSTMENT**

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It is suggested that social skills have the influence on anxiety and depression in children. And it is said that the feeling of school maladjustment is related to anxiety and depression in children. Social skills have two aspects, which are the behavioral and cognitive aspect. However, no study has measured the social skills from the both sides and examined the relation between the both sides of social skills and maladjustment. This study is aimed at examining the interaction between the both sides of social skills and the feeling of school maladjustment in friend relations.

One hundred and sixty-six junior high school students were asked to complete three questionnaires: expressing skills, decoding skills and feeling of school maladjustment. As the method of measuring decoding skills, the videotaped story of common situation in the school life was shown to the participants. They watched behaviors of other people expressing the positive/negative feelings and were asked how the other people felt.

The result of the ANOVA (decoding skills; high, low × expressing skills; high, low) showed the significant interaction. The results suggested that the students who scored the low decoding skill with high expressing skill students showed the significantly higher score in the feeling of school maladjustment than the students who scored the high decoding skill with the high expressing skill students significantly. Results of this study revealed that the interaction between the expressing skills and decoding skills predicts the feeling of school maladjustment more accurately. It was suggested that the students with low level of decoding skill in combination with high level of expressing skill can't decode the feeling from one's performance. Therefore, they can't take applicable behavior suited for the situation and get the positive feedback from others.

P-188-RT

**THE RELATION BETWEEN THE RUMINATION ON POSITIVE AND NEGATIVE EVENTS AND THE DEPRESSION IN CHILDREN**

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The purpose of this study was to investigate the relation between the rumination on positive and negative events and the depression in children. Five hundred and seventy six children were required to complete the questionnaires which measure the depression (CDI) and anxiety (STAIC). Moreover, 4 items based on the rumination response defined in the response style theory (Morrow & Nolen-Hoeksema, 1990) were used for measuring the rumination in children. To assess the frequency of rumination, they were asked to complete the positive and negative events they had experienced and ruminated recently, and then required to answer the questions asking the frequency of rumination upon their events (ranging from 0 (not at all) to 3 (many times)).

The result of a cluster analysis revealed the four groups reflecting the balance of the frequency of rumination on positive and negative events (N = 377). CDI score was investigated using an ANCOVA. This analysis was performed using the groups categorized by the cluster analysis as independent variable and STAIC score as covariate. The result revealed that the main effect of the group was significant (F [4, 372] = 3.245, p < .05) and that the CDI score in children who ruminated the both positive and negative events frequently was significantly lower comparing with other three groups. The findings didn't support our hypothesis that the balance between the rumination on positive and negative events was related to children's depression. There were some limitations in this study, and one of them was that the events experienced by children were divided into positive events and negative events, using the criterion based on children's subjective judgment.

P-189-RT

**RUMINATION EFFECTS ON CHILDREN'S PERFORMANCE OF SOCIAL SKILLS**

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It is suggested that social skills have the influence on stress, anxiety disorder, and depression in children. A lot of studies have concluded that the anxiety interferes with the performance of social skills. However, Kendall(2000)underlined the necessity to approach the cognitive factor for performing and maintaining the social skills. Recent studies have identified the rumination as the cognitive factor which has the influence on anxiety in adults (e.g., Watkins, 2007). Furthermore the rumination leads to depressive symptoms in children. Thus, it is assumed that the rumination influences the performance of social skills negatively. Therefore the purpose of this study was to investigate the relation between the rumination and social skill performance.

A total of 485 elementary school children participated in this investigation. They were asked to complete the Rumination Scale for children(RS-C). After, they were exposed to the seven virtual conflicted situations followed by the questions to extract the students who were deficient in social skill performances.

A result of factor analysis of RS-C revealed the two factors which are the 'negative rumination( $\alpha=.77$ )', and 'analytic rumination( $\alpha=.71$ )'. We conducted a multiple regression analysis predicting the assertive behaviour, non-assertive behaviour, and the aggressive behaviour with 2 rumination subscales. The result showed that the 'negative rumination' had the influence on assertive behavior negatively( $\beta=.19$ ,  $p<.001$ ), and the influence of 'analytic rumination' on assertive behavior was positive( $\beta=.04$ ,  $p<.05$ ). Furthermore the 'negative rumination' had the influence on non-assertive behavior positively ( $\beta=.18$ ,  $p<.001$ ). Therefore, this study suggested the possibility that the analytic rumination enhances the performance of social skills, but that negative rumination obstructs the performance of social skills.

P-190-RT

**FEATURE OF COPING STYLE IN HIGH STUDENT APATHY INDIVIDUALS**

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Student apathy is characterized as passive and avoidant behavior in school life. Apathy as a stress response was correlated positively with avoidant coping strategies (Makino & Yamada, 2001), and was correlated negatively with problem solving coping strategies (Arnstein & Stein, 2000). However, the relationship between student apathy and coping strategies was not examined. In this study, the author examined the hypothesis that individuals with high tendency of student apathy are likely to adopt avoidant coping strategies and are unlikely to adopt problem solving coping strategies. Furthermore, the authors explored the relationship between student apathy and other coping strategies.

One hundred and seven undergraduate students completed the Passivity in the Area of Campus factor (PAC) of the Passivity

Area Scale (Shimoyama, 1995) which measures the degree of student apathy, and the Tri-axial Coping Scale 24-item version (TAC-24; Kamimura et al., 1995) which measures the tendency to adopt several coping strategies. The participants were divided into three groups based on their PAC scores. Univariate ANOVA indicated that there was a significant group difference in the score of "distractive recreation" ( $p<.01$ ), "getting information", "giving up", "catharsis" ( $p<.05$ ), "plan drafting", and "evading one's responsibility" ( $p<.10$ ). Conducting multiple comparisons, the high student apathy group scored higher on "giving up" than the low student apathy group ( $p<.05$ ), and scored lower on "getting information" ( $p<.05$ ) and "plan drafting" ( $p<.10$ ) than the middle student apathy group. The results supported our hypothesis partially because the high student apathy group scored higher on avoidant coping strategies except "avoidance-like thinking", and scored lower on problem solving coping strategies.

The high student apathy group also scored higher on "distractive recreation" and "catharsis" than the low student apathy group ( $p<.05$ ). Therefore, overall results indicated that the high student apathy group is unlikely to behave actively when confronted with stressors. (297words)

P-191-RT

**THE REVIEW OF EPIDEMIOLOGICAL STUDIES ON GESTATIONAL AND PARENTING FACTORS FOR ADHD SYMPTOMS IN PRESCHOOLERS**

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Objectives; Attention deficit hyperactivity disorder (ADHD) is one of the most common behavioral disorders with early onset in preschool age, affected by multi-factors such as inheritable, gestational, parenting, and familial environment. The purpose of this study is to review national and international studies on gestational and parenting factors to which ADHD in preschoolers is attributed.

Method; International articles were found from PubMed with key words of ADHD[MeSH] AND epidemiology, limited under 6 years old, 2003-2008. National articles were identified from PubMed, Japan Center Review Medicine, and Medical Online with ADHD, early intervention, screening, infant, preschool, limited under 5, 2003-2008.

Results; 294 studies including 31 reviews were identified. International studies examined prenatal exposure to nicotine, alcohol, lead, PCBs, mercury, and some drugs as gestational factors. Other studies showed that parenting stress altered child care which were thought to be risk factors for ADHD severity. Familial factors namely marital discord, socioeconomic status, parental educational level, and social support were also suggested as indirect psychosocial factors. More recently, paternal participation was found to be as a new topic.

Meanwhile, 175 national studies were found. Although there were no verification of toxin exposure, four reports on perinatal risk factors were identified. Both risk and protective factors in upbringing were under discussion in six researches. The most active discussion with 18 articles concerning administrative service systems of early intervention were connected between preschool and school age.

Conclusion; Although risk factors have been surveyed

worldwide, protective factors are still lacking. In addition, further studies are of importance for obtaining information in planning early intervention and prevention. Therefore, it is required to study preventable gestational factors and early psychosocial protective factors which overcome perinatal and familial disadvantages.

## Track 'Cross track and other'

### P-192-RT

#### **PATTERNS OF DIET AND PHYSICAL ACTIVITY CHANGE AMONG WOMEN WITH COMORBID OBESITY AND DEPRESSION ENROLLED IN A WEIGHT LOSS TRIAL**

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Obesity is associated with clinically significant depressive symptoms among women. Depression has been associated with poorer weight loss outcomes, though data on how these women modify their behavior during weight loss are scarce because those with depressive disorders are likely to be excluded from clinical weight loss trials. The present study examined patterns of dietary and physical activity changes during a clinical weight loss trial among women with comorbid obesity and depression. Two hundred three (203) women were recruited proactively and randomized to a standard behavioral weight loss program (WLO; n=102) or to combined behavioral weight loss and cognitive-behavioral depression management (COMB; n=101). Each intervention was delivered in 26 group sessions over one year. The average age of participants was 52 years, 80% were white, and 50% were married; their mean baseline BMI was 39 kg/m<sup>2</sup>. Dietary intake and physical activity were assessed by self-report questionnaires at baseline, 6, and 12 months. Participants lost an average of 2.7 kg over the 12-month study, with no significant differences by treatment group. Preliminary results indicate that patterns of dietary and physical activity changes were comparable across treatment groups; women significantly decreased caloric intake and increased physical activity over time in both groups. Session attendance did not affect dietary or physical activity patterns during the trial with the exception of lower total caloric intake for WLO at 6 months among those who attended 12 or more total sessions ( $p < .03$ ). Results suggest that women with depressive symptoms are able to successfully adjust their dietary intake and physical activity to achieve weight loss, regardless of whether depression was specifically targeted during intervention; thus, future weight loss trials may consider enrolling women regardless of depression status.

### P-193-RT

#### **THE RELATIONSHIP BETWEEN HEALTH-RELATED QUALITY OF LIFE AND SOCIAL NETWORKS AMONG FAMILY CAREGIVERS**

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The purpose of the present study was to explore the differences of HRQOL depending on whether the participants have family members with disabilities or not, similarly between male and female family caregivers for person with disabilities. In addition, the relationship of HRQOL and social networks among family caregivers in Japan was also examined.

The present study was a cross-sectional design. The survey forms were distributed to the 9205 people aged 30 and older who visited a dispensing pharmacy in fifteen areas in Japan. We collected the data of sex, age, job status, and care giving status for person with disabilities. Moreover, we assessed support size and social support, and HRQOL. Out of the 2029 questionnaires returned (response rate was 22.04%), 1763 (male: 663, female: 1100, mean age = 63.06±13.34) were valid for statistical analyses.

It is identified the significant difference of HRQOL between family caregivers and non-family caregivers. Further, in male, the results confirmed that only social support predicted the PCS and MCS scores, while other variables didn't predict both scores. On the other hand, in female, it was found from the second step of hierarchical multiple regression analysis that only age explained the PCS score and job status and support size explained MCS score.

In summary, it seems natural to conclude that the HRQOL of family caregivers was lower than non-family caregivers. Likewise, this study provides that HRQOL of family caregivers were determined by their social networks differently in sex. Additionally, recommendations for future research are investigation of interventions for family caregiver for person with disabilities to increase support size and social support.

### P-194-RT

#### **COMPARING ECARE IMPLEMENTATIONS IN THE US AND JAPAN: SOCIO-BEHAVIORAL, SOCIO-ECONOMIC, AND SOCIAL-TECHNICAL SOLUTIONS TO IMPROVING HEALTHCARE ACCESS, QUALITY AND HEALTH PROMOTION**

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By 2013, people 65 or older will comprise 25% of the Japanese population and 20% of the United States (US) population by 2030 making both societies "Super Aging Societies" (Koizumi, 2005; DHHS, AoA, 2006). Collaborative efforts in each country are ongoing between healthcare organizations, government agencies, and social welfare groups to ascertain methods to address the major consequences and implications associated with requirements to care for more

people with chronic diseases in light of fewer resources. This project is a comparative study of the implementation of socio-behavioral, socio-economic, and socio-technical solutions for addressing caring for elder populations and health promotion in communities of Japan and the US.

Just as the age of these persons with great needs for chronic disease management and health promotion are advancing at alarming rates, so are advances in technologies. These initiatives titled eCare propose economical alternatives to traditional care delivery via electronic management of patient information, Internet technology to facilitate sharing of medical information for patients and caregivers, and mobile computing devices to allow medical delivery across all environments of care (e.g., home care, telemedicine, outpatient care, in-patient care, etc.). Collaborative research amongst academics, healthcare organizations, government agencies, and employers who provide insurance for medical care are actively engaged in efforts to develop these eCare initiatives.

The US based eCare initiative began in 2005 and is projected to be a ten year project for a healthcare network in Virginia. The other services the Shonan-Fujisawa community in Japan. It began 2003 and is sponsored by Keio Research Institute. The study will provide insights concerning the common and differing challenges and benefits of the two eCare initiatives, which appropriate factions in each country may deem useful as they continue or begin implementations to improve access to quality care and foster techniques for improved health promotion.

#### P-195-RT

##### **THE INFLUENCE OF CONTROLLABILITY ON INTERPRETATION BIAS OF SOCIAL ANXIETY.**

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This study examined how high social anxiety people (HSA) interpret a speech scene according to the degree of controllability toward ambiguous behaviors. Japanese undergraduate students (N=177) were participants in this study and were classified into high social anxiety people (HSA; N=27) and low social anxiety people (LSA; N=27) on the basis of the total scores on Social Interaction Anxiety Scale (SIAS). The questionnaire consists of items of controllability, affect value, threat, and influence toward five ambiguous behaviors at speech scene on a 7-point Likert scale. In addition, participants answered impressions of these behaviors by the method of free-from description and the assigned categories were categorized into positive interpretation, negative interpretation, and neutral interpretation by one psychology graduate student and one undergraduate student.

The results of two-way analysis of variance indicated that LSA interpreted more threatened and influential toward person's ambiguous behaviors than toward person's predictable behaviors. On the other hand, there was no significant difference between controllable and uncontrollable listener's behaviors in the HSA. The results of free-from descriptions showed that LSA interpreted controllable predictable behaviors more neutrally and negatively. On the contrary, HSA employed the same neutral and negative interpretation in spite of the degree of controllability toward ambiguous behaviors. Therefore, HSA carried out a negative interpretation bias regardless of the degree of controllability.

#### P-196-RT

##### **QUASI-EXPERIMENTAL EVALUATION OF AN URBAN PARK REGENERATION PROGRAM: EXAMPLE OF A NATURALISTIC STUDY**

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Background: Systematic evaluation of 'naturalistic studies' is scarce. This is despite frequent calls for more evidence to be generated on the effectiveness of the impact of environmental manipulations (i.e. naturalistic studies) on health behaviour. Opportunities to incorporate an evaluation into a naturalistic study have often been missed due to the difficulty of scheduling research to fit with such studies. Methods: The current evaluation assesses the effect on population physical activity levels, self-reported sense of safety and social interactions, of a 'natural study' - the regeneration of an urban park in a mixed socioeconomic neighbourhood in Sydney, Australia. The evaluation employs a longitudinal quasi-experimental study design comparing baseline and follow-up data in an intervention and comparison neighbourhood. Two-week observation of park use and intercept surveys of park visitors, and household surveys of residents living within 1km of the parks were conducted before park constructions began in mid-2007. Results: This paper reports on main baseline results. A total of 917 (66% and 87% response for intervention and comparison parks, respectively) park visitors consented to be interviewed; and 715 household questionnaires (20% response) were received. No significant differences were found in gender and the proportions of regular walkers (for exercise or transport) between the intervention and the comparison park. Significant difference was noted in self-reported health ( $p < 0.0001$ ) between the two groups of park users. Results from the household survey indicated that the proportion who reported regularly visiting their local park was significantly lower in the intervention neighbourhood than the comparison neighbourhood (67.2% vs. 80%,  $p = 0.0001$ ). Conclusions: Park regeneration initiatives as an environmental intervention to increase physical activity and enhance community social interactions among residents have been advocated by policy-makers and public health researchers. Findings from this research will provide an important innovative evaluation data from natural studies not previously assessed in a systematic manner.

#### P-197-RT

##### **CAUSAL DIRECTION BETWEEN ANGER AND PARANOID THOUGHTS IN A NONCLINICAL GROUP OF COLLEGE STUDENTS**

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Introduction: Recently, researchers have begun to pay attention to the role of affective processes in delusional experiences, including nonclinical paranoid thoughts. Anger and aggressive behaviors have been found to be associated with paranoid thoughts in nonclinical groups. However, since previous works are cross-sectional, it is not possible to determine the precise causal relationship between trait anger and paranoid thoughts from the data. To test the causal direction between trait anger and paranoid thoughts clearly, we conducted a longitudinal survey among a student group in Japan.

Methods: A total of 102 undergraduate students completed two

scales —the Paranoia Checklist and Spielberger Trait Anger Expression Inventory. The participants answered the questionnaires twice at a one month interval (Time1 and Time2).

Results: We used the cross-lagged effects model to examine the causal direction between trait anger and paranoid thoughts. Structural equation modeling (SEM) demonstrated that the model yielded an excellent fit and that trait anger at Time1 had a weak effect on paranoid thoughts at Time2, whereas paranoid thoughts at Time1 had no effect on trait anger at Time2.

Conclusions: Our findings suggest that there may be a causal relationship from trait anger to paranoid thoughts in nonclinical groups (i.e., people with higher anger levels tend to develop and/or maintain paranoid thoughts), but not vice versa. Given the idea of continuity from acute psychosis to subclinical symptoms, future studies need to examine whether our results are replicated in clinical samples such as individuals with current persecutory delusions.

#### P-198-RT

##### **DIFFERENCES AND SIMILARITIES BETWEEN RUMINATION AND POST-EVENT PROCESSING IN A NON-CLINICAL POPULATION**

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Post-event processing (PEP) is considered to contribute to maintaining social anxiety (Rachman, 2000). In contrast, rumination is considered to be a cognitive variable that is central to depression. These two cognitive variables have strong similarities in terms of factors such as repetitive cognitive intrusions, negative emotions, and difficulty in terms of dismissing thoughts (Kocovski & Rector, 2008). This study aimed to investigate the differences and similarities between rumination and PEP. The participants of the study were undergraduate students ( $n = 79$ ). They were asked to evaluate rumination and PEP by responding to items that were based on the Cognitive Intrusion Questionnaire (CIQ). The CIQ has 63 items, which are distributed across four categories: general descriptors (frequency, duration, level of verbal content and images, level of intrusiveness, etc.); appraisal (responsibility, controllability, probability of negative consequences, acceptability, etc.); emotions as a response to the intrusion (sadness, worry, guilt, etc.); and strategies used in response to the thoughts and the efficacy of the strategies. Within-subject comparisons revealed no differences between rumination and PEP with regard to past orientation, unpleasant, counterfactual thoughts, and dwelling on causes. However, there were significant differences with regard to several variables: perspective-taking ('field' and 'observer'), level of visual images, and level of intrusiveness. These results led to the following important conclusions. A low level of intrusiveness in PEP may suggest that as opposed to rumination, PEP is an intentional process. Further, PEP tends to be recalled by images through which the event is viewed from other people's perspective.

#### P-199-RT

##### **EFFORTS FOR THE ESTABLISHMENT OF PROFESSIONAL IDENTITY - IMPORTANCE OF THOUGHT FORMATION THROUGH EXPRESSION AND EVALUATION BY OTHERS -**

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Introduction: An effort to establish professional identity of occupational therapists through production of a drama that gives an introduction of occupational therapy to students of department of occupational therapy is reported.

Methods: This study was conducted in a group of 12 students. Students were asked to produce a drama, which includes a viewpoint of occupational therapist(s) in the story, in a month of preparation period. High-school students viewed the play, and gave their feedbacks to the students who produced the play. Also, questionnaire survey, which was designed to survey professional identity of nurses and revised for occupational therapists, were conducted before and after producing the drama to the students.

Results: The students made a story that a leading character meets an occupational therapist through treatment for his disease, and then he finds out his new life and goes forward. High-school students gave high marks on the necessity and challenge of the occupation. Result from the questionnaire survey after the drama was significantly high as compared with the survey before producing the drama in all of four factor terms, which are measures of professional identity ( $p < 0.01$ ).

Discussion: During the preparation, students put their efforts to how to get across to high-school students what occupational therapy is through repeated considerations while they think with connecting their knowledge and disease, and for a scene that explains about occupational therapy. High evaluation from high-school students and utilization of the specialized knowledge in the preparation procedure led directly to improvement of their value on the profession. Therefore, it was shown that this approach has a degree of effect on the establishment of professional identity.

#### P-200-RT

##### **RELATIONSHIP BETWEEN CORTISOL AND POSITIVE AFFECT IN A UK AND JAPANESE SAMPLE.**

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There is considerable interest in the relationship between affective states and cortisol output, but little evidence concerning the cross-cultural consistency of these associations. We therefore examined variations in cortisol response and affect in the UK and Japan. One hundred British and 56 Japanese female workers completed two 24-hour monitoring periods, one over a working day and one over a leisure day. Salivary cortisol was measured at 7 time points on both days. Positive affect was assessed with questionnaire and ecological momentary assessment (EMA) methods. In the UK data, cortisol was significantly lower on leisure than on work days,

but there were no differences between the two days in the Japanese sample. Cortisol levels were higher in the Japanese sample on both work and leisure days. Positive affect measured by EMA was significantly lower in the Japanese sample on both days. However, questionnaire measures of positive affect did not differ significantly between the two groups. We conclude that differences in positive affect over the day between women in Japan and the UK are associated with differences in cortisol output.

## Track 'Diabetes/Metabolism/Nutrition/Obesity/Eating Disorders'

### P-201-RT

#### PSYCHOSOCIAL STRESS: NEGATIVE LIFE EVENTS IN TEDDY (THE ENVIRONMENTAL DETERMINANTS OF DIABETES IN THE YOUNG)

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TEDDY is an international, multi-site study to identify environmental triggers of islet autoimmunity or type 1 diabetes in genetically at-risk children. Genetic screening occurs at birth in first degree relatives (FDR) and the general population (GP). Parents of at-risk infants are invited to join TEDDY before the child is 4.5 months old at six sites in four countries: Finland, Germany, Sweden, and the United States. One of the environmental triggers is meant to be psychosocial stress mediated by negative life events.

The aim of this interim analysis was to evaluate frequencies of occurrence and categories of negative life events affecting mothers (N=3755) and children during pregnancy and the first three months after birth. Negative life events were more common during pregnancy than during the three postnatal months but the proportion of different negative life events were similar during both time periods. Half of negative events were health-related, followed by job related events, financial issues, death, violence and divorce/separation episodes. Events differed between the participating four countries, indicating that in the US mothers reported the most and in Finland the fewest negative life events.

### P-202-RT

#### EATING DISTURBANCES, MEDIA INFLUENCE, OTHER-CONSCIOUSNESS, ALEXITHYMIA AND DEPRESSION AMONG JAPANESE FEMALE UNDERGRADUATE STUDENTS

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To examine the relationships between eating disturbances and media influence, other-consciousness, alexithymia and depression, 149 Japanese female undergraduate students completed the following rating scales: the 26-item Eating Attitudes Test (EAT-26), MAGINFO scale (for assessing the influence of magazine advertisements and articles on their idea of the perfect body), MODEL scale (for assessing their interest in emulating the models appearing on television and in magazines), Other-consciousness scale, 20-item Toronto

Alexithymia Scale (TAS-20) and Self-rating Depression Scale (SDS). Moreover, the students were asked the following: the frequencies of watching television or reading books about woman's success or love stories and glancing through fashion magazines; and their actual height and weight and their desired weight. The hypothesized path model was examined by stepwise multiple regression analyses and the following results were obtained. The MAGINFO, MODEL and Other-consciousness scales and the frequency of glancing through fashion magazines showed a direct association with EAT-26. The MAGINFO scale mediated a relationship between the weight difference, i.e. the difference between their actual and desired weights, and EAT-26. The MAGINFO and MODEL scales mediated relationships between the frequency of watching television or reading books about woman's success or love stories and EAT-26, between the frequency of glancing through fashion magazines and EAT-26 and between the Other-consciousness scale and EAT-26. On the other hand, TAS-20, SDS and BMI showed no relationship with EAT-26 and the MAGINFO and MODEL scales. The results suggested that eating disturbances were influenced only by media and other-consciousness, but not by BMI, depression or alexithymia; however, these results differ from those provided by some previous studies. These results obtained in the present study may be influenced by the Japanese culture where individuals give high importance to others' perceptions of themselves and desire homogeneity in appearance. Thus, cross-cultural studies should be conducted for further analysis.

### P-203-RT

#### RELATIONSHIP BETWEEN THE TENDENCY OF ANOREXIA NERVOSA, SOCIAL SKILLS, AND COPING AMONG JAPANESE FEMALE COLLEGE STUDENTS

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**Objective:** The tendency of anorexia nervosa, particularly among female college students, is considered a significant health problem in Japan. In order to establish intervention programs for the prevention of anorexia nervosa, it is necessary to elucidate the relationship between the tendency of anorexia nervosa and personal resources, such as social skills and coping. The aim of the present study was to investigate the relationship between social skills, coping, and the tendency of anorexia nervosa among Japanese female college students. **Method:** In 2003, questionnaires regarding social skills (W-KiSS-16; Tanaka & Kosugi, 2003), coping (TAC-24; Kamimura, et al., 1995), and eating attitudes test (EAT-26; Nakai, 2003) were administered to 81 Japanese female college students. Completed questionnaires were received from 55 students (response rate = 67.9%). **Results:** Structured equation modeling revealed that high scores for problem solving skills ( $\beta = -0.32$ ), communication skills ( $\beta = -0.12$ ), and venting of emotion coping ( $\beta = -0.37$ ) were related to low levels of anorexia nervosa tendency. Furthermore, high scores for positive reinterpretation coping ( $\beta = 0.26$ ) and avoidance coping ( $\beta = 0.34$ ) were related to high levels of anorexia nervosa tendency. **Discussion:** Problem solving skills, communication skills, and venting of emotion coping may help Japanese female college students to ameliorate their tendency of anorexia nervosa. However, problem solving skills can act to increase the tendency of anorexia nervosa through the venting of emotion and positive reinterpretation coping ( $\beta = 0.11$  and  $0.10$ , respectively). Although improving

social skills, such as problem solving skills and communication skills, may be essential to the development of intervention programs for the prevention of anorexia nervosa tendency among women, concurrent psychological education should also be conducted in order to reduce students' positive reinterpretation coping, which increases the tendency of developing anorexia nervosa.

#### P-204-RT

##### A STUDY OF THE RELATIONSHIPS BETWEEN PSYCHO-SOCIAL FACTORS AND WEIGHT LOSS

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##### [Objectives]

The Obesity Department at the Health Science Center in Kansai Medical University has a program to reduce weight for six months known as the KMU-OB program (Obesity program). In this program, medical doctors, clinical psychologists, nutritionists and physical trainers support obese people to reduce their weight.

The purpose of this study was to find out psycho-social factors relating to obesity and weight loss. Perfectionism, Self-Efficacy and Social Support scales were used to assess their psycho-social conditions.

##### [Methods]

Participants : Thirty-three people (6 males, 27 females) participated in the OB program to reduce their weight. Their mean age was  $51.88 \pm 14.86$  years old. Their mean weight was  $78.48 \pm 15.98$  kg and their mean body mass index (BMI) was  $31.35 \pm 4.67$  kg/m<sup>2</sup> when they started this program.

Procedure of the OB program : During six months, they first consulted with a doctor for blood and physical examinations. Then, they had intake interviews about their current psycho-social condition by a clinical psychologist, and about eating habits by a nutritionist. Also, their psycho-social conditions were assessed, using scales about Perfectionism, Self-Efficacy and Social Support. A meeting of hospital staffs was held every month to discuss methods to support them and to improve their life-style.

##### [Results]

Weight and BMI were significantly reduced in the participants of the OB program. (weight :  $-4.58 \pm 3.91$  kg,  $p < .01$ , BMI :  $-1.70 \pm 1.52$  kg/m<sup>2</sup>,  $p < .01$  ).

There were no relation between self-efficacy scale, social support scale and the change of BMI. On the other hand, there was significant negative correlation between the change of BMI and perfectionism scale ( $r = -.40$ ,  $p < .05$ ), especially doughting of actions subscale ( $r = -.40$ ,  $p < .05$ ).

##### [Conclusions]

This study indicated the effectiveness of reducing weight and suggested that participants with high levels of perfectionism could reduce their weight more than those with low levels of perfectionism in the KMU-OB program.

#### P-205-RT

##### QUALITY OF LIFE IN PATIENTS AND SUBCLINICAL INDIVIDUALS WITH EATING DISORDERS

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Objective: This study investigated the features of Quality of Life (QOL) for Eating Disorders(ED) patients and for subclinical ED individuals.

Method: ED group was selected from the outpatients who met diagnosis for criteria of ED by DSM-IV. Subclinical ED group was selected from the university students if they scored 15-19 points of Eating Attitude Test-26(EAT-26) or 10-14 points of Bulimic Inventory Test, Edinburgh(BITE). Control group scored less than 15 points of EAT-26 and less than 10 points of BITE. Finally, 76 ED patients (3 males and 73 females,  $25.96 \pm 6.97$  years), 27 subclinical ED individuals (10 males and 17 females,  $20.11 \pm 1.37$  years) and 86 controls (50 males and 36 females,  $20.97 \pm 4.24$  years) were selected. All participants completed the self-reported questionnaires of World Health Organization Quality of Life 26(WHO-QOL26), EAT-26 and Center for Epidemiologic Studies-Depression Scale(CES-D).

Results: The scores of EAT-26 and CES-D were negatively correlated with the scores of QOL-26 in all domain of QOL-26 ( $r = -.82 \sim -.22$ ,  $p < .001 \sim .01$ ) except between "Environmental" scores of QOL-26 and "Oral control" scores of EAT-26. "Physical", "Psychological" and "Global" scores of QOL-26 with ED group were significantly lower than subclinical ED group and control group ( $F_{s[2,198]} \geq 5.16$ ,  $p < .001$ ). In "Social" and "Environmental" scores of QOL-26, ED group was significantly lower than control group, however posthoc test by Scheffe's method showed that there were no significant differences between ED group and subclinical ED group.

Conclusion: Present results revealed that QOL negatively correlated with ED symptoms among all samples and QOL has been decreased gradually with worsening ED symptoms. Thus, it was considered the importance of early intervention for subclinical ED individuals to minimize the negative impact of symptoms of ED on their QOL.

#### P-206-RT

##### CHANGE IN BODY IMAGE AND DIETARY PATTERNS OF JAPANESE FEMALE STUDENTS SHORTLY AFTER MOVING TO NYC

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Body image has been studied as an important factor that affects adult body size. It is suggested that misperception of body image by overweight people might be caused by the growing prevalence of obesity - a high prevalence could shift people's perception of 'what is normal' (Wardle et al., 2006). In this study, we hypothesized that young Japanese females would change their perception of body image after moving to New York City (NYC), where the prevalence of obesity is higher than that of Japan, and that they would gain weight and alter their dietary patterns.

Fifty three Japanese female students aged 20 to 29, who recently moved to NYC, were recruited. The first interview was conducted within 40 days after arriving to NYC and the

second within approx. 60 days after the first one. At both interviews, weight and percent body fat were measured and Food Frequency Questionnaire was administered. Body Image Assessment (BIA) was conducted using a set of 9 female figure silhouettes ranging from the thinnest (score 1) to the most overweight (score 9). Each participant was asked to point out one silhouette that they thought depicts her own current body size (CBS), and her ideal body size (IBS).

The participants' BMI increased by 0.4 kg/m<sup>2</sup> (SD=0.6). The changes in BIA indices were statistically significant. Thus, at the second interview, the participant came to have a thinner self image (decreased CBS), fatter ideal image (increased IBS), and, feel less dissatisfied with their body size (decreased difference, CBS - IBS). IBS change had a positive association with BMI change. Also, multiple regression analysis revealed that the greater intake of Staples contributed the most to BMI increase. These results suggested that one's body image could change in a period as short as 2 months, just by being surrounded by more obese people.

#### P-207-RT

### **SUCCESSFUL SELF REGULATION FOR RELAXED-EATING BY BORDERLINE DIABETIC PATIENTS WITH UNDERSTANDING THE FUNCTIONING OF HUMAN BRAIN SYSTEM RELATING ON DIGESTING AND SATISFYING**

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Background Clinical education to diabetic patients by physician and dietitian normally focuses on encouragement to restrict patients' dietary intake. Such approach makes diabetic patient feel stressful. There has been a great demand for stress-free and self-controllable approach recently. Subjects A 60-year-old male suffered from borderline diabetic and hypertension for 6 year has taken regularly medical examination and described drug at national hospital. In terms of his weight and blood sugar value, he has repeated rebound. Method He was taught the importance of eating with relaxed mind, focusing on taste in various sensitive organs i.e. smell, color, temperature. He was also explained the brain, automatic nerve functioning related on digesting and satisfying. For energy expenditure, we recommend to apply relaxed eating attitude to walking(to enjoy landscape and stimulations to his body). Results New eating way reduced about 500kcal intake. He started everyday walking to and from work an hour each (estimated about 500kcal) in his own initiative. The weight was dropped from 89.0kg (baseline) to 77.5 kg after 3 months (11.5 kg decreasing). HbA1C was dropped from 6.4 % (baseline) to 5.5 % (after 4 month, "with" drug) and kept 5.5% (after 3 month "without" drug). His hypertension inclined to improve and his abstaining from smoking for about 40 year has kept. He reported his enjoyment of the changing process without stress, and his acquirement another "self" to observe himself scientifically which enable to withstand nicotine fit. Discussion Total calorie reduction about 1,000cal in energy can explain the weight reduction about 12kg in 3 months. In terms of the blood sugar value, stress-reduction also may contribute. Patients who understand the mechanism about digesting and satisfying can observe themselves with scientific curiosity. Conclusion Brief teaching about cerebral nerve mechanism makes the patients psychologically positive and controllable of their behavior.

## **Track 'Gender and Health'**

#### P-208-RT

### **DISPOSITIONAL OPTIMISM, PESSIMISM, AND DEPRESSION RECURRENCE IN WOMEN**

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Dispositional optimism has been shown prospectively to reduce risk of incident depression. Individuals with a single lifetime depressive episode and those with recurrent depression are distinguishable psychologically and biologically. This case control study investigated the relationship between dispositional optimism and recurrent depression. Postmenopausal women without current mood disorder were recruited from the community; women with history of depression were oversampled. History of fully remitted depressive disorder (major, minor, dysthymia, NOS) was assessed with Structured Clinical Interview for DSM-IV (SCID). SCID was adapted to measure number of previous depressive episodes. Current subclinical depressive symptoms were measured with Center for Epidemiological Studies Depression scale (CESD).

Dispositional optimism and pessimism were each assessed with subscales of the Life Orientation Test Revised (LOT-R). 63 participants were M=60.4 years of age and predominantly White (86%). Twenty-eight women were never depressed, 10 had experienced one episode of depression, and 24 had experienced recurrent depression. ANOVA showed that women with zero or one depressive episode did not differ on total LOT-R scores. However, women with a history of recurrent depressive episodes showed lower total LOT-R scores (M=15.6) than women with one (M=19.0) or zero (M=18.4),  $F(2,61)=5.31$ ,  $*p<.01$ . Examination of subscales indicated that the difference in total LOT-R scores was attributable to differences in optimism,  $*p<.05$ , and there was a trend for differences in pessimism,  $p<.10$ . Women with a history of recurrent depressive episodes had higher depression scores on the CESD (M=8.9) than women with one (M=4.6) or zero (M=3.2),  $F(2,62)=9.90$ ,  $*p<.01$ . When CESD scores were added to the equation predicting total LOT-R, the effect for history of recurrent depression became nonsignificant,  $p=.27$ . In conclusion, women with recurrent depression histories show lower optimism and higher depressive symptoms than their single episode or never depressed counterparts. Low dispositional optimism may be a risk factor for depression relapse by hindering full remission of depression symptoms.

#### P-209-RT

### **THE RELATIONSHIP BETWEEN SELF-ORIENTED PERFECTIONISM AND MENTAL HEALTH IN MOTHERS**

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Objective: Perfectionism is a complex psychological construct that has been defined in many different ways. The purpose of



this study was to investigate the relationship between perfectionism and mental health in first-time mother. We investigated the self-oriented perfectionism of mothers at six months (time 1) and two years (time 2) after childbirth.

**Methods:** Since this study is a part of a longitudinal research, the mothers were recruited from public health centers in the 5 metropolitan city areas in Japan. 250 mothers replied to a questionnaire at both times, which consisted of a Clinical Epidemiologic Services for Depression (CES-D), a multidimensional self-oriented perfectionism scale (MSPS), marital relationship and mother-child relationship.

**Results:** The average age of the mothers was 32.0. Full-time workers were 15.5%, part-time workers were 11.6%, unemployed was 62.5% and others were 10.4% at time 2. The mean CES-D scores ( $\pm$ SD) of the mothers at time 1 and 2 were  $9.16 \pm 7.59$ ,  $9.69 \pm 8.60$  respectively, indicating no significant differences. In MSPS, there also was no significant difference between time 1 and 2. Personal standard (PS) of MSPS at time 2 was significantly lower than time 1 ( $p < .05$ ) by a paired matched t analysis. Personal standard (PS) had a positive correlation with support to their spouse of marital relationship and flexibility of mother-child relationship at both time. CES-D (time 1 and 2) had a positive correlation with concern over mistakes (CM) and doubts about action (D).

**Conclusion:** These results showed that perfectionism related to mental health of first-time mothers. It is necessary to support to mothers from broader views such as personal characters in order to improve the mental health during parenting.

#### P-210-RT

##### **SEXUAL AND REPRODUCTIVE HEALTH PROBLEMS AMONG WOMEN LIVING WITH HIV IN EUROPE**

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##### **Background**

Most HIV+ women are in their reproductive age. For them, having unprotected sex bears the additional consequence of unwanted pregnancy. However, many HIV+ women opt to have children. The study's objective was to assess selected reproductive health indicators, and to identify how reproductive desire is related to sexual risk behaviour. The study was carried out within the framework of Eurosupport V (ES V), a European research network with 16 HIV treatment sites in 13 countries.

##### **Methods**

Data presented are a subset analysis of the ES V project, adopting a cross-sectional retrospective design. Data were assessed through an anonymous standardized self-reported questionnaire. Ethical approval and informed consent procedures were obtained. Variables included in this analysis were selected reproductive health indicators and sexual risk behaviour. Descriptive and bivariate analysis were performed.

##### **Results**

The sample included 299 HIV+ women. Among them, 130 (46%) reported child desire, whereas 84 (33%) were planning a pregnancy. Living with HIV and being of older age were the most frequent reasons for not wanting a child. Overall contraceptive use was 56%. Contraceptives used most often were condoms (149;50%), the birthcontrol pill (19;6%), withdrawal (13;4%), and female condoms (10;3%). Dual contraception use was low. A quarter of all women (76) gave birth after their HIV-diagnosis, 33 (11%) reported a miscarriage, and 41 (14%) a termination of pregnancy (ToP). Unprotected sexual activity was mainly explained by having

an existing child desire ( $p = .001$ ).

##### **Conclusions**

This study found a high occurrence of unwanted pregnancies. Given the high ToP rate in this sample, condoms alone may not have provided sufficient protection for women not wanting children. As reproductive desire may determine sexual risk behaviour, reproductive counselling needs tailoring especially to individual needs. Therefore assessing reproductive desires and providing family planning services should become an essential part of HIV care.

#### P-211-RT

##### **IMPACT OF COSMETIC CARE ON THE QUALITY OF LIFE IN THE ELDERLY COUPLES: DOES MAKEUP IMPROVE THE QUALITY OF LIFE OF A HUSBAND AS WELL AS THAT OF HIS WIFE?**

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**Introduction:** Aging significantly affects the perception of their own body image and thus the quality of life (QOL) of the elderly (Kligman, 1989). It is reported that makeup improves the QOL of female patients with skin diseases (Boehncke et al., 2002; Holme et al., 2002; Matsuoka et al., 2006). Makeup also improves the QOL of the aged female, but little is known about its impact on their husbands. The authors hypothesized that makeup of an elderly female affect not only her QOL but also that of her spouse and that the QOL as a couple be improved. We investigated the impact of cosmetology on the QOL in senior couples.

**Methods:** Thirteen senior couples (60 year-old or older) participated in the present study as volunteer subjects. The female subjects (wives) received a 1-hour session of individual cosmetic counseling, and performed the instructed skin care and makeup for the following study period of 4 weeks at home. A validated QOL questionnaire, The World Health Organization Quality of Life (WHOQOL)-BREF was administered to the wives and their husbands before and after the 4-week study period. Mood of the couples were also assessed by a self-report questionnaire just before and after the cosmetic counseling.

**Results:** The mean scores of physical health, psychological, and social relationship domains and general QOL of the WHOQOL-BREF for the wives were significantly improved, while no change was observed in the husbands. Several parameters for mood were improved just after the cosmetic counseling among the wives, but no change was observed among the husbands.

**Conclusion:** Cosmetic counseling and the following practice of makeup significantly improved the QOL in the elderly females. No evidence was obtained of the impact on their husbands.

This study was supported by a grant from the Cosmetology Research Foundation (J-06-23).

## Track 'Health behaviors'

P-212-RT

### THE FIELD OF BEHAVIORAL MEDICINE

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The field of behavioral medicine has developed out of a convergence of several antecedent disciplines, most noticeably psychosomatic medicine, and behavioral psychology. Definitions of the field vary, but it is generally agreed to involve the formal application of behavioral principles to problems of clinical medicine. This application may take the form of behavioral techniques which (a) facilitate biomedical treatment, (b) assist in the modification of habits with undesirable health consequences, (c) assist in the treatment of stress-related diseases, or (d) produce direct alterations in pathological states. This article defines and traces the field of behavioral medicine. Relevant journal literature is discussed.

P-213-RT

### LOW INTEREST FOR BEHAVIORAL MODIFICATION TO PREVENT DIABETES IN HIGH RISK INDIVIDUALS IN ESTONIA

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The European Commission supported diabetes prevention project DE-PLAN, in which 17 European states participate, aims at the prevention of Type 2 diabetes in high risk individuals by behavioral modification. It includes modification of life-style, nutrition and physical activity, all of which have proven successful for the prevention of diabetes. Estonia is participating in the DE-PLAN project since 2005 aiming to learn the feasibility of a large scale behavioral modification approach for diabetes prevention. Estonia's population is 1.3 million and the prevalence of diabetes according to the Diabetes Atlas (IDF, 2003) is estimated at 9.7% in the 20-79 year old individuals.

A simple and validated self-administered questionnaire FINDRISK consisting of eight questions was used for the determination of the risk of Type 2 diabetes development in the following 10 years. Individuals scoring more than 14 points were considered to be at high risk (probability of 33% and higher) of developing diabetes.

The FINDRISK questionnaire for the diabetes risk assessment was published in the most copious daily newspaper (print number 64,000) of Estonia accompanied by a doctor's commentary about the risk factors and pandemic of Type 2 diabetes. This issue also informed of the ways to contact the local DE-PLAN project staff and what people themselves can do to reduce the risk of Type 2 diabetes. The same article was also published in the web edition of the newspaper with probably even more visitors. All individuals scoring 15 points or more were offered to contact the project staff by phone or e-mail in order to initiate the free of charge behavioral intervention program.

Only 121 individuals contacted the Estonian DE-PLAN project staff by e-mail or phone and expressed interest in participation in the free behavioral modification program. 58 of the interested people were ineligible for the project as they already had diagnosed diabetes or their diabetes risk score was too low. 63 persons were tested with OGTT. Additional 23 individuals turned out to have manifest diabetes and were

referred for treatment. Therefore, only 40 individuals with normal glucose tolerance, impaired fasting glucose and impaired glucose tolerance entered the behavioral modification program.

We conclude that the inhabitants of Estonia, a young member state of the European Union, do not consider at the present time their health a priority and/or are not interested in behavioral modification for disease prevention. Considering the worldwide pandemic of Type 2 diabetes it is critical to deliver extensively the message that the life-style and health behavior of individuals is instrumental for the prevention of diabetes.

P-214-RT

### SENSITIVITY AND SPECIFICITY OF PATIENT HEALTH QUESTIONNAIRE (PHQ-8) IN FEMALE PATIENTS WITH MYOCARDIAL INFARCTION

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**OBJECTIVES:** Many clinicians and researchers have used eight-item Patient Health Questionnaire (PHQ-8), which was directly adapted from nine-item PHQ (PHQ-9) with the item measuring suicide intention excluded, to screen and to diagnose whether the individuals may be depressive. Even though the PHQ-8 has fewer items, practitioners and researchers have used the same criteria from PHQ-9 (i.e., total score greater than 10) to diagnose depression. The goal of the study was to evaluate sensitivity and specificity of PHQ-8 using different thresholds based on the data from the 2006 Behavioral Risk Factor Surveillance System (BRFSS).

**METHODS:** The BRFSS is an on-going telephone health survey system, recording health and risk behaviors of US adults yearly. The participants were female residents of Washington who were diagnosed with myocardial infarction.

**RESULTS:** 67 out of 221 patients (30%) were ever told that they had depressive disorders. Using PHQ-8 total score greater than 10 as diagnosis criteria, the majority of patients had no depression (61%). Using the threshold of 6, 7, 8, 9, 10, sensitivity was 59%, 50%, 38%, 31% and 43%, respectively. Specificity was 81%, 86%, 91%, 92% and 95%, respectively.

**CONCLUSIONS:** Results suggested that the widely-used conventional criteria (total score > 10) may not result in optimal sensitivity and specificity. To optimize PHQ-8 as a diagnosis tool, we recommend that researchers should evaluate cutoff points for targeted diseases when using PHQ-8.

P-215-RT

### ADOLESCENTS TALK ABOUT SETTINGS IN HEALTH-RELATED BEHAVIOURS

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The increase of "social morbidity" among adolescents in recent decades, despite its decline in most other age groups, has been mainly attributed to their lifestyles. The major health threatening behaviours commonly associated with adolescence are: smoking, substance use, unprotected sex, dangerous sports and leisure activities, reckless driving of cars and motor cycles, unhealthy diet and physical inactivity. This study explores adolescents' perceptions of unhealthy behaviours as

well as their perceptions of the factors associated with these behaviours. In-depth interviews were conducted with adolescents aged 17-21 years recruited from educational and employment settings. The interviews were transcribed verbatim and Nvivo software used to assist the analysis. The constant comparative method guided data sampling and analysis. The data were analyzed inductively to produce an initial explanation of the phenomenon under study. In preliminary analysis of the first ten interviews adolescents from both settings reported important differences between the social contexts of school and university. Participants agreed on an understood frame for group behaviour. They felt that belonging to one peer group was an obligation at school while a choice at university. Perception of normative peer behaviour, the need to fit in and to be part of youth social events were reported to be important factors influencing unhealthy behaviours at school, which are not as influential at university. Parents may prevent/protect adolescents from this 'normative' behaviour at school but their role diminishes at university. For adolescents, individual and environmental factors might be either protective or risk factors for engaging in unhealthy behaviours. Understanding the existing differences in adolescents' perceptions of unhealthy behaviours and the factors associated with them may explain the persistent 'social morbidity' amongst adolescents and suggest possible routes for addressing them leading to more effective health promotion campaigns.

#### P-216-RT

##### **IS SEEING BELIEVING? AN EXPERIMENTAL ANALOGUE STUDY OF THE COGNITIVE, EMOTIONAL AND BEHAVIOURAL IMPACT OF THE FEEDBACK OF VISUAL IMAGES OF BODY FAT DISTRIBUTION**

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Limited evidence indicates that visual feedback of diagnostic imaging scans may motivate behaviour change beyond verbal health risk information. The cognitive and emotional mechanisms remain unknown.

Using an Internet-based experimental design, 901 participants were randomly allocated to one of two conditions in which they received a brief written intervention focusing on cardiovascular risk (a) with or (b) without an image of their predicted body fat composition (based on reported physical activity and gender). The severity of the provided risk information was of three levels dependent on participants' reported levels of physical activity (inactive; moderately active; active) with the most threatening risk information being provided to inactive participants. A set of questionnaire items was completed by respondents prior to and post-intervention.

Whilst physical activity intentions increased in both groups, there was a main effect of group, with the increase greater in the image condition ( $F(1,898)=4.259$ ,  $p<.05$ ). The level of belief in the results was also greater in the image condition ( $t=-2.14$ ,  $p<.05$ ). As predicted, the more threatening the risk information received, the greater the mean increase in intentions, with the greatest increase in physical activity intentions post-intervention being found in the physically inactive group ( $t=-13.852$ ,  $p<.001$ ). However, no significant interaction between intervention condition and severity of risk information was found ( $F(2,894)=.922$ ,  $p=.398$ ). Multiple regression analyses and exploratory structural equation modelling were used to explore the possible variance structure of the data. Group, participant gender, baseline level of intention, coherence between threat representations and

behaviour, belief in the results received and worry about body fat all had significant total effects on intention post-intervention.

The inclusion of a predicted potential body scan image with cardiovascular risk information led to a significantly greater increase in physical activity intentions. Exploratory but theoretically plausible models for the effects will be tested in further studies.

#### P-217-RT

##### **STAGE OF CHANGE FOR STRESS MANAGEMENT BEHAVIOR: A COMPARATIVE STUDY BETWEEN KOREA AND JAPAN**

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Stress has adverse effects on physical and mental health, and it is necessary to help people practice stress management behaviors in their everyday life. The transtheoretical model of behavior change (TTM) is one of most popular frameworks for life style change. The TTM discriminates people into 5 stages (precontemplation, contemplation, preparation, action, and maintenance) based on current behavior practice and the intention to begin this behavior. Knowledge of stage of change distribution can provide useful information for planning proper interventions (Laforge et al., 1999). Little is known about stage of change distribution for stress management behavior in Asian sample. The purpose of this study was to describe and compare stage of change distribution for stress management behavior in Japanese and Korean university students. 765 Japanese and 530 Korean university students participated in the present study. Stage of change for stress management behavior of each respondent was assessed by the Korean and Japanese versions of the staging algorithm developed by Velicer et al (1998). The students were excluded from the analysis who had not been stressed over the past month. Main findings were summarized as follows: Precontemplation was the most frequently reported Japanese college students followed by maintenance, while preparation was the most frequently reported followed contemplation in Korean students. The differential distribution of stage of change for stress management behaviors between Japanese and Korean students supported Horneffer-Ginter's study which reported that stage of change distributions differ among cultural background. This study suggested that interventions for stress management in university students may be highest impact when preparation is targeted in Korea while pre-contemplation is in Japan.

## Track 'Infectious Diseases/SARS/HIV/AIDS'

P-218-RT

### WRITING ABOUT DAILY ACTIVITIES AND ENHANCED QUALITY OF SLEEP IN AN HIV+ SAMPLE

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HIV+ populations have been reported to have high levels of sleep problems (reports range from 29-73%). Sleep is particularly important because of its relationship to quality of life and to predictors of HIV disease progression, including depression and medication adherence. The purpose of this study was to determine whether daily writing activities were related to changes in sleep quality over time.

We studied a sample of 45 male and female HIV+ individuals who were in the midrange of HIV disease progression and were part of an emotional disclosure intervention study. Participants were seen for a baseline visit which included the administration of the Pittsburgh Sleep Quality Index (PSQI). Post baseline, participants were randomized into two groups: writing about their worst trauma (Trauma), or writing about daily activities (Activities). They were seen for four 30-minute writing sessions, and then seen for a one month follow-up visit, at which time the PSQI was re-administered.

A paired samples t-test revealed that there was a statistically significant improvement in overall sleep quality from baseline to one month follow-up in the Activities group,  $t(24)=-.688$ ,  $p < .05$ . Overall sleep quality did not significantly change in the Trauma group,  $t(19)=-.754$ ,  $p < .317$ . It was also shown that the Trauma group was more activated as measured by SUDS scores at their final writing session ( $x=23.33$ ,  $SD=21.49$ ) as compared to the Activities group ( $x=15.48$ ,  $SD=23.45$ ).

HIV+ individuals who wrote about daily activities showed a significant improvement in sleep quality over time. While improvement was not seen in the Trauma group, this may be a function of the expected increased activation levels experienced by this group. This may be an indication that clinically relevant interventions, such as journaling, may help to improve sleep, and consequently such variables as quality of life, medication adherence, and depression in this population.

P-219-RT

### HIV RISK BEHAVIOR AMONG MEN ENGAGED IN RECREATIONAL TRAVEL

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Individuals traveling for recreation may be prone to engaging in health-jeopardizing behaviors, including substance use and sexual risk behavior. Relatively few studies have examined associations between travel and sexual risk among men who have sex with men (MSM), a group at elevated risk for HIV and other sexually-transmitted diseases. The present study assessed attitudes about sexual activity during travel, substance use, and risk behavior among MSM (N=465) who completed a survey while vacationing at one of three resort cities popular among MSM in the United States. At the time of

survey completion, participants reported being in the resort area for an average of 4.2 days ( $SD = 7.0$ ). A significant minority (39%) of the men reported having anal sex with at least one partner while on vacation and (15%) reported having anal sex with two or more partners. Of these, 54% were new partners first met during travel. Forty-four percent of sexually-active participants did not discuss their HIV status with all of their sexual partners and 31% did not ask about all of their partners' HIV status. Participants indicated that 54% of sexual acts occurred when they were intoxicated. Men engaging in sexual activity after substance use reported significantly more sexual partners and were significantly more likely to engage in unprotected anal sex ( $ps < .05$ ). Some men reported motivations for sexual activity during recreational travel: 43% reported that finding a new partner is a component of a "fun" vacation and 20% specifically indicated an intention to seek a new partner while traveling. Motivations for sex during travel were associated with higher rates of HIV risk behaviors, including greater numbers of sexual partners ( $ps < .01$ ). Results suggest some MSM engage in high-risk behaviors while traveling. Interventions designed to address high-risk behaviors among traveling MSM are needed.

P-220-RT

### CARRIAGE RATE AND ANTIMICROBIAL RESISTANCE OF STREPTOCOCCUS PNEUMONIAE AMONG CHILDREN UNDER 5 YEARS IN RURAL AREA, VIETNAM.

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#### Background

*Streptococcus pneumoniae* is the most common cause of community-acquired pneumonia and also a significant cause of meningitis, otitis media, and bacteremia. However, a globally dramatic increase in antibiotic resistance rate of *S.pneumoniae* is endangering the therapeutic effectiveness of antibiotics. The aims of the study were to update the carriage rate and antibiotic resistance prevalence of *S.pneumoniae* among children 6-60 months in the community, Bavi district, Vietnam; to correlate the prevalence and children demographic characteristics, and current illness situation.

#### Methods

In every Saturday from April to June, 2007, children aged 6-60 months in the selected households in a demographic defined population were invited for health examination and taking nasopharyngeal samples. Isolated *S.pneumoniae* was tested for antimicrobial susceptibility according the standard of Clinical and Laboratory Standard Institute. Antibiotics were tested using disk diffusion methods including ampicillin, erythromycin, co-trimoxazol, tetracyclin, ciprofloxacin, gentamycin. Two using E-test was penicillin and cefotaxim.

#### Results

Of the 818 children, 31% had symptoms of acute respiratory infection and other diseases 21%. The carrier rate of *S.pneumoniae* 52% was significant higher among children less than 2 years and current having respiratory symptoms. Of the

susceptibility test, *S.pneumoniae* showed the resistance and intermediate resistance to ampicillin (50%), erythromycin (70%, 12%), co-trimoxazol (78%, 11%), tetracycline (75%, 11%), gentamycin (85%, 5%), ciprofloxacin (28%, 51%), penicillin (10%, 65%), cefotaxim (2%, 3%). Only 1 strain was susceptible to all the antibiotics, 87% was resistant to at least 3 antibiotics. Comparison with reported data in the district in 1999, there was significant increasing rate of SP resistance to cotrimoxazol, erythromycin, gentamycin, ciprofloxacin and multidrug.

#### Conclusion

*S.pneumoniae* resistant to common used antibiotics has been distinctive increasing over last 8 years. The increase in multidrug resistance seems to parallel single drug resistance. Strategies to prevent the emergence of drug resistant *S.pneumoniae* in the region are urgently needed.

Keywords: *Streptococcus pneumoniae*; Carriage rate; Antibiotic resistance; Multidrug resistance; Vietnam.

## Track 'Pain, Musculoskeletal and Neuromuscular Disorders'

### P-221-RT

#### EVALUATION OF PROTECTIVE GLOVES, WORK TECHNIQUES AND TOOL HANDLE CHARACTERISTICS IN PREVENTION FROM OCCUPATIONAL DISEASES CAUSED BY VIBRATIONS FROM HAND-HELD TOOLS

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Numerous studies have shown strong evidence proving the significant negative impact that exposure to vibrations has on workers health. Because of the large and constantly increasing use of hand-held power tools particularly important is the prevention of Hand-Arm Vibration Syndrome (HAVS), which is a neurological, vascular, and musculoskeletal disorder caused by vibrations from hand-held power tools. There is a consensus and legislations in many countries that propose or require limits on the exposure to harmful impacts of vibrations. Application of such recommendations and norms requires precise measurement and monitoring and our previous studies demonstrate applicability of MEMS based sensors for standard and wireless monitoring of exposure to vibrations at work.

Considering studies that show significant roles of prevention and appropriate selection, maintenance and use of tools, this study explores the influence of work techniques (one and two hand use), tool handle characteristics (quality of grip) and protective gloves (standard and anti-vibration) on the exposures to vibrations. The obtained results demonstrate dramatic reduction in levels of exposure to vibrations that are achieved through appropriate use of tools, use of anti-shock handle and the appropriate anti-vibration gloves. The analysis of the data obtained through our study demonstrates benefits achieved through combinations of traditional and modern work and safety methods and important role that objective diagnostics and accurate measurements have in reduction of work-related hazards.

### P-222-RT

#### CBT IN LOW-BACK PAIN: A TEACHING PROGRAM FOR CLINICIANS IN PHYSICAL MEDICINE.

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**Background:** The treatment of low-back pain has changed dramatically during the last 10-15 years from traditional treatment as bed rest and inactivity to more active treatments including physical activity and improvements of coping strategies. Cognitive Behavioral Therapy (CBT) seems to be a useful tool for implementation of such strategies. There is limited access to CBT in the mental health system in Norway and patients with chronic low-back pain are often reluctant to seek psychologists and psychiatrists. We therefore developed a teaching program in CBT for clinicians in Physical Medicine for application in a study of cognitive interventions in patients with chronic low-back pain.

**Methods:** 10 clinicians, mainly specialists in Physical Medicine were trained for about 30 hours in CBT, including lectures, role-plays and video demonstrations of different CBT-technics. At the end of treatment the clinicians videotaped one session of therapy for evaluation of compliance and quality of treatment. All treatments were regularly supervised in groups.

**Results:** All clinicians completed the training program and the videos were accepted. The clinicians expressed satisfaction with the training program and found it useful in the treatment of patients with low-back pain. The results from the treatment study is not yet available.

### P-223-RT

#### THE MEDIATING EFFECTS OF PAIN AND DEPRESSION ON QUALITY OF LIFE

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**Objective:** The impact of pain and depression on health-related quality of life (QoL) is widely investigated, yet the pain-depression interactions on QoL remain unclear. This study aims to examine the pain-depression-QoL mediation link. **Methods:** Pain symptoms and pain locations were assessed in a sample of Chinese adults ( $n = 385$ ). The subjects were also assessed on depressive symptoms and QoL. Regression models were fitted to evaluate the pain-depression-QoL relationships. **Results:** About 44% of the sample had 3-5 painful areas in the past 3 months. Shoulder pain (60%) and headache (53%) were common painful areas. The results of regression analyses showed that pain mediated the effects of depression on the mental aspect of QoL (standardized  $\beta = -0.111$ ; Sobel test:  $z = -3.124$ ,  $p < 0.005$ ) whereas depression mediated the effects of pain on the physical aspect of QoL (standardized  $\beta = -0.026$ ; Sobel test:  $z = -4.045$ ,  $p < 0.001$ ). **Conclusions:** Pain and depression impacted differently on the mental and physical aspect of QoL.

P-224-RT

**RELAXATION THERAPY FOR TENSION-TYPE HEADACHE: A RANDOMIZED CONTROLLED STUDY WITH FOLLOW-UP EVALUATION**

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Relaxation therapy (RT) is thought to be effective on tension-type headache (TTH). However, there are few randomized controlled trials and little is known about its sustained effect. This study was aimed to investigate the efficacy of RT on TTH in a randomized controlled design with a follow-up using ecological momentary assessment (EMA). Forty-four patients with TTH (11M and 33F; 37.2 +/- 9.9 y.o.; 11 episodic and 33 chronic) were randomly assigned to a RT group or to a waiting list control (WLC) group. The RT group participated in 8-week sessions of autogenic training as RT and continued RT at home during an 8-week follow-up period. The WLC group participated in 8-week RT sessions after an 8-week waiting period. Headache intensity (HI) was evaluated with one-week recall and computerized one-week EMA before and after each period. Repeated measures ANOVA and multilevel modeling were used to compare HI change in the RT group during the RT period and that in the WLC group in the waiting period (between-group comparison) and to test HI change in the RT group during the whole study period (within-group comparison). Recalled HI was significantly reduced after the RT period in chronic TTH ( $p = 0.04$ ) but not in episodic TTH in between-group comparison; the effect of time was significant in within-group comparison ( $p = 0.006$ ) and recalled HI did not increase at the follow up. Momentary HI did not improve significantly just after the RT period in between-group comparison; however, within-group comparison showed that the effect of time was significant ( $p = 0.016$ ) and momentary HI was significantly reduced at the follow up than just after RT period ( $p = 0.006$ ). In conclusion, RT was suggested to be effective for TTH especially in chronic patients and its effect might be maintained or emerge late after eight weeks.

P-225-RT

**MENTAL HEALTH DEGREE OF CHRONIC PAIN PATIENT WHO UNDERGO PAIN CLINIC TREATMENT? A STUDY BY THE RESULT OF GHQ(GENERAL HEALTH QUESTIONNAIRE)?**

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**Background:**

Strong pain disturbs life of patients; the chronic pain patients are always exposed to emotional distress as well as physical pain. Many studies on chronic pain patients' psychological problems have been reported and showed that chronic pain patients' mental health degrees are low.

**Objectives:**

The purpose of this study was to assess the mental health degree of pain patients who undergo treatment in pain clinic section in anesthesiology department of a general hospital.

**Methods:**

199 patients (89 males and 110 females) with pain (mean [SD] age, 60.15 [15.80] years) who underwent treatment pain clinic treatment were assessed with General Health Questionnaire (GHQ60). The mean [SD] score of GHQ60's total score of the 199 patients' was 26.61 [14.78] points. They were divided into 3 groups (high score group, middle score group, and low score group) by the total score to make a comparison between 3 groups with their features. The exciting causes of their pain were thalamic pain, complex regional pain syndrome (except thalamic pain), fibromyalgia syndrome, post-herpetic neuralgia, herpes zoster, and the others (general orthopedics department disease etc).

**Results:**

The number of the high score group was 37 patients (18.6%), the middle score group was 117 patients (58.8%), and the low score group was 45 patients (22.6%). There was no patient of fibromyalgia syndrome in the low score group. All of the other diseases patients were included in the low score group. The post-herpetic neuralgia as chronic pain patients' GHQ scores were significantly higher than the herpes zoster as acute pain patients' scores ( $p < .05$ ).

**Conclusion:**

It was indicated that the mental health degree is related to the exciting cause. It was indicated that the chronic pain patients' mental health degree is lower than the acute disease patients'.

## Symposia, Friday 29 August

### SS15

#### **Do adverse psychosocial working conditions cause the onset of depression? International scientific evidence**

*Chair(s) : Reiner Rugulies*

According to the World Health Organization, depression is the leading cause for “years of life lived with disability” (YLD) in the world. As with other chronic diseases and disorders, it is a widely shared concept that depression is caused by a multifactorial process that involves biological, social and psychological factors. In recent years, there has been an increasing interest in the contribution of psychosocial working conditions to the development of depression. This symposium will review the state-of-the-art evidence for a causal role of the psychosocial work environment in the etiology of depression, with contributions from researchers from Europe, North America, and Asia.

Bo Netterström presents results from a recent comprehensive systematic review of the international epidemiological literature on work environment and depression. JianLi Wang shows findings from a large-scale Canadian cohort study on the effect of work stress on the incidence of a major depressive episode. Akizumi Tsutsumi presents results from three Japanese epidemiologic studies on the effects of low job control and effort-reward imbalance on risk of depression, depressive symptomatology, and suicide. Finally, Jacques van der Klink reviews evidence from studies conducted in The Netherlands on the association between psychosocial working conditions with depression and other mental health problems and will also briefly address latest findings from intervention studies aiming to increase work participation among employees with depression.

### SS15-1

#### **DO ADVERSE PSYCHOSOCIAL WORKING CONDITIONS CAUSE THE ONSET OF DEPRESSION? INTERNATIONAL SCIENTIFIC EVIDENCE**

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This review on the association between work-related psychosocial factors and the development of depression is based on a literature search made in January 2007. The search resulted in more than one thousand publications, which were reduced to 13 after titles; abstracts and the papers were evaluated using the following criteria: 1) longitudinal study, 2) exposure work-related psychosocial factors, 3) outcome a measure of depression, 4) relevant statistical estimates, 5) non duplicate publication.

Seven studies had used standardized diagnostic instruments as measures of outcome, five used validated scales for depression. Psychological strain at work was associated with future depression. The relative risk estimates were around 2.0. Social support at work was associated with a decrease in risk for future depression as all four studies dealing with this

exposure showed associations with relative risks around 0.6. Even if this literature study has identified work-related psychosocial factors, which in high quality epidemiological studies predict depression, we still need studies which assess in more detail the duration and intensity of exposure necessary for developing depression. Attention in this context must be drawn to the fact that work-related psychosocial factors might have different impacts in different occupational settings.

### SS15-2

#### **THE IMPACT OF WORK STRESS ON THE RISK OF DEVELOPING MAJOR DEPRESSIVE EPISODE**

*Wang J L*

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**OBJECTIVES:** To estimate the incidence of major depressive episode (MDE) by levels of work stress and to examine the association between work stress and MDE.

**METHODS:** Data from the longitudinal cohort of the Canadian National Population Health Survey (NPHS) (n = 17626) were used. MDE was assessed using the WHO's Composite International Diagnostic Interview - Short Form (CIDI-SFMD). Work stress was measured by an abbreviated version of the Job Content Questionnaire. Participants who were working in the past 12 months and who reported no MDE in the past 12 months at baseline were included in the analysis.

**RESULTS:** Workers who were at a high level of work stress in skill discretion, psychological demand, social support at work and job security had a higher incidence of MDE than others. When the scores of work stress were categorized by quartile values, the first 3 quartile groups had a similar risk of MDE. Those who had a work stress score above the 75th percentile had an elevated risk of MDE (7.1 percent). Using the 75th percentile as a cut-off, work stress was significantly associated with the risk of MDE in multivariate analysis (Odds Ratio = 2.35, 95% confidence interval: 1.54, 3.77).

**CONCLUSIONS:** Work stress is an independent risk factor for the development of MDE in the working population and plays an important role in the etiology of major depression. Strategies to improve working environment are needed to keep workers mentally healthy and productive.

### SS15-3

#### **PSYCHOSOCIAL JOB CHARACTERISTICS AND DEPRESSION AND THE RELATED OUTCOMES IN JAPANESE WORKERS**

*Tsutsumi A*

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The paper reviews three Japanese epidemiologic studies on the effects of psychosocial job characteristics on depression and the related outcomes.

In a cohort study from multiple worksites, a total of 15,438 employed men without history of psychiatry diseases were followed from 1997 to 2003 (Japan Work Stress and Health Cohort Study). Fifty depression cases with sickness absence of 30 days or longer were registered. Men with low job control had significantly higher relative risk for depression (RR 2.6; 95%CI 1.2 to 5.6) compared with high job control group. Role ambiguous and role conflicts were also associated with subsequent depression (2.1; 0.9 to 4.7, and 2.6; 1.2 to 5.8,

respectively).

In a community-based working population of 3,125 men without major illnesses (Jichi Medical School Cohort Study), the association between psychosocial job characteristics and the risk of death from suicide was prospectively investigated. During the 9-year follow-up, 14 suicides were identified. Multivariate analysis revealed a more than four-fold increase in the risk of suicide among men with job low control (4.1; 1.3 to 12.8) compared with counterpart men.

A cross-sectional study of 3,856 civil servants aimed to explore how effort-reward imbalance (ERI) played the role in the occupational class differences in risk of depression. Workers among the lower occupational positions had significantly higher relative risk of depressive symptomatology compared with those among higher occupational position. Compared with those in higher position without reporting ERI, those who were in lower positions and exposed to ERI exhibited substantially high odd ratios of depressive symptomatology. The Rothmans synergy index suggested synergistic interaction; more than 30% effect size of combined exposure is attributable to synergy.

Japanese data suggest that psychosocial job characteristics, in particular low job control, predict depression and suicidal death. Workers in low occupational positions may suffer an increased susceptibility to ERI.

#### SS15-4

### WORK AND MENTAL HEALTH: EVIDENCE FROM THE NETHERLANDS

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*University Medical Center Groningen, University of Groningen, Department of Health Sciences, Groningen, The Netherlands*

Depressive disorders are a major public and occupational health problem. They have been associated with decreased work functioning, tend to affect a sustainable work participation, and might even marginalize or exclude the individual worker from the workplace or the labour market. Identifying specific factors in work that contribute to the onset of depression is important for the development of preventive interventions for depressive disorders in the working population. There are relatively few studies with a sufficient methodological quality on this subject. In this literature a relation is found between lack of social support and not fitting work and the onset of depression.

The Dutch situation in depression research will be reviewed. There are not yet published longitudinal studies with depression as an outcome. However, there are some interesting studies in which the relation has been researched of psychosocial working conditions with related concepts such as distress, depressive symptoms and mental fatigue. The results will be presented.

Besides these results of longitudinal studies a small cross sectional study will be shortly presented that had the aim to investigate whether a guideline could be developed for reporting depression as an occupational disease. Reports of depression were analyzed and reporting occupational physicians were interviewed.

In addition, we will briefly present latest findings from work focused intervention studies that aimed to increase work participation in patients with depression.

#### SS33

### The Role of Behavioural Medicine skills in Health Promotion and Health Care Service in Hospital Settings

*Chair (s) : Margareta Kristenson*

The idea of Health Promoting Hospitals and Health Services can be traced to the WHO conference in Ottawa 1985, where a reorientation of health services was identified as one central theme in a strategy towards better societal health. This reorientation means orientation towards health outcomes, and thereby recognising that the responsibility of health services is not merely treating disease but also includes a more radical approach including preventing disease and promoting health related quality of life among diseased people. To fulfil this, health services need to develop their skills to broaden and combine deep medical knowledge on causes and treatments of specific disease with competences in behavioural medicine. The symposium will combine empirical data from work in the international WHO network Health Promoting Hospitals and Health Services and research on behavioural medicine to illustrate the potential of this approach. Three examples are presented;

The first describes experiences from Denmark and demonstrates results from RCT of behavioural interventions for hospitalised patients, i.e. how complications after surgery can be reduced by smoking cessation programmes, including cost-effective analyses of these interventions and how these experiences can be transferred to other settings. The second example describes a behavioural intervention for > 2000 CHD patients implemented at 22 hospital settings in the USA, that focuses on improving physical activity, diet, stress management (yoga and meditation), and group support. Significant improvements in coronary risk factor profile, depression, hostility, and quality of life were observed for participants, regardless of socioeconomic status and gender. The third example is from Sweden, and describes how measures of health related quality of life can be used as outcome measurement in health services as a mean to support psychosocial interventions, promoting patients perceived social support and coping ability, how this is perceived by patients and how these measurements can be included in ordinary data collection, allowing this work to be part of ordinary quality development.

#### SS33-1

### RCT OF BEHAVIOURAL INTERVENTIONS FOR HOSPITALISED PATIENTS, EXAMPLES OF SMOKING CESSATION PROGRAMMES AT SURGERY.

*Tonnesen H*

*professor Bispebjerg Hospital, Denmark and coordinator of the international WHO network of Health Promoting Hospitals and Health Services.*

Smokers are at higher risk of cardiopulmonary and wound-related postoperative complications than non-smokers. This study investigated the effect of preoperative smoking intervention on the frequency of postoperative complications in patients undergoing hip and knee replacement. It was performed as a randomised trial in three hospitals in Denmark where 120 patients were randomly assigned 6-8 weeks before scheduled surgery to either the control (n=60) or smoking intervention (60) group. Smoking intervention was counselling and nicotine replacement therapy, and either smoking cessation or at least 50% smoking reduction. An assessor, who was masked to the intervention, registered the occurrence of



cardiopulmonary, renal, neurological, or surgical complications and duration of hospital admittance. The main analysis was by intention to treat. Eight controls and four patients from the intervention group were excluded from the final analysis because their operations were either postponed or cancelled. Thus, 52 and 56 patients, respectively, were analysed for outcome. The overall complication rate was 18% in the smoking intervention group and 52% in controls ( $p<0.001$ ). The most significant effects of intervention were seen for wound-related complications (5% vs 31%,  $p=0.001$ ), cardiovascular complications (0% vs 10%,  $p=0.08$ ), and secondary surgery (4% vs 15%,  $p=0.07$ ). The median length of stay was 11 days (range 7-55) in the intervention group and 13 days (8-65) in the control group. An effective smoking intervention programme 6-8 weeks before surgery reduces postoperative morbidity, and we recommend, on the basis of our results, this programme be adopted.

### SS33-2

#### **SOCIOECONOMIC STATUS AND CORONARY RISK IN THE MULTI-SITE CARDIAC LIFESTYLE INTERVENTION PROGRAM**

**Weidner G**

*Vice President and Director of Research, Preventive Medicine Research Institute, Sausalito, CA, USA.*

Changes in lifestyle behaviors are linked to improved outcomes in coronary heart disease (CHD). It is unclear whether behavioral interventions designed to improve lifestyle and delivered by hospitals and other health service settings can benefit CHD patients of all socioeconomic levels. This study examined changes in lifestyle behaviors, coronary risk factors, depression, hostility, and quality of life (QOL) over 3 months by socioeconomic status (SES) in 869 non-smoking CHD patients participating in the Multi-site Cardiac Lifestyle Intervention Program (MCLIP). The MCLIP is an on-going insurance-covered behavioral intervention, implemented at 22 hospitals and other health service settings, and aims at improving diet (low-fat, whole foods), exercise, stress management (yoga, meditation), and group support. SES was defined by education ( $\leq$  high school; specialized training or some college; college degree; graduate degree) and annual household income in US Dollars (<25,000; 25,001-50,000; 50,001-75,000; >75,000). At baseline, less educated patients were more likely to be unemployed, past smokers, exercise less, consume a higher fat diet, and to have less favorable risk factor profiles (BMI, triglycerides, exercise capacity, depression, hostility) than those with higher SES. By 3 months, male and female patients at all socioeconomic levels consumed a diet <10% of dietary fat, exercised >3 hours/week, practiced stress management >5 1/2 hours/week, and experienced significant improvements in clinical risk profiles (e.g., 5 kg weight loss; improved blood pressure, LDL-C, exercise capacity, depression, hostility, QOL; all  $p<0.001$ ). A similar pattern of results was found for household income. The observed changes in lifestyle behaviors and improvements in medical and psychosocial status among male and female participants in the MCLIP suggest that accessibility to insurance-sponsored lifestyle programs successfully implemented at hospital sites may benefit patients with CHD across all socioeconomic levels.

### SS33-3

#### **HEALTH RELATED QUALITY OF LIFE AS OUTCOME MEASUREMENT IN HEALTH SERVICES, A WAY TO ASSIST HEALTH PROMOTING INTERVENTIONS**

**Kristenson M**

*ass professor Linköping University, and national coordinator of the Swedish WHO network of Health Promoting Hospitals and Health Services.*

The development of demography and disease panorama leads to hospitals increasingly treating patients with chronic disease. In this case, the outcome seldom is absolute cure; rather it is about helping people cope with their disease. Still, patient's perspectives about health interventions outcomes are seldom asked for. Measures of health related quality of life (HRQoL) have been found valid and valuable in evaluations of clinical trials and as bases for cost effectiveness analyses, but are seldom used as means for continuous learning and for gearing psychosocial interventions. Arguments for not including these measures in ordinary routine settings are that this would be too costly and time consuming and that instruments would need to be very brief, otherwise patients would not want to respond. However very few studies have asked for patients' opinions about these measurements.

In the Swedish Network for Health Promoting Hospitals, two of the most commonly used instruments on HRQoL, SF-36 and EQ5-D were tested for feasibility as a routine outcome measure. 625 patients from 18 hospitals participated. They responded to SF-36 and EQ5-D before and after ordinary interventions (e.g. education groups for patients with ischemic heart disease or chronic obstructive pulmonary disease), and then completed an evaluation form. Health outcome assessment in routine care was perceived as valuable by 57% of the patients, while 47% disapproved. A majority of patients found both questionnaires easy to understand (70% vs. 75% for SF-36 and EQ5D respectively) and easy to respond to (54% vs. 60%). Health outcome assessment within routine health care thus seems to be acceptable, and even appreciated by patients. Routines for data collection need to be developed. This development is now underway in Sweden where measures of HRQoL are, increasingly, integrated in national quality registers, thus allowing these measures to be part of ordinary quality management.

### SS13

#### **Characterising sedentary behaviour for the purpose of epidemiological and behavioural studies**

**Chair(s) : David Dunstan**

As a consequence of significant technological changes in the domestic, community and workplace environments, humans have been increasingly spending more time in sedentary behaviours involving prolonged sitting. In recent years, significant advances have been made by various research groups on characterising sedentary behaviours using self-reported and objective measures and also evaluating the independent effects of sedentary behaviour on metabolic health. The purpose of this symposium is to provide a detailed overview of the recently published work and the new analyses on sedentary behaviour, with a specific focus on: measurement considerations; the independent relationships of sedentary behaviour with metabolic health; and potential future directions for sedentary behaviour research. The symposium will comprise an international team of researchers from Australia, the United Kingdom and the Netherlands with

expertise in public health, behavioural and epidemiological research.

1. The relationship between sedentary behaviours and health outcomes - a literature study. Dr Karin Proper (VU University Medical Center, Amsterdam, The Netherlands) will present the findings from a detailed literature review looking at the associations and relationships between diverse sedentary behaviours and health outcomes. This presentation will also provide insights into some of the short-comings of the existing literature and recommendations for future research.

2. Associations between self-reported and objectively-measured time spent sedentary. Dr Ulf Ekelund (MRC Epidemiology Unit, Cambridge, UK) will focus on the measurement considerations relating to sedentary behaviours and will discuss the recent findings from analyses comparing self-reported measures of sedentary behaviour with objectively-determined sedentary and physical activity time.

3. Is self-reported weekday and weekend day sitting time associated with weight in mid-aged women? Dr Jannique van Uffelen (University of Queensland, Brisbane, Australia) will present the findings from new analyses of the Australian Longitudinal Women's Health Study examining the cross-sectional and prospective relationships between self-reported weekday and weekend day sitting time and weight status in mid-aged Australian women.

4. Does employment status influence the associations of total television and sitting time with adiposity. A/Prof David Dunstan (International Diabetes Institute, Melbourne, Australia) will discuss the recent findings from the AusDiab study examining the influence of employment status on the cross-sectional associations of self-reported television viewing time and sitting time on adiposity indices, including BMI and waist circumference.

The symposium will conclude with a panel discussion which will address future research directions.

## SS13-1

### THE RELATIONSHIP BETWEEN SEDENTARY BEHAVIOURS AND HEALTH OUTCOMES - A LITERATURE STUDY

*Proper K, van Zaanen S*

*Department of Public and Occupational Health, EMGO Institute, VU University medical center, Amsterdam, The Netherlands*

Background: In the past few years, the role of sedentary behaviour, as distinct from lack of physical activity, has gained more attention. Some studies have shown that sedentary behaviour is independently associated with a negative health outcome, such as obesity, or a greater risk of having the metabolic syndrome. To date, no literature study has been performed to provide insight in the available evidence as to the effect of various sedentary behaviours on various health outcomes.

Aim: To review the literature with respect to the association and relationship between diverse sedentary behaviours and health outcomes.

Methods: A computerised search in PubMed, Psychinfo, Sportdiscus, and Embase was conducted. Relevant English-, Dutch-, and German-written studies published between 1987 and 2007 were included. The study design could include all types of design, such as a study based on cross-sectional analyses, longitudinal analyses, or an intervention study. After the search, all titles and/or abstracts were screened on the relation with the main question "What is the association between sedentary behaviour and health?" Those studies selected were summarised using a data extraction form

describing the type of study, study population, type and measurement of sedentary behaviour, type and measurement of health outcome, statistical analyses, and the findings of the study.

Results: The literature search resulted in 5,117 publications, of which 739 articles from Pubmed, 2,641 from Embase, 58 from SportDiscus and 1,679 from PsycInfo. Of these, 864 were excluded because they were duplicates. After screening the titles and/or abstracts, 57 references were considered relevant and were thus selected for inclusion in the review.

Implications: The results of this literature study will provide insight in the evidence of the "effect" of sedentary behaviour on health, as well as will give insight in the (methodological) shortcomings and gaps of the studies performed.

## SS13-2

### ASSOCIATIONS BETWEEN SELF-REPORTED AND OBJECTIVELY MEASURED TIME SPENT SEDENTARY

*Ekelund U, Wijndaele K, Besson H, Assah F, Brage S, Wareham N J*

*Medical Research Council Epidemiology Unit, Cambridge, UK*

Background: Recent data suggest that sedentary behaviour (SB), such as TV viewing, is associated with impaired metabolic homeostasis. It has also been suggested that these associations may be independent of overall physical activity (PA) and that PA and SB are separate entities. Usually, SB is measured by self-report. However, the validity of self-reported SB is largely unknown.

Aim: To compare measures of SB against objectively measured activity levels.

Methods: Data from 3 different studies where self-reported SB and objectively measured PA were measured simultaneously. Time spent sitting was assessed by the IPAQ (short, last 7 d) in Swedish (n=172), and Cameroonian (n=34) men and women. Time spent watching TV and computer use during leisure time was assessed by the Recent Physical Activity Questionnaire (RPAQ) in UK men and women (n=50). Time spent sedentary (<100 movement counts per minute) was measured by accelerometry. Physical activity energy expenditure (PAEE) was measured by the doubly labelled water method.

Results: SB assessed by IPAQ was significantly correlated with sedentary time by accelerometry in Swedish ( $r=0.16$ ,  $p=0.045$ ), and in Cameroonian men and women ( $r=0.36$ ,  $p=0.04$ ). Self-reported time viewing TV from RPAQ was inversely associated with time spent sedentary ( $r=-0.32$ ,  $p=0.024$ ), at moderate ( $r=-0.45$ ,  $p=0.001$ ), and vigorous ( $r=-0.38$ ,  $p=0.008$ ) intensity, and with PAEE ( $r=-0.28$ ,  $p=0.042$ ), but positively associated with light intensity activity ( $r=0.38$ ,  $p=0.007$ ). In those individuals who reported computer use during leisure time (n=28), this SB was significantly and positively associated with time spent sedentary from accelerometry ( $r=0.50$ ,  $p=0.007$ ) and significantly and inversely associated with all other activity variables including PAEE from DLW.

Conclusion: Simple questions about time spent sitting seem to be valid to rank individuals according to their SB. Self-reported time watching TV may be a marker of low overall activity levels but not necessarily of SB. Duration of computer use during leisure time is a valid marker of SB in individuals who report this behaviour.

SS13-3

**IS SELF-REPORTED WEEKDAY AND WEEKEND DAY SITTING-TIME ASSOCIATED WITH WEIGHT IN MID-AGED WOMEN?**

*van Uffelen J (1), Watson M (2), Dobson A (2), Brown W (1)*  
1 The University of Queensland, School of Human Movement Studies, Brisbane, Australia; 2 The University of Queensland, School of Population Health, Brisbane, Australia.

**Purpose:** To examine the relationships between weekday and weekend day sitting time and weight in mid-aged Australian women.

**Methods:** Data were from 9,096 women (mean age (SD) = 52.0 (1.5) in 2001) participating in the Australian Longitudinal Study on Women's Health in 2001 and 2004. Sitting-time was assessed using two questions: How many hours per day do you typically spend sitting on a) a weekday; and b) a weekend day? Multivariate linear regression models were used to examine cross-sectional associations between the two sitting-time variables and weight in 2001, with other variables associated with weight ( $p < 0.005$ ) included as covariates (e.g. height, energy balance, lifestyle and demographic variables). Similar models were used to examine prospective associations between sitting time in 2001 and weight in 2004, stratified by weight change over the 3 years: weight loss ( $\leq 1.5$  kg), maintenance ( $\pm 1.5$  kg) or gain ( $\geq 1.5$  kg).

**Results:** Mean sitting-time (SD) in hours/day was 5.7 (3.1) for weekdays and 5.2 (2.7) for weekend days. Cross-sectionally, both weekday (Beta (95%CI) = 0.23 (0.12-0.35)) and weekend (0.56 (0.43-0.69)) sitting were positively associated with weight in the adjusted models. Between 2001 and 2004, 25% of the women lost weight, 32% maintained their weight and 43% gained weight. In prospective univariate models, both weekday and weekend sitting were positively associated with weight in 2004 in all three categories. However, in the adjusted models, 'weight in 2001' was the only significant variable for those women who lost or maintained weight, and 'weight in 2001', smoking, alcohol intake and depression were significant in weight gainers.

**Conclusion:** Cross-sectionally, both weekday sitting and weekend sitting were significantly associated with higher weight. There was no clear prospective association between sitting time and weight in the women who lost weight, had a stable weight or gained weight over three years.

SS13-4

**DOES EMPLOYMENT STATUS INFLUENCE THE ASSOCIATIONS OF TOTAL TELEVISION AND SITTING TIME WITH ADIPOSITY?**

*Dunstan D W (1), Healy G N (2), Salmon J (3), Shaw J E (1), Zimmet P Z (1), Owen N (2)*

1 International Diabetes Institute, Melbourne, Australia; 2 The University of Queensland, School of Population Health, Brisbane, Australia; 3 Deakin University, Melbourne, Australia

**Background:** Television (TV) viewing time and total sitting time are detrimentally associated with adiposity. Employment status will determine the volume of total, non-discretionary sitting time, and thus may be an important factor in the sedentary behaviour-adiposity association. However the extent to which employment status influences the association of these sedentary behaviours with adiposity status is not clearly established.

**Aim:** To examine whether employment status influences the

cross-sectional associations of total TV and sitting time with adiposity indices.

**Methods:** Participant data ( $n=6,254$ ; age range 28 to 93 years) from the 2004-2005 AusDiab study were analysed. Employment status was categorised as full-time (39%, mean age 49.3 years) and non full-time (61%, mean age 61.0 years). TV viewing time, and weekend and weekday sitting time were self-reported as hours.day<sup>-1</sup>. Waist circumference (cm) and body mass index (BMI; kg.m<sup>-2</sup>) were measured.

**Results:** Mean weekday sitting was higher in full-time workers (6.3 hrs.day<sup>-1</sup>) compared to non full-time workers (5.1 hrs.day<sup>-1</sup>,  $p < 0.001$ ); mean TV time and weekend sitting was lower in full-time workers than non full-time workers ( $p < 0.01$ ). Regression analysis, adjusted for age and sex, showed significant associations between the sedentary time and adiposity measures for both full-time, and non full-time workers ( $p < 0.001$  for all). Significant interactions of employment status with weekend sitting time were observed for both BMI ( $p = 0.027$ ) and waist circumference ( $p = 0.037$ ), with stronger associations observed for non full-time workers compared to full-time workers. Regardless of employment status, the strongest associations with the adiposity measures were observed with TV viewing time.

**Conclusions:** Both sitting and TV viewing time were detrimentally associated with adiposity, irrespective of employment status. Although discretionary sedentary time was more strongly associated with the adiposity outcomes, the wider variance in the sitting measures implies potentially more opportunity for change in these behaviours. This analysis highlights the importance of adjusting for non-discretionary sitting time when looking at relationships between total sitting time and health outcomes.

SS14

**Self Regulation and the Control of Chronic Illness: Developing Theory and Practice by Conducting Cognitive/Affective Science in Clinical Settings**

*Chair (s) : Howard Leventhal*

Presenters will report on recent findings examining the role of "common-sense self-regulative processes" (CSSR) in the control of three chronic illnesses: asthma, diabetes, and cardiovascular disease. These presentations focused on empirical evidence for common-sense regulative processes in self-management will be followed by two brief and complementary themes. The first will focus on theoretical issues involved in the translation of descriptive data from empirical studies into a control systems framework for interventions designed to develop expertise in self-management of chronic conditions. The second will address the translation of self-regulatory concepts into clinical practice teams and medical education.

SS14-1

**SYMPTOMS, ILLNESS PROTOTYPES, AND TREATMENT REPRESENTATIONS INVOLVED IN COMMON-SENSE MANAGEMENT OF ASTHMA**

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Two sets of beliefs, the representation of asthma and that of its prescribed treatments, underlie the self-management process.

UK studies show that perceived necessity and concerns regarding the use of medications are important predictors of medication adherence (use of controller medication) and these beliefs are in turn related to beliefs about the disease. A US study of patients hospitalized with asthma found that over half of the patients were symptom oriented and represented asthma as an acute and/or episodic condition; patients holding the acute/episodic model were less likely to use anti-inflammatory controller medication (to be used when asymptomatic) than patients holding a chronic model. A second study of non-hospitalized patients identified two chronic models: one functional (I have it when asymptomatic and use medication as recommended) and one dysfunctional, chronic and distressing, related to non-adherence. Data indicate that clinicians are neither prepared nor do they follow guidelines to provide patients basic information on self-management.

#### SS14-2

### **USING THE COMMON-SENSE MODEL TO PREDICT QUALITY OF LIFE, RISK BEHAVIOR AND PROGRAM ATTENDANCE IN CARDIAC REHABILITATION PATIENTS**

*Maes S, Janssen V, De Gucht V*

*Health & Medical Psychology Leiden University, The Netherlands*

Leventhal's Common Sense Model was used to explore differences in quality of life, risk factors and program attendance in a population of cardiac rehabilitation patients (N=250). Patients completed the Illness Perception Questionnaire and the Mac New Quality of Life Questionnaire at entry and the end of cardiac rehabilitation. Data with respect to risk factors and behaviors and program attendance were retrieved from medical files. Identity, consequences, timeline and illness coherence, but not personal and treatment control were significantly related to physical, emotional and social quality of life. Consequences proved to be related to smoking and elevated levels of cholesterol, and timeline to physical exercise. Internal attribution of the cause of the disease resulted in lower perceptions of personal control, more consequences and lower quality of life. Furthermore coherence and internal attribution of the cause of the disease were important predictors of program attendance. We currently explore whether changes in illness perceptions during the cardiac rehabilitation period are paralleled by changes in quality of life and risk behavior.

#### SS14-3

### **EXPLORING THE LINKS BETWEEN ILLNESS AND TREATMENT BELIEFS: THEORETICAL IMPLICATIONS AND PRACTICAL APPLICATIONS**

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*1 School of Pharmacy, University of London; 2 Kings College, University of London*

We examine the ways in which recent ways of operationalising patients' treatment beliefs can be linked with Illness representations as formulated by the Common-Sense Model of Self Regulation (CSM). Studies of treatment adherence have shown the importance of common-sense representations of treatment in determining treatment-related behaviour consistent with the central tenets of the CSM. The paper will examine interactions between illness and treatment beliefs in explaining levels of treatment adherence in patients

with asthma, HIV/AIDS and end stage renal disease. Across all these clinical contexts we also examine the importance of other key factors, including the experience and interpretation of symptoms, and the effects of illness-related affect.

Data from a large cohort study of preventer medication adherence in patients with asthma provided a first test of the model and gave a clear picture of the ways in which illness beliefs relate to treatment beliefs which, in turn, show strong associations with adherence. The HIV/AIDS study confirmed these associations and extended them by looking at changes in adherence over time, and by emphasising the critical role of symptoms in these processes. Finally, recent data from a study of patients with ESRD will explore the extent to which illness and treatment beliefs can be modified by a relatively simple psycho-educational intervention designed to provide the patient with a clearer representation of their problem and the rationale for their treatment.

The paper will end by identifying directions for future theoretical development and the potential, which this can offer for innovative interventions.

#### SS14-4

### **EMBEDDING ILLNESS COGNITION VARIABLES IN A CONTROL SYSTEMS FRAMEWORK: FROM MEASUREMENT TO INTERVENTION**

*Leventhal H*

*Institute for Health & Department of Psychology, Rutgers University*

The illness perceptions questionnaire is an economical and flexible instrument for assessing how individuals perceive or represent specific health threats and specific actions for prevention and control. Using these concepts to generate interventions requires rethinking how they function in both voluntary and automatic systems controlling behavior. This requires attention to two aspects of the common-sense model: 1) The differentiation between perceptual/experiential cognition and abstract cognition, and 2) The heuristics or mental tools that link experiential factors (physical and functional changes) to underlying prototypes of illness and treatment: prototype assembly and appraisal tools (PAATs) such as location, duration, stimulus pattern, severity, trajectory, etc. These tools are involved in the interpretation of somatic change (fatigue or stress Vs chest pain and cardiac (pattern & location), an acute cold or a chronic condition (time-line), e.g., diabetes, hypertension (location & pattern), and in the formation of goals and response based expectations, e.g., if I take an aspirin, my headache (identity goal) should go away in 20 to 35 minutes (time-line). Informing patients on implicit models, the PAATs they are using to evaluate experience, and directing their attention to other features of response feedback, comprise the basic elements of cognitive behavioral interventions. Provided with these PAATs and insights into prototypes allows patients to develop the expertise needed for improved management and control of chronic conditions.

SS14-5

**TRANSLATING ILLNESS COGNITION INTO THE CLINICAL CONTEXT: THE DEVELOPMENT OF INTERPERSONAL SYSTEMS FOR THE CONTROL OF CHRONIC CONDITIONS**

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*Department of Medicine, Robert Wood Johnson Medical School, UMDNJ & Institute for Health, Rutgers University*

The current focus for those planning the future of medical treatment, "Patient Centered Care," is in two areas: technology to integrate patient records, and genetics and gene expression for individualized treatment. Technological integration can improve quality of care by integrating patient records avoiding dangerous drug interactions and facilitating on line monitoring of chronic conditions, and treatments can be fine tuned to the individual's array of expressed genes. Patient records and genetic arrays assess what the patient brings to treatment. Missing in virtually all discussion in the US is the assessment of the cognitive and emotional factors that patients bring to treatment; patients' representations of their physical and emotional selves, their ways of detecting vulnerabilities and presence of specific diseases and detecting benefits and harms of specific treatments? These factors will affect how technology is understood and used, and how illnesses are perceived and how treatments are understood, accepted and adhered to. Practitioners need to develop expertise in perceiving and/or inferring patient models of illness and treatment in addition to developing expertise in diagnosis and prescribing and exhibiting sensitivity to patients' cultural and emotional values. Guidelines are needed for each of the three arms of clinical practice.

SS24

**Behavioral Interventions to Reduce Individual and Health Care System Burdens of Pediatric Chronic Conditions.**

*Chair (s) : Jan Wallander, Mitsue Maru*

Between 10-20% of children and adolescents have a chronic health condition that affects functioning for at least 12 months. This international and multidisciplinary symposium addresses a range of such pediatric chronic conditions. While some conditions, such as recurrent headache, may be periodic and/or dissipate after a period, many others, such as lupus, cystic fibrosis, and autism, are in fact life-long conditions. Regardless, they require ongoing health care for their duration. Increasingly, chronic disease health care involves behavioral medicine in addition to biomedical approaches. With the current movement towards evidence based medicine, behavioral medicine interventions applied to pediatric chronic conditions need to be based on empirical findings and their efficacy and ultimately effectiveness need to be supported by empirical outcome data.

This symposium presents research that can be placed along this empirical continuum. Research on behavioral treatment for recurrent headache is at the mature state of having numerous controlled trials that have established its effectiveness as a public health intervention. Treatment outcome research in lupus is just emerging with pilot research into the efficacy of an omnibus behavioral intervention. Research into behavioral interventions to improve adherence to the treatment regimen for cystic fibrosis is in a formative stage, aimed to establish an empirical basis for developing such interventions. Finally, research into the development of a health care system approach for autism is at the basic stage of

mapping prevalence and health care use, to find the appropriate role for behavioral approaches. Taken together, these presentations will provide a snap-shot of state of the art research programs targeting different chronic health conditions where behavioral medicine already is or will likely play an important role in contemporary health care.

SS24-1

**EVIDENCE BASED BEHAVIOURAL TREATMENT OF RECURRENT HEADACHES IN CHILDREN AND ADOLESCENTS**

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Recurrent headache is one of the most common health problems among school-aged children. The most common primary forms of headaches are tension-type headaches (episodic and chronic), migraine, and combined forms. Existing evidence indicates that the prevalence of frequent headaches and migraine has increased, in particular among adolescent girls. While the long-term prognosis for children and adolescents with recurrent headaches is unclear, nonetheless, they experienced a marked impact on their role functioning and reduced quality of life. During the last two decades, behavioral treatments have been developed for children and adolescents with recurrent headache consisting of various forms of biofeedback or standard relaxation training and/or cognitive-behavioural procedures.

We have now conducted a numerous randomized controlled trials to evaluate efficacy and effectiveness of these procedures with a large number of children and adolescents, both in clinical as well as school settings. Treatment outcome data from these trials indicate that these behavioral treatment modalities are effective in reducing tension-type, migraine, and combined type headaches in children and adolescents. The positive outcomes have also been shown to be well maintained in short- as well as long-term follow-up. Data also indicate that these behavioral treatments can be implemented effectively by school public health nurses with groups of students, indicating that effective treatment can be made readily available to affected students. Data will be presented summarizing this evidence base. Questions about critical components, cost-benefit, and comparative efficacy with drug treatment will also be addressed with empirical data from this research program. Finally, evidence based recommendations will be made for behavioural treatment of recurrent headache in children and adolescents.

SS24-2

**ENHANCING ADJUSTMENT AND DISEASE ADAPTATION AMONG ADOLESCENT FEMALES WITH LUPUS**

*Brown R T (1), Shaftman S (2), Nietert P (2), Tilley B (2), Silver R (2), Mee L (2), Maxson B (3), Bonner M (3), Anthony K (4), Kral M (4), Wagner J (2), Connelly M (5)*

*1 Temple University; 2 Medical University of South Carolina; 3 Emory University; 4 Duke University; 5 Mercy Children's Hospital*

Systemic lupus erythematosus (SLE) is an autoimmune disorder characterized by episodes of pain, changes in physical appearance, negative affectivity, and a myriad of other physical and psychological symptoms. This multi-site clinical

trial examined the feasibility of a multi-push intervention designed to improve SLE adolescents' psychological adjustment and adaptation to their chronic illness as well as pain frequency and intensity. The active treatment was cognitive-behavioral including various coping, problem-solving, and pain management strategies.

Participants included 53 adolescent females, the majority of whom were African American, from 3 major university medical centers throughout the southeastern United States. Participants were assigned randomly to one of two groups including a cognitive-behavioral intervention arm and a no-contact control group. The intervention arm included a 7-week program that focused on pain management, coping, problem-solving, enhancing body image, social competence and negative affectivity. The intervention was delivered by means of a CD-ROM with a therapist conducting the intervention with the adolescent and her mother. Assessments of the intervention included an objective measure of disease severity, number of pain episodes and their intensity, psychosocial functioning at home and at school as evaluated by both caregivers and teachers, peer support, and coping skills. All were measures were administered to both the active treatment group and the control group.

Assessments were conducted at baseline, immediately following the intervention, and at three and six months follow-up. A global statistical test comparing the intervention group to the no contact group revealed greater improvements on the various dependent measures in the no-contact group, although this finding was not statistically significant ( $p=.80$ ) despite adequate statistical power. Findings for this pilot investigation are discussed in the context of a multi-push intervention problem-solving program for a chronic disease and the potential adverse consequences associated with psychological interventions for adolescents with chronic illnesses.

#### SS24-3

### **DISSECTING THE COMPLEX PROBLEM OF ADHERENCE TO MEDICAL REGIMENS: FAMILIES' PERSPECTIVES ON BARRIERS AND POSSIBLE SOLUTIONS**

*Quittner A L, Barker D H, Butt S, Cruz I, Marciel K*  
*University of Miami, USA*

**Objectives:** Prior research indicates that children with cystic fibrosis (CF) adhere to less than half of their prescribed treatments. The major objective of this study therefore was to implement an intervention to increase adherence during routine clinic visits and assess, from the family's perspective: (a) the key barriers to adherence for young children with CF, and (b) the families' proposed solutions.

**Methods:** Eighty-eight families of children with CF ages 1 to 12 were enrolled. Mean age of children was 6.3 years, mean FEV1 % predicted was 86.4%, and 52% were male. Families completed measures of CF knowledge, skills and identified the barriers they encountered in complying with the child's treatment regimen. They were then randomly assigned to Active Treatment or Wait-List Control. The intervention consisted of two nurse-based educational and skills training sessions and three problem-solving sessions conducted by a behavioral interventionist.

**Results and Conclusions:** Substantial gaps in treatment-related knowledge were identified for both parents and children. In addition, few children or parents had the skills to do all of the treatments correctly. Barriers to adherence were content-analyzed into 7 categories and ranked by percentage of endorsement: 47% Nutrition (needing to increase calories/portions, won't eat new foods), 20% Treatment

Burden (boring, uncomfortable), 10% Forgetting, 9% Scheduling, 9% Oppositional Behavior, and 5% Inadequate Skills. The most effective solutions across problems included use of sticker charts and reward systems, distraction, and creative reminders.

**Conclusions:** Families of young children with CF were able to identify a number of barriers that lead to worse adherence. During the problem-solving sessions, families generated a number of creative solutions to these barriers which were subsequently rated as fairly effective. Future analyses will examine whether this education and problem-solving intervention improves rates of adherence.

#### SS24-4

### **BEHAVIORAL MEDICINE TO REDUCE THE HEALTH CARE BURDEN FROM PEDIATRIC CHRONIC CONDITIONS: AUTISM AS AN EXAMPLE**

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Health care systems are experiencing increasing burden by children and adolescents with pediatric chronic conditions that require frequent and life-long health care, such as diabetes and asthma. New systems of care that integrate behavioral medicine are necessary to address the health care needs of these populations. Autism spectrum disorders (ASD) is another example of such a condition. There has been noted an increased prevalence in the past two decades of ASD, yet there has been little empirical research on the effects of this on health care systems and how such systems may provide high quality care. The present research has the goal of providing empirically derived estimates of the prevalence, health care use, and behavioral medicine needs of children and adolescents with autism spectrum disorders (ASD) in a large system of care.

The study population was comprised of children between the ages of 2-18 who were members of a large HMO in Northern California (N ~700,000). An electronic record system enables data collection on the total population. ASD prevalence more than doubled from 3.9/1,000 in 2001 to 8.8/ 1,000 in 2007, consistent with the development of an integrated program of care. Approximately 43% were prescribed psychotropic medications, with the most common being anti-depressants. In fact, children with ASD received more prescriptions than the group of children with psychiatric diagnoses only. Data are being collected on the use of other behavioral health care use by this population.

ASD as a chronic condition clearly require a disproportionate amount of health care services. The potential for using behavioral medicine within this system care to optimize service use, and improve the quality of life of children with ASD and their families will be discussed.

#### SS21

### **"NEW FINDINGS SUPPORT COGNITIVE BEHAVIOR THERAPY FOR CORONARY HEART DISEASE"**

*Chair (s) : Kristina Orth-Gomér*

Psychosocial risk factors have been associated with poor prognosis in men and women with coronary heart disease (CHD) but psychosocial interventions have not yet been shown to decrease mortality in women (CHD patients). We

now report that the Stockholm Women's Intervention Trial for Coronary Heart Disease (SWITCHD) has provided evidence that group based cognitive behavior therapy (CBT) decreased all-cause mortality in women with severe CHD. This randomized controlled trial enrolled 237 women patients with severe CHD (acute myocardial infarction and/or cardiovascular revascularization). The CBT was initiated 4 months after hospitalization and was conducted over a year long period. After adjusting for demographic and clinical factors in multivariate modeling, CBT carried a protective effect of 66% ( $p=0.008$ ) across a mean follow-up period of 7.1 years. The trial also revealed important psychosocial differences as the CBT Intervention group showed a significantly greater decrease in perceived stress than a Usual Care control group at 1-2 year follow-up from baseline ( $p=.01$ ). Examination of SWITCHD in comparison with the two other major CBT trials for severe CHD patients (i.e., RCPP and ENRICHD), suggested that use of group based CBT, conducting same sex groups, not beginning immediately after a coronary event, conducting CBT sessions over at least a year long period, having at least a several year follow-up period, and not having only depressed and/or socially isolated patients in the same CBT group, may have contributed to differences among studies. In health promotion studies carried out on separate groups of women and men patients in a clinical setting, we have also obtained evidence that group based CBT based upon SWITCHD can improve psychosocial functioning in men as well as women coronary patients.

#### SS21-1

##### STOCKHOLM WOMEN'S INTERVENTION TRIAL FOR CHD (SWITCHD) : EFFECTS ON MORTALITY

**Orth-Gomér K (1), Schneiderman N (2), Walldin C (3), Blom M (1), Wang H (1), Jernberg T (4)**

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Psychosocial risk factors have been associated with poor prognosis in men and women with coronary heart disease (CHD), but psychosocial interventions have not yet been shown to decrease mortality in women patients. A reason for this failure may be found in the disparity of therapeutic approaches, ranging from psychological coaching to techniques of behavioral change. We decided to model out intervention after the Recurrent Coronary Prevention Project, modifying it to fit the conditions and demands of urban Swedish women, most of whom were gainfully working outside their homes. We randomized 237 women patients, hospitalized for acute myocardial infarction or coronary revascularization procedures to cognitive behavioral intervention ( $n=112$ ) or to usual cardiological care ( $n=125$ ), and followed them for up to nine (mean=7.1  $\pm$  1.7) years. The program was initiated at four months after the acute event. Groups met weekly for ten sessions and then monthly over a period of one year. Cognitive behavioral techniques were applied to control behavioral risk factors, attenuate negative emotions, enhance coping with chronic stress and illness and strengthen social supports. Program topics included double stress exposure from multiple roles within work and family domains. From beginning of randomization to end of follow up, 25 women in the usual care (20%) and 8 women in the intervention condition (7%) died, yielding an almost threefold protective effect of cognitive intervention (OR=.33, 95% CL .15-.74,  $p=.007$ ). Introducing demographic and clinical risk

factors, including types of medications prescribed, into multivariate modeling, confirmed the unadjusted results. In addition, the use of lipid lowering medication (statins) seemed to potentiate the effects of cognitive intervention, with only one death in the 65 women who received both types of treatment (1.5%). We conclude that group based cognitive intervention may prolong life in women with CHD.

#### SS21-2

##### PSYCHOSOCIAL FACTORS IN SWITCHD

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The Stockholm Women's Intervention Trial for Coronary Heart Disease (SWITCHD) found that group based cognitive behavior therapy (CBT) was able to prolong life in women with severe CHD. This same randomized controlled trial found that the CBT Intervention group showed a significantly greater decrease in perceived stress than a Usual Care control group at 1-2 year follow-up,  $F(2,213) = 2.72$ ,  $p=.01$ . When subjects were stratified into high and low stress subgroups, we observed that the high stress but not the low stress Intervention participants revealed significant decreases in stress and depressed affect and increases in perceived social support compared to the comparable usual care participants. It would thus appear that in addition to decreasing mortality, SWITCHD decreased distress in women who were highly stressed upon entry into the trial.

#### SS21-3

##### SIMILARITIES AND DIFFERENCES AMONG COGNITIVE BEHAVIOR THERAPY TRIALS FOR CORONARY HEART DISEASE

**Schneiderman N (1), Orth-Gomér K (2), Blom M (2), Walldin C (2)**

1 Department of Psychology and Behavioral Medicine Research Center University of Miami; 2 Department of Public Health Sciences Karolinska Institutet

The Stockholm Women's Intervention Trial for Coronary Heart Disease (SWITCHD) found that after an acute cardiac event, group based Cognitive Behavior Therapy (CBT) caused a decrease in all-cause mortality when compared with usual care. Previously two major randomized clinical trials using CBT in coronary patients obtained discrepant results. The Recurrent Coronary Prevention Project (RCPP) obtained positive results for medical endpoints, whereas the Enhancing Recovery in Coronary Heart Disease (ENRICHD) trial reported null results. Because SWITCHD was more closely modeled after the RCPP than ENRICHD, examination of similarities and differences among SWITCHD, RCPP and ENRICHD may help to explicate discrepancies. First, all SWITCHD and RCPP participants received group based CBT, whereas only 30% of ENRICHD participants were enrolled in groups. Second, all SWITCHD and almost all RCPP patients were run in same sex groups, whereas almost all ENRICHD groups were mixed. Third, behavioral treatment began later in SWITCHD and RCPP than in ENRICHD. Fourth, both SWITCHD and RCPP ran more CBT sessions over a longer period of time than ENRICHD. Fifth, both SWITCHD and RCPP had a longer follow-up period than ENRICHD. Sixth,

patients in SWITCHD and RCPP, but not ENRICH, incorporated discussions of traditional risk factors into intervention sessions. Seventh, SWITCHD and RCPP randomized patients regardless of psychosocial status, whereas ENRICH only randomized patients who were clinically depressed and socially isolated. The implications of differences between SWITCHD and RCPP on the one hand, and ENRICH on the other will be discussed.

#### SS21-4

##### **COGNITIVE BEHAVIOR THERAPY INTERVENTION IN CHD: PSYCHOSOCIAL EFFECTS IN BOTH MEN AND WOMEN**

*Walldin C (1), Orth-Gomér K (1), Blom M (1), Schneiderman N (2)*

*1 Department of Public Health Sciences Karolinska Institutet; 2 Department of Psychology and Behavioral Medicine Research Center University of Miami*

The Stockholm Women's Intervention Trial for Coronary Heart Disease (SWITCHD) provided evidence that group based cognitive behavior therapy (CBT) decreased all-cause mortality in women with severe coronary heart disease (CHD). SWITCHD also demonstrated that the women who received the group based CBT showed greater decreases in perceived stress than women randomized into a Usual Care group. Based on these findings we conducted an exploratory set of clinic based health promotion studies to determine if the intervention works in both men and women patients enrolled according to SWITCHD criteria (e.g., acute myocardial infarction and/or revascularization). Our CBT interventions were carried out on 51 women and 63 men run in groups of 5-8 participants with men and women enrolled in separate groups. The major independent variable was life stress. Results indicated that large significant decreases in stress occurred for both men and women. Although the design of the studies precludes making conclusions about the magnitude of intervention effects, the data suggest that men and women can both benefit from tailored interventions. The nature of the tailoring will be discussed as well as gender specific issues that are raised during group sessions.

#### SS4

##### **Intention-behavior continuity in the health domain: Social-cognitive and neuro-cognitive facets**

*Chair (s) : Peter A. Hall*

Good intentions do not consistently produce good behavior. The phenomenon of intention-behavior disjunction seems especially pertinent to health behaviors, many of which are performed with remarkable inconsistency despite apparently good intentions. This symposium presents three lines of research describing social-cognitive and neuro-cognitive factors that may explain de-coupling (and prescribe procedures for re-coupling) the intention-behavior link for health-relevant behaviors. Webb and colleagues present a meta-analysis of experimental literature suggesting that intentions are more influential on behavior when the situational context is such that habit formation is unlikely, and describe two experimental studies demonstrating that furnishing implementation intentions augments intention-behavior translatability especially when habit strength is low. Sheeran and colleagues review evidence suggesting that psychological interventions are only modestly effective in enhancing medication

adherence, and that implementation intentions serve to improve this, especially with respect to those who are least likely to show high continuity from intention to behavior to begin with. Finally, Hall and colleagues describe some initial evidence regarding the biological roots of dispositional dimensions of self-regulatory ability and some functional anatomical correlates of successful and unsuccessful self-regulation of health protective behaviors. An integrative theoretical framework will be presented, consistent with a social neuroscience perspective on health behavior.

#### SS4-1

##### **BREAKING UNWANTED HABITS : THE ROLE OF GOAL INTENTIONS AND IMPLEMENTATION INTENTIONS**

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*1 University of Sheffield; 2 University of Colorado and Warsaw School of Social Psychology*

Considerable evidence suggests that behaviors that are performed frequently in stable contexts support the development of habits, and thus the impact of intention on behavior is attenuated. However, previous research on the interplay between intentions and habits has been correlational. Study 1 of the present research evaluated 47 experimental tests of intention-behaviour relations in which (a) an intervention had been employed to modify participants' intentions (relative to a control group), and (b) a measure of behaviour had been included to evaluate the effect of intention change on behaviour. Studies were divided into those for which the focal behaviour was likely (vs. unlikely) to be under habitual control. Meta-analysis was then used to calculate the effect of a medium-to-large sized change in intention ( $d+ = .66$ ) on behaviour change in each of these two sets of studies. As expected, intention change had less impact on behavior change when circumstances supported the development of habits ( $d+ = 0.22$ ) compared with when circumstances did not support habit formation ( $d+ = 0.74$ ). Studies 2 and 3 investigated whether forming implementation intentions (Gollwitzer, 1999) can help people to break unwanted habits. Study 2 developed a habitual response that, after a task switch, had a detrimental impact on task performance. Forming an if-then plan reduced the negative impact of the habit. However, the effect of forming implementation intentions was smaller among participants who possessed strong, as compared to weak, habits. Study 3 provided a field test of the role of habit strength in moderating the relationship between implementation intentions and smoking behavior. Implementation intentions reduced smoking among participants with weak, but not strong, smoking habits. In summary, implementation intentions can help people to act on their intentions to break their unwanted habits. However, habit strength moderates the effectiveness of if-then plan formation in breaking unwanted habits.

#### SS4-2

##### **MOTIVATION, ABILITY, AND PLANNING: USING IMPLEMENTATION INTENTIONS TO TRANSLATE MEDICATION INTENTIONS INTO ADHERENCE AMONG PATIENTS WITH EPILEPSY.**

*Sheeran P, Brown I, Reuber M*

*University of Sheffield*

Dual process theories in social psychology propose that high



levels of motivation and ability promote optimal outcomes. The present research examines medication adherence among patients with epilepsy - a context where people are highly motivated to act but have impaired ability to do so - and assesses whether the formation of if-then plans, or implementation intentions (Gollwitzer, 1993) can enhance adherence. Three particular questions are addressed: (1) How effective are psychological interventions to promote medication adherence?, (2) Does implementation intention formation enhance adherence?, and (3) Do if-then plans selectively benefit participants with reduced ability to translate their intentions into action? A meta-analysis of 24 RCTs was used to resolve the first question. The sample-weighted average effect size was  $d = .32$  (95% CI = .25 - .40,  $N = 3095$ ), indicating that previous interventions engendered only small-to-medium increases in adherence. The second and third questions were addressed via an RCT involving patients with epilepsy ( $N = 69$ ). Participants completed a baseline questionnaire that measured cognitive ability and motivation and beliefs concerning adherence, and were randomized to control or implementation intention conditions. Adherence was measured over the subsequent month using an electronic pill bottle. Findings indicated that even though participants strongly intended to take their medication ( $M = 4.82$  on a 5-point scale), the mean percentage of doses taken on schedule by control participants was only 55%. However, when participants formed implementation intentions, this percentage increased to 79% ( $d = .80$ , a large effect). Findings also indicated that forming implementation intentions particularly benefited adherence among participants with lower past adherence, poorer prospective memory, poorer illness understanding, and those experiencing greater emotional impact of epilepsy. In sum, implementation intention formation appears to better promote adherence compared to previous interventions, and mainly helps patients whose ability to act is impaired.

#### SS4-3

### TEMPORAL SELF-REGULATION THEORY : A SOCIAL NEUROSCIENCE PERSPECTIVE ON HEALTH BEHAVIOR.

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Converging evidence from social psychology, cognitive psychology and the neurosciences underscores the need for re-thinking our conceptual frameworks for health behavior. Early theoretical perspectives on health behavior were adapted from decision theory, and continue to represent reasonable explanatory frameworks for some types of health behavior, particularly those that involve discrete choices. However, many health behaviors are continuous patterns of behavior that unfold over time, and take place in ecological contexts that furnish them with subtle immediate contingencies that are opposite in valence to their non-immediate counterparts. As such, self-regulatory resources are potentially brought to bear on the enactment of health behaviors once initial intentions have been formed. Although behavioral intention is an important predictor of behavior, substantial evidence has now accumulated to suggest that it's effects are moderated by habitual and control variables (e.g., Webb & Sheeran, 2006). Temporal Self-regulation Theory (TST; Hall & Fong, 2007) is a new model for individual health behavior that includes both of these moderators of the intention-behavior link, and integrates temporal factors into the expectancy-value calculus. One novel construct included in TST as a moderator of the intention-behavior relationship is that of Self-regulatory

Capacity, comprising volitional strategy use and biologically-rooted self-regulatory abilities. To illustrate the role of the latter, an fMRI study is presented. We show that among those who initially intend to increase physical activity behavior from baseline, those who successfully self-regulate their behavior in line with these initial intentions (successful self-regulators; SSRs) show differential response to a Stroop task in-scanner when compared with their less successful counterparts (unsuccessful self-regulators; USRs). Specifically, USRs show heavier resources recruitment in the lateral prefrontal and anterior cingulate regions relative to SSRs; SSRs show stronger resource recruitment in the orbitofrontal regions. These findings highlight the potential utility of blending social and neuroscience perspectives on health behavior.

#### SS27

### Improving the relevance of multi-site studies in behavioral medicine: An international perspective

*Chair (s) : Marc Gellman*

In order to improve the relevance of the international behavioral medicine evidence base to the health challenges confronting low and middle income countries, more attention must be given to issues of generalizability and transferability. This requires more research on interventions in multiple settings within and between countries utilizing both randomized and non-randomized study designs, as well as, quantitative and qualitative measurement methods. Before we can reach this level of technical advancement utilizing randomized clinical trial methodologies, multi-site studies including those with behavioral interventions, first must be undertaken. These studies of behavioral interventions must take place at more than one research center, hospital, or community. A distinction is needed between these multi center studies and true randomized clinical trials.

In this symposium scientists will make presentations involved in the conduct of multi center behavioral intervention studies. First Dr. Gellman will introduce the topic of assuring the quality of the data by reviewing quality control procedures that are necessary for improving the conduct of multi-site studies. Next Dr. Puone will present a primary prevention intervention utilizing participatory action research that is being conducted in South Africa. This will be followed by a presentation from Dr. Thankappan on a community-based intervention used to control hypertension in India. Finally, Dr. Oldenburg will present the findings of an implementation trial being conducted with patients recruited from three hospitals of a telephone-delivered behavioral intervention to assist individuals recovering from a myocardial infarction. These "real world" examples of behavioral intervention studies in four different regions of the world will identify many of the issues and challenges involved with such research.

#### SS27-1

### ASSURING THE QUALITY OF THE DATA: IMPROVING THE CONDUCT OF MULTI-SITE HEALTH RESEARCH STUDIES

*Gellman M*

*University of Miami, Behavioral Medicine Research Center*

Before the start of a multi-site study, much effort and coordination by the investigators and their staff is necessary to assure the quality of the data. Once all of the procedures have been accepted, appropriate staff needs to be hired and trained in the implementation of those procedures.

In order to assure the quality of the data being collected in a multi-site study it is necessary to take certain steps prior to the collection of the data as well as during the data collection phase of the trial. Usually these steps are established and monitored by a coordinating center. This course is necessary for both quality assurance and quality control of the data.

The steps that are part of the quality assurance process include: 1) development of a detailed protocol, this includes a description of the study design and provides a plan of action for the study including a Manual of Operations; 2) training, the transfer of the study methods and procedures from the protocol to the research study staff; and 3) certification, an indication of an individual's understanding of the study protocol and achieving a level of knowledge of the material.

The quality control procedures involve monitoring the data collection by observation and quantitative assessment. In most cases the monitoring of the staff during the data collection is done by supervisors familiar with the study procedures as well as periodic monitoring by coordinating center staff. Quantitative assessment or monitoring is usually done by taking repeated measurements by the same and by different staff members. This allows for an estimation of measurement reliability. It is important to establish that the "error" in the data is not so large as to damage the validity of the study conclusions. Quality control reports need to be monitored and reviewed with specific attention given to any deviations from the study protocol. All of these steps, if followed properly, will improve the conduct of multi-site studies.

#### SS27-2

##### **LIFESTYLE MODIFICATION IN PRIMARY PREVENTION OF NON-COMMUNICABLE DISEASES: PARTICIPATORY ACTION RESEARCH**

**Puoane T**

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**Objectives:** To describe the process undertaken by community health workers (CHWs), to identify social determinants, plan, and implement interventions for increasing awareness about risk factors and prevention of chronic diseases.

**Methods:** This process involved utilizing qualitative methods to document the process of engaging the CHWs through behaviour modification. Participatory action research was conducted to actively engage the CHWs in training towards adoption of healthy lifestyles. Anthropometric measurements (weight and height) were taken and BMI was calculated. Eating and physical activity patterns were also collected. CHWs received training on dietary guidelines. They set goals they wanted to achieve for behaviour modification, identified barriers and facilitators in group settings.

Sharing of experiences stimulated active learning, motivation and group support.

**Conclusion:** Participatory action research proved a useful method for engaging CHWs in a non-threatening manner. This qualitative method encouraged CHWs towards empowerment of taking control of their life through an interactive process.

#### SS27-3

##### **CHANGE IN AWARENESS, TREATMENT AND CONTROL OF HYPERTENSION: RESULTS FROM A COMMUNITY BASED INTERVENTION PROGRAM IN KUMARAKOM, KERALA, INDIA**

**Thankappan K L (1), Sivasankaran S (2), Abdul Khader S (3), Sarma P S (4), Mini G K (4)**

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**Background:** Hypertension prevalence in the Indian State of Kerala has been reported to be one of the highest in India. No community-based intervention to control hypertension has been reported from anywhere in India. In order to increase awareness, treatment and control of hypertension we started a community based intervention program in one of the village Panchayats (Kumarakom) of Kerala in 2001.

**Methods:** Baseline information on awareness, treatment, and control of hypertension was collected from 4627 individuals (mean age 48 years, men 44 %) selected using multistage random sampling in 2001. We measured blood pressure (BP) using the World Health Organization's STEPs guidelines. Thirty trained volunteers provided health education to the entire population of the village (22,995) through neighborhood groups. In addition they also monitored the BP of individuals with hypertension using Omron automatic BP monitor. Tailor made health education was provided to them during this monitoring. A repeat survey was conducted among 2263 randomly selected individuals (mean age 52 years, men 49 %) in 2006.

**Results:** The mean diastolic blood pressure (DBP) decreased from 80.9 mm of hg to 75.6 mm, whereas the mean systolic blood pressure (SBP) increased from 126.2 mm to 128.8 mm. The overall prevalence of hypertension remained almost same, 35.0% and 34.9% in the base line and repeat survey respectively. Among the hypertensives, the awareness level increased from 23.6% to 56.7% (men: 19.2% to 47.1%; women: 25.9% to 65.6%), proportion on treatment from 18.9% to 44.9% (men: 15.0% to 35.3%; women: 21.9% to 53.9%), and hypertension control (SBP<140 and DBP<90), from 6.5% to 22.0% (men: 4.5% to 16.1%; women: 8.1% to 27.6%).

**Conclusion:** The effect of the intervention was mostly on the high-risk group of hypertensives whereas the population approach did not make an impact in reducing the mean BP levels in this population.

#### SS27-4

##### **PROACTIVE HEART TRIAL: A TELEPHONE-DELIVERED PROGRAM FOR SUPPORT, RECOVERY AND PREVENTION FOLLOWING A HEART ATTACK**

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Complex "real world" intervention trials usually consist of

multi-component interventions and their evaluation can be very difficult because of problems developing, identifying, documenting and reproducing the intervention in different settings. Their evaluation often requires use of different study designs and approaches to measurement than those utilized in traditional RCTs. Most cardiac rehabilitation and secondary prevention trials with MI patients have been conducted in "high resource" research and health care settings that are not very representative of the 'real world'. It has been estimated that less than 20% eligible patients in developed countries satisfactorily complete such well-resourced programs. We have incorporated the key elements of such evidence-based programs into a telephone 'coaching' program delivered to patients and their partners after hospital discharge in order to evaluate program exposure, research and effectiveness. The program consists of an interactive program manual and phone sessions provided over 6 months focused on lifestyle change, medication compliance and psychosocial issues. Primary outcome measures include physical activity, nutrition, and quality of life. Secondary outcome measures include: smoking, alcohol consumption, bodyweight, lipids, blood pressure, diabetes and medication compliance. An economic evaluation is also being conducted. More than 500 MI patients are currently being recruited to a randomised controlled trial with patients being recruited from three hospitals in Brisbane, Australia. Results on the first 6 months of study recruitment will be reported and the issues involved in recruiting and implementing study procedures across 3 hospitals will be discussed. Behavioral medicine needs to give more emphasis to the development of low cost programs to improve the prevention and management of chronic disease. Such programs will also be more suitable for 'transfer' to low and middle income countries.

## SS8

### Telehealth and e-health in promoting physical activity

Researchers and practitioners alike have been investigating ways to increase physical activity levels in the growing sedentary population. What has been clear is that such approaches are most successful when they are built into the daily routines and life behaviors of the targeted populations. Two methods that have seen increasing popularity from both research and practice perspectives have been the use of telecommunication-based technology and the use of internet-based approaches. This symposium will explore the use of both telehealth and e-health approaches to increasing physical activity in community-based and population-level settings. Professor Kerry Mummery from Central Queensland University in Australia will describe the use of an online physical activity step log in a sample of over 35,000 people. His findings demonstrated some age and sex differences on physical activity levels and length of engagement. As well, he will discuss the potential efficacy of a freely available physical activity promotion program. Professor Abby King from Stanford University School of Medicine describes the moderators of a successful telephone-based physical activity intervention. In this study she identifies combinations of baseline characteristics that predict success in achieving at least 150 minutes per week of moderate or more vigorous physical activity. In particular, the findings emphasise the importance of perceived built and social environmental characteristics as potential barriers to physical activity. Professor Gregory Kolt from University of Western Sydney in Australia will present findings comparing two physical activity interventions involving activity prescription and telephone support. Those whose program included the use of a

pedometer had better improvements in both physical activity and blood pressure. Finally, Professor Grant Schofield from Auckland University of Technology in New Zealand will discuss the results of a qualitative study in which primary care physicians were interviewed about their use of a national physical activity prescription and telephone support scheme in New Zealand.

## SS8-1

### E-HEALTH PROMOTION: A DESCRIPTIVE ANALYSIS OF PARTICIPANT USE OF AN ONLINE PHYSICAL ACTIVITY STEP LOG

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The purposes of this study were: 1) to provide preliminary descriptive data representing online use of a freely available online step log, and 2) to explore sources of intra-individual variability in steps per day across the engagement period. All participants (N = 46,259) self-registered as members on the 10,000 Steps website ([www.10000steps.org.au](http://www.10000steps.org.au)). Of this total, 35,211 persons used the online step-log feature for a minimum of one day and were included in subsequent analyses. Statistical analyses compared mean steps per day and number of participating days between sexes and age groups. Intra-individual comparisons were also made between self-reported baseline step levels and subsequent recorded mean steps per day. The entire sample recorded an average of  $10,883 \pm 4359$  steps-d<sup>-1</sup> (males =  $11,254 \pm 4533$ , females =  $10,702 \pm 4261.5$ ,  $F = 135.1$ ). Significant differences were also observed by age group, with older age groups reporting fewer mean daily steps. In terms of engagement, the entire sample participated for an average  $43.9 \pm 76.5$  days (males =  $53.7 \pm 91.2$ , females =  $39.5 \pm 68.4$ ,  $F = 254.5$ ,  $P < 0.0001$ ). Significant differences were noted by age group, with older age groups displaying significantly longer periods of engagement than younger age groups. The entire sample reported a mean improvement of  $3,760 \pm 5567$  steps-d<sup>-1</sup> ( $t = 96.4$ ,  $P < .0001$ ) over baseline levels (males =  $4211 \pm 5615$ ,  $t = 60.6$ ,  $P < .0001$ ; females =  $3548 \pm 5532$ ,  $t = 75.4$ ,  $P < 0.0001$ ). The large number of participants displays the potential efficiency of a freely available online physical activity promotion program. Duration of online participation ranged from 1 to 1,900 days, indicating a wide range of participant engagement. Differential results are evident by age and gender in terms of activity levels, engagement duration, and intra-individual activity levels.

## SS8-2

### MODERATORS OF SUCCESSFUL PHYSICAL ACTIVITY PARTICIPATION IN A COMMUNITY-DELIVERED TELEPHONE-BASED INTERVENTION

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While translation of evidence-based health promotion interventions is a key public health goal, few translation efforts have been evaluated. This investigation explored baseline moderators of physical activity (PA) success in the Active for Life-Active Choices (AC) dissemination study. Non-parametric decision tree analysis was performed on 795

participants (aged 50+ yrs) to identify combinations of baseline characteristics predicting success in achieving at least 150 min/wk of moderate or more vigorous PA after 6 months of the AC telehealth intervention. The least successful participants had <2 reported baseline health conditions, were widowed, and reported high neighborhood traffic levels (21% succeeded). In contrast, the subgroup with the highest success rate had <2 reported health conditions, were widowed but reported low neighborhood traffic (62% succeeded;  $X^2=5.4$ ,  $p=.02$ ). Similarly, the subgroup with  $\geq 2$  health conditions that reported living in neighborhoods with crime rates that made it unsafe to walk at night had significantly lower PA success rates (42% succeeded) relative to the subgroup with the same number of health conditions but who rated their neighborhood as safer for walking (59% succeeded;  $X^2=4.2$ ,  $p=.04$ ). Subgroups with greater neighborhood traffic also reported more poorly maintained sidewalks and lower likelihood of living within 10-15 minute walk to transit stops relative to other subgroups. The results underscore the importance of perceived built and social environmental characteristics as potential barriers to AC PA intervention success for some individuals. They set the stage for further systematic research to test the added value of environmental enhancements to AC.

#### SS8-3

##### **HEALTHY STEPS: TESTING A PEDOMETER-BASED ACTIVE SCRIPTING PROGRAM IN SEDENTARY OLDER ADULTS**

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1 School of Biomedical and Health Sciences, University of Western Sydney, Sydney, Australia; 2 Centre for Physical Activity and Nutrition Research, Auckland University of Technology, Auckland, New Zealand.; 3 School of Population Health, University of Auckland, Auckland, New Zealand.

The New Zealand Green Prescription is a primary care program involving a physical activity prescription administered by a primary care physician followed by telephone-based counseling and support by trained exercise counselors. The aim of this randomised controlled trial was to investigate the effectiveness of a pedometer-based Green Prescription on physical activity, blood pressure, body mass index, health-related quality of life, and a range of functional tests in 350 sedentary adults aged 65 years and older. Following recruitment through primary care settings, the Auckland Heart Study Physical Activity Questionnaire and SF-36 were administered to the intervention (pedometer-based Green Prescription) and control (usual Green Prescription) groups at baseline. As well, measures were taken of blood pressure, height, and weight, and functional tests were carried out. The intervention group were provided with a pedometer and received 3 telephone counselling sessions over 3 months based around accumulating pedometer steps to increase physical activity. The control group also received 3 telephone counselling sessions over 3 months, however, based around increasing physical activity without a focus on accumulating steps. The counselling approach used motivational interviewing as its main focus. Outcome measures were readministered at 3 months (end of intervention) and at 12 months. Preliminary findings for the first 169 participants at 3 months showed that those in the intervention group walked an additional 56 min/wk for leisure compared to 15 min/wk for those in the control group ( $p=0.04$ ), and an additional 48 min/wk in total compared to 6 min/wk less for the control group ( $p=0.03$ ). Systolic blood pressure decreased by 9.6 mmHg for those in the intervention group compared to 5.0 for

the control group ( $p=0.25$ ) while diastolic blood pressure decreased by 5.9 mmHg for those in the intervention group compared to 1.5 for the control group ( $p=0.04$ ). Although this trial is ongoing, preliminary findings point to the effectiveness of a pedometer-based active scripting program in increasing physical activity and reducing blood pressure.

#### SS8-4

##### **THE NEW ZEALAND GREEN PRESCRIPTION: WHAT TO PRIMARY CARE PHYSICIANS THINK OF AN ACTIVE PRESCRIPTION AND TELEPHONE COUNSELING PROGRAM?**

**Schofield G M (1), Patel A (1), Kolt G S (1, 2)**

1 Centre for Physical Activity and Nutrition Research, Auckland University of Technology, Auckland, New Zealand; 2 School of Biomedical and Health Sciences, University of Western Sydney, Sydney, Australia.

The Green Prescription is a program developed in New Zealand involving a primary care physical activity prescription and telephone-based physical activity counselling. The Green Prescription program has been demonstrated to be effective in increasing physical activity levels. Given the importance of primary care physicians in promoting physical activity as a prevention and management approach to a range of non-communicable diseases, the aim of this study was to identify benefits and barriers to Green Prescription use as perceived by primary care physicians, as well as to investigate the main reasons for prescribing physical activity. Participants were 15 primary care physicians from across Auckland, New Zealand. A semi-structured interview was developed for use in this study, and data were analysed using a general inductive approach. Respondents indicated that the Green Prescription scheme allowed for a non-medication approach to a healthier lifestyle, and saw the follow-up telephone counselling as beneficial from a safety and monitoring perspective. The majority of respondents used the Green prescription for patients with pre-existing conditions, and for management of conditions (e.g., diabetes, hypertension, cardiovascular disease, overweight/obesity), but rarely for preventive purposes. Time constraints were the most salient barrier cited for administering Green Prescriptions, however, support by practice nurses and the telephone support from trained physical activity counselors were seen as ways around this issue. Interestingly, lack of reimbursement was not cited as a barrier to increased use of the Green Prescription. The findings of this study point to a clear need to focus on implementing the Green Prescription as a form of prevention rather than just a treatment for chronic disease management.

#### SS2

##### **CHChronic pain - the significance of control, motivation and anxiety**

**Chair (s) : Birgit Kröner-Herwig**

All contributors present data relevant for current psychological models of chronic pain. G. Crombez reports on the basis of laboratory research on the importance of losing control over pain (after having had it). His study shows that this condition increases fear of pain, reinforces avoidance behaviour, narrows attention and impedes task performance. P. Karsdorp presents research findings relevant to a new theory of avoidance respectively task persistence behaviour in chronic pain patients depending on the individual's motivational structure. In every individual negative mood functions a

stimulus either for avoidance, the cause for chronic pain by disuse, or persistence potentially causing chronic pain by overuse. The relation to the fear avoidance model of back pain is discussed.

A. Barke reports on a fMRI study grounded in the fear avoidance model by Waddell and elaborated by Vlaeyen.

By comparing spider phobic subjects and back pain patients with a high level of fear avoidance beliefs regarding their brain responses to images of spiders respectively images of "harmful" movements. She investigates whether the response of CLBP's can be truly characterized as "anxiety" or "fear", as the model would predict.

The last contribution by L. McCracken focuses on the treatment of chronic pain and the role anxiety sensitivity ("fear of fear") plays in it. The treatment rationale is determined by the acceptance /mindfulness approach, where gaining acceptance of pain, fostering a state of mindfulness and the pursuit of values are crucial goals. The author demonstrates that after treatment anxiety sensitivity is no longer a predictor of pain related disability.

## SS2-1

### THE COST OF ATTEMPTING TO CONTROL UNCONTROLLABLE PAIN.

*Crombez G*

Trying to control pain is a common human goal. But little is known about what happens when one loses control over pain. We report an experiment with 74 healthy volunteers, half of whom were given control over a pain stimulus and subsequently lost control, and half of whom never had control over the pain. We investigated whether having had control and lost it, would result in a more unpleasant pain experience, more fear about impending pain, a heightened vigilance to pain and greater interference on a secondary task. Participants in the experimental group first learned to avoid a painful stimulus by correctly responding to a card sorting task, but later on lost control over the painful stimulus. In the yoked comparison group, participants had no control over the painful stimulus from the beginning. Results indicated that losing control over pain and, relatedly, attempting to control uncontrollable pain have significant costs such as a higher fear of the impending pain stimulus and retarded performance on a secondary task. When attempts to avoid pain are blocked, individuals persist in their avoidance attempts, try harder, and narrow their focus of attention upon the problem to be solved. These findings are discussed within the context of a dual process model of coping with uncontrollable adverse events (Brandstädter & Renner, 1990) and possible mechanisms for perseverance with ineffective solutions.

## SS2-2

### TASK PERSISTENCE IN CHRONIC PAIN : THE ROLE OF GOAL PURSUIT AND MOOD

*Karsdorp P A (1), Vlaeyen J W S (2)*

*1 Universities of Maastricht, Netherlands; 2 Leuven, Belgium*

A prevailing model that has become a valid explanation for the transition from acute to chronic pain is the Fear-Avoidance model. This model postulates that individuals who show catastrophic (mis)interpretations of pain give rise to fear of pain and avoidance of activities, subsequently leading into a vicious circle that enhances pain and disability. Although there

is accumulating evidence supporting the Fear-Avoidance model, there are unresolved issues that merit further scientific attention. For example, the model does not apply to pain disorders that are associated with task persistence. In seeking to explain both task avoidance and persistence, a novel theoretical model has been proposed: the Mood-as-Input model. This model proposes that the impact of negative mood on individuals' motivation to persist in a task depends on their goal pursuit. Individuals who strive for Enough-goals engage in a certain task in order to complete the task satisfactorily. Individuals who strive for Enjoy-goals engage in a task only when it is a pleasurable activity. Negative moods signal individuals with Enough-goals that they have not dealt with the task satisfactorily, resulting in task persistence, whereas negative moods signal individuals with Enjoy-goals that they are no longer enjoying the task anymore, leading to disengagement from the task. When applied to chronic pain, the mood-as-input model predicts that there are two pathways to chronic pain. Negative moods in combination with Enjoy-goals may, consistent with the Fear-avoidance model, lead to chronic pain through disuse, whereas negative moods in combination with Enough-goals may lead to chronic pain through overuse. The aim of this lecture is to present recent research findings on the applicability of the mood-as-input model in chronic pain.

## SS2-3

### THE ROLE OF "FEAR" IN CHRONIC BACK PAIN : AN FMRI STUDY COMPARING SPIDER PHOBICS AND BACK PAIN PATIENTS

*Barke A, Kroner-Herwig*

*Gottingen, Germany*

The fear avoidance model plays a crucial role within the biopsychosocial model of chronic low back pain (CLBP) by identifying a psychological mechanism that is thought to contribute to the chronification of the pain syndrome. The model postulates that in the acute phase a fear of movement is acquired, which leads to an extensive avoidance of physical activity and thereby in the long run results in physical deconditioning of the musculoskeletal system. A vicious circle develops that is characterized by pain → fear of movement → avoidance of movement → pain sensitization → pain.

Functional Magnetic Resonance Imaging has been used very successfully in the study of emotion. Our group reports results from an fMRI study regarding the question whether the fear of movement manifests itself through activations in brain areas known to be implicated in fear processing. We use an event-related design with 5 categories of visual stimuli: 24 photographic depictions each of neutral movements (NM), potentially painful movements (PM), general fear-inducing objects or situations from the IAPS (F), neutral objects or situations from the IAPS (N) and spiders (S) to investigate the following questions: Do CLBP patients differ from healthy controls in the way they process pictures of neutral and potentially painful movements? Do CLBP patients activate the same brain areas when viewing general fear-inducing stimuli (F) as when viewing pictures that induce movement-related fears? Since often the fear of movement is construed as movement phobia (Kinesiophobia) we also ask whether looking at the PM-pictures activates similar brain areas in the CLBP patients as looking at pictures of spiders does in spider phobic patients.

SS2-4

**ACCEPTANCE, MINDFULNESS, AND VALUES-BASED ACTION AND EXPERIENTIAL AVOIDANCE: A STUDY OF ANXIETY SENSITIVITY**

*McCracken A C*  
*Bath, UK*

People often learn to respond with distress and avoidance to their own experiences of distress, such as symptoms of depression or anxiety. When people with chronic pain respond this way their overall level of distress may increase, they may struggle to avoid their emotional experiences, and their daily functioning may decrease. The purpose of this study was to examine the role of anxiety sensitivity (AS), or “fear of anxiety,” in relation to these processes. It was predicted that those persons with chronic pain who report higher AS will also report higher emotional distress overall and greater disability due to chronic pain. A second purpose was to examine whether therapeutic processes designed to reduce emotional avoidance could be demonstrated to reduce the role of AS in relation to this distress and disability. Subjects were 125 consecutive adult patients (64.8% women) seeking services from a specialty pain service in the UK. All patients completed a standard set of measures of AS, acceptance of pain, mindfulness, and values-based action, as well as measures of pain, disability, emotional functioning. In correlation and regression analyses AS was significantly positively associated with eight separate measures of pain, disability, and distress. In regression analyses the three proposed therapeutic processes (acceptance, mindfulness, and values), reduced the average variance accounted for by AS in patient functioning from  $\Delta R^2 = .18$  to  $\Delta R^2 = .042$ . These results suggest that AS amplifies the impact of emotional distress on patient functioning in chronic pain and that processes of acceptance, mindfulness, and values-based action reduce this effect.

SS38

**THE ANATOMY OF EMOTION REGULATION: BRAIN, HEART, AND BODY**

*Chair (s) : Hideki Ohira and William Lavallo (discussant)*

A large body of research in behavioral medicine has documented the relation between behavior, emotions, and health. Relatively little of this work, however, attempts to examine the diversity of the systems that contribute to emotion regulation processes. This symposium attempts to extend our understanding of the “anatomy” of emotion regulation by presenting data from divergent methodological approaches and physical systems that produce a convergent understanding of how stress and emotional responses to our environment influence health and illness. First, evidence is presented that connects affect regulation to neural substrates of both automatic and voluntary modes of emotion regulation. In particular, it is argued that affect regulation is accomplished by both automatic and voluntary regulatory functions that may be uniquely associated with brain structures. Second, we demonstrate that social-behavioral processes in urban city youth representing automatic-goal-based self-regulatory strategies are related to cardiovascular function. Behaviors in the social environment that reflect agonistic striving (attempts to dominate others) and transcendence striving (attempts to improve the self) generate significant variations in affect and ambulatory blood pressure during daily life. Third, we provide further evidence for the centrality of emotional regulation in influencing health. In particular, that the variability of

affective states (assessed in daily life using ecological momentary assessment) may influence health above and beyond average or typical affective states. Finally, our discussion will focus upon how these findings may inform our thinking about causal pathways by which stressful environments might alter neural, social-behavioral, and affective functioning in ways that modify the balance between health and illness.

SS38-1

**THE NEURAL AND PHYSIOLOGICAL BASIS OF EMOTION REGULATION**

*Ohira H*  
*Nagoya University, Japan*

A large body of research in behavioral medicine has documented the relation between behavior, emotions, and health. Relatively little of this work, however, attempts to examine the diversity of the systems that contribute to emotion regulation processes. This symposium attempts to extend our understanding of the “anatomy” of emotion regulation by presenting data from divergent methodological approaches and physical systems that produce a convergent understanding of how stress and emotional responses to our environment influence health and illness. First, evidence is presented that connects affect regulation to neural substrates of both automatic and voluntary modes of emotion regulation. In particular, it is argued that affect regulation is accomplished by both automatic and voluntary regulatory functions that may be uniquely associated with brain structures. Second, we demonstrate that social-behavioral processes in urban city youth representing automatic-goal-based self-regulatory strategies are related to cardiovascular function. Behaviors in the social environment that reflect agonistic striving (attempts to dominate others) and transcendence striving (attempts to improve the self) generate significant variations in affect and ambulatory blood pressure during daily life. Third, we provide further evidence for the centrality of emotional regulation in influencing health. In particular, that the variability of affective states (assessed in daily life using ecological momentary assessment) may influence health above and beyond average or typical affective states. Finally, our discussion will focus upon how these findings may inform our thinking about causal pathways by which stressful environments might alter neural, social-behavioral, and affective functioning in ways that modify the balance between health and illness.

SS38-2

**EMOTION REGULATION ON THE STREET: VIOLENT AND DISORDERED NEIGHBORHOODS RAISE BLOOD PRESSURE IN YOUTH BY STIMULATING STRESSFUL STRIVINGS**

*Ewart C, Stoeckl N, Kadziolka M, Elder G, Jorgensen R*  
*Syracuse University, USA*

Self-debilitating responses to stressful environments may contribute to poor emotional regulation and subsequent risk of illness. We examined if exposure to neighborhood violence and disorder leads adolescents to develop goal-oriented strivings that raise blood pressure by generating interpersonal conflict and impairing self-control. We have shown previously that ambulatory blood pressure (ABP) in youth is correlated positively with “agonistic striving” (AS)—a chronic

struggle to control or dominate others--and negatively with "transcendence striving" (TS)--a continuing struggle for self-improvement and self-control. In new research in a different city, we tested the prediction that indices of cardiovascular health in adolescents are correlated with exposure to neighborhood stress, and that the association is mediated by AS and TS. Participants (81 females, 91 males; 43% White, 40% Black; 14.5±0.5 years old) attended a large urban public high school in northeastern USA. At baseline, youths' self-reported exposure to environmental stress was measured with the Exposure to Violence (EV) and Neighborhood Disorder (ND) subscales of the City Stress Inventory. AS and TS were measured by observer ratings of participants' responses to the Social Competence Interview. Two months later, ABP was recorded during 2 normal weekdays (48-hrs); social interactions and affects were recorded with an electronic diary. Results revealed that higher baseline EV and ND predicted higher ABP in males and females; correlations were highest during interpersonal encounters. Higher AS and lower TS predicted higher ABP. EV/ND were correlated with high AS and low TS. Tests of causal models supported the possibility that environmental stress increases cardiovascular risk in youth by fostering strivings to dominate others while limiting strivings for self-development and self-control, and thus contributes to negative social interactions that elevate ABP.

SS38-3

#### **AFFECT VARIABILITY AND HEALTH: EMOTION REGULATION IN THE NATURAL ENVIRONMENT**

*Oikawa M (1), Smyth J (2)*

*1 Toyo University, Japan; 2 Syracuse University, USA*

Despite its theoretical importance in emotion regulation, affective variability in the natural environment has been understudied. We examined both mean levels and variability of affect, using real-time data collection, to answer three questions: 1) Do people differ in affective variability? 2) Does stress relate to mean levels and/or variability in positive and negative affect? 3) Does affective variability relate to somatic disease indicators independently of mean levels of affect? Adult participants (N=116) with chronic physical illnesses (asthma or rheumatoid arthritis [RA]) carried a Palm Pilot for one week and completed a survey five times a day assessing positive affect [PA], negative affect [NA], stress experience (yes/no), stress severity, and disease symptoms. Individual differences in variability existed for both PA and NA. Frequency of stressful experiences was related both to mean affect levels and to affective variability. Stress severity was also related both to mean affect levels and to affective variability. Relationships between stress and affective variability remained significant even after controlling for mean affect levels. NA variability predicted interference and restrictions from disease and RA symptoms (pain/stiffness/swelling). Variability in PA significantly predicted ambulatory peak flow rate among asthma patients. Mean levels of NA were unrelated to RA symptoms and mean PA levels were unrelated to peak flow. These data provide ecologically valid evidence that: 1) Affective variability differs significantly between individuals, 2) Stress produces variability in PA and NA in addition to altering mean levels, and 3) Affective variability is uniquely associated with somatic disease indicators. This suggests that affective variability in response to stress may be an important indicator of emotion regulation and physical states that is conceptually and practically distinct from mean affect levels.

SS6

#### **The placebo response in medicine and psychology: friend or foe ?**

*Chair (s) : P.Enck & S.Klosterhalfen*

The placebo response is often regarded as the enemy of evidence-based medicine, and raising placebo response rates in clinical trials (in depression, pain, irritable bowel syndrome, or Parkinson's Disease) seem to underline this: when the "therapeutic gain" of medicine above the placebo response decreases, it becomes increasingly difficult to bring new drugs to the market. On the other hand, family physician and practitioners use the placebo response more or less excessively in every-day-practice, and it has been speculated that most therapeutic success is due to its operating. It has also been postulated that many if not all medicine approaches beyond drug treatment (psychotherapy, acupuncture, and homeopathy) are placebo responses. Under these circumstances a rational approach to placebo and its practice in psychology and medicine is needed. This symposium comprises four presentations from leading research groups that have - over the past years - fostered and developed placebo research. The scope of the workshop is to identify and characterize the placebo response both from an experimental standpoint as well as from different diseases.

SS6-1

#### **EMOTIONAL FACTORS AND GENDER IN PLACEBO ANALGESIA**

*Flaten M A*

*Department of Psychology, University of Tromsø, Norway*

Treatment for pain induces an expectation that pain will be reduced after the treatment. Research has shown that the expectation alone can reduce pain, and this has been termed placebo analgesia. However, expectation of reduced pain may also have other consequences, one of them being a reduction in stress or negative emotion. Stress and negative emotions have been found to increase pain, and it could be hypothesized that placebo analgesia is mediated via a reduction in stress. Experiments that test the hypothesis will be presented. Subjects scoring high on the Fear of Pain questionnaire displayed high levels of stress before application of the pain stimuli, as expected, and data from these subjects are of special interest for the hypothesis.

Pain report has in several reports also been shown to be modulated by the interaction of subject gender with experimenter gender. Our studies showed that male subjects reported less pain to female experimenters compared with pain reported to male experimenters. The social context also modulated subjective reports of stress and arousal, with male subjects reporting less stress and arousal to female experimenters. These findings show the importance of objective measurement of pain and stress, alternatively that relevant controls for social context are used in the experiment. As the pain report is a central element in placebo analgesia, gender could also play a role in placebo analgesia. Two experiments tested whether gender modulated placebo analgesia induced by verbal information or by classical conditioning.

SS6-2

**PREDICTORS OF THE PLACEBO/NOCEBO RESPONSE IN VISCERAL PAIN IN HEALTH AND DISEASE**

**Klosterhalfen S, Enck P**

*University Hospital Tubingen, Germany*

Different research tools are available to identify potentials predictors of the placebo and nocebo response (PNR): Systematic reviews of the published body of placebo literature (currently: approx. 120.000 citations in PUBMED) may identify relevant groups of factors that are associated with PNR. Meta-analyses of published trials usually contain insufficient individualized data but may point towards structural and design-related factors that contribute to the PNR. Both reviews and metaanalyses may, however, contain data extraction errors that can lead to false conclusions. Re-analyses of the “raw data” of such trials, in contrast may allow to identify individual characteristics that are associated with high or low PNR, such as symptom severity, gender, and health habits and personality profiles; unfortunately, the number of variables collected in most trials is rather low. Finally, experiments that include volunteers and/or patients may then allow testing such predictors for their validity and efficacy in an experimental or clinical set-up. We will demonstrate the efficacy of such search strategy for predictors of the PNR with examples from functional bowel disorders such as the irritable bowel syndrome, functional dyspepsia, but also from inflammatory bowel diseases (ulcerative colitis, Crohn’s Disease), and will discuss alternative approaches in the designs of clinical trials that may allow a better prediction and control of the PNR in the future.

SS6-3

**THE LEARNED IMMUNE RESPONSE: PAVLOV AND BEYOND**

**Schedlowski M, Goebel M, Pacheco-Lopez G**

*Institute of Medical Psychology and Behavioral Immunobiology, Medical Faculty, University of Duisburg-Essen, Germany*

Experimental data on the placebo response indicate that expectation and classical conditioning processes appear to be the major neuropsychological mechanisms driving the placebo response. In this context, by employing paradigms of classical conditioning the brain’s capability to modulate peripheral immune responses has been impressively demonstrated in animal experiments and human studies.

We have developed protocols of classical immunoconditioning in rodents employing saccharin taste as a conditioned stimulus (CS) and the immunosuppressive drug Cyclosporine A as an unconditioned stimulus (UCS) is paired during acquisition, re-exposure to the CS during evocation induces a significant inhibition of the proliferative capacity of splenic lymphocytes as well as interleukin-2 and interferon- production and cytokine mRNA expression. These behavioral conditioned immunosuppressive effects are mediated on the efferent arm via the splenic nerve, noradrenaline and -adrenergic-dependent mechanisms. In addition, the insular cortex, the amygdala and the ventromedial nucleus of the hypothalamus have been identified as essential neuronal structures for these associative learning processes. The conditioned immunosuppression is of biological relevance, since behavioral conditioning significantly prolonged the survival of heart allografts and inhibited allergic reactions. Moreover,

behaviorally conditioned immunosuppression has also been demonstrated in humans.

These data support the future use of classical conditioning paradigms as a systematically employed placebo response to support immunopharmacological regimens in clinical situations in order to maximize therapeutic efficacy, at the same time reducing unwanted drug side effects to the benefit of the patient and, last but not least, saving costs.

SS6-4

**PSYCHOPHYSICAL AND ELECTROPHYSIOLOGICAL STUDIES OF THE PLACEBO RESPONSES IN HEALTHY SUBJECTS AND PATIENTS SUFFERING OF CHRONIC PAIN SYNDROMES**

**Marchand M**

*University of Sherbrooke, Ontario, Canada*

It is well supported that patient’s expectation toward a treatment influence perceived, but also functional outcomes. Recent researches have clearly demonstrated that placebo is acting on objective physiological responses such as hormones levels and neurotransmitters expression. Different endogenous pain inhibitory mechanisms are playing a major role in pain perception in healthy subjects and patients suffering of chronic pain. The activation of diffuse noxious inhibitory control (DNIC) from brainstem structures is one of these mechanisms. In a recent study we found that the expectation of hyperalgesia completely blocked the analgesic effect of DNIC, but also the related cortical (somatosensory evoked potentials : SEP) and spinal activity (nociceptive reflex : RIII). Considering our previous findings that fibromyalgic patient presents a deficit of DNIC, we tested the same manipulation of expectation to see if we could trigger a DNIC in fibromyalgic patients. Interestingly, we found that expectation of analgesia did improve the perceived and cortical analgesic effect of DNIC, but not the RIII response. These results suggest that even when they trigger expectation related analgesia, fibromyalgic patients are still presenting a lack of spinal analgesia that may be due to a deficit of DNIC. I will summarize some of our studies on the role of expectation and conditioning to placebo responses. The goal is to understand how clinical and experimental placebo studies allow to better characterize the mechanisms implicated in some chronic pain conditions and the variability in responses to pain treatment.

SS12

**Psychobiological indicators of depression and chronic diseases in females**

**Chair (s) : Ulrike Ehlert, Jane Wardle**

This symposium refers to psychobiological factors influencing women’s health and disease. According to the WHO estimations in 2020 depression will be the second most disorder following coronary heart diseases (CHD) in the world’s population. Since females show twice as many depressive symptoms or symptoms of chronic fatigue than men attention should be drawn to specific psychobiological causes underlying such female overrepresentations in psychopathology. Depression and fatigue are often associated with chronic diseases like CHD or diabetes or functional physical syndrome. Onset and/or maintenance of such chronic physical diseases or complaints seem to be influenced by life style factors and biological vulnerabilities.

The first presentation of the symposium will refer to immunological findings on the complex interaction between



psychological burden, inflammation, and atherosclerosis as an indicator of CHD. Recent data show a triggering effect of depression on mild inflammation which in consequence is associated with atherosclerosis. One life style factor which may influence the onset of depressive mood and the onset of concomitant mood disorders seems to be physical activity. Data on this aspect will be shown in the second presentation referring to associations between physical activity, depression, and chronic disease in immigrant females. The third presentation of the symposium addresses to the overrepresentation of depression in female diabetic patients and the final presentation refers to endocrine dysregulations in female patients suffering from chronic fatigue syndrome (CFS). Although CFS is highly associated with depressive symptoms, female CFS patients show lower cortisol levels than male CFS patients or controls. Such low cortisol levels may be associated with mild inflammation which may result in CHD or other chronic diseases.

The psychobiological mechanisms mentioned above will be discussed with particular attention on female living conditions and it's relevance for female specific prevention programs to lower the risk of depression and chronic diseases.

#### SS12-1

### DEPRESSION, INFLAMMATION, AND ATHEROSCLEROSIS IN FEMALES

**Miller G**

*Department of Psychology, University of British Columbia*

Among female patients with coronary heart disease, depression markedly diminishes quality of life, and also contributes to poorer medical outcomes. For example, in CHD patients the presence of depressive symptoms is associated with a 2-4 fold increase in cardiac morbidity and mortality, independent of standard risk factors. Despite consistent and compelling evidence of this association, the underlying biological mechanisms are not well understood. To address this problem, our team has argued that depression promotes mild, chronic inflammation, which in turn accelerates the progression of atherosclerosis. This chain-of-events probably initiates a positive-feedback circuit that worsens depression, because the molecular orchestrators of inflammation can elicit symptoms of depression.

In this talk I will provide an overview of research bearing on this hypothesis, drawing on nearly 10 years' worth of studies by our lab and others in the field. This work has given rise to 5 primary conclusions. (1) In young female adults who are otherwise medically healthy, depression is accompanied by mild systemic inflammation, as manifest by increased C-reactive protein and interleukin-6. (2) This inflammation is most pronounced among patients who present with other lifestyle problems, such as adiposity, smoking, and poor sleep, which synergize with depression to activate immunity. (3) To some degree, immune activation in depression may arise from acquired resistance to the potent anti-inflammatory properties of cortisol. (4) Among patients recovering from an acute coronary syndrome, depressive symptoms are related to systemic inflammation, and increased susceptibility to latent and chronic infections. (5) Systemic release of the inflammatory mediators like interleukin-1 $\beta$  brings about "sickness behaviors" like dysphoria, anhedonia, and fatigue that collectively resemble depression. This suggests a positive-feedback circuit linking depression, inflammation, and atherosclerosis. In closing I also will discuss ongoing research that uses molecular biological techniques to pinpoint the inflammatory signaling pathways upregulated in depression.

#### SS12-2

### RELATION BETWEEN PHYSICAL ACTIVITY, CHRONIC DISEASE AND DEPRESSION AMONG MEXICAN AMERICAN AND MEXICAN IMMIGRANT WOMEN IN THE USA

**Elder J P, Arredondo E, Ayala G X**

*San Diego State University, Graduate School of Public Health, Center for Behavioral and Community Health Studies*

Past research has shown physical activity to be associated with fewer depressive symptoms. However, few of these studies have examined the relation between physical activity and depression in immigrant and disadvantaged communities. This paper addresses the association between moderate-to-vigorous physical activity and various chronic disease conditions, and depressive symptoms, among adult Mexican American women and female immigrants to the USA from Mexico (all of whom are referred to herein as "Latinas").

Six-hundred Latina adults in two Southern California communities on the USA/Mexico border were randomly sampled to participate in a telephone interview in either Spanish or English (2/3 completed the interview in Spanish). The mean age of the respondents was 40 (SD = 13) and close to 40% reported some college education. Depressive symptoms were assessed using two items, one relating to sad or depressed mood and the other to loss of interest or pleasure in activities. Chronic disease symptoms and diagnoses were self-reported.

Nearly one-third of the sample endorsed one of the two depression items, and 3/10 endorsed both items. Over 35%, 55%, and 60% reported no leisure time walking, moderate or vigorous physical activity, respectively. Polychotomous logistic regression analyses controlling for socioeconomic factors indicated that participants who reported walking and engaging in vigorous activity during their leisure time endorsed less symptoms of depression ( $p < .05$ ). There were no associations between depression and leisure time moderate activity. Women reporting sleep problems, diabetes, CVD or hypertension all had substantially more depression (OR  $> 2.0$ ) than those who did not. After controlling for socioeconomic status, acculturation to the dominant American culture did not predict depression.

Findings indicate that self-reported daily leisure walking and engagement in regular vigorous physical activity are each associated with lower levels of self-reported depressive symptoms among American Latinas, symptoms that may be exacerbated by concomitant chronic disease. The promotion of MVPA among this population may serve to prevent depression directly or indirectly through the control of chronic disease conditions.

#### SS12-3

### DEPRESSION, STRESS, AND CARDIOVASCULAR FUNCTIONING AMONG WOMEN WITH DIABETES

**Wagner J**

*Division of Behavioral Sciences and Community Health*

This presentation will review the extant literature and the author's own work on depression, stress, and clinical diabetes indicators in women. Depression is more prevalent among diabetic women than among diabetic men and nondiabetic controls, and it is associated with vascular complications of diabetes. Stress is also common in persons with diabetes, and is implicated in cardiovascular disease. For ethnic minority women, who are at higher risk for type 2 diabetes, perceptions

of racism are a significant source of stress. Little is known about whether depression's effects persist after depression remission, whether there is a dose response relationship between episodes of depression and clinical indicators, and how depression and stress interact.

The author is pursuing these questions with controlled laboratory designs utilizing mental stressor analogues, as well as daily process designs with high ecological validity. Findings suggest that history of fully remitted depression is associated with depressive symptoms, glycemic control, diabetes symptoms, cardiovascular functioning as measured by endothelial functioning, as well as blood pressure and endothelial reactivity to mental stress. Some of these outcomes vary by single versus multiple depressive episode histories. Findings also indicate that perceptions of racism are more stressful for women than men with diabetes, are associated with depression, and interfere with depression treatment.

Our findings regarding history of depression have implications for determination of appropriate comparison groups in depression and stress research. A strategy for accurate assessment of history of multiple depressive episodes will be presented and discussed. Specific suggestions for future research will be made that address design and measurement issues. Eventually this line of research may suggest treatments for depression and stress to decrease cardiovascular morbidity in women with diabetes.

#### SS12-4

##### **SEX DIFFERENCES IN BASAL HPA AXIS ACTIVATION IN CHRONIC FATIGUE SYNDROME ? EVIDENCE FROM A POPULATION-BASED STUDY**

*Nater U M (1, 2), Maloney E (1), Boneva R S (1), Gurbaxani B M (1), Lin J (1), Jones J F (1), Reeves W C (1), Heim C (3)*  
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A substantial body of research on the pathophysiology of chronic fatigue syndrome (CFS) has focused on hypothalamic-pituitary-adrenal (HPA) axis dysregulation. The morning rise of cortisol has received considerable attention and was found to be associated with adverse health outcomes. Given the higher prevalence of CFS in women, sex differences in HPA axis function might in part mediate CFS outcome, thus translating potential risk (sex) into illness (CFS). The objective of the current study was to evaluate morning salivary cortisol profiles in male and female cases with CFS and well controls identified from the general population in Georgia, USA.

We screened a sample of 19,381 residents of Georgia and identified those with CFS and a matched sample of well controls. Saliva was collected immediately upon awakening, 30 minutes and 60 minutes after awakening on a regular workday. Seventy-four medication-free CFS cases and 110 well controls provided complete sets of saliva samples.

There was a significant interaction effect ( $P = 0.040$ ), indicating different profiles of cortisol concentrations over time, between groups, with the CFS group showing an attenuated morning cortisol profile. Notably, we observed a sex difference in this effect. There were no significant differences in cortisol profiles of men with CFS and male controls ( $P = 0.102$ ). However, women with CFS exhibited significantly attenuated morning cortisol profiles compared with well women ( $P = 0.031$ ).

CFS was associated with an attenuated morning cortisol response. The effect appears to be limited to women. Our results suggest that a sex difference in hypocortisolism might

contribute to increased risk of CFS in women.

#### SS42

##### **The Impact of Social Support and Social Networks on Self-Management Behavior and Health-Related Quality of Life in Individuals with Chronic Health Disorders**

*Chair (s) : Denise Charron-Prochownik*

Chronic disorders are pervasive, altering one's physiological, emotional, psychological, and social states. They often require lifestyle changes demanding self-management behavior. By imposing limitations, these disorders can influence quality of life. Social support has been found to modify the negative effects of chronic disorders. Social support is the process by which recourse or help is obtained from the social network to meet one's needs. For chronic health disorders, family, friends, and health professionals are important sources of social support. Studies have shown that higher levels of perceived support are associated with improved self-management behavior (adherence) and greater health-related quality of life (HRQOL). The purpose this symposium is to present the main and/or buffering effects of social support on behavioral and HRQOL outcomes in four separate studies of different populations with chronic health disorders. Our presentations will focus on: 1) the role of health professionals as providing reproductive-health informational support to teens with diabetes; 2) the influence of mother's communication and support on a diabetic teen's reproductive-health behavior; 3) the role of family support on adherence to self-management and HRQOL for overweight/obese adults; and 4) the effects of social support on HRQOL in individuals with HIV. Results from these studies will be mapped using Tardy's Elements of Social Support framework. Social support will, therefore, be discussed vis-a-vis its direction (receiver or provider), disposition (available or actual), content or type (emotional, instrumental, informational, appraisal), and network membership. Common themes and implications for research will be addressed.

#### SS42-1

##### **HEALTH PROFESSIONALS' ROLE IN DIABETIC TEENS' SOCIAL SUPPORT NETWORK REGARDING REPRODUCTIVE HEALTH COMMUNICATION**

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**Purpose:** In England, diabetes is the most common medical condition to complicate pregnancy. Concurrently, adolescents experience a disproportionately high number of unplanned pregnancies. Careful planning of pregnancies is vital to promote positive maternal and perinatal outcomes, yet girls with diabetes engage in similar levels of sexual risk taking as those without. Although it is within the remit of diabetes health professionals to provide informational support to female patients about the effect of diabetes on pregnancy outcomes, it is well documented that health professionals experience difficulties when talking to adolescents about sexual issues. This study aimed to identify barriers to and facilitators of sexual and reproductive-health communication between health professionals and girls with type 1 diabetes.

**Methods:** Interviews with ten professionals from diabetes health care teams at two hospitals were conducted. Content analysis was used to describe and categorise the data.

Results: Barriers to communication were health professionals' uncertainty about the best way to initiate conversations, the presence of other members of a teen's social network such as parents, particularly fathers, at the consultation, lack of confidence in providing culturally sensitive messages, and not knowing the most appropriate timing and depth of information. Facilitators were to impart information only, not discuss personal issues.

Conclusion: Health professionals would benefit from strategies to help them overcome the barriers identified. Absence of embarrassment as a barrier to communication could be exploited. Teams lack departmental guidelines and a cohesive approach to education of young female patients about sexual/reproductive-health issues. These findings will be used to develop an intervention to improve the quality of information and support on sexual/reproductive-health provided by diabetes health care teams with the aim of enhancing young female patients' sexual/reproductive self-management behaviour.

#### SS42-2

### **SOCIAL SUPPORT AND REPRODUCTIVE-HEALTH RELATED COMMUNICATION BETWEEN MOTHERS AND THEIR ADOLESCENT DAUGHTERS WITH DIABETES**

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Purpose: Diabetic adolescents are at risk for reproductive-health complications and for unplanned pregnancies. Mothers can provide social support (SS) and influence positive reproductive-health decisions and self-management behaviors. The purpose of this study was to examine the relationships of general communication (GC), diabetes and reproductive-health knowledge, attitudes and SS associated with mothers' discussion of reproductive-health issues with their adolescent diabetic daughters.

Methods: A repeated-measures (baseline and 3-months) design was used as part of a larger randomized-controlled trial with diabetic adolescents. Mothers did not receive an intervention, but were identified according to their daughter's randomized group assignment.

Results: Forty-four mothers participated; age ranged from 34-57.1 years ( $M=45.3$ ,  $SD=5.3$ ) and 82% ( $n=36$ ) were Caucasian. Mothers reported high levels of GC with their daughters; lacked diabetes and reproductive-health knowledge; had strong attitudes; and reported providing high levels of SS (emotional, informational and instrumental) to their daughters in preventing an unplanned pregnancy with the use of birth control and seeking preconception-counseling. Although mothers reported moderate levels of intention to speak with their daughters about reproductive-health issues, few had actual discussions; 55% ( $n=24$ ) at baseline, 66% ( $n=29$ ) at 3-months. In an adjusted model for mothers' intention to speak with their daughters, there was a significant ( $p<.05$ ) group-by-time effect, which included education, GC and severity as covariates. In a model for actual discussion, a time effect was significant ( $p<.05$ ) with susceptibility and SS as covariates.

Conclusions: Mothers provided SS to their diabetic daughters in helping them to prevent unplanned pregnancies; and greater perceived SS was associated with actual discussions of reproductive-health issues. Mothers could benefit from enhanced knowledge about diabetes and reproductive-health to provide more informative communication with their daughters.

#### SS42-3

### **FAMILY SUPPORT INCREASES HEALTH-RELATED QUALITY OF LIFE IN OVERWEIGHT/OBESE ADULTS IN A BEHAVIOURAL WEIGHT LOSS STUDY**

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Purpose: Health-related quality of life (HRQOL) among overweight/obese individuals is reportedly lower than among normal weight individuals. Successful self-management during weight loss requires significant changes in lifestyle related to eating and physical activity and impacts one's interactions with their social network. The purpose of this study was to describe the role of social and family support and its relationship with HRQOL and self-management of a new eating pattern.

Methods: We administered the Barriers to Healthy Eating (BHE) Questionnaire, a scale that includes a social support subscale, and the Medical Outcomes Study Short Form-36 for HRQOL, weighed participants and collected 3-day food diaries for dietary adherence at baseline and 6 months during a behavioural intervention study for weight loss.

Results: The sample ( $N = 151$ ) was 87% female and 69% white with a mean age of 43.7 years and a body mass index of 34.0 at baseline. Changes in social support from 0 to 6 months were negatively correlated with changes in physical HRQOL ( $p = .014$ ) and highly positively correlated with changes in weight ( $p<.0001$ ), meaning that as self-reported barriers to healthy eating were reduced, HRQOL increased and weight decreased. No significant associations were found for the changes in mental HRQOL component. The 6-month fat and calorie adherence measures were not related to social support.

Conclusion: Eliciting support from one's social network to reduce barriers to healthy eating could be beneficial to one's physical HRQOL and success in a weight loss program. These data suggest that weight loss intervention programs should increase the focus on how to elicit such support.

#### SS42-4

### **IS SOCIAL SUPPORT A PREDICTOR OF MEDICATION ADHERENCE AND HEALTH OUTCOMES IN PERSONS WITH HIV/AIDS?**

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Purpose: The importance of supportive social relations in terms of health has been demonstrated in a number of large-scale studies in chronic disorder populations. What is less clear is the interplay between social support with medication adherence and health outcomes, especially in persons treated for HIV/AIDS. The purpose of this secondary analysis was to investigate the associations between the perceived availability and quality of potential social support and medication adherence, health-related quality of life (HRQOL), and key clinical outcomes in persons with HIV/AIDS.

Methods: Baseline data were pooled from two adherence intervention studies. Social support was measured using the Interpersonal Support Evaluation List which yields an overall score and four perceived support subscale scores (appraisal, belonging, tangible, and self-esteem). HIV medication adherence was assessed over a two-week period using the AARDEX electronic event monitoring (EEM). The MOS-HIV Health Survey assessed 10 dimensions of HRQOL including general health perceptions, physical functioning, role

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functioning, pain, social functioning, mental health, energy, health distress, cognitive functioning, and quality of life. Clinical outcomes included CD4 T-cell count and whether viral load was detectable.

Results: Participants (n=391) were predominantly male (n=267, 68%) and white (n=211, 54%) with ages ranging from 19 to 66 years (mean=41.8, SD=7.9). Social support was not significantly associated with HIV medication adherence; however, social support was positively associated with all ten dimensions of HRQOL ( $p<.0001$ ). Certain dimensions of social support were positively associated with CD4 T-cell counts (overall:  $p=.031$ ; appraisal:  $p=.045$ ; belonging:  $p=.025$ ), but not detectable viral load.

Conclusions: Social support is directly related to key health outcomes in persons with HIV/AIDS. Research should focus on ways to enhance social support in this chronic disorder population.

OS16

**Track :**  
**‘Socioeconomic Factors, Culture & Health’**

*Chair (s) : Brian Oldenburg*

**Track ‘Socioeconomic Factors, Culture & Health’**

OS16-1

**PSYCHOSOCIAL RESOURCES AS MODERATORS OF SOCIOECONOMIC STATUS DIFFERENCES IN PSYCHOSOMATIC SYMPTOMS AMONG YOUNG ADULTS**

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The aims of the study were to examine whether psychosocial resources (locus of control (LOC) and coping dispositions) moderate the relationship between socioeconomic status (SES) and psychosomatic symptoms among young adults, and whether this moderation is different between genders and age phases (22 vs. 32 years). The survey data used in this study were drawn from the two latest panels of a Finnish cohort study: in the 1989 panel subjects were aged 22 years (N=1656) and in 1999 32 years (N=1471). The measurements were: SES (by education at 22, by occupation at 32 years), psychosomatic symptoms (a sum score of 17 symptoms), LOC and four coping dispositions. The results showed that psychosomatic symptoms were more common in the lower SES group among females and males both at 22 and 32 years. Among males at 22 years psychosocial resources did not moderate the SES - psychosomatic symptoms relationship, but at 32 years three moderation effects emerged: those males in the lower SES group having more internal LOC, using more active problem-solving or less emotion-focused coping showed psychosomatic symptom levels that were comparable to those in the higher SES group. Among females at 22 years emotion-focused coping disposition moderated the relationship between SES and psychosomatic symptoms. No other moderation effects were found among females at 22 or 32 years. The results indicated that psychosocial resources may buffer the negative effects of low socioeconomic status on psychosomatic symptoms among young adults. However, the buffering effects were found mainly among males and among them they only emerged by 32 years. It can be speculated that among males the SES positions get somewhat more polarised from 22 to 32 years as compared to females, and this enables the counterbalancing effects of psychosocial resources to become more pronounced.

OS16-2

**LIFETIME CO-MORBIDITIES BETWEEN PHOBIC DISORDERS AND MAJOR DEPRESSION IN JAPAN: RESULTS FROM THE WORLD MENTAL HEALTH JAPAN 2002-2004 SURVEY**

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**Background.** Phobic disorders are among the most commonly occurring and earliest-onset mental disorders. Although often considered of minor significance in themselves, evidence exists that early-onset phobic disorders might be predictors of later more serious disorders, such as major depressive disorder. However, this association has not been investigated in non-Western countries.

**Methods.** Data from a community-based study of mental disorders in Japan, the World Mental Health Japan 2002-2004 Survey, were analyzed. A total of 2,436 community residents aged 20 and older were interviewed using Version 3.0 of the WHO Composite International Diagnostic Interview - Japanese version (response rate, 58.4%). Ages of onsets of DSM-IV phobic disorders (specific phobia, agoraphobia with/without panic disorder, and social phobia) and major depressive disorder (MDD) were assessed retrospectively. A Cox proportional hazards model was used to predict the onset of MDD as a function of prior history of each phobic disorder, adjusting for sex and age group (birth cohort).

**Results.** Social phobia and agoraphobia were strongly associated with the subsequent onset of MDD (hazard ratio [HR] = 7.2 [95%CI: 3.8-13.7] and 6.6 [95%CI: 1.2-35.0], respectively). The association between specific phobia and MDD was also statistically significant, but less strong (HR=2.4 [95%CI: 1.4-4.3]).

**Conclusions.** Social phobia and agoraphobia are more powerful predictors of the subsequent first onset of MDD in a community sample in Japan than in Western countries, possibly because they both affect social situations.

OS16-3

**SENSE OF COHERENCE AND ALL-CAUSE MORTALITY AMONG FINNISH MEN AND WOMEN**

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There is an increasing interest in research on the positive psychosocial factors that are assumed to maintain and enhance health. Aaron Antonovsky (1987) hypothesizes that an individual with a strong sense of coherence (SOC) maintains and enhances health through effective and flexible coping with stressors. The aim was to examine whether SOC is related to all-cause mortality in a population based study. The participants were 25-74 years old men (N=4027) and women (N=4294) from the cardiovascular risk factor survey (FINRISK) conducted in 1992 and 1997 in Finland. A 13-item version of the Orientation to Life Questionnaire was used to measure SOC. A total SOC score was calculated using mean over 13 questions with scale from 1 to 7. The SOC scale was internally consistent on the basis of Cronbach alpha criterion (0.86). During 7-12 years of follow-up, there were 278 deaths. The SOC scores were associated with all-cause mortality after adjustments for age and gender (RR 0.80; 95% CI 0.71-0.91). There was no significant interaction between gender and the SOC scores on all cause mortality. After further adjustments for marital status, level of education, and current smoking, the association remained significant (RR 0.87; 95% CI 0.77-0.99). People with higher SOC scores had lower risk for all-cause mortality after adjustment for some demographic factors and smoking. These results will be compared in relation to some other psychosocial factors like depressive symptoms that have high negative correlations with SOC.

OS16-4

**THE EFFECTS OF FAMILY BACKGROUND ON CHILD MORTALITY, ELABORATION OF THE ASSOCIATION IN FINLAND 1990-2004**

**Remes H M**

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Social inequalities in health in childhood are still evident in many developed countries. This study examines how, and in what measure does family structure (family type, family size, and parental age) affect child mortality, and whether the association can be explained by socioeconomic factors such as parental education, parental employment status, household income, housing tenure or house type. The mortality of children between the ages 1-14 will be followed for a 15-year period from 1990 to 2004. The study is based on annually updated longitudinal register data that includes a representative 11% sample of the whole Finnish population with an over-sample of 80% of all deaths. Mortality rates and hazard ratios of mortality were calculated by each covariate. The relative effect of family characteristics on the risk of death was estimated using Cox regression models. Family structure was clearly associated with child mortality, so that being a child of a single parent, very young parents, or being the only child or one of many, carries an increased risk of mortality compared to other types of families. The effects of family structure were even stronger (HR 1.56 (95% CI 1.30-1.88) for single parenthood) when considering only accidental and violent causes of death. However, these differences are further

associated to the socioeconomic position of the family, and the effects of family structure significantly attenuate or even disappear (single parenthood) when controlling for parental education and level of household income. Interestingly, families with cohabiting parents had a somewhat lower level of child mortality than families with married parents, and adjusting for socioeconomic factors rendered this difference statistically significant.

OS16-5

**UNFAIRNESS CAN BREAK OUR HEART: EVIDENCE FROM THE WHITEHALL II STUDY**

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*ernational Institute for Society and Health, Department of Epidemiology and Public Health, University College London*

**Objectives** The aims of the study were to examine the role of unfairness in predicting incident coronary events, health functioning and the metabolic syndrome. **Methods** Prospective cohort study. Participants included 5726 men and 2572 women from 20 civil service departments in London (the Whitehall II study). Unfairness, socio-demographics, established coronary risk factors (high serum cholesterol, hypertension, obesity, exercise, smoking, alcohol consumption) and other psychosocial work characteristics (job strain, effort-reward imbalance and organizational justice) were measured at baseline. Associations between unfairness and incident coronary events (fatal CHD, non fatal MI and angina, n=528 events) and health functioning were determined over an average follow up of 10.9 years. Waist circumference, triglycerides, HDL cholesterol, fasting glucose, and hypertension were used to define metabolic syndrome at follow up of 5.8 years. **Results** Participants reporting higher levels of unfairness are more likely to experience an incident coronary event (HR = 1.55 95% CI = 1.11 to 2.17), after adjustment for age, gender, employment grade, established coronary risk factors and other work-related psychosocial characteristics. Unfairness is associated with poor physical (OR = 1.46 95% CI = 1.20 to 1.77) and mental (OR = 1.54; 95% CI = 1.19 to 1.99) functioning at follow up, controlling for all other factors and health functioning at baseline and positively associated with waist circumference, hypertension, triglycerides and fasting glucose and negatively associated with serum HDL cholesterol. High levels of unfairness are also associated with the metabolic syndrome (OR = 1.72 95% CI = 1.31 to 2.25), after adjustment for age and gender. After additional adjustment for all covariates, the relationship between high unfairness and metabolic syndrome weakened, but remained significant (OR = 1.37 95% CI = 1.00 to 1.93). **Conclusions** Unfairness is an independent predictor of increased coronary events, impaired health functioning, the metabolic syndrome and its components.

OS16-6

**THE CONTRIBUTION OF CHILDHOOD CIRCUMSTANCES, CURRENT LIVING CONDITIONS AND HEALTH BEHAVIOUR TO EDUCATIONAL HEALTH DIFFERENCES IN EARLY ADULTHOOD**

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The lifecourse approach has emphasised the contribution of circumstances in childhood and youth to adult health inequalities. However, this contribution is still poorly known, in particular in early adulthood. Even less is known about how social environmental and behavioural factors in adulthood mediate, accentuate or protect from the effects of earlier adverse circumstances. The aim of this study is to assess a) how much childhood circumstances, current living conditions and health behaviour contribute to the educational health differences and b) to which extent health behaviour and current living conditions mediate the effect of childhood circumstances on health differences in young adults. The data derived from the Health 2000 Survey represent the Finnish young adults aged 18-29 in 2000 (N=1894, participation rate 79%). The cross-sectional data include retrospective information on childhood circumstances. The outcome measure was poor self-rated health. There were wide educational differences in self-rated health in young adulthood: the lower the education the more likely it was to report poor health. Childhood circumstances explained a substantial part of the differences in health between educational groups. This explanatory effect was largely mediated by employment paths and in particular, by health behaviours adopted by young adulthood. Health behaviours, smoking and heavy drinking especially, were strongly associated with educational health differences. Understanding the pathways to health inequalities and improving the living conditions of families with children, is a necessary basis for developing means to prevent the unfortunate trajectories by which poor health and health differences are developed.

## OS17

### Track : 'Pain, Musculoskeletal and Neuromuscular Disorders'

Chair (s) : Joost Dekker

### Track 'Pain, Musculoskeletal and Neuromuscular Disorders'

## OS17-1

### PREVALENCE AND COURSE OF FOREFOOT IMPAIRMENTS AND WALKING DISABILITY DURING THE FIRST 8 YEARS OF RHEUMATOID ARTHRITIS

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**Purpose:** To investigate the prevalence at initial presentation and the 8-year course of forefoot impairments and walking disability in rheumatoid arthritis (RA) outpatients. **Methods:** 756 patients of an Early Arthritis Cohort were selected as they fulfilled the ACR criteria for RA within the first year after presentation. Pain and swelling of the metatarsophalangeal joints (MTPs), forefoot joint damage as scored according to the Sharp/van der Heijde method, and walking disability as measured by the subscale walking of the HAQ DI were annually evaluated. Data were analysed using descriptive and correlational techniques. **Results:** At baseline, the prevalence of painful and swollen MTPs was 68% and 71% respectively.

After initial improvement in the first year, the prevalence of MTP involvement remained constant (40 to 50%) over the years. 35.0% patients showed erosion and/or joint space narrowing in at least one forefoot joint at baseline. In the first year after initial presentation, the percentage of new patients with forefoot joint damage increased rapidly. In subsequent years, the increase of new patients with forefoot joint damage slowed down, resulting in 66% of patients with forefoot joint damage at 8 year follow-up. 58% of patients reported walking disability at baseline and walking disability remained constant (around 40%) after an initial improvement in the first year. A mean annual increase of 0.02 points on the HAQ subscale walking disability was found. **Conclusion:** During the first 8 years of RA the prevalence of pain and swelling of MTPs is high. The percentage of patients with forefoot joint damage progresses rapidly within the first year. The prevalence of patients with disability in walking remains stable after an initial decrease, whereas the severity of walking disability increases slowly. Specific attention to foot problems is important throughout the course of RA.

## OS17-2

### PREOPERATIVE OR POSTOPERATIVE SELF-EFFICACY: WHICH IS A BETTER PREDICTOR OF OUTCOME AFTER TOTAL HIP OR KNEE ARTHROPLASTY?

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#### Objective

Self-efficacy is considered an important determinant of outcome after total hip or knee arthroplasty. Aim of this study is to evaluate the contributions of preoperative and short-term postoperative self-efficacy in predicting long-term outcome.

#### Methods

Self-efficacy was determined in 103 total hip and knee arthroplasty patients preoperatively and 6 weeks postoperatively with the Self-Efficacy for Rehabilitation Outcome Scale. The 6-month outcome was assessed with a disease-specific and a generic self-report questionnaire and an objective measure of function (walking speed). Multiple linear regression analyses were used to examine the value of preoperative and short-term postoperative self-efficacy in predicting 6-month outcomes.

#### Results

Preoperative self-efficacy was only a significant predictor of long-term postoperative walking speed, with higher self-efficacy resulting in faster walking speed at the long-term measurement ( $R^2 = 0.47$ ). Short-term postoperative self-efficacy was a significant predictor of the long-term postoperative generic outcome measure (physical functioning:  $R^2 = 0.30$ ; mental health:  $R^2 = 0.53$ ) and of walking speed ( $R^2 = 0.66$ ), with higher self-efficacy resulting in a better long-term outcome.

#### Conclusion

Short-term postoperative self-efficacy seems a better predictor of long-term outcome after total hip or knee arthroplasty than preoperative self-efficacy.

#### Practice implications

Interventions should focus on enhancing short-term postoperative rather than preoperative self-efficacy.

OS17-3

**POSITIVE EMOTION AND PAIN AFTER STROKE. ASSESSING ETHNIC DIFFERENCES.**

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Background: Accumulating evidence indicates the beneficial effects of positive emotion on health and general well-being. Less evidence is available on whether positive emotion influences pain after an acute medical event such as stroke. Aim: Examine the association between positive emotion and pain in persons with stroke and if this association differs by ethnic group. Methods: A longitudinal study using information from the Stroke Recovery in Underserved Patients database. The study included 917 persons aged 50 and older with stroke and admitted to an in-patient medical rehabilitation facility. Information was collected during in-patient medical rehabilitation stay and approximately 3 months post-discharge. Results: The mean age of the sample was 71.5 years (SD = 10.3), 50.7% were women and 54.6% were married. The sample was mostly non-Hispanic white (78%), followed by non-Hispanic black (16%) and Hispanic (6%). The average length of stay was 20.1 days (SD = 10.4). In multivariate regression analyses, discharge positive emotion score was significantly associated with less pain at the three month follow-up ( $\beta = -0.11$ , SE 0.02,  $p = <0.001$ ). The interaction effect of pain and race in unadjusted and adjusted models obtained significant results ( $\beta = -0.09$ , SE 0.03,  $p = <0.01$ ). Based on these results we proceeded to stratify our univariate and multivariate analyses by ethnic group. Significant results were found for non-Hispanic white ( $\beta = -0.07$ , SE 0.02,  $p = <0.004$ ), non-Hispanic black ( $\beta = -0.19$ , SE 0.06,  $p = <0.001$ ), and Hispanic ( $b = -0.31$ , SE 0.10,  $p = <0.005$ ). Conclusion: Results indicate positive emotion is associated with less pain post-stroke. This association was stronger for Hispanics and non-Hispanic blacks compared to non-Hispanic whites. Findings have implications for stroke recovery programs and suggest the need to include measures of positive emotion in patients assessments.

OS17-4

**PAIN AS A PREDICTOR OF SICKNESS ABSENCE**

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Pain restricts work ability, but it is not known to what extent pain, irrespective of the diagnosis, predicts sickness absence. We aim to study pain as a predictor sickness absence, taking into account the previously found work-related physical and psychosocial risk factors, and lifestyle. Data derive from questionnaire surveys mailed to all 40, 45, 50, 55 and 60 year old employees of the City of Helsinki in 2000-2002 (N=8960, response rate 67%, 80% women), and the City of Helsinki personnel register on sickness absence. 78% of survey respondents gave permission to combine questionnaire and register information (N=6988). Outcome variables were self-certified sickness absence spells (<4 days) and medically certified absence spells (>3 days) during the year following the return of the questionnaire. Pain was divided to acute ( $\leq 3$  months) and chronic pain (>3 months). Negative binomial regression analysis and etiological fractions were used. Both types of pain predicted both self-certified and medically certified sickness absence among women. Adjusting for work-

related physical and psychosocial risk factors and lifestyle had only minor effects on the associations. Among men, neither acute nor chronic pain predicted short term absence when adjusted for the other risk factors. Chronic pain predicted medically certified absence. Acute pain accounted for 4% of self-certified absence among both women and men. Chronic pain accounted for 10% of self-certified absence among women and 6% among men. Of medically certified absence acute pain accounted for 7% among women and 5% among men. Chronic pain accounted for 24% and 26%, respectively. Pain is important predictor of sickness absence. Overall, compared to acute pain chronic pain is a stronger predictor of medically certified sickness absence. Pain has multiple risk factors including work related physical and psychosocial factors. Thus, tackling the risks for pain is a potential way to decrease sickness absence rates.

OS17-5

**READINESS TO CHANGE AND POSITIVE AFFECT MAY REDUCE PAIN - A WEEKLY ASSESSMENT STUDY ON PATIENTS WITH RHEUMATOID ARTHRITIS.**

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The objective of the study was to analyze the relationships between Pain Readiness to Change, weekly measures of positive and negative affect and pain over eight subsequent weeks in patients with rheumatoid arthritis (RA). Factor analysis based on data from three different samples of patients with rheumatic diseases and other chronic pain conditions, suggested a three factor solution for the Norwegian version of the Pain Stages of Change questionnaire (PSOCQ) representing Precontemplation, Contemplation, and Action/Maintenance (ACT) stages from the original Transtheoretical Model. Multilevel analyses on the weekly assessed data from a sub sample of 40 patients with RA, revealed that higher levels of Pain Readiness to Change represented by high ACT scores, were associated with more positive affect from week to week while no association was found between Readiness to Change and weekly pain. However, there was an interaction effect between Pain Readiness to Change and weekly positive affect on weekly pain, indicating that those persons having a higher level of Readiness to Change reported less pain in weeks when they also experienced increased positive affect. This may imply that a combination of cognitive factors and positive affect is most effective in relation to pain reduction. Results encourage continued investigation of apparent interactions between chronic pain, affect, and pain self-management.

OS17-6

**EXPLORING WHY PEOPLE CONTINUE TO WORK IN SPITE OF LOW BACK PAIN: THE EXPERIENCES OF FARM WORKERS IN RURAL NEW ZEALAND.**

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**Introduction:** Farm workers undertake heavy physical work and have repeated episodes of work related low back pain (LBP), yet many continue to work. By comparison workers with LBP in other manual occupations often end up on long term sick leave or permanently disabled. **Aim:** Using a positive psychology framework to explore experiences of having LBP while working in a rural setting focusing on what contributes to a persons ability to remain at work in spite of LBP. **Methods:** Mixed method design involving farm workers with non-specific LBP. Following ethical approval participants completed the Brief Illness Perception Questionnaire adapted for LBP and the General Self Efficacy Scale. Responses were used to inform subsequent in-depth one-to-one interviews. **Analysis:** Interview data were transcribed verbatim and coded for emergent themes. Questionnaire responses and qualitative data analysis occurred at different levels from descriptive and content analysis through to detailed interpretation, following principles of Interpretative Phenomenological Analysis. **Results:** 27 male participants were farmers; six were partners of farmers. Farm tasks included animal husbandry for sheep, beef or deer; forestry management or grain production; fencing and machinery maintenance. Self efficacy was high with positive perceptions about LBP despite strong beliefs that LBP was a long term, lifetime, condition. Four themes emerged: Thinking with my head before my back and Knowing the risks described smarter working; Just carry on and Minimizing LBP related to stoical resilience whereby symptoms and job demands were played down. **Discussion:** Despite many manual task risks participants managed their own LBP and found a way to continue working. Findings suggest interventions for reducing risks for farm workers as well as interventions for other workers at risk of LBP, incorporating positive psychological attitudes towards accepting LBP as part of everyday life and how to stay at work despite LBP. **Funding:** University of Otago Research Grant

## OS18

### **Track : 'Diabetes/Metabolism/Nutrition/Obesity/ Eating Disorders'**

*Chair (s) : Jane Wardle*

### **Track 'Diabetes/Metabolism/Nutrition/ Obesity/Eating Disorders'**

## OS18-1

### **BARIATRIC PSYCHOLOGY, PSYCHOLOGICAL ASPECTS OF BARIATRIC SURGERY**

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Worldwide, the prevalence of obesity has reached epidemic proportions. Morbid obesity is associated with an increased risk of morbidity and mortality as well as psychosocial problems and poor quality of life. As bariatric surgery appears to be the only treatment with long-term success, such as substantial weight loss, changes in eating behavior, significant reduction of somatic and psychosocial complaints, and improvements in quality of life, the number of annual bariatric operations has increased enormously.

Although bariatric surgery generally is an effective intervention, it does not lead to equal results in every patient.

The long-term efficacy is predominantly determined by compliance to adequate dietary rules. Surgical treatment of obesity is not an alternative to dieting but a method to enforce dieting. In fact, bariatric surgery is a forced behavior modification; in addition to surgery, psychological factors play an important role in its results. Psychosocial and behavioral factors are supposed to contribute to successful postoperative outcomes and psychological factors may be predictive of post-surgical adjustment. Identifying such factors would allow practitioners to target patients at risk of a poor response, and would enable better patient selection and pre- or postoperative counseling to improve long-term outcomes.

We evaluated preoperative as well as postoperative psychosocial functioning in several domains over time and psychosocial variables predicting success after bariatric surgery. Significant improvements regarding weight, eating behavior, psychosocial functioning, body image, and quality of life were found. However, some of the initially reported improvements lessened over time and not all patients appeared to profit in the same way. Preoperative psychological assessment is helpful in targeting patients at risk of poor psychological outcomes after bariatric surgery.

## OS18-2

### **THE INFLUENCE OF FAMILY RELATIONSHIPS ON DISEASE SELF-MANAGEMENT IN JAPANESE ADULTS WITH TYPE 2 DIABETES**

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#### **<Introduction>**

Previous research has found that family life can have a positive influence on disease self-management among patients with chronic disease, but it is not clear which aspects of family life are most influential. The aim of this study was to specify features of family life that are associated with disease management among a relatively understudied group, Japanese adults with type 2 diabetes.

#### **<Method>**

A total of 79 Japanese patients with type 2 diabetes were assessed on three domains of family life (structure/organization, world view, and emotion management) and three dimensions of disease management (psychological, behavioural, and glucose regulation). Analyses assessed the associations of family factors with disease management.

#### **<Result>**

Correlation analyses indicated that family structure/organization, marked by family cohesiveness and traditional sex roles, was related to higher diabetes quality of life (DQOL)-Satisfaction, with multiple regression indicating this was an independent predictor. High family coherence, a world view that life is meaningful and manageable, was positively associated with depressive symptoms and physical activity. Emotion management, marked by unresolved family conflict about diabetes, was related to more depressive symptoms, and lower DQOL-Satisfaction. No family measures were related to perceived general health, diet, and HbA1c levels.

#### **<Conclusion>**

In conclusion, the study found that family structure/organization displayed a significant association with managing type 2 diabetes in a sample of Japanese patients, primarily in the psychological management arena. Also, similarities and differences of these findings to those among other ethnic groups are discussed.

OS18-3

**WOMEN WITH LOW EDUCATIONAL ATTAINMENT HAVE A LOWER SENSE OF WELL-BEING WHICH IS RELATED TO EATING A POOR QUALITY DIET**

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Women of low educational attainment are less likely than women with higher educational attainment to eat diets that meet current recommendations. Recent research suggests that this is not just due to lower socioeconomic status or income. As the nutritional status of young women is crucial in determining the health and well-being of future generations, it is important to understand the relationship between educational attainment and diet, in order to develop an effective intervention to improve dietary quality. This study examines the role of well-being as a possible factor in the relationship between education and the diets of young women in the UK, hypothesising that women of low educational attainment have a lower sense of well-being which is related to poorer quality diets.

A cross-sectional questionnaire survey of 182 women (mean age = 29 years) was undertaken. Diet was measured by a 19 item food frequency questionnaire, enabling Principle Components Analysis to calculate a single diet score for each woman; psychological well-being was assessed using the WHO-5 Well-Being Index on a 6 point likert scale. Data on age, number of children living in the home and level of education attained were also collected.

The findings support the hypothesis that there is a positive relationship between educational attainment, well-being and quality of diet. Women of lower educational attainment reported poorer quality of diet and had a lower sense of well-being. Well-being had a partially mediating effect on the relationship between educational attainment and dietary quality.

Women of low educational attainment may find it hard to change their diets if they have a lower sense of well-being. They should be the main target group for an intervention to assess and address their sense of well-being, and help them improve their diets.

OS18-4

**THE ASSOCIATION BETWEEN ATTACHMENT STYLE AND THERAPEUTIC ALLIANCE IN ADULTS WITH DIABETES AND THEIR KEY-WORKERS**

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**Aims:** According to attachment theory, early experiences with significant others may influence interpersonal behaviour and expectations of relationships in later life. Attachment avoidance is associated with a negative image of others and is manifested as either an excessive need for self-reliance or a fear of depending on others, while attachment anxiety is associated with a negative view of oneself and is manifested in anxiety and excessive reassurance seeking in relationships. Previous work suggests that attachment avoidance may be particularly problematic in health-care relationships, as patients with high levels of attachment avoidance may have difficulty eliciting and benefiting from support from others.

We investigated whether attachment avoidance is related to the quality of therapeutic alliance between adult patients with diabetes and their key health-care professionals. **Method:** In a cross-sectional design, 48 out-patients with Type 1 and Type 2 diabetes of at least 6 months duration completed self-report questionnaire measures of attachment anxiety and avoidance and therapeutic working alliance. 8 health-care professionals who knew these patients well completed an informant version of the attachment measure, which asks about observable behaviours in relationships, such as denying distress and attempting to cope without seeking help from others. Key workers also reported on their own perceptions of therapeutic alliance. **Results:** There was a significant negative correlation ( $r = -.29$ ,  $p = .04$ ) between key workers ratings of patients attachment avoidance, and patient-rated therapeutic alliance. However, there were no significant correlations between patient rated attachment avoidance and either alliance measure, nor between attachment anxiety and alliance. **Conclusions:** Where key workers rated patients as exhibiting avoidant attachment-related behaviours, patients perceived the quality of the therapeutic relationship more negatively. This may have implications for the engagement of patients in diabetes management.

OS18-5

**APPETITE AS A BEHAVIOURAL PHENOTYPE FOR OBESITY**

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**Background:** Appetitive characteristics such as responsiveness to internal satiety cues and external food cues could underlie susceptibility to obesity. **Objective:** We assessed associations with adiposity and heritability of two appetitive traits - satiety responsiveness and food cue responsiveness - in children. **Design:** Parents of two groups of children: i) 3-5 y-olds ( $n=572$ ) from a community sample and ii) 8-11 y-olds ( $n=10,364$ ) from a population-based twin cohort, completed a validated psychometric measure of appetite (Child Eating Behaviour Questionnaire; CEBQ). Adiposity was indexed with BMI sd scores from researcher-measured heights and weights for the 3-5 y-olds and parent-measured data for the 8-11 y-olds. For the 8-11 y-olds, waist circumference measures were available and used to derive waist sd scores. Quantitative model fitting was used to assess heritability in the twin sample. **Results:** Higher BMI sd scores were associated with lower satiety responsiveness (3-5 y-olds:  $r = -0.19$ ; 8-11 y-olds:  $r = -0.22$ ;  $P = 0.001$ ) and higher food cue responsiveness ( $r = 0.18$  and  $0.19$ ;  $P = 0.001$ ). In the twin sample, waist sd scores were also associated with satiety responsiveness ( $r = -0.23$ ,  $P = 0.001$ ) and food cue responsiveness ( $r = 0.20$ ,  $P = 0.001$ ). Quantitative genetic model-fitting gave estimates of 63% (95% confidence interval: 39% to 81%) for the heritability of satiety responsiveness and 75% (52% to 85%) for food cue responsiveness. Shared and non-shared environmental influences were respectively 21% (0% to 51%) and 16% (10% to 21%) for satiety responsiveness, and 10% (0% to 38%) and 15% (10% to 18%) for food cue responsiveness. **Conclusions:** These results suggested that appetitive traits such as satiety sensitivity and food cue responsiveness might be part of a heritable behavioural phenotype underlying obesity risk. Assessing appetite in early childhood could help identify higher-risk individuals while they are a healthy weight, enabling targeted interventions to prevent development of obesity.

OS19

**Track :  
'Infectious Diseases/SARS/HIV/AIDS'**

*Chair (s) : Joseph Lau*

**Track 'Infectious Diseases/SARS/HIV/AIDS'**

OS19-1

**RANDOMIZED CONTROLLED TRIAL OF A COGNITIVE-BEHAVIORAL INTERVENTION FOR HIV-POSITIVE PERSONS: AN INVESTIGATION OF TREATMENT EFFECTS ON PSYCHOSOCIAL ADJUSTMENT**

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Numerous randomized controlled trials have examined the efficacy of psychological interventions for human immunodeficiency virus (HIV)-positive persons. However, unanswered questions remain regarding the clinical utility of treatments because trials have utilized stringent inclusion criteria and focused mostly on gay men. We examined the efficacy of a 15-session, individually delivered cognitive-behavioral intervention with respect to psychosocial adjustment. This treatment was designed primarily to decrease HIV transmission risk behavior. However, because improvements in psychosocial adjustment were hypothesized to mediate intervention-related reductions in HIV transmission risk, one key component of this treatment (5 sessions) focused on coping effectiveness training. Of the 3,818 individuals screened, 936 considered to be at risk of transmitting HIV participated in this trial. Most participants were male (79%), of whom 72% were men who have sex with men. Thirty-two percent of participants were Caucasian, 45% were African American, and 15% were Hispanic. Participants were randomized to the intervention (n = 467) or a wait-list control that did not receive any intervention during the 25-month trial (n = 469). Because the stress and coping intervention module was delivered between baseline and the 5-month follow-up, we investigated intervention-related changes in psychosocial adjustment over this period. We also examined intervention-related changes in psychosocial adjustment across the 25-month trial. Outcomes included measures of negative affect (depressive symptoms, anxiety, burnout, and perceived stress) and positive psychological resources (positive affect, positive states of mind, coping self-efficacy, and perceived social support). Despite previously documented intervention-related reductions in HIV transmission risk behavior, no intervention-related changes in psychosocial adjustment were observed. There were also no intervention effects on psychosocial adjustment among individuals who presented with mild to moderate depressive symptoms at baseline. Findings indicate that more intensive mental health interventions may be necessary to improve psychosocial adjustment among HIV-positive individuals, particularly for those with psychiatric comorbidities.

OS19-2

**SKILLS OF MALARIA CONTROL AMONG HEALTH PROFESSIONALS IN SISTAN VA BALUCHISTAN-IRAN**

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**Introduction:** About 75% of malaria cases in Iran, were reported from Sistan va Baluchestan province. The skills of health professionals about malaria control have essential roles in malaria programs. This study was designed to assess behavioral skills of seven groups of health workers involved in malaria control. **Methods:** A cross-sectional study was conducted in summer 2005 in Sistan va Baluchistan province in southeast of Iran bordered Afghanistan and Pakistan. Different behavioral skills were assessed which considered necessary to control of malaria including larvae and anopheles recognition, supervision of Indoor Residual Spraying (IRS), environmental management, preparing thick blood smear test, larvaeciding, slide packaging, completing forms related to malaria, and malaria treatment. One hundred and eighty four health workers were randomly selected from six cities included 29 physician, 31 disease control technicians, 9 health experts, 37 rural health workers (Behvarzes), 36 microscopists, 8 collectors, 34 malaria surveillance workers. Skills that needed for each health workers were evaluated by different scientific methods specially OSCE method. Their responds were marked according to determined expectations for each health workers. **Results:** Mean scores of skills for physicians were 19.5 from total score of 58, disease control technicians 22.6 from 63, health experts 27.5 from 68, rural health workers (Behvarzes) 15.7 from 34, microscopists 19.8 from 38, collectors 14.7 from 29.5, and malaria surveillance workers 22.6 from 63. **Discussion:** Results demonstrated that skills of health workers about malaria control in all groupswere less than 50% of needed score. This situation should be paid more attention to improve in continuing education.

OS19-3

**REPRODUCTIVE TRACT INFECTIONS INCLUDING SEXUALLY TRANSMITTED INFECTIONS: A POPULATION-BASED STUDY OF WOMEN OF REPRODUCTIVE AGE IN A RURAL DISTRICT OF VIETNAM**

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**Objectives:** To investigate the prevalences of reproductive tract infections (RTI)/sexually transmitted infections (STI) among married women in a rural district of Vietnam, and

analyse the influence of socioeconomic, sociodemographic, and other determinants possibly related to RTI/STI. Methods: Community-based cross-sectional study. Married women aged 18-49 years (n=1012) were interviewed and underwent a gynaecological examination. Specimens were collected for laboratory diagnosis of chlamydia, gonorrhoea, trichomonas, bacterial vaginosis (BV), candidiasis, hepatitis B, HIV, and syphilis. Results: In total, 37% of the women were clinically diagnosed with an RTI/STI. Aetiologically confirmed RTI/STI was identified in 39% of the women (including 6.0% with STIs). Endogenous infections were most prevalent (candidiasis 26%, BV 11%) followed by hepatitis B 8.3%, Chlamydia trachomatis 4.3%, Trichomonas vaginalis 1%, Neisseria gonorrhoeae 0.7%, genital warts 0.2%, and HIV and syphilis 0%. Fifty percent of the STI cases were asymptomatic. Younger age and intra-uterine devices were significantly associated with increased risk of BV. Determinants of candidiasis were vaginal douching, high education level and low economic status, whereas a determinant of chlamydia was high economic status. Outmigration of the husband was associated with increased risk of HBsAg seropositivity among the women. Conclusions: RTI/STI were prevalent among married women in a rural population of Vietnam. Syndromic algorithms should be consistently supplemented by risk assessment in order to reduce under and overtreatment. Microscopic diagnosis could be applied in primary care settings to achieve more accurate diagnoses. Promotion of health education aiming at reducing RTI/STI prevalences is an important tool in STI/HIV control programs. Vaccination to prevent hepatitis B for migrants should be considered.

#### OS19-4

### USING THE THEORY OF PLANNED BEHAVIOR TO PREDICT CONDOM USE INTENTION WITH CLIENTS AMONG FEMALE INJECTING DRUG USERS ENGAGING IN SEX WORK

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Worldwide, high-risk sexual behaviors are the driving force of HIV transmission. Among others, the population of female injecting drug users engaging in sex work (IDUFSWs) occupies a strategic position in the spread of the HIV epidemic. Until recently, limited efforts have been targeted at these IDUFSWs facing dual risk of HIV infection and serving as a bridge for transmitting HIV across different populations. Better understanding of the underlying factors of their risky sexual behaviors is of critical public health importance. This study examined the utility of the Theory of Planned Behavior (TPB) for predicting condom use intention at sex work among IDUFSWs. In total, 281 non-institutionalized IDUFSWs aged ≥18 and self-reported engaging in sex work in the 6 months preceding the interview were recruited via snowball sampling from Sichuan and Hunan Provinces China in 2007. An anonymous structured questionnaire measuring specific constructs of TPB (including sex work-specific condom use-related attitudes, subjective norms, perceived behavioral control, and behavioral intention), past condom use, and background characteristics were developed. Satisfactory psychometric properties of these measures were obtained. Of the interviewed IDUFSWs, 57.3% were aged below 31, 48%

never married, and 75% attained an education level of ≤junior high school. Main venue of sex work included hotel (10.7%), night club (21%), salon (35.9%), and lower-end venues (32.4%). In line with the TPB, condom use intention at sex work was significantly ( $p<0.01$ ) predicted by sex work-specific condom-use related attitudes ( $r=0.56$ ), subjective norms ( $r=0.36$ ), and perceived behavioral control ( $r=0.76$ ). The latter three constructs were moderately correlated with one another ( $r$  ranged from 0.45 to 0.65,  $p<0.01$ ). Except attitudes, past condom use were associated with subjective norms, perceived behavioral control, and condom use intention. The study demonstrated the utility of the TPB for understanding condom use intention at sex work among IDUFSWs. This informs future intervention efforts.

#### OS19-5

### KNOWLEDGE AND BELIEFS ABOUT HIV/AIDS RISK FACTORS AND PREVENTION AMONG LATE ADOLESCENTS: A POPULATION BASED STUDY FROM KARACHI, PAKISTAN.

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Background, Adolescents is increasingly recognised as an influential period affecting the immediate and long term well being of individuals. HIV/AIDS is spreading globally, hitting the younger generations. In Pakistan little is known about the sexually transmitted diseases due to sensitivity of the topic. In the wake of HIV/AIDS epidemic this becomes even more obvious as well informed younger generation is crucial in restricting the spread of this epidemic. Goals and objectives, To assess males and females adolescents knowledge, perceptions and attitudes to HIV/AIDS risk factors. Methodology, A population based study of 1650 subjects including males and females adolescents in Karachi was conducted using a structured questionnaire. Multi staged cluster sampling design was used to collect data from all over Karachi during summer 2006. The city of Karachi comprises of 18 towns based on administrative units and each town into union councils. At first stage one union council from each town was selected as primary sample unit, later household were then selected as secondary sampling units, from where study subjects were enrolled. Knowledge scores were developed, bivariate and multivariate analyses were performed. SPSS version 12 was used for data analysis. Finding and conclusion, Among males younger age OR 2.2 CI 1.38, 3.49, schooling 6 years less OR 2.46 CI 1.29 4.68 and lack of computer at home OR 1.88 CI 1.06 3.34 were risk factors for poor knowledge. Among females young age OR 1.74 CI 1.22 2.50, low socioeconomic status OR 1.54 CI 1.06 2.22 and lack of enrollment at school OR 1.61 CI 1.09 2.39 were risk factors for poor knowledge. Poor knowledge regarding HIV/AIDS poses a significant threat to the sexual and reproductive health of adolescents in Pakistan. Health education on prevention of HIV/AIDS should be strengthened to achieve an acceptable level of protective behaviour against HIV/AIDS.

OS19-6

**A SERIAL SURVEILLANCE SURVEY OF ANTICIPATED BEHAVIORAL AND PSYCHOLOGICAL RESPONSES TO AVIAN INFLUENZA PANDEMIC IN HUMANS AMONG THE HONG KONG GENERAL PUBLIC**

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Recent outbreaks of human H5N1 cases have heightened concerns about the possibility of an avian influenza pandemic in humans in the near future. Monitoring the public responses to the disease is also of critical public health importance for instituting preparedness programs. This study keeps track of the changes in behavioral and psychological responses and perceptions to an anticipated avian influenza epidemic in humans among the general public. The study population comprised Hong Kong Chinese of age 18 and 60 years. Between November 2005 and August 2007, 5 cross-sectional anonymous random telephone surveys, using a structured questionnaire, were conducted. In total, 2,777 individuals completed a questionnaire for the study. Of the respondents, about half were males, over 60% aged between 35 and 60 years, and around 40% received senior high school education or higher. No significant differences in background characteristics were observed across surveys. Over the study period, the proportion anticipating a local outbreak of human H5N1 avian influenza declined from 33% to 15% (Adjusted odds ratio [Adj.OR] = 0.37,  $p < 0.001$ ). There remained about 60% believing that there was no effective vaccine or drug currently available for the disease. Over the study period, the proportion of anticipated adoption of at least 9 or more preventive behaviors (e.g., wearing face mask in public, increase handwashing, not eating poultry meat, avoid visiting hospitals) in response to a local human avian influenza outbreak declined gradually from 67% to 51% (Adj.OR = 0.49,  $p < 0.001$ ). The corresponding figures for anticipated at least 4 psychological response (e.g., worry, upset, panic, extremely emotionally distressed) also declined from 22.9% to 13.8% (Adj.OR = 0.54,  $p < 0.001$ ). A substantial proportion of the public remains well-prepared for an avian influenza outbreak in humans, though some decline was observed. Continuous preparedness efforts keep alert of the public to the disease.

OS20

**Track : 'Alcohol/Smoking/Substance Abuse'**

*Chair (s) : Ron Borland*

**Track 'Alcohol/Smoking/Substance Abuse'**

OS20-1

**EFFECTS OF THE UK SMOKING BAN ON ATTENTIONAL BIAS IN SMOKERS**

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Attentional biases for smoking related versus neutral words in smokers were investigated using a modified colour Stroop paradigm. Participants belonged to one of two groups; pre 38 or post 38 smoking ban enforcement. Testing took place over a five week period; two and a half weeks prior to the onset of the ban and two and a half weeks post. Tiffany & Drobes 1991 Smoking Urges Questionnaire and the Fagerstrom Test for Nicotine Dependence 1999 were also completed by each participant in order to assess craving and urge scores at both time intervals. Results from the Stroop task indicated that reaction time interference scores smoking minus neutral words were significantly different between the groups. Although an attentional bias for the smoking-related words existed at both time intervals, it was only the pre-ban group who recorded highly significant findings. No significant differences were noted on the questionnaire scores between the two groups. This data concludes that differences in smoking-related cue processing using a Stroop paradigm may have been affected by the onset of the smoking ban, though overall craving may not. Future directives are discussed.

OS20-2

**STUDY OF PSYCHOLOGICAL FACTORS IN FOR DE-ADDICTION CAMPS --ANALYSIS BY A RURAL/ TRIBAL INDIAN NON-GOVT-ORGANSIATION**

**DS P, PS V, TA M, NS R**

*Health Alert Organsiation of India [NGO]*

Issues: Adolescents highly susceptible to tobacco-use. we used traditional/Faith healers psychological-advantage to motivate by interventional study protocol. Methodology: Retrospective analysis of implementation of FCTC-WHO done by Three NGO evaluation teams. Each district divided in seven target villages. Due representation to demographic pattern, socio-economic criteria. Total participants 260, age group of 14-24. Traditional faith-healers mobilised by community leaders [total 13]. Tobacco addicts graded clinically according to consumption of tobacco, years of use. study carried over four months. Study subjects counselled for cause of using tobacco, educational & social background. Traditional faith healers conducted 11 follow up sessions during course of study. Results: Of total 260 tobacco users 250 continued to participate. [10 dropouts]. 227 showed positive-attitude towards quitting tobacco use. 215 subjects has quit habit of tobacco application. 12 subjects able to abstain for short period but eventually restarted habit. Post-project surveillance showed need for community help/Rehabilitation. Of 227 who responded positively majority [220] started using tobacco due to peer-pressure [84%], imitation of tobacco advertising [11%]. Conclusion: scientific knowledge & expertise of traditional faith healers is tribal areas controversial, they are only available resource for influencing adolescents. They act as channel to implement tobacco de addiction programmes through community participation. Recommendations: Developing nations have little resources & technologies. NGO has to carry out interventional programmes with these resources. Traditional faith healers Can achieve WHO tobacco control targets for long term success strategy.

OS20-3

**UNDERSTANDING THE EFFECTS OF PARENTAL SMOKING ATTITUDES ON ADOLESCENT MEDIA USE AND INTENTIONS TO SMOKE**

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**Introduction:** Previous research suggests that the social determinants of adolescent smoking include family and peer smoking attitudes and exposure to pro-and anti-smoking. We investigate how family/social variables (parental smoking, best friend smoking, and parental disapproval and permissive attitudes about smoking and television viewing) influence media appraisals (positive and negative smoker appraisals, perceived influence of smoking images on smoking) and how media appraisals, in turn, predict susceptibility to smoking. **Methods and materials:** Adolescents (N=515, mean age 11.5 years) attending schools in Auckland completed a questionnaire assessing exposure to pro- and anti-smoking imagery in media, perceptions of influence of media on self and others, appraisals of pro- and anti- smoking imagery, parental attitudes towards smoking and television viewing, and smoking intentions. **Results:** Correlational analyses identified that intention to smoke was associated with parental disapproval of smoking ( $r = -.24, p < .01$ ), positive smoker images in media ( $r = .20, p < .01$ ), perceived influences of media images on self ( $r = -.34, p < .01$ ) and permissive television viewing ( $r = .32, p < .01$ ). Parental anti-smoking attitudes (rules) were negatively associated with positive smoker images in drama ( $r = -.15, p < .01$ ), news items ( $r = -.21, p < .001$ ) and anti-smoking advertisements ( $r = -.15, p < .001$ ). Multivariate regression analyses controlling for demographic and social factors, identified that permissive television viewing, media influence on self, permissive smoking attitudes and parental approval of smoking independently predicted intentions to smoke, accounting for 32% of the variance in smoking intentions  $F(9, 410) = 22.904, P < .001$ . **Conclusion:** In addition to perceived social norms about smoking, parental attitudes towards smoking and television viewing may significantly influence the effects of exposure to smoking imagery in the media.

OS20-4

**THE AMBIVALENCE OF SMOKING - PONDERING BETWEEN THE BENEFITS AND RISKS OF SMOKING**

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**Background.** People are nowadays expected to take responsibility for their health and to limit their potential to harm others through taking up various preventive actions. This moral requirement may easily lead to stigmatisation of unhealthy behaviours. Smoking is one of the clearest examples of such an unhealthy behaviour that causes contradictions, as it connects the problem of addiction and compulsive behaviour with the subjective meanings of health and risk. A health relevant behaviour and its purported outcome is subjected by each individual to a complex process of weighing up the evidence, weighing up the risks, and weighing up the short and long term consequences for themselves. **Aim.** The aim of this study is to explore the patterns of negotiation between the positive and negative aspects of smoking, and to examine how

smokers rationalise and justify their unhealthy behaviour to themselves and to others. **Material and methods.** The study drew on a series of semi-structured interviews (N=55) of male and female smokers and quitters of different backgrounds about their smoking habits and life events conducted in 2006-2007. Discourse analysis, informed by the theory of risk denial by Peretti-Watel among others, was used to analyze the data. **Preliminary findings.** Our preliminary findings suggest that most smokers have conflicting thoughts and feelings about their smoking. In order to overcome these personal qualms and to maintain their smoking habit, smokers use various "techniques of neutralisation" that protect the individual from self-blame and blame of others. **Conclusion.** In order to be able to engage in risky behaviour without feelings of guilt, smokers need to neutralise the conventional norms regarding smoking temporarily. Knowledge and understanding on how smokers perceive and value the benefits and how they neutralise the risks of smoking should be taken into account in future planning smoking prevention and cessation interventions.

OS20-5

**RISK OF ACTIVE SMOKING FOR ORAL CANCER**

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**Introduction:** Tobacco, including cigarette smoking, is causally associated with cancer of the oral cavity. The aim of this study was to determine the risk of active smoking for oral cancer. **Methodology:** A case-control study of 350 cases and 350, age and gender matched, controls was carried out at Morbai Naraindas Budharani Cancer Institute, in Pune, India. The self reported information about smoking tobacco and demographic status was collected by structured questionnaire. Data was analyzed using SPSS 11.5. **Results:** There was a significant association between active smoking as overall (comprise filtered cigarette, non-filtered cigarette and bidi, a hand-rolled locally available cigarette) and oral cancer,  $OR=2.6, CI= 1.8-3.7, (p < 0.05)$ . Bidi smoking showed strong association with oral cancer compared to the non-filtered and filtered cigarette smoking,  $OR= 4.1$  v/s 2.5 and 1.4 respectively. In case of daily frequency of active smoking, also, increased frequency of bidi smoking was the strongest determinant of oral cancer, where the risk increased significantly from 2.9 to 6.8 ( $<10$  bidis per day v/s 10+ bidis per day). In addition, the increased frequency of non-filtered cigarettes increased the risk from 1.9 to 2.1 ( $<20$  cigarettes per day v/s 20+ cigarettes per day). Whereas the frequency of filtered cigarette was not significantly associated with oral cancer. Overall active smoking was predominantly more common among cases with cancer of lip (22%) followed by hard palate (17%), alveolus and buccal mucosa (14%), tongue, floor of mouth and retromolar trigone (13%) and gingival (7%). **Conclusion:** In present study, active smoking emerged as one of the risk factors for oral cancer, with the highest risk for bidi smoking followed by non-filtered cigarette and lesser for filtered cigarette. So there is an urgent need for appropriate prevention and planning strategies for smoking tobacco, particularly bidi and non-filtered cigarette. **Keywords:** active smoking, bidi, oral cancer, Pune India

OS20-6

**SMOKE ALERT: EFFECTS OF A COMPUTER TAILORED SMOKING PREVENTION AND CESSATION INTERVENTION FOR ADOLESCENTS**

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Computer tailored health education has been proven to be effective with regard to smoking cessation in adults and prevention of smoking uptake in young adolescents. This study evaluates a computer tailored smoking prevention and cessation intervention, called Smoke Alert, on smoking behavior of 15-18 year old adolescents in the Netherlands. Over 2,700 adolescents of 42 schools participated in this RCT and filled out a questionnaire on the internet about smoking behavior, smoking related cognitions like attitude, social influence and self-efficacy, action plans and intention to smoke or quit. Students were randomly assigned to one of three study conditions. In the two experimental conditions students received three tailored feedback letters within 6 months. One group received these advices directly on their computer screen, the second group received their advices per paper letter in the classroom. After 6 months a follow-up measurement was conducted. At baseline 19% of the students were smokers (at least once a month) and most of these smokers (12%) were daily smokers. At 6-month follow-up more students smoked (21%), although the percentage daily smokers stayed the same. Smokers in the control condition were less likely to quit smoking than in the internet condition (OR 0.57) with quit rates of 17% (control) and 27% (internet). Also non-smokers in the Internet (OR 0.55) and Letter condition (OR 0.40) were less likely to take up smoking than adolescents in the control condition. Uptake rates were: 9% (control), 4% (letter) and 6% (internet). More detailed results with regard to effects on smoking related cognitions will be presented at the conference.

OS21

**Track : 'Health Education and Promotion'**

*Chair (s) : Pilvikki Absetz*

**Track 'Health Education and Promotion'**

OS21-1

**EFFECTS OF TAILORING ON PHYSICAL ACTIVITY, NUTRITION AND SMOKING.**

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Purpose: The purpose of the present study was to examine the effectiveness of a computer-tailored intervention on smoking, physical activity, and fruit, vegetable and fat intake, and to test potential moderators of the effectiveness (BMI, SES, gender, motivation, and the number of behaviours for which respondents met the recommendations from national guidelines). Methods: Respondents were randomly assigned to a tailored intervention group, receiving one tailored letter on

all of these behaviours, or a control intervention group, receiving one general information letter on all behaviours. Results: Three months after the baseline assessment, the tailored intervention group showed significantly better effects than the control group for all behaviours studied, except for smoking. The intervention did not enhance, but rather reduced a decline in health behaviours. Effect sizes were small. No moderating factors were found, except for the number of behaviours for which recommendations were met in the tailoring intervention group on fruit consumption. The largest effects of the tailored intervention were found for fruit in respondents who did not meet the recommendations for any behaviour (Cohen's  $d=0.3$ ). Conclusions: A tailored intervention on multiple behaviours had significant effects when compared to generic information. The number of bad habits influenced the effects of the tailored intervention on fruit consumption. The intervention did not influence smoking, whereas a previously stand-alone version did influence smoking, suggesting that smoking cessation may not be the first priority when multiple health behaviours are addressed.

OS21-2

**SCREENING AND PREVENTION OF END-STAGE RENAL DISEASE IN THE GENERAL POPULATION: LESSONS FROM THE MIMA STUDY**

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Background: Japan has the highest prevalence of dialysis patients in the world. The rural Koyadaira area of Tokushima Prefecture in Japan has one of the highest rates of death due to renal failure. Methods: We screened subjects with micro- or macro-albuminuria measured as the albumin-to-creatinine ratio (ACR) in early morning urine. Out of 1,041 community-dwelling adults in the area, a total of 392 participants were enrolled in the study; 313 (79.8%) had normoalbuminuria, 67 (17.1%) had microalbuminuria and 12 (3.1%) had macroalbuminuria. Thirty-seven subjects (mean age; 72.7  $\pm$  9.1 years, 20 men and 17 women) with micro- or macro-albuminuria were non-randomly assigned to the control group (n=22) or intervention group (n=15). The intervention group received group-based dietary intervention for 2 hours and home intervention for 30 minutes by dietician providing instruction on salt intake and protein restriction recommended by the Japan Diabetes Association. Results: At baseline, there were no differences in age or sex distribution, systolic/diastolic blood pressure (BP), ACR or hypertension treatment. One subject in the intervention group dropped out during the study. After treatment, systolic and diastolic BP in the intervention group was decreased (145 $\pm$ 14 to 131 $\pm$ 13 mmHg;  $p=0.002$ , 67 $\pm$ 8 to 62 $\pm$ 8 mmHg;  $p=0.048$ ), although subjects in the control did not show any changes (135 $\pm$ 13 to 131 $\pm$ 14;  $p=0.21$ , 66 $\pm$ 12 to 67 $\pm$ 8;  $p=0.85$ ). The ACR was also decreased in the intervention group (706 $\pm$ 1081 to 440 $\pm$ 656 mg/g  $\times$  Cr;  $p=0.04$ ), although subjects in the control group did not show any changes. Conclusion: The reduction of BP by dietary intervention may have favorable effects on ACR. Further examinations using a large sample and cluster randomized controlled study are needed to clarify these issues.

OS21-3

**TODDLER FEEDING DIFFICULTIES: EARLY INTERVENTION USING AN EDUCATIONAL GROUP PROGRAM FOR PARENTS OF INFANTS AND TODDLERS.**

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Transient feeding difficulties are common in all toddlers, and are a significant source of concern and distress for parents, whose maladaptive feeding management strategies can result in an exacerbation of the difficulties, and result in long-term health consequences such as obesity and eating disorders. The toddler years are also a time when parents experience a void when it comes to reliable expert advice about feeding and managing food refusal. This creates a gap in information at a crucial time, when emerging food preferences and become intriguing, challenging and frustrating. The result of parental anxiety and distress is usually mismanagement of mealtimes, with parents focussing only on how to get their toddler to eat more, thus causing food refusal and tantrums. "Spoonfuls" is an educational group program offered as a parent workshop, and run by a Paediatric Dietitian and Clinical Psychologist. It addresses normal development, the role of learning in the control of food intake in children, the emergence of neophobia, the acquisition of food preferences and aversions, and behavioural management strategies that parents can use to encourage their toddler to become confident healthy eaters. The workshop aims to education parents in developmentally normal eating patterns and healthy food choices using an approach that educates parents on the normal psychobiology of eating and food preferences, while supporting parents through this challenging time of transition. The aim of this paper is to present the information provided in the workshop and a program evaluation.

OS21-4

**SCHOOL-BASED OBESITY PREVENTION IN ADOLESCENTS: MAINTAINING THE EFFECTS ON BODY COMPOSITION AND BEHAVIOR**

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Background School-based obesity prevention is advocated as an important contribution to curbing the obesity epidemic. However, evidence for long-term effectiveness of such interventions is largely lacking. Objective We determined the effectiveness of the eight-month DOiT-intervention among 13-year-old adolescents attending prevocational secondary schools. Adolescents (n = 1108) from 10 intervention and 8 control schools underwent measurements of weight, height, waist circumference, skin folds, dietary and physical activity behaviour at baseline, immediately post- intervention, and 4 and 12 months after completion of the intervention. The intervention consisted of an interdisciplinary program with an adapted curriculum for eleven lessons biology and physical education and environmental change options. Results Multilevel analyses showed that the intervention remained effective in preventing unfavorable increases in important measures of body composition after 20-month follow-up in

girls (biceps skin fold and sum of four skin folds) and boys (triceps, biceps, and subscapular skin fold). Consumption of sugar-containing beverages was significantly lower in intervention schools both post-intervention (boys: -287 ml/day; 95%CI: -527; -47; girls: -249 ml/day; 95%CI: -400; -98) and at 12-month follow-up (boys: -233 ml/day; 95%CI: -371; -95; girls: -271 ml/day; 95%CI: -390; -153). For boys, screen-viewing behavior was significantly lower in the intervention group after 20 months (-25 min/day; 95%CI: -50; -0.3). No significant intervention effect on consumption of snacks or active commuting to school was found.

OS21-5

**ASSESSMENT OF EDUCATIONAL NEEDS OF PRIMARY CARE PHYSICIANS IN BEHAVIORAL MEDICINE**

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General physicians working in primary health centers (PHC) are the frontline health care providers in India. Studies have demonstrated that significant number of patients approach to primary care physicians with mental and psychological factors that play a role in onset, progression and severity of many common biomedical health problems. Behavioral medicine integration would be helpful in improving the clinical outcomes of such patients. However in India, there is little or no training in behavioral medicine for the physicians, unlike many training programs in other countries. Keeping this in view a pilot project has been undertaken towards designing appropriate innovation in medical education curriculum for teaching behavioral medicine. The purpose of this qualitative study was to explore the perceptions and experiences of primary care physicians across different specialty areas working in various PHCs of Orissa (India) regarding the practice of behavioral medicine and psychosocial methods. Semi-structured in-depth interviews were conducted with physicians. Examination of key words, phrases, and concepts used by the physicians revealed five themes that physicians related to their incorporation of psychosocial/behavioral medicine methods : (1) factors limiting the practice of behavioral medicine (inadequate training; cultural barriers); (2) demand for behavioral medicine services; (3) patient-doctor issues related to behavioral medicine (e.g., communication); (4) physician's role strain; and (5) intuition and experience. These findings suggest that general physicians would benefit from undergraduate and residency curricula in behavioral sciences, tailored to their unique needs. It is also strongly advocated that GPs do need continuous education in behavioral medicine.

Keywords: behavioral medicine, medical education, primary care, India .

OS21-6

**SENSE OF COHERENCE (SOC) AS A PREDICTOR OF REGISTER BASED ISCHAEMIC HEART DISEASE AND STROKE**

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In prospective studies weak SOC has been shown to predict poor health but only few studies have had access to register



based health data. This study is based on the Perceived Health and Life Control - panel mail survey with data collections in 1989 and 1993 from an initial sample of 5 000 individuals representing the working aged population (15-64 y) in Finland (the city of Turku intentionally fourfold over-represented). The questionnaire data was with appropriate authority consent linked with register data from 1987 to 1998 on mortality, disability pensioning, medication in the special reimbursement category, sickness absence and inpatient care according to the hospital discharge register, and anonymised (N=2 368). All new periods of inpatient hospital care from the Hospital Discharge register with primary diagnoses (ICD 9 or ICD 10) related to ischaemic heart disease and stroke (hemorrhagic stroke excluded) as well as deaths due to these diagnoses comprised the cases (N=57). However, observations with hospital care periods related to these diagnoses prior to the initial mail survey were censored. Also, deaths from other causes than those now studied were censored. Explanatory variables were sex, age, initial level of occupational training, smoking status in 1993 (not available from 1989) and initial SOC as a continuous variable. The statistical analysis (N=1 623) was performed with generalized linear models using SAS software. In the multi-variate model age was naturally statistically highly significantly ( $p<0.0001$ ) associated with an increased risk of ischaemic heart disease and stroke. Smoking was significantly ( $p=0.0401$ ; HR 1.43) and weak SOC also significantly ( $p=0.04$ ; HR 1.24) associated with an increased risk. Weak SOC is independently associated with an increased incidence of ischaemic heart disease and stroke demanding hospital care. The effect does not seem to be mediated by smoking, since inclusion of this variable did hardly influence the HR:s.

## OS22

### Track : 'Work Related Health'

Chair (s) : Per-Olof Ostergren

### Track 'Work Related Health'

## OS22-1

### A RANDOMISED CONTROLLED TRIAL OF MENTAL SILENCE MEDITATION FOR WORK STRESS

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**Objective:**To assess the effect of meditation, whose central characteristic is the experience of mental silence, on work related stress. **Design:** Double-blind randomised control trial. **Setting:** Royal Hospital for Women, Sydney Australia. **Participants:** 178 adult workers in Sydney, Australia. **Intervention:** Three arm randomised controlled trial with mental silence meditation group (n=59), a non-mental silence group (n=56) and no treatment group (n=63). The intervention was an 8 week instructional program. **Main outcome measures:** Scores on validated occupational stress, anxiety and depressive symptoms measures pre and post intervention. **Results:** There was a statistically significant improvement for the mental silence meditation group compared to both the non-mental silence meditation and the no treatment group in the median differences for occupational stress symptoms ( $p=.026$ ) and depressive symptoms ( $p=.019$ ). Multiple regression tests comparing occupational stress

symptoms in the mental silence group compared with the no treatment group showed a significant improvement in the mental silence meditation group ( $p=.034$ , OR=2.64, 95% CI 1.22-5.68). Comparing the changes in depressive symptoms in the mental silence meditation group with the no treatment group showed a significant improvement in the mental silence meditation group ( $p<.001$ , OR=5.27, 95% CI 2.38-11.69). There was also a significant improvement in the non-mental silence meditation group compared to the no treatment group ( $p=.029$ , OR=2.441, 95% CI 1.10-5.43). **Conclusion:** Mental silence orientated meditation is safe and effective as a general intervention strategy for dealing with work-related stress. More generally this trial provides initial evidence indicating that there are measurable, practical and clinically relevant differences between two contrasting conceptualisations of meditation. It suggests that those forms of meditation that emphasise thought reduction or mental silence may have specific effects relevant to health care.

## OS22-2

### WORK-PLACE BASED INTERVENTIONS TO IMPROVE EMPLOYEE HEALTH: A LONGITUDINAL STUDY OF REDUCED WORKING HOURS OR PHYSICAL EXERCISE DURING WORK

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This longitudinal study set out to examine health-related effects of two workplace-based interventions: 1) reduction of working hours and 2) scheduled physical activity during working hours. Data came from an intervention project including 177 women working within the dental health care. In one of the intervention groups, 50 women had their working hours reduced from 40 hours to 37.5 hours a week. In the other group, including 62 women, 2.5 working hours each week were set aside for physical activity. These two groups were compared with a reference group including 65 women employed by the same organization. Biomarkers and self-ratings in questionnaires were obtained before the intervention and 6 and 12 months after the initial change. Measurements were performed in all three groups at corresponding points in time. Repeated analysis of variance was used to analyze changes in biomarkers, self-ratings of health-related and work-related measures. The results showed that there was limited support for health-related effects of reduced working hours. Importantly, differences emerged between different subgroups of employees who had reduced working hours. In contrast, stronger support was found for health-promoting effects of physical activity, particularly in terms of biomarkers. To conclude, the health-related and other positive effects of reduced working hours were limited and varied between different subgroups. However, physical activity was associated with more general and positive effects. This study suggests that reduced working hours have a limited effect when it comes to improving physical health in larger groups of employees, while physical activity is more effective as a worksite-based intervention.

OS22-3

**IN THE WAKE OF EVIDENCE BASED REHABILITATION. COST EFFECTIVENESS OF REHABILITATION FOR BACK PAIN SEVEN YEARS AFTER INTERVENTION.**

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The aim of working life oriented rehabilitation for subjects with long term sick listing is to facilitate a return to work. The cost effectiveness of such rehabilitation needs to be evaluated. This prospective controlled study presents a follow up seven years after rehabilitation using two different evidence based working life oriented regimes. Subjects on the sick list for neck and back pain were referred to two rehabilitation programmes in Sweden. The two programmes were not compared with each other but only with their matching control groups identified from a health insurance register. The OMT programme was a relatively low intensity programme with a base of orthopaedic manual therapy and exercise program. The MPD programme was a full time multidisciplinary programme. Primary outcome was sickness absences. Cost effectiveness was calculated on the basis of loss of production due to sickness absences. The results show that subjects referred to MDP have reduced absence compared with their controls. This applies only to those who had fewer than 60 days full time sickness absence before rehabilitation. For patients in MDP there is a cost reduction of about 102 300 Euro per referred subject. The results further shows that subjects with a full time sickness absence exceeding 60 days before rehabilitation who undergo OMT have a significant increased risk of early retirement. This means an increased cost in terms of loss of production of about 48 227 Euro per referred patient. The aim of working life oriented rehabilitation is to help the individual to regain the capacity to work. The results of this study show that MDP achieves the objective of working life oriented rehabilitation. The results also shows that increased cost in terms of loss of production may even be associated with undergoing rehabilitation in accordance to the OMT measure.

OS22-4

**WORK STRESS AND SELF-REPORTED DISEASES IN CHINESE WOMEN**

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**Background:** Work stress has been found to be an independent contributor to health, but the findings from women are inconsistent, and little evidence has been reported from developing countries, such as China.

**Objectives:** To examine the association between work stress and self-reported diseases in a sample of Chinese women.

**Methods:** The one-year follow-up prospective study is being conducted in Shanghai. 1983 homogeneous working women (female nurses) were recruited in our baseline survey during January 2007. The work stress was measured by Effort-Reward Imbalance (ERI) questionnaire, and four groups of stress related diseases (cardiovascular diseases, musculoskeletal diseases, mental diseases, and

endocrine/metabolic diseases) were self-reported with physician's diagnosis. Multivariate logistic regression was applied to analyze the association between them.

**Results:** The prevalence of the four self-reported diseases showed increased consistently with elevated ERI ratio ( $P < 0.05$ ). The nurses with high effort-reward imbalance had higher risk for cardiovascular diseases (OR=2.35, 95% CI 1.18-4.68), for musculoskeletal diseases (OR=2.38, 95% CI 1.45-3.90), for mental diseases (OR=12.24, 95% CI 1.48-101.10), and for endocrine/metabolic diseases (OR=3.87, 95% CI 1.45-10.33), respectively. In addition, the associations of overcommitment and the four self-reported diseases were weaker (OR=1.49~2.47).

**Conclusions:** Our findings support that work stress, particularly effort-reward imbalance, is an important risk factor of relevant diseases in Chinese women, and the ongoing follow-up study will be helpful to confirm the associations.

OS22-5

**THREE JOB STRESS MODELS AND OXIDATIVE DNA DAMAGE AS A POSSIBLE MEDIATOR FOR CORONARY HEART DISEASE AND CANCER**

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**Objective:** Three job stress models/concepts (the job demands-control [DC] model, the effort-reward imbalance [ERI] model, and organizational justice) have been linked to coronary heart disease (CHD) at work. In recent years, oxidative DNA damage has been identified as a new risk factor for CHD and cancer. However, evidence for the association between these job stressors and oxidative DNA damage is limited. The present cross-sectional study investigated the association between these job stress models and oxidative DNA damage as a possible mediator of the adverse health effects of job stress. **Methods:** A total of 166 male and 51 female workers of a manufacturing factory in Japan were surveyed using a mailed questionnaire regarding job stressors and demographic, occupational, and lifestyle variables. Urinary concentrations of 8-hydroxy-2-deoxyguanosine (8-OHdG), a biomarker of oxidative DNA damage, were also measured. **Results:** A gender difference was observed in a type of job stressor which was associated with urine concentrations of 8-OHdG. In male subjects, the urinary concentrations of 8-OHdG were significantly higher among the group with lower interactional justice, one of the two components of organizational justice; however, no association was observed with the DC model or ERI model. In female subjects, high job demands/control ratio and high effort was significantly and positively associated with the urinary concentrations of 8-OHdG. **Conclusions:** Oxidative DNA damage, measured by using urine 8-OHdG, is linked with interactional justice in male workers, who are expected to have a greater job commitment, and a task-level stressor, such as job strain, in female workers. Oxidative DNA damage may be a mediator in a link between these job stressors and CHD and cancer.

OS23

## Track : 'Alcohol/Smoking/Substance Abuse'

Chair (s) : *Marc Gellman*

## Track 'Alcohol/Smoking/Substance Abuse'

OS23-1

### ANABOLIC STEROID ABUSE: AN EVOLVING WORLDWIDE SUBSTANCE ABUSE PROBLEM?

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The anabolic-androgenic steroids (AAS) are a family of hormones that includes the male hormone, testosterone, together with numerous synthetic derivatives of testosterone. AAS allow men to achieve huge gains in muscle mass, well beyond the upper limit attainable without drugs. Prior to the 1980s, AAS use was confined largely to bodybuilding competitors and to elite athletes in sports requiring strength, such as weightlifting or the shot put. Since the 1980s, however, AAS use has spread to the general population of young men, many of whom do not compete in athletics, but simply want to look more muscular. AAS abuse has now become a major public health problem in the United States, British Commonwealth countries, and Scandinavia. By contrast, most developing countries, Latin American countries, and Asian countries do not yet show high levels of AAS abuse. What accounts for these international differences, and what are the likely trends in AAS abuse in future years? We have conducted a series of cross-cultural studies looking at two related issues: 1) risk factors for AAS abuse and 2) cultural attitudes towards male body image. We will present findings that we have obtained in the United States, Europe (Austria, France), the South Pacific (Samoa), and East Asia (Taiwan and Mainland China). Our findings suggest, first, that men's concern about body image represents the greatest risk factor for AAS abuse. Second, our findings suggest that Western notions of masculinity, which increasingly emphasize muscularity, are gradually infecting other cultures. Collectively, our observations suggest that there may be a worldwide spread of AAS abuse within the next 10-20 years, potentially involving many countries that have not yet witnessed this problem.

OS23-2

### DRIVING UNDER INFLUENCE OF ALCOHOL IN FINLAND 1988-2007

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Driving under influence of alcohol is considered a serious problem in road traffic. Drunk drivers are more likely to be involved in accidents leading to fatal and serious injuries. Every fourth death and every tenth injury is caused by drunk driver in Finland. The aims of the study were to investigate the incidence rates and trends of suspected drunk driving and the level of blood alcohol concentration (BAC) by age among men and women in last 20 years. The data consisted of all (N=450,000) suspected drunk driving cases between 1988 and

2007. Data includes unique ID number, personal information and details of the incident. The register can be considered one-of-a-kind in the world. Annually 25,000 drivers are suspected for drunk driving. In the beginning of 1990's numbers of drunk-driving incidents rapidly decreased as the economic recession hit Finland and consumption of alcohol decreased. From the beginning of 2000 the numbers have been rising again. Drunk driving is most common among age-group of 18 to 19 where the incidence of drunk driving is over twice as high as in the whole population. The variation in time has been most considerable in the age groups below 50 years. Considerable number of cases occurs at weekends. The BAC-levels have remained quite stable during the study period. The exception is period 1997-1999 when the levels seemed to rise in certain age groups. The reason might be the introduction of the precision breath analysers which occurred during 1998. The levels of the breath alcohol concentration have been decreasing during ten-year period in all age groups. More research concerning the risk factors and drinking and driving behaviour, especially among young men, is needed.

OS23-3

### DRIVING UNDER THE INFLUENCE OF DRUGS: A REGISTER STUDY OF TRENDS IN FINLAND 1977-2007

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According to different studies 5-25% of drivers involved in motor vehicle accidents have been using drugs. Most commonly detected drugs in such occasions are cannabis, benzodiazepines, cocaine, amphetamines and opiates. Multidrug use or the use of alcohol and drugs in combination are also frequently detected and produce a significant threat to traffic safety.

The aims of this study were to describe the prevalence and trends of driving under the influence of drugs (DUID) in men and women and the illicit and/or psychotropic drugs used by DUID suspects in Finland during 1977-2007. The register data used consisted of all cases of DUID suspects (N=35 000) in Finland during the last 31 years. Data includes unique ID number, personal information and details of the incident. Such register can be considered one-of-a-kind in the world.

There was an increasing trend of DUID suspect cases in both genders and in all age groups (10-29, 30-49, 50-84 years) during the study period. The increase was five-fold in men and twenty-fold in women. In the whole data c. 90% of DUID suspects were men, but the proportion of women has been increasing. Female DUID suspects were approximately couple of years older than male, median age being 29 years in the whole data.

Most frequently found substances analysed from urine and/or blood were benzodiazepines, amphetamines, cannabis and opiates. All DUID suspect cases, especially those of using amphetamine have been increasing rapidly since 2003 when a zero tolerance law for illicit drugs and driving was introduced in Finland. Benzodiazepines were the most often used substance in both genders and in all age groups until 2005 after which there were more amphetamine than benzodiazepine cases in women and in the age group of 30-49 years.

Impaired driving remains a problem that needs serious attention.

OS23-4

**TRENDS IN THE PRESCRIPTION OF PSYCHOTROPIC DRUGS AMONG PATIENTS WITH CHRONIC DISEASE: WHAT IS GOOD CLINICAL PRACTICE?**

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We assessed the course of psycho-pharmacologic drug prescriptions among patients with diabetes, COPD or both conditions as compared to people without these conditions. The database of two Dutch health insurance companies, consisting of 4.000.000 insured persons, was used. Prescription data were available for each individual and for six consecutive years (1999-2004). The percentage people having been prescribed antidepressants and/or benzodiazepines was computed, separately for men and women and for people older than 45 and older than 65. These percentages were compared between people with and without one of the chronic conditions mentioned. We found a stable and high percentage of people with benzodiazepine prescriptions. Percentages ranged from 20 to 45 percent for people with a chronic condition to 10 to 15 percent for people without such a condition. There was a strikingly consistent increase of the prescriptions of antidepressant drugs over the six years (a 25 to 30 percent increase), particularly in persons with a chronic condition. The prevalence of depression among people with one or more chronic conditions is twice as high compared with people without such conditions. As issued in recent guidelines for depression, non-drug treatment may be the first option for therapy in many of these patients, particularly in patients with non-severe depression. Above trends suggest a further medicalisation of unhappiness. To prevent further dependency and disempowerment, one wonders whether patients struggling with their lives with a chronic disease are sufficiently encouraged to self-manage their daily living problems.

OS23-5

**A POPULATION-BASED TIME SERIES ANALYSIS OF THE IMPACT OF A LARGE REDUCTION IN ALCOHOL PRICES ON ALCOHOL-RELATED AND TOTAL MORTALITY, AND HOSPITALISATIONS**

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Background. In 2004 there was a large reduction in the price of alcohol in Finland due to a reduction in alcohol taxes and the abolition of travellers' duty free allowances from the EU. We examined to what extent this affected alcohol-related and total mortality, and alcohol-related hospitalisations.

Design. Interrupted time series analysis with auto-regressive integrated moving average modelling was applied to the weekly aggregations of deaths and hospitalisations in Finland for the period 1996-2006 to assess the impact of the reduction in alcohol prices. Alcohol-related mortality was defined using information both on underlying and contributory causes of death. Alcohol-related hospitalisations were defined as hospitalisations with a primary or secondary diagnosis of alcohol-related disease or intoxication.

Expected results and discussion. These results obtained in a natural experiment setting confirm and quantify the effect of the price of alcohol on alcohol-related and total mortality, and alcohol-related hospitalisations -- also under the circumstances when prices go down. The results have relevance for alcohol policy in order to evaluate the role of the price of alcohol in preventing and reducing alcohol-related problems.

OS24

**Track : 'Health Behavior'**

*Chair (s) : Kav Vedhara*

**Track 'Health Behavior'**

OS24-1

**THE EFFECTS OF HEALTH RELATED BEHAVIOURS ON PSYCHOLOGICAL HEALTH BY SOCIAL CLASS AND GENDER**

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Aetiological factors in social inequality in psychological health are less well studied than in physical health. However some studies suggested benefits of adopting sensible drinking, non-smoking, consumption of fruits and vegetables, and frequent exercise. As yet little is known about possible social class and gender differences in the benefits of health behaviours for psychological health.

In this prospective population based cohort study, we used available cases of 2,767 men and 3,355 women from the age 30 data of the 1970 British Cohort Study. Health related behaviours include smoking status, drinking patterns, frequency of eating vegetables and fruits, and exercise. Gender and social class groups were analyzed separately to test for different patterns in the findings. The cohort design made it possible to take account of the possibility of reverse causation, as the effects of previous psychological health, as well as current employment and cohabitation status, and cognitive skills were controlled.

Social gradients were found in all types of health related behaviours, except daily exercise among women. However, protective effects of health related behaviours on psychological health were not present to the same extent in all social groups. Smoking status was not associated with psychological health among manual women. Non manual men benefited from "frequent moderate" alcohol use; but in manual women, the more beneficial pattern was found to be "infrequent moderate". Daily consumption of vegetables and fruits was of benefit to mental health only in non manual men and manual women. Frequent exercise was associated with poor psychological health in manual men.

Our findings suggest that policies to reduce social inequality in psychological health by adopting healthy behaviours need to address class and gender issues.

OS24-2

**PERCEIVED HUSBAND SUPPORT AMONG MALAYSIAN WOMEN AFTER BREAST CANCER SURGERY.**

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**BACKGROUND AND OBJECTIVES:** There is evidence indicating that social support is an important predictor for patient recovery and survival in cancer. This paper evaluates husband support at different treatment phases (prior, during and post-chemotherapy) after breast cancer surgery, the effect of ethnicity (Malay, Chinese and Indian) on husband support and the predictive factors of husband support. **METHODS:** The self-administrated scale namely Inventory of Socially Supportive Behavior (ISSB) was distributed to 157 breast cancer patients prior to (approximately three weeks after surgery), during (approximately 10 weeks after surgery) and post-chemotherapy (approximately 19 weeks after surgery). High scores of the scale indicate better perceived partner or spouse support. The Scale was translated into Malay, Chinese and Tamil languages to cater the multicultural ethnicity in Malaysian population. Other medical and socio-demographic data were also gathered. **RESULTS:** Response rate of the study was 85%. Mean age of the women was 48.29 ( $\pm 8.85$ sd) years with duration of marriage 22.61 ( $\pm 9.9$ sd) years. Fifty seven percent ( $n=91$ ) of them were stage two breast cancer. Perceived husband support significantly increased from prior to (110.95 $\pm$ 32.62sd) to during (120.28 $\pm$ 33.14sd) and declined post-chemotherapy (102.99 $\pm$ 24.54sd). Ethnicity has no effect on husband support. Husband support post-chemotherapy was predicted by husband support prior to and during chemotherapy [ $R^2 = 0.35$ ,  $F(2, 154) = 41$ ,  $p < 0.001$ ], however, patients' age and duration of marriage were not predictive of husband support post-chemotherapy. **CONCLUSIONS:** Women need more support from husband during chemotherapy. Husbands of breast cancer patients should be trained formally as a supporter for their wives and should be part of the health care team in decision making

OS24-3

**PARTICIPATION IN AND BARRIERS TO ACTIVE TRANSPORT BY OCCUPATIONAL CATEGORY**

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**Objectives:** Participation in transport-related physical activity (TPA), such as walking and cycling can provide numerous health benefits, and worksites have been identified as useful places to promote TPA initiatives. Despite this, it is unknown if TPA engagement and barriers to TPA engagement vary by occupational categories. **Methods:** A random, sample of 1,230 adults aged 18 years and over residing in Central Queensland, Australia were surveyed by telephone in October-November 2006 by the Population Research Laboratory, Central Queensland University. Engagement in and attitudes towards TPA, perceived travel distances appropriate for TPA, perceptions of the commute route and worksite facilities were assessed. **Results:** Of the 1230 respondents 763 adults reported complete travel information and commuted to a worksite and were eligible for analysis. Overall, 14% of the sample engaged

in TPA modes to access their worksite; no differences in TPA engagement were observed between professional, white collar, and blue collar occupational categories ( $p$ -value =  $>0.05$ ). Compared to other occupational categories, blue collar workers reported heavier traffic flow enroute and greater availability of showers and changing facilities at their worksite ( $p$ -value =  $<0.001$ ). Blue collar workers also reported reduced private automobile availability compared to professionals ( $p$ -value =  $<0.01$ ). **Conclusions:** Given the lack of differences observed in TPA between occupational categories and the low participation rates, all occupational categories should be viewed as appropriate targets for worksite TPA interventions. Reducing traffic flow en route, and improving sidewalk availability may increase worksite TPA-commuting levels.

OS24-4

**KNOWLEDGE, ATTITUDE AND RISK SEXUAL BEHAVIOR AMONG VOCATIONAL STUDENTS IN THAILAND**

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**Background** This descriptive analytic study was aimed to study the knowledge, attitude and risk sexual behaviors among vocational students in Meung district, Songkhla province, Thailand. **Methods** 614 students were included from both governmental and private colleges by stratified sampling. The questionnaires in this study included knowledge about sexual hygiene, sexually transmitted disease and AIDS measurement form, attitude towards sexually relation form and risk sexual behaviors record form. All the measurement form were self-developed by the authors and Conbrachs alpha coefficient for reliability was 0.83. The data were recorded by interviewing by trained staffs. **Results** 56% of the group were male and 44% were female. Knowledge about sexual hygiene, sexually transmitted disease and AIDS among male were slightly lower than female, but no statistical significance. Both male and female had the similar attitudes towards some aspects of sexual relation that lead to negative impact on safe sexual behaviors, such as it is their personal rights to have a boy-or-girl friend and this made them outstanding. However, male students were more concern about the virginity of their partner than the female. Seventy percents of male and thirty percents of female had sexual experiences. Most of their partners were their classmates. Thirty percents of the group consulted their classmates when they experienced problems related to sexual behaviors, fifteen percents did not seek for any information, three percents visited medical personnel, one percent consulted their teacher, while 7-8% visited the websites in the internet. **Conclusion :** The results of this study should be applied to settle the appropriate teaching program to improve the knowledge, attitude, and reduce risk sexual behaviors among vocational students.

OS24-5

**PREHYPERTENSION IN CHINA**

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**Objectives:** Research indicates that prehypertension is related

to increased risk of major cardiovascular events. There is limited research on the Chinese prehypertensive adults. The goal of the investigation is to identify factors that are related to prehypertension in an adult population in Heilongjiang, China. Methods: A subset of a sample from the China Health and Nutrition Survey data 2006 were categorized based on the guideline on classification of blood pressure of JNC 7 from National High Blood Pressure Education program into those with prehypertension and those with normal blood pressure for this analysis. Potential predictors were first examined using univariate logistic regression analyses. Based on the results from univariate analyses, multivariate models were tested and predictors examined. Fractional polynomial analyses were applied to examine the scales of continuous covariates. The necessity to include interaction effects was also assessed. Results: 462(63.99%) prehypertensive and 260(36.01%) subjects with normal blood pressure were observed. One dichotomous main effect covariate (gender), and two linear continuous covariates (age, BMI) were significant predictors of prehypertension. The odds of being prehypertensive for males is estimated to be 1.77 times larger than the odds for similar females (95% CI: 1.28, 2.43). Holding all other covariates constant, for every increase of 1 year in age, or 1 unit in BMI, prehypertension increases 1.02(95% CI: 1.00, 1.03) and 1.11(95% CI: 1.05, 1.16) times respectively. The relationship between age and prehypertension among females was not different from that among males. Conclusion: Prehypertension is highly prevalent among adults in Heilongjiang, and is related to gender, age and BMI. Lifestyle and dietary changes that may reduce BMI or waist circumference may lessen the risk of prehypertension.

#### OS24-6

### ORAL HEALTH BEHAVIOUR AND ASSOCIATED FACTORS AMONGST ADULTS IN SISTAN & BALOUCHESTAN, IRAN

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Objectives: The purpose of this study was to evaluate the pattern of oral health behaviour and relative effect of social-behavioural risk factors on caries experience among 35-44 year-olds in Sistan & Balouchestan; Material and methods: A cross sectional was conducted on urban population using a cluster random sampling which each household defined as one cluster. Assessment has done by oral examination and a questionnaire including questions about social characteristics, oral health practices and attitudes. The final study population covered 35-44 years (n = 550). The data was analyzed by SPSS software. Results: About 45.6% of participants carried out tooth cleaning on a daily basis and more than half of them had not received information about tooth brushing. Pain and discomfort from teeth were common while dental visits were infrequent. DMFT scores for women (DMFT = 11.43) compared with men (DMFT = 8.68 ) significantly were higher. The consumption of sugary foods and drinks statistically were high in those with less positive attitudes (P = 0.002). The higher frequencies of tooth brushing (P = 0.001) and dental visit (P=0.029) reported in those with more positive attitudes significantly. Conclusion: In order to prevent oral disease and promotion of oral health, the preventive education and training

should be considered in planning health care programmes.

#### OS25

### Track : 'Physical Activity' 'Screening & Early Detection'

Chair (s) : Abby King

### Track 'Physical Activity'

#### OS25-1

### EFFICACY OF MOBILEMUMS: A TAILORED BEHAVIOUR CHANGE PROGRAM DELIVERED VIA SMS FOR INCREASING PHYSICAL ACTIVITY AMONG POSTNATAL WOMEN

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Introduction: MobileMums was a theory-based 12-week physical activity (PA) intervention for women <12months postpartum, targeting constructs of Social Cognitive Theory and delivered via mobile telephone Short Messaging Service (SMS). Methods: Women recruited from a large population sample (n = 100; mean age 29 ± 6yrs) were randomised to an intervention or control group. Intervention participants received an initial face-to-face PA goal setting consultation, telephone consultation in week 6, and 12 weeks of personally tailored SMS (4-6 SMS/week) targeting self efficacy, goal setting skills, outcome expectancies, perceived environmental opportunity and social support. Participants also nominated a support person to receive 2 SMS/week to provide psychological and instrumental support for PA. PA was assessed via interview-administered self-report and MTI accelerometer at baseline, 6 and 12-weeks. Process data were collected at 6 and 12-weeks. Non-parametric statistics were calculated (since PA data were skewed) using intention-to-treat analysis. Results: Eighty-eight women completed baseline assessment, and 68 and 61 were retained at 6-weeks and 12-weeks respectively. At 6 and 12-weeks MTI-assessed time in moderate-to-vigorous PA was significantly higher in the intervention than the control group (6-weeks: 157 vs. 137 mins/week, p<0.0001 and 12-weeks: 178 vs. 138 mins/week, p<0.0001). Median self-reported time walking for exercise was significantly higher in the intervention than the control group at 6-weeks (120 vs.38 mins/week, p=0.005) but significant between-group differences were not observed at week 12. Intervention participant SMS responses to weekly PA goal checks decreased over time (69% at 1-week, 43% at 6-weeks, 31% at 12-weeks). At week 12, half (51%) of the intervention participants rated MobileMums as useful/extremely useful at helping increase their weekly PA. Conclusion: MobileMums was effective at increasing objectively measured moderate-to-vigorous PA among postnatal women. Further testing of MobileMums is warranted with a larger sample and longer follow-up.

## Track 'Screening & Early Detection'

OS25-2

### PREDICTION OF LEISURE-TIME PHYSICAL ACTIVITY AMONG OBESE INDIVIDUALS: DETERMINANTS AND MODERATORS

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#### Purpose

The aims of this study were to identify (1) factors predicting leisure-time physical activity and (2) moderators of the intention-and perceived behavioural control (PBC)-relationships among obese individuals.

#### Methods

A sample of 91 adults (BMI > 29.9 kg/m<sup>2</sup>), aged 18 to 55 years, completed at baseline a questionnaire assessing the Theory of Planned Behaviour variables and additional social cognition variables. Biological measures and socio-demographic variables were also obtained. Behaviour was assessed three months later.

#### Results

Multiple hierarchical regression analyses indicated that the significant variables predicting behaviour were past behaviour (beta = .42; p < 0.0001), intention (beta = .30; p = .003), and the interaction term PBC x perceived built environment (beta = .17; p = 0.05); the PBC-behaviour relation is better when the built environment was perceived as favourable to physical activity. The final model explained 38% of variance in behaviour. The determinants explaining intention were PBC (beta = .55; p < 0.0001), anticipated regret (beta = .26; p = .0007) and past behaviour (beta = .22; p = .005), accounting for 57% of variance.

#### Conclusion

Participation in leisure-time physical activity is mainly explained by the readiness to perform this behaviour and the underlying health cognitions. The results also suggest that obese individuals living in a favourable built environment have better perceptions of their ability to participate in leisure-time physical activity. Thus, both cognitions and aspects of the built environment should be given consideration in the promotion of leisure-time physical activity among obese individuals.

## Track 'Physical Activity'

OS25-3

### PSYCHOSOCIAL CHANGES ARE RELATED TO EXERCISE TRAJECTORIES DURING 3-YEAR FOLLOW-UP OF A LIFESTYLE INTERVENTION

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Little is known about trajectories of exercise routines and related psychosocial factors during and after lifestyle interventions. We sought to identify patterns of exercise

adherence and associated psychosocial factors in participants of a lifestyle counselling intervention in groups based on social cognitive, self-regulation and self-determination theories. Finnish men (N = 103) and women (N = 282), age 50 - 65, at an increased risk for type 2 diabetes were recruited from primary care centres to participate in the GOAL lifestyle modification program targeting diet and physical activity. Measurements were done at baseline and after 3, 12, and 36 months. Based on physical activity diaries at each measuring point, participants were grouped into never-exercisers, decliners, late adopters, early adopters and always-exercisers. We found differences in self-efficacy, self-regulation and motivation that predict adherence and relapse in ways consistent with health psychological theories. For example, action and coping self-efficacy of the late adopters and never-exercisers were relatively low before and after the intervention. During the intervention, action self-efficacy increased most among the early adopters. At 36 months, never-exercisers had significantly lower levels of autonomous exercise motivation than the other groups. Results suggest that tailoring of interventions on the basis of psychosocial factors could be useful both in the beginning and during the process.

OS25-4

### PHYSICAL ACTIVITY, SEDENTARY BEHAVIOR AND WEIGHT PROBLEMS AT AGE 11 TO 12 IN NORTHERN TAIWAN

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**Background and Purpose:** The recent increase of obesity among children and adolescents has been attributed to low levels of physical activity and high levels of sedentary behaviors. This study aimed to determine the relationship between physical activity and different sedentary behaviors and to examine associations between physical activity, sedentary behaviors and weight problems. **Methods:** The study population consisted of 1034 boys and girls aged 11 to 12 years old from 5 public primary schools in Northern Taiwan. Students completed a self-administered questionnaire that addressed time spent in physical activity and time spent in different sedentary pursuits and were also measured for height and weight. **Results:** Boys spent much more time than girls in moderate to vigorous physical activity, playing video games and using computer (P<0.001). Time spent in reading or doing homework was associated with increased physical activity (P<0.005). Time spent in watching television and using computer was not associated with decreased physical activity. There was no significant association observed between levels of physical activity and measures of overweight and obesity. However, girls who watched 4 or more hours of television each day had a greater body mass index (P<0.05) than those who watched less than 2 hours per day. **Conclusions:** The findings from the present study support that physical activity is differentially associated with different types of sedentary behaviors. Television viewing, but not physical activity, was independently associated with obese risk. Preventive action against problems of youth obesity may need to target physical activity and sedentary behavior separately.

OS25-5

**ASSOCIATIONS BETWEEN SLEEP AND WEIGHT STATUS AMONG AUSTRALIAN SCHOOL CHILDREN ARE PARTIALLY EXPLAINED BY TIME SPENT WATCHING TELEVISION AND HAVING A TELEVISION IN THE BEDROOM.**

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**Introduction** Inverse associations between sleep duration and overweight and obesity (Ov/Ob) have been found among children. We hypothesise that this relationship is partially explained by inverse associations between sleep duration and time spent watching television (TV) and having a TV set in the bedroom, independent of objectively measured physical activity (PA). **Methods** Cross-sectional data from two cohort studies were collected between 2001 and 2003 from families living in Melbourne, Australia. Based on international standards, childrens measured height and weight were used to classify Ov/Ob. Moderate- to vigorous-intensity PA (MVPA) was assessed from 8 days of accelerometry. Parents reported childrens usual sleep duration, usual TV viewing, whether their child had a TV set in the bedroom, and sociodemographic characteristics. **Results** Out of 2,785 children (47% boys; 67% aged 10-12 years, 33% aged 5-6 years): 28% were Ov/Ob; and 23% had a TV in the bedroom. Children slept 10.4 hrs/night vs 9.6 hrs/night; watched TV 2.5 hrs/day vs 2.9 hrs/day; and spent 4.1 hrs/day versus 2.1 hrs/day in MVPA (5-6 yrs vs 10-12 yrs respectively;  $p < 0.001$ ). Unadjusted odds of Ov/Ob were 0.8 (95% CI: 0.73, 0.87) for every hour of sleep reported. With the inclusion of TV viewing time, having a TV in the bedroom, MVPA and sociodemographic variables, the adjusted odds of Ov/Ob were 0.83 (95% CI: 0.75, 0.92) for every hour of sleep reported. There were associations between hours of sleep and TV viewing ( $r = -0.16$ ) and hours of sleep and MVPA ( $r = 0.33$ ). Children with a TV in their bedroom slept 18 mins less per night than those without a TV in their bedroom ( $p < 0.001$ ). **Conclusions** Associations between sleep and Ov/Ob among children were only partially explained by TV viewing time and having a TV in the bedroom. Longitudinal studies are needed to examine temporal associations.

OS26

**Track :  
'Somatoform Disorders/Chronic Fatigue/  
Medically Unexplained Symptoms'**

*Chair (s) : Rona Moss-Morris*

**Track 'Somatoform Disorders/Chronic Fatigue/Medically Unexplained Symptoms'**

OS26-1

**DOES AN UNHEALTHY LIFESTYLE PREDICT PSYCHOLOGICAL AND SOMATIC DISTRESS AND/OR VICE VERSA? EXPLORING THE SYMMETRY OF THE RELATIONSHIP IN A PATIENT POPULATION CONSULTING WITH MEDICALLY UNEXPLAINED SYMPTOMS.**

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The objective of the present study was to examine the nature of the relationship, symmetric or unidirectional, between an unhealthy lifestyle on the one hand, and (psychological and somatic) distress on the other hand in a primary care (PC) patient population with medically unexplained symptoms (MUS). **Methods:** A total number of 318 patients filled out questionnaires at baseline (T1) and 6 months later (T2). First, psychological distress and somatic distress at T2 were regressed on health-related lifestyle at T1. Second, lifestyle at T2 was regressed on psychological and somatic distress at T1, taking into account the possibility of an additive and/or an interaction effect of the two distress variables on lifestyle. Age, gender and educational level were considered as control variables for the analyses. **Results:** An unhealthy lifestyle at T1 significantly predicted psychological distress and somatic distress at T2. The interaction between high psychological and high somatic distress at T1 was the best predictor of an unhealthy lifestyle at T2. **Conclusions:** The present study clearly points at the existence of a symmetric relationship between psychological and somatic distress on the one hand, and an unhealthy lifestyle on the other hand in a PC patient population consulting with MUS. Therefore, future studies should explore the effectiveness of combined stress management and lifestyle interventions for individuals, who are characterized by an unhealthy lifestyle, as well as for highly stressed individuals, who report both a lot of psychological and somatic symptoms.

OS26-2

**BIOFEEDBACK-BASED BEHAVIOURAL TREATMENT OF CHRONIC TINNITUS. RESULTS OF A RANDOMISED CONTROLLED TRIAL**

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**Objectives:** Etiological tinnitus models assume that tinnitus is associated with negative appraisal, dysfunctional attention shift and heightened psychophysiological arousal. Thus cognitive-behavioural interventions and biofeedback are commonly suggested treatments. But as many tinnitus



sufferers suspect an organic cause for their tinnitus they look for medical rather than psychological treatments. In order to account for these biomedical illness perceptions we developed and investigated the efficacy of a biofeedback-based cognitive-behavioural treatment which may presumably be better accepted than an exclusively psychological treatment approach. Methods: One hundred and thirty tinnitus patients were randomly assigned to an intervention or a waitlist group. Treatment consisted of 12 sessions of biofeedback-based behavioural intervention over a 3-month period. Patients in the waitlist group received treatment after the waiting period. Follow-up assessments took place 6 months after the end of the treatment. Results: Results of the RCT showed clear improvements with large effect sizes (Hedges'  $g$ ) for general tinnitus annoyance ( $g=1.15$ ), diary ratings of tinnitus loudness ( $g=0.71$ ) and time per day listening to tinnitus ( $g=0.73$ ). Furthermore changes in coping and control cognitions with large effect sizes (0.97 to 1.17) were detected. Follow-up assessments were returned by 89% of the patients. All improvements were maintained over the follow-up period and medium to large follow-up effect sizes in the range of 0.54 to 1.16 were observed. Conclusions: The developed treatment was highly accepted (drop-out rate 11.9%) and led to clear and long-term stable improvements regarding tinnitus annoyance and tinnitus associated problems. Medium-to-large effect sizes supported the clinical relevance of the data. Through demonstrating psychophysiological interrelationships, the treatment may especially be very helpful for tinnitus sufferers with somatic illness attributions because it enables patients to change their somatic illness perceptions to a more psychosomatic point of view.

#### OS26-3

### ONE-YEAR COURSE AND PROGNOSIS OF FATIGUE PRESENTED IN PRIMARY CARE

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Background. Fatigue is among the most frequently presented symptoms in primary care, and its nonspecific nature complicates targeted management. Course and outcomes often remain unclear, and cohort studies among patients presenting with fatigue are scarce. We aimed to investigate patterns in the course of fatigue, and associated changes in functional outcomes, sleep and psychological symptoms. Furthermore, we identified factors indicating either a quick recovery or poor prognosis of fatigue. Methods. An observational cohort study was performed in 147 primary care practices across the Netherlands. Patients consulting their GP for a new episode of fatigue were sent questionnaires at one, four, eight and 12 months after baseline. Measures of fatigue, perceived health and functioning, absenteeism, psychological symptoms and sleep were collected using the CIS, SF-36, 4DSQ and PSQI. Descriptive statistics were used to describe patterns in the course of fatigue and secondary outcomes; changes over time and between subgroups were tested using paired T-tests, (M)ANOVA and GEE. Logistic regression analysis was used to assess the relative contribution of different prognostic factors. Results. 642 patients were enrolled in the study. Response rates during follow-up ranged between 82 and 88%. Four distinct subgroups could be discerned with 27% of patients showing repeatedly high scores on fatigue severity, 18% fast recovery, 27% slow recovery and 34% recurrently severe fatigue scores. Secondary outcomes of symptoms and functioning all showed a pattern similar to fatigue for each of the different subgroups. Results on prognostic indicators of

outcome will be presented at the conference. First conclusions. This is one of the first large prospective cohort studies on fatigue in primary care that has included repeated measurements. Results suggest a longitudinal relationship between severity of fatigue, impaired functioning, psychological symptoms and poor sleep.

#### OS26-4

### ALTERED INTESTINAL MICROBIOTA AND SYMPTOMS IN IRRITABLE BOWEL SYNDROME

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Background Altered gastrointestinal (GI) microbiota in irritable bowel syndrome (IBS) are forced in recent studies. Altered GI microbiota may contribute to GI symptoms through colonic fermentation, but the profiles of intestinal organic acid in IBS and its correlation with GI symptoms are not evaluated yet. We hypothesized that altered GI microbiota contributes to IBS symptoms through increased organic acids. Methods Twenty-six controls and 26 IBS patients were enrolled in this study. Age and gender were matched. Fecal samples of the subjects were collected for analysis of microbiota and organic acids. All subjects fulfilled Self-reported IBS Questionnaire (SIBSQ), IBS Severity Index (IBSSI), Gastrointestinal Symptoms Rating Scale (GSRS), IBS-QOL, Short-Form 36-Item Health Survey (SF-36), Self-rating Depression Scale (SDS), State-trait Anxiety Inventory (STAI), Perceived Stress Scale (PSS), Tront Alexithymia Scale (TAS20). Results The 15 bacterial groups and 8 organic acids (acetic, succinic, valeric, iso-valeric, formic, butyric, propionic, and lactic acids) were detected. IBS patients showed significantly higher counts of Veillonella ( $p=0.046$ ) and Lactobacillus ( $p=0.031$ ) than controls. IBS patients expressed significantly higher levels of acetic acid ( $p=0.049$ ) and propionic acid ( $p=0.025$ ) than controls. In IBS patients, high acetic acid group scored significantly higher GI symptoms (SIBSQ;  $p=0.05$ ) and lower QOL (general health;  $p=0.014$ , vitality;  $p=0.029$ ) than low acetic acid group. Moreover, IBS patients with high propionic acid had significantly higher GI symptoms (abdominal pain;  $p=0.046$ , bloating;  $p<0.001$ ), negative emotions (anxiety;  $p=0.015$ , impersonal thinking;  $p=0.031$ ) and lower QOL (general health;  $p=0.017$ ) than those with low propionic acid. Conclusions These results supported the hypothesis that both fecal microbiota and organic acid are altered in IBS patients. High levels of acetic acid and propionic acid relating with GI symptoms, negative emotions and impaired QOL may suggest chemo-induced visceral hypersensitivity in IBS.

#### OS26-5

### IBS AND OUTPATIENT SERVICES: TOWARDS THE DEVELOPMENT OF AN EMPIRICAL MODEL OF HEALTH CARE UTILISATION

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Patients with Irritable Bowel Syndrome (IBS) are described as frequent users of health services (Creed, 1997). Typically, high levels of psychopathology are cited as the main determinant accounting for 42% of variance on health care use

(Herschbach et al., 1999). Adopting an exploratory and patient focused approach, we aimed to identify additional factors potentially implicated in health care use. Methods: Twenty-one outpatients, 19 to 71 yrs (M = 44.23, SD, 15.18), were recruited using a purposive sampling framework for maximum variation. A semi-structured interview was administered and transcribed. Interviews were assessed for emerging themes and principles of grounded theory (Glaser, 1978) were used to develop a model of health care utilisation. Results: The emergent model depicts a range of factors potentially impacting on health care use. Whilst some patients noted the existence of psychopathology (e.g., predominantly anxiety and depression), cognitive factors (e.g., ideas of normalcy, over-monitoring of foods and symptoms, erroneous conclusions, catastrophising, and attributions made regarding the cause of symptoms) appear to play a larger role in patient experience of IBS symptoms and subsequent health seeking behaviour. Conclusions: It is likely that a direct effects model (i.e., psychopathology causes increased health care use) provides a simplistic and inaccurate explanation concerning why patients are frequent users of health services. Such an account will do little to improve efficiency in health care. Instead, attempts to reduce return visits will involve holistic and collaborative approaches to care (e.g., Talley & Spiller, 2002). Specifically, targeting risk factors associated with return visits may involve a focus on patient cognitions, unrealistic expectations, and the proposal of more adaptive coping strategies. Future research will involve an empirical assessment of the health care utilisation model presented.

## OS27

### Track : 'Adherence'

*Chair (s) : Andrew Steptoe*

### Track 'Adherence'

## OS27-1

### THE ROLE OF PERCEPTIONS OF IMPORTANCE AND CONFIDENCE IN ADHERENCE TO HEALTH BEHAVIOURS IN CHRONIC HEART FAILURE PATIENTS

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Rollnick, Mason and Butler (1999) provided a model for motivating adherence to health behaviours in individuals with medical conditions. This study aimed to investigate the models central tenant that perceptions of confidence (self-efficacy) and importance are two core constructs associated with adherence with health behaviours in those with medical conditions. Given that adherence to health behaviours is a key component of the management of chronic heart failure (CHF), the model was examined in a CHF population. The sample involved 256 adults (72% male) with a diagnosis of CHF who were assessed at time 1 and then at 6 month follow-up. Participants rated their perceptions of importance and confidence at adhering to five health behaviours recommended by the Australian Heart Foundation: limiting dietary sodium intake, consistently taking prescribed medication, engaging in regular physical activity, and abstaining from smoking and alcohol consumption. The participants also rated their adherence to these health behaviours using the Heart Failure

Compliance Questionnaire. The results showed that after adjusting for depression (BDI), anxiety (STAI), age and functional status, the constructs of importance and confidence did play a role in predicting adherence. However, these two constructs did not contribute equally, nor were they shown to necessarily contribute in combination. Perceptions of importance were shown to be significantly associated with adherence to taking medication and eating low sodium diets. Perceptions of confidence were shown to be significantly associated with adherence to all health behaviours, except medication adherence. As such, while there was some support for Rollnick and colleagues model, the application of the model among CHF patients may be behaviour specific with the contribution of perceptions of importance and confidence to health behaviours varying depending upon the specific health behaviour. This finding therefore has implications on how to maximise health behaviour change interventions among CHF patients.

## OS27-2

### IMPACT OF POSITIVE AND NEGATIVE MEDICATION BELIEFS ON ADHERENCE TO INHALED STEROIDS IN INNER CITY ASTHMATICS

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Background: Adherence to inhaled steroids (IS) is the cornerstone of evidence-based asthma management. We examined the impact of medication beliefs on adherence to IS over time. Methods: We prospectively studied a cohort of 245 inner city adults with persistent asthma. Medication beliefs were based on the Common Sense Model of Illness Self-Regulation. Positive beliefs referred to the importance of using IS when asymptomatic (ASX). Negative beliefs were worries about side effects and addiction. Self-efficacy items were: confidence in using IS, hard to follow your IS regimen, future health depends on IS. Self-reported adherence to IS was assessed at baseline, 1 and 3 months using: the Medication Adherence Reporting Scale (MARS,  $\alpha=.85$ ) and items about use of IS when ASX and SX. Associations between beliefs and adherence were assessed using Spearman correlations. Multivariate (MV) models of adherence adjusted for age, sex, and asthma severity. Results: Mean patient (Pt) age was 48 years, 60% Hispanic, 30% Black, and 20% completed the survey in Spanish. Overall, 57% had a prior hospitalization and 85% were prescribed IS. Pts who were prescribed IS reported using their IS all/most of the time more often when having SX v. ASX at all 3 time periods (74% v. 68%,  $p<.05$ ). At all 3 time points, ICS adherence (MARS) was associated with beliefs about the importance of using IS when ASX, worries about addiction and side effects, confidence in using IS, difficulty following the regimen, and future health depends on IS ( $p<.001$ ). In MV models, beliefs about importance of using IS when ASX, worries about side effects, and believing the IS regimen was hard to follow were associated with adherence scores at all 3 time points ( $p<.05$ ). Conclusion: Several key positive and negative medication beliefs were associated with adherence to IS over time. These potentially modifiable beliefs are promising targets for future asthma self-management interventions.

OS27-3

**PREDICTORS OF MEDICATION ADHERENCE AMONG INNER-CITY DIABETICS: THE ROLE OF DISEASE AND MEDICATION BELIEFS**

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**Background**

Despite the critical role of drug therapy in diabetes management high rates of poor adherence have been well documented. The purpose of this study was to identify health beliefs associated with poor medication adherence in inner-city minority diabetics.

**Methods**

A cohort of diabetics was assembled from an urban primary-care clinic in Harlem, NY. Patients were interviewed in English or Spanish about: disease beliefs (Brief-IPQ), medication beliefs, regimen complexity, diabetes knowledge, depression (PHQ-9), physical activity, self-management, and medication adherence (Morisky score). Logistic regression identified univariate and multivariate predictors of poor medication adherence (Morisky>1).

**Results**

The patients (n=151) were: mean age 57 years, 68% female, 51% <high school education, 57% Hispanic, 34% Black. Patients had diabetes for a mean of 13 years with an average HgA1C of 7.6. One-in-four were poor adherers(28%). Over half (56%) believed high sugar started at 200mg/dL, 12% believed they have diabetes only when their sugar was high, and 23% thought they did not need medicines when sugars were normal. Univariate predictors of poor adherence included (p<.05 for all): disease beliefs (consequences, personal control, identity from Brief-IPQ), belief that you only have diabetes when sugar is high, and diabetes interferes with social life, medication beliefs (do not need medicines when sugar normal/low, concerns about side-effects/addiction, difficulty taking medicines), low confidence for controlling diabetes, and depressive symptoms. In multivariate analyses, predictors of poor adherence were: believing you only have diabetes when sugars are high (OR=7.4;CI 2-27.2), lack of self-confidence (2.8;1.1-7.1), not needing meds when sugar normal (3.5,0.9-13.7), feeling medicines are hard to take (14.0;4.4-44.6), and worrying about side-effects (3.3;1.3-8.7).

**Conclusion**

Disease and medication beliefs inconsistent with a chronic disease model of diabetes, as well as low self-confidence were significant predictors of poor medication adherence. Interventions to improve adherence need to target these suboptimal health beliefs and low self-confidence.

OS27-4

**ASSESSING THE VALIDITY OF THE MEDICATION ADHERENCE REPORTING SCALE (MARS) IN INNER CITY ASTHMATIC ADULTS**

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Daily inhaled corticosteroids (ICS) are the keys to evidence-based asthma management. Clinicians would benefit from a validated tool for assessing ICS adherence. We examined the

validity of the Medication Adherence Report Scale (MARS), a self-reported measure of oral medication use in chronic illness, as a scale for ICS adherence. Sociodemographic, clinical, and medication data were collected in English/Spanish as part of a prospective observational cohort study of inner city adults with persistent asthma. In a subset of patients, adherence to ICS was measured 1 month after enrollment using: 1) Self-reported adherence (S-Adh) via the 10 item MARS 2) Electronically (E-Adh) using metered dose inhaler logs with adherence equaling percent of days ICS attenuated. Patients with MARS>4 or E-Adh>70% were classified as good adherers. Internal validity was assessed with Cronbach's alpha and by associations between S-Adh and E-Adh. Construct validity was examined by correlating S-Adh with beliefs about ICS. Of 318 patients overall, 53 were in the E-Adh substudy. Mean age was 47, 85% female, 40% Hispanic, 40% Black, 18% White, 53% had prior asthma hospitalization, 13% prior intubation, and 70% used oral steroids. Substudy patients were similar to the rest of the cohort in age, sex, race, and asthma severity. MARS had good inter-item correlation in English and Spanish (Cronbach's alpha=.85/.86). Mean E-Adh was 52% of days. Mean S-Adh was 4.3 (equal to skipping ICS rarely/never). Overall S-Adh was correlated with continuous E-Adh (R=0.42, p<.002) as well as with binary, good E-Adh (R=.40, p<.003). Good S-Adh also predicted good E-Adh (OR=5.4, CI 1-30, p<.03). Alternate analyses modeling E-Adh as percent days used in first verses last 15 days and as percent of prescribed doses yielded similar results. The MARS scale performed well as a self-reported measure of adherence with ICS among English and Spanish-speaking, low income, minority asthmatic patients.

OS27-6

**ATTITUDES TOWARDS MEDICATION PRESCRIBED FOR CHRONIC ILLNESS: RELATIONSHIP WITH ADHERENCE**

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**Background:** This study used a new method of operationalising patient attitudes towards medication to explore patterns of beliefs held by patients in three chronic illness groups (inflammatory bowel disease (IBD), renal disease, bipolar disorder) and their relationship with adherence.

**Method:** Participants were recruited through eight UK haemodialysis centres (renal disease, n=221), the National Association for Colitis and Crohns Disease (IBD, n=1871) and the Bipolar Organisation (bipolar disorder, n=218). They completed the Beliefs about Medicines Questionnaire. This comprises two sub-scales: perceived need for treatment (Necessity beliefs) and concerns about potential adverse effects (Concerns). Sub-scale means were dichotomised at the scale mid-point and participants were classified as Agreeable (High Necessity, Low Concerns), Ambivalent (High Necessity, High Concerns), Sceptical (Low Necessity, High Concerns) or Indifferent (Low Necessity, Low Concerns). Participants also completed the Medication Adherence Report Scale (MARS). One-way ANOVA was used to compare MARS scores across attitudinal groups. Chi-square analysis was used to compare attitudinal group membership across

illness groups.

Results: The most common attitudinal group was Accepting, (71% renal disease, 48% IBD and 43% bipolar samples). This was associated with significantly higher reported adherence than the other attitudinal groups across all three samples ( $p < .001$ ). A greater proportion of patients with renal disease held Accepting attitudes than those with IBD or bipolar disorder ( $p < .001$ ). Low need for treatment was reported by a small minority of participants and therefore Sceptical (1% renal disease, 6% IBD and 8% bipolar samples) and Indifferent (1% renal disease, 4% IBD and 7% bipolar samples) groups were the smallest. These groups reported the lowest adherence ( $p < .001$ ).

Conclusion: This type of attitudinal analysis may provide a simple framework for health professionals to conceptualise and understand patients' beliefs about medicines that are associated with adherence.

## Track 'Health Education and Promotion'

### P-001-F

#### THE EFFECT OF THE IMPROVEMENT OF AUDIOMETRIC TESTING METHODS ON PROTECTIVE GEAR USE

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Through the repetitive reform of audiometric testing methods, reliability confidence of the subjects was heightened, and the relationship between noise-induced hearing loss prevention through an increase in earplug use was clarified. In the spring and autumn of 1999 and 2000, a total of 4 audiometric measurements were taken from 60 subjects (range of age=26-55 years; mean age=46.6 ± 9.4 years). Post-audiometric testing reform and introduction of soundproof box, the rate of earplug use and shifts in hearing ability were examined through the feedback of results to test subjects. Hearing ability was screened at 1000Hz and 4000Hz and measured in 5dB increments. In the spring of 1999, without the use of a soundproof box, the average in both ears was 16.8 ± 6.8dB at 1000Hz, and 20.1 ± 17.6dB at 4000Hz. However, post reform, the average of hearing in both ears was 10.7 ± 7.4dB at 1000Hz and 17.6 ± 18.2dB at 4000Hz. As a result of repetitive analysis with variance, a significant difference was seen for the average hearing ability of both ears at both 1000Hz and 4000Hz ( $P < 0.01$ ). In addition, through the heightening of awareness, the rate of earplug use increased from 56.7% pre-improvement to 76.7% post-improvement. Through the systemic improvement of audiometric testing methods, the reliability confidence and subject motivation concerning auditory testing were heightened, and it can be suggested that the increase in earplug use was an effective tool for noise-induced hearing loss prevention.

### P-002-F

#### DEVELOPMENT AND PRELIMINARY EVALUATION OF EDUCATIONAL MATERIAL FOR COMMUNICATION SKILLS OF JAPANESE PATIENTS

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Background: There has been a shift from a paternalistic model of the physician-patient relationship towards a patient-centered model, and as a result, a greater focus has been placed on physicians' communication training. However, relatively little research has been directed to patients' communication, despite evidence presented from Western countries indicating that patient communication training improves patient outcomes. To date, no research has been conducted on teaching Japanese patients communication skills. Objective: The purpose of this study was to develop written educational material with the aim of communication skills training for Japanese patients. Written

educational material in the format of a booklet was developed to structure the exchange of information between Japanese patients and their physicians during medical consultations, and was designed to facilitate patients in their preparation for the visit to their physicians. Method: A literature review was conducted to develop the content of the booklet. The booklet was organized along three information exchange skills, a checklist for self-evaluation of communication competence, and prompt sheets to explore the patient explanatory model and to record questions. This provisional booklet was presented to a small group of healthcare professionals and was adjusted according to their comments and suggestions. The second version of the 26-page booklet was presented to a convenience sample of five adults for a qualitative evaluation. Results: The participants felt the volume of contents was too large to absorb in the waiting room. All participants highly evaluated the usefulness of the booklet with comments such as "The booklet reminded me how important the effective communication with a physician is", and "The booklet can empower the patient with background knowledge". Conclusion: The booklet can be an effective tool to enhance patients' communication during consultations, despite some issues raised on its readability and the practicality of using it in the waiting room.

### P-003-F

#### STUDY ON MENSTRUATION IMAGE, SYMPTOMS ASSOCIATED WITH PRE- AND DURING MENSTRUATION, AND COPING BEHAVIOR FOR MENSTRUAL PAIN IN JAPANESE FEMALE UNDERGRADUATES

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Objective: The purpose of this study was to preliminarily examine the relationships among menstruation image, pre- and postmenstrual discomfort symptoms, and coping of the menstrual pain in Japanese female undergraduates, with a view of developing cognitive intervention for symptoms associated with menstrual cycle and change in physical condition. Method: Five hundred twenty two undergraduates agreed to participate in the study. The mean age of the participants was 18.19 years (SD: 0.794). The participants were asked to provide open-ended descriptions of the image of menstruation. A list of 14 symptoms associated with pre & post menstruation and a list of 8 coping methods for menstrual pain were presented and the participants were asked to choose all symptoms and coping methods that were applicable to them. Results: The descriptions of menstruation image were summarized into 6 categories of "Contradictory image", "Female sexuality", "Somatic discomfort", "Hassle", "Something important", and "Other". Over half of the images fell into "Something important" and "Somatic discomfort" indicating that many of the participants perceived menstruation negatively. The average number of symptoms associated with pre- and postmenstrual were 4.5 (SD: 3.8) and 7.1 (SD: 3.5), respectively. "Lie down" was cited most frequently as coping of menstrual pain, followed by "Suffer", "Keep the lower abdomen warm" and "Take pain killer", respectively. Those who associated menstruation image with "Somatic discomfort" reported the largest number of symptoms. In relation to coping of menstrual pain, those who perceived menstruation as "Contradictory image" with both positive and negative feelings reported the largest number of coping methods, rather than those who perceived menstruation positively as "Female sexuality" or "Something important".

Conclusion: This preliminary study indicated that cognitive intervention to enhance coping behaviors for menstrual pain is desired.

**P-005-F**

**TAKING A RISK PERCEPTIONS APPROACH TO IMPROVING BEACH SWIMMING SAFETY**

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Purpose: To investigate the factors associated with safe swimming behavior by drawing upon protection motivation theory as a guiding theoretical framework. Method: This cross-sectional study utilized the constructs of protection motivation theory to assess the associations between perceptions of the risk of drowning and safe swimming behavior in a sample of beachgoers (N=3371) aged >16 years who completed an anonymous self-report questionnaire. Result: Compared with males, females perceived greater severity, vulnerability, self-efficacy and concern regarding their risk of drowning. Males, Maori, and 16 to 29 year olds reported higher response efficacy scores compared to females, other ethnic groups, and older participants, respectively. After controlling for confounding variables, people perceiving a greater threat (severity) of experiencing difficulty while swimming as well as those reporting higher response efficacy (beliefs about the effectiveness of drowning prevention measures) were more likely to report safe swimming behavior. Conclusion: The effectiveness of water safety education programs could be strengthened by enhancing risk appraisal and coping skills, and counter-acting the tendency of males and younger adults to overestimate their swimming ability and underestimate their risk with regard to drowning.

**P-006-F**

**LIFESTYLES AND METABOLIC SYNDROME OF JAPANESE MALE ADULT SMOKERS**

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Purpose: A national project against rapidly increasing obesity in recent years has been decided in Japan. The project includes health guidance for all adults about daily eating and exercise with a catch-phrase, "Eat breakfast everyday!" However, there is no mention about smoking cigarettes in the project. Materials and Methods: We used the data of 7612 males out of 13728 people who had complete medical checkups at our hospital between 4th of January 2005 and 6th of July 2006. The mean age was 56.4. The subjects were asked questions about their lifestyle (daily eating, exercises, cigarette smoking, alcohol consumptions, etc), choosing an answer from "Always", "Sometimes" and "Never". We analyzed the data Results: There were significantly more smoking males who do not have habits of eating breakfast and doing regular exercises, and who drink alcohols than non-smoking males. Conclusion: Smokers tend to have bad habits of not eating breakfast, not doing exercises, and drinking alcohols, which could lead to the metabolic syndrome. Currently in Japan, the prevention of

metabolic syndrome is being increasingly emphasized as health measures, but without the mention about smoking habit. Smoking cessation guidance and supports should be provided first to smokers for the modification of lifestyles that could cause metabolic syndrome.

**P-007-F**

**EFFECTS OF EXERCISE INTERVENTION ON ABILITY TO WALK AND IMMUNE FUNCTION IN THE ELDERLY PEOPLE**

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Purpose: The aim of this study was to examine the exercise intervention on ability to walk and immune function of older people in Japan. Subjects and Methods: Thirty nine healthy people over 70 years old participated in the leg exercise program for three months. They performed the exercise with instructors twice a month, and also continued the exercise at home every day. To evaluate the effects of the leg strength exercise, physical characteristics (weight, height, and body mass index (BMI)), ability to walk (5-meter walking time test and Timed-Stands Test), lymphocyte subsets (CD3+ T cells, CD3+CD4+ helper T cells, CD3+CD8+ cytotoxic T cells, CD19+ B cells, and CD16+CD56+ Natural killer cells, CD4+/CD8+ ratio), difficulty of activity of daily living (ADL) were measured at 5 periods (baseline, once a month for the three months of exercise, and one month after the end of exercise). Lymphocyte subsets were analyzed by flow cytometry using selected monoclonal antibodies. Results: Five people withdrew from the study for health reasons. The mean number of their daily exercise for the three months was about twice a day per person. The proportion of CD4 + helper T cell and CD4+/CD8+ ratio as immune function increased significantly after the exercise. Additionally, Timed-Stands Test after the exercise was significantly faster than baseline. 5-meter walking time and physical characteristics were the same before and after the exercise. Conclusion: Performing an appropriate and continued leg exercise regimen can contribute to the health of elderly people including their immune function and leg strength.

**P-008-F**

**HEALTH CHECK: TAILORED DIGITAL LIFESTYLE COUNSELLING FOR EMPLOYEES OF THREE MUNICIPALITIES IN THE MIDDLE OF THE NETHERLANDS.**

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Introduction: The Municipal Health Service in Zeist and TNO Quality of Life are currently conducting a pilot study in which digital lifestyle counseling is made available to employees of three municipalities (Zeist, Ronde Venen and Rhenen). Every three months, employees are given the opportunity to assess their health behavior (weight, physical fitness, nutrition, physical activity, smoking and alcohol) and they are given tailored feedback. Employers commit to additional lifestyle activities, particularly in the area of physical activity. Methods: A process- and effect evaluation are conducted.

Outcomes include: the reach of the intervention, possible changes in lifestyle over time, and reinforcing and enabling factors for workplace promotion of a healthy lifestyle.

Results: 35% of the 556 employees in Zeist, 51% of the 292 employees in Ronde Venen and 59% of the 140 employees in Rhenen participated in the baseline health check. BMI ranged around 25 kg/m<sup>2</sup>. The percentage of employees meeting current guidelines for physical activity and sports was 68% and 44% (Zeist), 53% and 38% (Ronde Venen) and 56% and 31% (Rhenen). For fruit and vegetable intake respectively the guidelines were met by 22% and 25% (Zeist), 15% and 20% (Ronde Venen), and 20% and 17% (Rhenen). The percentage of smokers was 22% (Rhenen), 15% (Ronde Venen) and 16% (Rhenen).

Conclusion: Participation in (=a measure of reach of) the health check varied across municipalities, with rates being higher in the smaller municipalities. Follow-up checks in December 2007 and March 2008 will give insight in possible changes in lifestyle over time. The process evaluation will also be completed after March 2008.

#### P-009-F

### THE EFFECTS OF DIARY-KEEPING ON WELL-BEING

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The purpose of the present study was to investigate the effects of diary-keeping on well-being. Forty three undergraduates (24 males, 19 females) were randomly assigned into one of two groups. One was the Finding Happiness group, in which participants were asked to write any happy or positive event happened around them everyday. Another was the Reflecting Worry group, in which participants were asked to write any worried or concerned event happened around them everyday and to reflect how to cope with the event. Half of participants kept a diary on a notebook (Regular Diary group), while the other half kept a diary on the Internet (Web Diary group). Participants kept a diary for 4 weeks. Immediately before and after diary-keeping, participants' general health, worry, self-esteem, general self-efficacy, negative rumination, and working memory capacity were measured. Results showed that diary-keeping led to an increase in general health and working memory capacity, and a decrease in negative rumination. Especially, participants of the Finding Happiness group showed significant increase in general self-efficacy. Finding happiness in our daily life is likely to make us realize our own good points again, and this realization may result in self-reinforcement. Besides, the result of content analysis of web diaries revealed that the number of conjunctions significantly increased in the Reflecting Worry group. This finding suggests that reflective writing on the Internet may lead to structural thinking or cognitive restructuring about negative events and emotions. In general, the results of the present study were congruent with previous findings of emotional expressive writing based on Pennebaker's writing paradigm (Lepore & Smyth, 2002).

#### P-010-F

### THE DEVELOPMENT OF SOCIAL COST PROBABILITY SCALE AND THE EFFECTS OF COST / PROBABILITY BIAS ON SOCIAL ANXIETY

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Social Anxiety Disorder (SAD) is the most common type of Anxiety Disorders. In the cognitive model and cognitive behavioral model in SAD, it was suggested that the excessive negative interpretation of SAD patients and high social anxious individuals in social situation maintain SAD symptoms. Previous studies reported that Cost / Probability bias in social situation is important factor to maintain SAD. In present study, we developed Social Cost Probability Scale (SCOP) to assess cost / probability bias and investigated the effects of Cost / Probability bias on SAD symptoms. Participants were 362 college students. They completed a set of questionnaires, which consisted of SCOP, Social Interaction Anxiety Scale (SIAS), Social Phobia Scale (SPS), and Self-rating Depression Scale (SDS). The results of exploratory factor analysis with Promax rotation revealed that SCOP was composed of 12 items and SCOP consists of two factors. The first factor was named "Communication" and the second factor was named "Evaluative situation" by the meaning. Both factors of Cost and Probability bias had moderate positive correlations with each scale ( $p < .001$ ). Cluster analysis by Ward method was conducted to classify the response of Cost / Probability bias based on SCOP scores. Cluster analysis yielded three subgroups. Each cluster is characterized by Low Cost / Probability cluster, High Probability cluster, and High Cost cluster. One-way ANOVA by cluster groups showed that there was significant group effect in all scales. Post hoc test by Scheffe method revealed that the scores of all scales in High Cost cluster is significantly higher ( $p < .001$ ). Results of present study showed that cost / probability bias is related to SAD symptoms. Furthermore, it was revealed that high cost bias is associated with SAD symptoms. Therefore, it is considered that cognitive behavioral treatment on cost / probability bias is effective to improve SAD symptoms.

#### P-011-F

### PERCEIVED SELF-EFFICACY OF SELF-CARE BEHAVIORS AMONG DIABETIC PATIENTS' REFERRED TO YAZD DIABETES RESEARCH CENTER

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Introduction: Diabetes mellitus is a major health problem in all nations. This medical disorder is characterized by hyperglycemia and impaired metabolism of carbohydrates, fat and proteins and accompanied by absolute or relative insulin deficiency. Today, diabetes has got increasing prevalence. It is estimated that in 2025, about 300 million will be affected by diabetes in the world. Self-efficacy is proposed as a concept of social learning theory and a construct of health belief model especially when the model is used for predicting life-style

changes. This study was designed and carried out for determining this construct status and its related factors and also its correlation status with self-care behaviors among diabetic patients. Methodology: This cross-sectional study was carried out on 120 patients referred to Yazd diabetes research center. A questionnaire was used for data collection which measured perceived self-efficacy and self-care behaviors constructs. Questionnaire was completed with a private interview of subjects. Subjects' demographic variables also were asked. Validity and reliability of the questionnaire was assessed and approved. Results: Subjects earned 59.9 % of earnable score of self-efficacy. Among self-care behaviors, keeping blood glucose in the normal range when under stress and treatment of a high and low blood sugar correctly, received the lowest perceived self- efficacy score and performing the prescribed number of daily insulin injections or taking drugs correctly, received the highest score. Men had a higher level of self-efficacy and also self-efficacy was positively correlated with education level. Level of self-efficacy also was higher among employers in comparison with housewives. Self-efficacy was positively correlated with self-care behaviors and predicted 38% variances in this variable. Conclusion: Respondents gave average self-efficacy ratings on their ability to manage all aspects of their disease. Self-efficacy as the most important diabetes-related psychosocial factors must be reinforced in these patients especially among women.

#### P-012-F

### EVALUATING CURVE LINEAR RELATIONSHIP BETWEEN HBA1C AND QUALITY OF LIFE

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**Abstract** OBJECTIVE Quality of life (QOL) has become an important concept in medical researches. Different meaningful reasons are given for this development. In this study the main criteria were QOL and glycemic control. Our goal is to assess the relation between different dimensions of QOL and glycemic control in diabetic patients. **RESEARCH DESIGN AND METHODS** A random sample of Iranian adult diabetic outpatient (n=124) were selected and they completed the WHOQOL assessment instruments. In addition HbA1c was measured in these patients by calorimetric method. Patients were divided in to 3 groups: 1- good control (HbA1c < 7), 2- fair control (7 HbA1c <9) and 3- poor control (HbA1c 9). QOL was assessed by WHOQOL-26 General Health Questionnaire, measuring Physical, Psychological, Social Relations and Environmental domains .SPSS 12 completed analysis data with t-test , K-square and repeated measurement method. **RESULTS** Mean Physical dimension in patients with good control is higher than in patients with fair control and it is significant (P<0.028). Psychological, Physical, Environmental dimension aspects in illiterate patients was less than in under 9 years literacy and upper 12 years literacy and it is significant (P<0.04).BMI in female is higher than in male and it is significant (P < 0.01) .There was no correlation between WHOQOL domains and glycemic control in diabetic

patients type2. **CONCLUSIONS** Physical dimension in patients with good control was higher than in fair and bad control group, but we cannot any relationship between HbA1c and WHOQOL -26 domains. By this finding we couldnot support curvilinear relationship between HbA1c and health related QOL.

#### P-013-F

### QUALITY OF LIFE, SELF EFFICACY, LIPID PROFILE CONDITION AND GLYCEMIC CONTROL AMONG DIABETICS BASED ON LITERACY LEVEL

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**Abstract** The objective of the study is to determine and compare Quality of Life, Self Efficacy, Glycemic Control (GC) and lipid profile condition (Cholesterol, LDL cholesterol, HDL, and Triglyceride) among diabetics based on literacy level. Design: cross sectional conducted at 3 months. Setting: Bandarabbas clinic of diabetes Hormozgan University of Medical Sciences Patients: 128 type 2 diabetics attending Bandarabbas clinic of diabetic Main outcome measures: Quality of life, Self efficacy, Literacy level, lipid profile, HbA1c level Results: the patients were categorized into three groups: illiterate, less than 9 years education and more than 11 years education. The mean age, Body Mass Index, Total serum Cholesterol of illiterate patients were more than literate patients (P<0.05). Physical, psychological, Environmental dimensions and self efficacy in illiterate patients were less than literate patients (P<0.05). Conclusion: despite of no difference in Glycemic control between illiterate and literate patients respectively, data analysis showed significant differences between QOL dimensions, self efficacy and serum cholesterol levels. Regarding this finding, we could not find any relations between quality of life, self efficacy and Glycemic control in diabetic patients. We suggested designing intervention programs aimed at improving knowledge of diabetics. This program should consider culture, socioeconomic status, personal characteristics and demographics. Further research is needed to develop a culturally sensitive instrument that takes into consideration the knowledge variations and the specific needs for diabetics.

#### P-014-F

### CHRONOLOGICAL EVALUATION AND CAUSAL RELATIONSHIPS OF PSYCHOLOGICAL AND PHYSICAL AND SOCIAL HEALTH OF THE URBAN ELDERLY DWELLER

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The purpose of this study is to make clear that the chronological evaluation of physical and psychological and social health of the urban elderly dwellers. We may draw the conclusion on the causal relationships from using structural equation models. The questionnaire survey was conducted to all 16,462 urban elderly dwellers of 65 years old or more in A



City in September, 2001. The answer was obtained from 13,195 people (80.2%). The follow-up survey of 8,558 members was done in September, 2004. By using Cross-Lagged Effects Models and Synchronous Effects Models, the causal relationships were analyzed. All elderly were seen that the physical factor and the psychological factor and the social factor conducted on the follow-up survey in 2004 would be significantly affected by the same factor, which was investigated in 2001 regarding the chronological evaluation. We were also able to make clear that for all early elderly(65-74year) dwellers, the psychological factor of the first survey had significant influence on the physical factor of the follow-up survey regarding the causal relationship. However, the physical factor of the first survey only for early elderly female would have significant influence on the psychological factor and the social factor of the follow-up survey. And the data also lead us to the conclusion that for all last elderly(75year-over) dwellers, the social factor of the first survey had significant influence on the physical factor of the follow-up survey, while the physical factor in 2001 only for last elderly male would have significant influence on the psychological factor of the follow-up survey.

**P-015-F**

**SLEEP EDUCATION BY USING COGNITIVE BEHAVIORAL METHOD, SELF-HELP TREATMENT FOR HIGH SCHOOL STUDENTS IN JAPAN.**

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**INTRODUCTION:** Poor lifestyle, such as using visual media for long stretches of time, coffee, lack of exercise, and perceived study stress are found to affect sleep quantity and quality in students (Huen, et al., 2007). Brief cognitive-behavioral method (self-checking for target-behavior and sleep diary for 2 week) is effective in improving sleep quality for local residents (matushita et al, 2006) or poor sleeper of University students (Tanaka et al, 2007). These show that modification of lifestyle have effectiveness. The purpose of this study was to examine the effects of sleep education by using Brief Cognitive-behavioral method (self-checking for target-behavior and sleep diary for 2 week), self-help treatment. **METHOD:** Sleep education by using self-help treatment carried out for 2 week for the 60 high school students who gave informed consent. In this program the self-checking for daily life-habits, goal setting for behavioral changes and self-monitoring were used as behavioral modification techniques, it ran for 2 week in October. Teacher of high school in Hiroshima prefecture lecture them about sleep hygiene by means of manual before starting. And then, teacher asked each student to check their own life-habits and to select three target behaviors from it. The questionnaire involving lifestyle and sleep health was used to assess the effects of program. Furthermore, compliance of targets behavioral habits was assessed. **RESULTS& DISCUSSION:** After the sleep education by using self-help treatment, satisfaction of sleep significantly improved. Furthermore, feelings of wakening, concentration, appetite on morning improved. To evaluate the menu improving of sleep, the effective targets habits were examined. Present results suggest lifestyle, such as exercise, regular sleep habits, regular eating habits, or a circumstance in bedroom, nodding at evening, relaxation before bed times occupy important position to improvement of quality of sleep and arousal levels of daytime and concentration, volition in class of school.

**P-016-F**

**STRESS AND SATISFACTION WITH LIFE IN ROMANIA**

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**Background and methods**

The aim of the present study was to explore the relationships of two stressors (interpersonal stress, and worries about daily matters), with people satisfaction with life (SWL). The roles of two coping resources were also explored: general self-efficacy (GSE) and social support/network (perceived availability of a confident, and of financial help; satisfaction with the number of friends; marital status). Their direct relationships with SWL were modeled, as were their potential moderating effects on the relationships between the stressors and SWL. These relationships were explored with structural equation models using cross-sectional data from 449 women and men, aged 25 to 44, who were randomly selected from the general population living in Sibiu, Romania.

**Results**

Higher levels of interpersonal stress and higher levels of worries about daily matters were significantly related to lower levels of SWL. Higher levels of GSE were related significantly to higher levels of SWL. Social support/network moderated the relationships between SWL and the two stress variables, with higher levels of social support associated with a weaker relationship between the stressors and SWL. The SEM fit statistics showed good fit of the models to the data, with values higher than .960 for CFI and lower than .033 for RMSEA.

**Conclusion**

The models captured significant interplay among the stressors, the coping resources and SWL. In coping with stress, interpersonal (social support) and intrapersonal (self-efficacy) factors play significant, specific and equally important moderating roles. This study provides evidence that levels of common stressors are associated with levels of SWL, in addition to their well-established relationship to negative indicators of well-being. This encourages further research in this arena involving other positive indicators of subjective well-being (e.g., positive affect, happiness).

**P-017-F**

**THE PSYCHOLOGICAL EFFECTS OF THE PROJECT ADVENTURE ON THE MENTAL HEALTH AND THE LIFE SKILLS OF JAPANESE UNIVERSITY STUDENTS**

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The purpose of this study was to investigate the psychological effects of the Project Adventure (PA) on the mental health and the life skills of Japanese university students.

246 Japanese university students (male=107, female=139, mean age=20.16, SD=3.11) were asked to answer a questionnaire, which was composed of Mental Health Pattern (MHP; Hashimoto et al., 2000) and Daily Life Skills Scale for

University Students (Shimamoto et al., 2006) twice on the first day (pre test) and last day (post test) of the PA program. The subjects were divided into three groups: the PA group who participated in the organized camping using concept of PA (male=22, female=17, mean age=20.21, SD=1.30), the physical activity education (PE) group who participated in the sport activity classes (male=56, female=43, mean age=20.70, SD=3.01), and the control group (CG) who did not participate in any educational classes (male=29, female=79, mean age=19.66, SD=3.56).

Two-way repeated measures ANOVA and post hoc tests were conducted on MHP and Daily Life Skills Scale for University Students. The results showed that there were statistically significant increases of the mean score of "Intrapersonal life skills ( $p<0.001$ )" and "Interpersonal life skills ( $p<0.001$ )", and a statistically significant reduction of the mean score of "Psychological stress ( $p<0.001$ )" between pre test and post test in the PA group. In the PE group, the mean score of "Intrapersonal life skills" was significantly increased between pre test and post ( $p<0.01$ ).

These results indicated that the organized camping using concept of PA could contribute to improve mental health and life skills of university students by proving communication with other person and social support resources.

#### P-018-F

### THE DEVELOPMENT OF PARTICIPATION LEARNING SYSTEM THROUGH PEER TEACHING FOR HEALTH ENHANCING AMONG SCHOOL STUDENTS

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**Background** This Participatory Action Research was aimed to develop and applied model of learning system by participation through peer teaching for health promotion in school students. **Material and Method** The samples were randomized specifically; including twenty third-year students of public health program of faculty of health and sports science as the teacher group and forty five preschool and level one students from Papayom and Ban Sailiab schools. Teaching plan of participation learning, tooth brushing equipment, model of tooth decayed foods and songs and story books were applied in this study. **Results** We found that the teacher gained more understanding related to the development of participation learning system. They were also apply the method to achieve the goal of health promotion in the learning group. The target learning group were enjoyed the method applied and able to form a promotion health behavior and good attitude in caring their oral hygiene and also effective tooth brushing. **Conclusion** This method of learning system is effective. The limitation of this study are the inadequate preparation of teaching skills among the teacher group and the long term follow up the existing results. Both of the limitations are due to the shortage of time. We suggest that continuing reinforcement of oral health care and long term evaluation are necessary for effective health promotion of all aspects. **Keywords** : Participation Learning , Peer Teaching , Health Enhancing

#### P-019-F

### ENSURING SLEEP TO PROMOTE A HEALTHY BRAIN AND MIND IN THE JAPANESE ELDERLY- SLEEP-RELATED MINI DAY SERVICE PROGRAM FOR MENTAL AND PHYSICAL WELLNESS -

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**INTRODUCTION:** One in three Japanese elderly suffer from insomnia (Kim et al, 2000). Short nap and moderate exercise at evening have improved sleep quality and mental health (Tanaka et al, 2002), and these demonstrate the proper awakening maintenance during evening was effective in improving sleep quality and modification of lifestyle have effectiveness. New sleep-related mini day service program has been proposed (Tanaka et al, 2004). This problem combines lifestyle ensuring comfortable wakefulness with short daytime naps, laughter therapy, and light evening exercise. The long term effect of the sustenance of the lifestyle and the improvement of sleep is important. The purpose of this study was to examine the long term effects of sleep-related mini day service program of elderly people. **METHOD:** The subjects of this study were twenty three elderly people who gave informed consent for their participation. This study program combines short naps (30 minutes between 13:00 and 15:00), and group work (cognitive-behavioral intervention for sleep and stress, training of positive thinking) and exercise with moderate-intensity including stretching and flexibility in the evening (30 minutes from 17:00) was carried out for 4 weeks in winter. Sleep was recorded using actigraph. The evaluation of effects of this problem was follow up for half years. **RESULTS& DISCUSSION:** After the intervention, wake time after sleep onset significantly decreased. Mental health and the results of visual detection task were also improved after the intervention. The reduction in daytime drowsiness is thought to have contributed to improved brain function. The improvement effect of the sleep and the sleep-related lifestyle was sustained behind the half year, too. Present results demonstrated that the proper awakening maintenance during evening was effective in improving sleep quality. These results suggest that health promotion activities to ensure proper daytime wakefulness and sleep are effective for the QOL of elderly people.

#### P-020-F

### LIFESKILLS AND THEIR ASSOCIATIONS WITH PERCEIVED STRESS, DEPRESSIVE AND ANXIETY SYMPTOMS, AND GENERAL WELLBEING

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We studied the associations of the Williams LifeSkills Questionnaire (LSQ30, self-reports of ability to use the 10 coping skills taught in the LifeSkills Workshop) with the Cohen Perceived Stress Scale (PSS14), the shortened Beck Depression Inventory (BDI), the Spielberger Trait Anxiety Inventory (STAIT), the Patients Health Questionnaires (PHQ13), and the WHO Wellbeing Index (WB5). Data were obtained from 394 participants of the Hungarian adaptation of the Williams LifeSkills Program, 16-hour structured stress management training groups held between 2004-2007 (304

females, 90 males; mean age 37.5 yrs, sd=13.9, with different professional background: healthy working people, students, health care professionals, people with stress related symptoms). Cronbach's alpha of the LSQ30 was 0.83. Men had significantly higher overall lifeskills mean scores than women. LSQ was significantly higher in the older age group (65+) than in the younger ones, there were no significant difference between the young (18-44) and the middle-aged (45-64) group. LSQ was negatively associated with the PSS14, BDI, STAIT, PHQ13, and positively with the WB5 ( $p<0.001$ , partial correlation controlled for age gender and educational level). Participants had the highest scores in the "Being aware" and the "Empathy" LSQ subscales, and the lowest in "Saying No" and "Getting over it" both in women and men. "Problem solving" and "Getting over it" subscales had the strongest association with all the analyzed scales. Additionally perceived stress was predicted by "Saying no", "Speaking up" and "Making a decision"; depressive symptoms by "Being positive"; anxiety by "Assertion", "Saying no" and "Speaking up"; the somatics symptoms and the general wellbeing by "Speaking up" (linear regression model). Analysing the level of the different skills, and their impact on the stress level and the stress-related psychological and somatic symptoms that characterize the different target populations helps to implement structured behavioural interventions. Research supported by TS-049785/2004 and NKFP 1b/020/2004 grants.

#### P-021-F

### EFFECTS OF STRUCTURED GROUP ENCOUNTER-FOR THE NURSING STUDENTS-

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Purpose: Structured group encounter (SGE) is executed to urge the nursing students self-awareness and understanding of others, and the effect is examined. Methods: 77 female nursing students were participated SGE. 78 female nursing students of the control were not participated SGE. SGE was executed to each year by the program of seven hours, excluding 2003 every year from 2001 to 2006. The participation students decided participation by herself. We used the following questionnaire to measure the effect of SGE; Assertive Check List, Empathic Experience Scale Revised, Rosenberg Self-Esteem Scale. The questionnaire would be executed in three times, immediately before, morrow after three months pass. The dates had been analyzed by ANOVA, each scale score as dependent variable, time (1.before it participated in SGE, 2.after it participated in SGE, 3.months pass), and participation (two groups (the participation group and the control group)) as independent variable, and used the authorization of Tukey for the multiple comparison at the time of the subordinate position authorization. Ethical consideration explained with oral and the document and obtained agreement. Result: Self-Reliance ( $p=.001$ ), Self-Disclosure ( $p=.008$ ), Acceptability ( $p=.001$ ), and Power to Decline ( $p=.001$ ), Confrontation ( $p=.004$ ), and Self-Esteem ( $p=.001$ ) rose intentionally in the participation group compared with before it executed it immediately after execution. In addition, Self-Reliance ( $p=.008$ ), Acceptability ( $p=.048$ ), and Power to Decline ( $p=.007$ ) standard score rose intentionally three months later. Therefore, it was suggested that Self-esteem rise by executing SGE.

## Track 'Health Systems, Policy and Economics'

#### P-023-F

### THE MULTI-SECTORAL APPROACH TO COMBATING HIV/AIDS/STIS & MARCCOMPARING GHANA TO UGANDA

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Uganda identified its first case of HIV in 1982 but no surmountable measures were taken to address it during the first four years. Thus, prevalence of HIV went high and by 1992 reached over 30 percent in some hard hit areas. In 1986, the government established the AIDS Control Programme (ACP) in the Ministry of Health. Ghana recorded its first case of HIV in March 1986 and with already a technical committee in place, Ghana responded reasonably early and by 1987 established the National AIDS/STD Control Programme (NACP) in the Ministry of Health. Both countries adopted the Multi-sectoral approach to combat HIV/AIDS, given the infection multidimensional effects on societies. To compare the policy environments of Uganda to Ghana, identify the differences and make recommendations. The method applied is comparative analysis where mainly Uganda and Ghana national policies on HIV/AIDS/STIs are reviewed. The policy environments of both countries vary very much. It took four years for Uganda to establish its first policy whiles Ghana established its first policy in about a year. The reaction time in both countries contributes to the pace at which HIV/AIDS has been spread. Uganda policy environment expanded through acceleration of new policies. In 2001, Uganda recorded about 712 agencies that have been or are involved in HIV/AIDS/STIs programmes and as a result was able to reduce the prevalence rate to what is known as the success story. In Ghana, the pace was rather slow and only about 53 agencies were recorded involved in HIV/AIDS/STIs programmes. Extensive and accelerating policy environment is an important tool for fighting HIV/AIDS. Early response mitigates the spread of infection and, multi-sectoral approach to fighting HIV/AIDS with good co-ordination of government generates success at community and national levels.

#### P-024-F

### EXPLORING PERSPECTIVES ON QUALITY OF CARE FOR PEOPLE EXPERIENCING DISABILITY

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Background: Quality of care is important for effective engagement with healthcare, disability services and rehabilitation. As such, patient and client perspectives of quality of care are widely considered important, especially for people who use services on a regular basis (such as those experiencing disability). Measurement of satisfaction with services is widely used, however this has received methodological and conceptual critique, as effective measurement of satisfaction is problematic if we are not asking questions that represent what is important to people. Aims: This research aimed to explore what people experiencing disability consider most important in quality of health and social care services. Methods: We conducted six

focus-groups and two individual interviews, involving a total of thirty-one participants. Participants were recruited from local services and advocacy networks and included people with a variety of disabling conditions, relatives, carers and care professionals. Participants were asked to consider all the types of services they receive and what contributed to good or bad experiences. Results were analysed qualitatively using rigorous methods drawn from grounded theory. Findings: Key themes arising from the research regarding quality of care for people experiencing disability included: (1) competence of services and professionals (e.g. well-educated professionals, good communication, safe environment); (2) "humanness" of care provision (e.g. being involved in care, treated as a person); (3) responding appropriately to individual needs (e.g. adaptable, culturally appropriate); and (4) caring about the individual in their context (e.g. impact of treatment on life). We propose a model illustrating the issues affecting quality of care from the perspective of people experiencing disability. Significance: Findings identify key areas of importance in quality of care for people experiencing disability. This could assist health professionals and policy-makers to respond to things that matter most in quality of care for this population, contributing to improved services and better engagement.

**P-025-F**

#### **AFFECTIVE FUNCTIONING IN TWO SOCIOECONOMIC SAMPLES OF WOMEN.**

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Affective functioning is an important variable in the people's health. Variables from environment elicit affective responses with consequences for health of people. Poverty is an important factor in affective life. The participants were 421 females, 189 from a poor community and 232 from medium class community. Their ages were from 15 to 83 years. They participated voluntarily. They responded to a group of test that included a hostility test, an anxiety test and a depression test. Results showed significant differences in all factors and total scores with  $p = .000$  between the two socio economic groups. These differences occurred because in all cases the means of poor group were higher than the class media group. Ages were divided into quartiles it was observed differences between ages in total depression score  $p = .006$  and factors of: self evaluation  $p = .002$ , anhedonia  $p = .005$  and disappointment  $p = .003$ ; in the hostility factors: loss of control  $p = .05$ , and power ideology  $p = .006$ . These results let us to know with best precision what aspects of affective life are influenced by socioeconomic level and what of them for the age. Health programs with under privileged people must take into account these affective functioning as context variables.

**P-026-F**

#### **THE CHALLENGES OF MEDICAL PSYCHOLOGY IN THE NETHERLANDS IN THE NEAR FUTURE**

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The Netherlands has about 16 million inhabitants and 100

general hospitals. Medical psychology is a fairly well integrated non-medical specialism. Nevertheless medical psychology is challenged by 3 developments: (1) the number of chronic ill patients will grow fast. In 2000 40% of the Dutch people had a chronic illness and 15% of them had more than one. In 2020 50% will have at least one chronic condition and 25% of them more than one. The total population will grow from 6,5 million to 9 million. (2) The number of patients with unexplained medical complaints is estimated in several studies between 40% and 60% of patients who newly visit the hospital clinically or policlinically. (3) The need for psychosocial help of hospital patients is investigated and there is estimated that 30% of them need some sort of psychosocial help. In reference to 11 million newly referred patients it can be concluded that only 0,37% of the total hospital population is seen by the medical psychologist. So the expectation is that in the near future many more patients will deserve psychological treatment. And the question is how this problem can be tackled. Three measures have to be taken: (1) education: in the pre and post graduate education levels for psychologists there is needed a greater input from medical science and medical psychology, (2) integration of primary and secondary health care not only for medical disciplines, but also for psychologists, (3) emphasis in psychological treatment on life style change and (4) disease management, a new financing methodology, which integrates multidisciplinary healthcare, scientific and practice oriented research, and continuous education of professionals. This discussion might be of value for many other countries.

**P-027-F**

#### **ORGANIZATIONAL LIAISON TO PROMOTE HEART HEALTH**

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The goal of the collaboration between the ISBM and the European Society of Cardiology (ESC) is to support the promotion of heart health in Europe by contributing behavioural medicine expertise to a variety of initiatives and activities undertaken by the ESC. The ISBM/ESC collaboration takes place within the context of the European Association for Cardiovascular Prevention & Rehabilitation (EACPR) which consists of specialists in the fields of Epidemiology, Public Health, Prevention, Health Policy, Rehabilitation, Exercise Physiology and Basic Research within the framework of the ESC. Its mission is to promote excellence in research, practice, education and policy in cardiovascular prevention and rehabilitation in Europe. The HeartScore program is a web-based interactive programme for predicting and managing the risk of heart attack and stroke in Europe. EuroAction is a Pan-European project in preventive cardiology demonstrating how the European Guidelines on CVD Prevention can be applied in everyday clinical practice. EuroAspire III is the 3rd multi-centre survey to measure implementation of Guidelines. The HeartQol Study aims to measure the quality of life of cardiac patients by a quality of life core questionnaire to be used for international studies, indication and evaluation of cardiac events and treatments including rehabilitation. The ISBM is represented in two working committees within the EACPR: The Joint European Societies Cardiovascular Prevention Committee (JPC), and the Fourth Joint Taskforce Committee, and has contributed to guidelines on evidence-based behavioural methods for prevention and treatment of CVD. The new and updated Guidelines were published in the fall of 2007. There is a noticeable interest in behavioral

medicine research and practice among cardiologists in Europe and the guidelines have a heavy emphasis on behavior and lifestyle. The ISBM/ESC collaboration thus provides a model for how organizational liaisons can impact clinical practice.

## Track 'Illness/Illness Affect/Illness Behavior'

P-028-F

### COPING AND QUALITY OF LIFE RELATED TO THE DISEASE COURSE IN MULTIPLE SCLEROSIS

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**Background** Multiple sclerosis (MS) is a disabling disease which usually affects young people, therefore influencing both their quality of life (QoL) and mental health (depression and anxiety). **Objective** The aim of this study was to compare coping strategies and QoL as they related to the course of the disease (RRMS, SPMS, PPMS) in MS while taking depression, mood and anxiety into account. **Methods** 135 MS subjects were seen for a semi-structured interview. The assessment of their mental states was performed with the Montgomery and Asberg Depression Scale, the Depressive Mood Scale and the Hamilton Anxiety Scale. Then, all subjects completed three self-report questionnaires, two about coping strategies: the Ways of Coping Checklist and the Coping with Health Injuries and Problems and one about QoL the SEP59. **Results** The mental health and the psychological and social dimensions of QoL were relatively unaffected in all subjects. However, after having controlled for age and disability, the disease course had a strong effect on both mental health ( $p < 0.01$ ) and psychological and social dimensions of the QoL like mental health limitations ( $p < 0.01$ ), emotional well-being ( $p < 0.05$ ), distress ( $p < 0.05$ ) and social well-being ( $p < 0.01$ ), with the poorest condition for the SPMS patients and the best one for PPMS. The SPMS patients were more depressed, more anxious and presented more emotional loss of control. They also tend to use emotional coping strategies extensively while the PPMS patients use more instrumental ones ( $p < 0.01$ ). **Discussion**: Our study clearly demonstrated that psychological and social well-being were substantially affected by the disease course. These results encourage us to develop cognitive and behavioural therapies (CBT) focused on coping strategies adapted to individual patients.

P-029-F

### APATHY AND DEPRESSION IN PARKINSON'S DISEASE

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**PURPOSE** Although Parkinson's disease (PD) is mainly a movement disorder, non-motor symptoms including psychiatric and behavioral problems are frequently observed. Apathy and depression are the most prominent symptoms among them and may have influence on QOL in patients with PD. The purpose of the present study was to investigate the frequency of apathy and depression in PD, and to examine their relationship with quality of life (QOL).

**METHODS** Seventy-eight patients with PD were asked to complete a QOL battery comprising the EQ-5D and PDQ-39 to assess QOL, the Beck depression inventory (BDI) and Apathy Scale. A complete neurological examination including the Hoehn and Yahr (H-Y) stage of illness scale, the Unified Parkinson's disease rating scale (UPDRS), and the mini-mental state examination (MMSE) was performed on the same day.

**RESULTS** The frequency of depression and apathy in PD was 60% and 59%, respectively. Thirty-five (45%) patients showed both depression and apathy. Depression in the absence of apathy was found in 15% and apathy in the absence of depression was noted in 14%. Depression score was significantly correlated with the scores of the EQ-5D and the PDQ39, while apathy score was correlated with PDQ39 only. There was a significant correlation between depression score and Activities of Daily Living (ADL) score of UPDRS II, while no significant correlation was found between apathy score and ADL score. MMSE scores were significantly correlated with apathy score, but not with depression score.

**CONCLUSION** Although both apathy and depression are frequently noted in PD, apathy can occur in the absence of depression, and depression can occur in the absence of apathy. Present results suggest that psychological intervention may be effective in enhancing QOL in PD, as both apathy and depression were correlated with QOL.

P-030-F

### THE EFFECT OF COGNITIVE BEHAVIOR THERAPY FOR PATHOLOGICAL GAMBLING: A META-ANALYSIS

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#### Introduction

Pathological gambling is classified as an impulse control disorder (American Psychiatric Association, 1994). Recent studies indicate that pathological gambling is associated with significant financial consequences, social impairment, and poor health (Welte, Barnes, Wieczorek, Tidwell, & Parker, 2001), therefore, there is need for effective treatments for this disorder.

Psychological treatment which suggested the effectiveness for pathological gambling is cognitive behavior therapy (e. g. Petry, Ammerman, Bohl, Doersch, Gay, Kadden, Molina, & Steinberg, 2006).

The purpose of this study was to clarify the effects of cognitive behavior therapy for pathological gambling.

#### Methods

Studies were identified from PsycINFO and Medline database combined the key words "pathological gambling" and "randomized controlled trial" that covering the period from 1966 to 2007, and were included if these studies met the following criteria: (1) randomized controlled trial were conducted; (2) patients met DSM criteria for pathological gambling; (3) the effects of cognitive behavior therapy for pathological gambling were examined; (4) the number of DSM criteria met for a diagnosis of pathological gambling were described (0-10).

#### Results

A total of 4 outcome studies, published between 1997 and 2006, were identified. Of these 1 was excluded because the number of DSM criteria met for a diagnosis of pathological gambling was not described, thus 3 studies were included.

Results of the meta-analysis revealed that cognitive behavior therapies were more effective than no treatment at post-treatment (Effect size:  $d=2.37$ ,  $p<.001$ ; 95% CI: 4.24-5.55). The fail-safe index was 136.025, and the file-drawer index was 25. These results indicate that participants who received cognitive behavior therapy for pathological gambling were obtained significant improvement at post-treatment.

#### Conclusion

The purpose of this study was to clarify the effects of cognitive behavior therapy for pathological gambling. This study revealed that cognitive behavior treatment was an effective treatment strategy to improve the pathological gambling.

#### P-031-F

### EXAMINATION OF “ANXIETY TO ITCH” AND THE FUNCTIONAL DISABILITY IN DAILY LIFE FOR ADULT AD PATIENT:RELATIONSHIP BETWEEN SYMPTOM REGIONS AND THE PSYCHOSOMATIC DISEASE

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**Introduction** It has been pointed out that symptoms of adult atopic dermatitis (AD) interfere with disability in daily life because it is observable by others. At the same time, AD is a typical disease for which consideration of psychosomatic medicine is necessary. The present study examined how the region of skin symptoms and factors of psychosomatic disease relate to “anxiety to itch” and the disability. **Method** The participants were 39 adult AD patients. The participant, completed the IAS-AD, PSS-AD, and SDISS, and region of skin symptoms were evaluated by using the sheet for the assessment of symptoms. **Results** To examine relationship among the IAS-AD, PSS-AD, and SDISS by the region of skin symptoms, the participants were classified based on the region of skin symptoms. As results of classification, the number of participants in visible portion (VI) group was 33, and one in the non-visible portion (NVI) group was 6. As a result of Mann-whitney U test based on the score of the PSS-AD, IAS-AD, and SDISS, VI group significantly showed higher score than NVI group in the SDISS. The participants were classified into the psychosomatic group and non-psychosomatic group based on the cutoff point of the PSS-AD, and the IAS-AD and the SDISS score were compared. The result revealed that psychosomatic group significantly showed higher scores than non-psychosomatic group in the IAS-AD and the SDISS. **Conclusion** It is concluded that the adult AD patients who are diagnosed as the psychosomatic disorder significantly show higher scores than non-psychosomatic AD patients in “anxiety to itch” and the functional disability. It is clear that symptoms and level of disability of adult AD patients have close relationship to the extent how symptoms are observable in terms of symptom regions. It is necessary to evaluate the psychosomatic factors in adult AD patients.

#### P-032-F

### “DISABILITY’S BETWEEN THE EARS, NOT IN THE LEG”. EXPLORING THE HOUSING NEEDS AND REHABILITATION EXPERIENCES OF PEOPLE WITH LOWER LIMB AMPUTATION IN NEW ZEALAND.

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**Background.** Accessible housing is important for people with mobility and other impairment, however the geography, housing locations and housing stock of New Zealand have implications for health, well-being and independence of people with activity limitations and participation restrictions. **Aims.** This study explores housing access and rehabilitation experiences of people with lower limb amputation. **Method.** Twenty participants took part in audio-taped semi-structured interviews. Transcribed data were coded to create categories and a layered thematic analysis was undertaken following the principles of Interpretative Phenomenological Analysis. **Results.** 18 participants were male; eleven were over 60 years, six had injury (trauma) related amputation. Two main themes emerged. The first relates to the practical aspects of barriers to house and community access and the support obtained for achieving this access. The second concerns the positive attitude and black humour used to overcome activity and participation restrictions. **Discussion.** The two different rehabilitation funding arrangements in New Zealand, the health service and the injury compensation service affect participants experiences and how individual personnel make positive contributions to supporting access; regardless of these rehabilitation experiences participants used a positive psychological approach to overcoming their disability. **Conclusion.** These findings have given a voice to those with lower limb amputation and their comments could help develop interventions on two levels: those designed to improve access to the built environment for people with disability in New Zealand as well as those for promoting a positive psychological approach to engaging in rehabilitation.

#### P-033-F

### FEASIBILITY OF HUMOR AS A TREATMENT MODALITY IN PATIENTS WITH DEPRESSION

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Humor as a method of treatment has stirred up much interest in various fields, including psychiatry. Despite an abundance of relevant publications, the majority of existing studies are of low evidence. While some literature suggests positive clinical use of humor in reducing stress and anxiety, the results of studies on depression are largely inconclusive. While it seems logical to investigate the effects of humor on depression in a well-designed study, it is first wise to consider how suitable such research would be for the patients. We investigated the disposition toward humor of the depressed patients, rather than the effects. This study sheds light on the actual wishes of our patients. By finding out their preferences we can decide whether an extensive research on the clinical use of humor in treating depression is worthwhile. This study was carried out at

the outpatient psychiatric department of Cedars-Sinai Medical Center. Patients were asked to complete a short questionnaire comprised of regular depression scale and a modified Svebak's Sense-of-Humor Questionnaire. A correlation between the disposition toward humor and the level of depression was measured. When we began this study over a year ago we expected that welcoming humor as part of treatment will depend largely on the level of depression and the inherent sense of humor of the individual patient. After conducting an interim efficacy analysis, we discovered that there was no correlation between the disposition toward humor and level of depression. Our final findings confirm of the lack of such a relationship as well as a general acceptance of humor as an intervention among most patients. With these promising findings, we propose further research on the new and exciting intervention of humor in depressed patients.

**P-034-F**

**LIVING WITH CHRONIC WHIPLASH ASSOCIATED DISORDER - EVERYDAY LIFE AND SELF-INITIATED COPING STRATEGIES. A FOCUS GROUP STUDY.**

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Objective. To identify the symptoms patients with chronic whiplash associated disorder (WAD) describe as a dominating part of everyday life and their self-initiated coping strategies. Design. Qualitative study using focus groups interviews. Data was analyzed according to Giorgis phenomenological approach, and supported by the model of cognitive activation theory of stress (CATS). Subjects. 14 men and women with WAD (grade I or II) were recruited to two focus groups, through local whiplash organizations. Results. Participants reported severe neck and head pain, sensory hypersensitivity and cognitive dysfunctions following whiplash injury. Based on the intensity of symptoms everyday life with WAD was, by the participants, divided into two categories; good periods and bad periods. In good periods the symptoms, was perceived as manageable, but in bad periods the symptoms intensified and took control of the individual. Participants expressed a constant notion of balance behind their three main coping strategies; rest, exercise, and social withdrawal. Always having to plan ahead, not jeopardizing good periods, or trying to recuperate from bad periods was accompanied by feelings of social isolation, frustration and depression. The results were interpreted within the CATS frame of reference, where the stress response is described as a normal, healthy, and necessary alarm. If sustained there may be a risk of illness and disease. The level and duration of the alarm depends on the expectancy of the outcome of stimuli and the specific responses available for coping. CATS is emphasising the importance of coping as positive response outcome expectancies. This means that the individual expects to be able to handle a situation with a positive result. When it is no or negative relationships between anything the individual can do and the outcome, helplessness or hopelessness may develop and this might lead to depression.

**Track 'Infectious Diseases/SARS/HIV/AIDS'**

**P-035-F**

**ADOLESCENTS AND HIV/AIDS -- BEHAVIORAL PSYCHOLOGY ISSUES IN RESOURCE-POOR-NATIONS**

*DS P, NS R, PS V*

*Health Alert Organsiation of India [NGO]*

Objective: To determine knowledge/psychological attitudes towards HIV/AIDS and sexuality in Adolescents. Methods: Our NGO-volunteers interviewed 1620 adolescents by using feedback-questionnaire. Results: Respondents average age 16 years, 47% female, 76% single and 84% had no child. While 92% had heard of STDs & AIDS. Knowledge about routed of transmission, preventive-measures, safer-sexual practices, availability/efficacy of treatment options was below 16%. Only 48% could spontaneously recognize unprotected-sexual intercourse as major-transmission route, only 37% could mention blood-transfusion, perinatal routes. When testing beliefs/attitudes in tribal womens, 76% believed that one could get infected from kissing, living with/nursing of PLWHA. 60% mentioned abstaining from sex as a means of preventing HIV. 54% of this isolated community believed sex with virgins will cure them of HIV. Hardly 27% believed that sex with one in many positions is better than one position with many sex partners is the best policy for HIV control. Discussions concerning sex were held mostly with their peers. 65% of respondents were sexually active by age of 14. About 58% of this tribal population believed that traditional faith healers with their doubtful methods & medications is still best option for treatment of HIV/AIDS. Conclusions: Our target population of adolescents had limited knowledge concerning HIV/AIDS with many misconceptions. Discussions concerning sex is high with peers. High-risk sexual behavior is significantly high within this group. There is need for better educative efforts about HIV transmission availability of treatment modalities, course of disease, prevention. Recommendations: Peer education methodology is very useful for HIV/AIDS prevention in marginalised communities, specifically for massive rural/tribal populations of developing nations. We have taken lead in our area by starting co-ordination for policy development by the community based NGOs. ISBM-2008 meeting shall give us platform to learn HIV-control strategies in future projects.

**P-036-F**

**BEHAVIORAL ANALYSIS OF SEXUALITY IN RELATION TO HIV/AIDS: COMMITMENT IN SEXUAL BEHAVIOR.**

*DS P, NS R, PS V*

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Objectives: To assess Behavioral analysis of Sexuality in relation to HIV/AIDS by studying how often HIV/AIDS talks are involved into household conversations in the one hand, to assessment of HIV-screening is to couples in rural background. Methods: In order to assess the impact of /awareness programs/counseling about HIV-screening among seropositive-couples, a feedback questionnaire was made available to all consultants of rural tribal area of Dhule city whose agegroup ranges 16-40, having an active sexually. Results: A total number of 35 consultants were addressed for the study, 68% allopathic, 20% Ayurvedic & 12% traditional

healers. Among couples screened 21% were reported to often talk about HIV/AIDS affection in their intimate conversations with partners. Yet 79% kept silence about their affection for various reasons. However 78% of them agreed to be screened after counseling. Among them only 11% were found seropositives. Out of these seropositive couples 21% were both seropositives and 2 serodifferents. Only a few 8% however agreed to break the silence about their affection by informing their partners. Conclusion: HIV/AIDS affection often comes into private conversations of many couples [68%]. Although a considerable number of consultants show positive approach, a great number (79%) remain silence about their affection only to reveal it too much late. We need to apply strong efforts through permanent sensitization and information and adequate care taking of the already affected. Lessons learned: Rural/tribal population has emerged as an iceberg phenomenon. We need to share knowledge & commitment for better action to achieve good results in prevention and fighting against HIV/AIDS in rural areas of developing countries. We need to shift our focus from urban to rural areas where AIDS epidemic is silently spreading its tentacles. ISBM-Japan conference should promote this vital concept in HIV control policies in developing-nations.

#### P-037-F

### DEPRESSION MEDIATES RELATIONSHIP BETWEEN DOCTOR HEALTH LOCUS OF CONTROL BELIEFS AND PROTECTED HEALTH STATUS IN HIV

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Health locus of control (HLOC) beliefs are one of many positive psychology constructs of recent interest because of their potential role in maintaining the health of individuals living with HIV. This study examines HLOC beliefs of a rare group of HIV-positive individuals who experienced an asymptomatic period despite low CD4 cell counts (below 50), without the aid of protease inhibitors (HLC group). The 70 HLC group members were matched one-to-one with HIV-positive individuals in the mid-range of disease progression on gender, ethnicity, education, and income (COMP group). The HLOC beliefs of the two groups were compared. Previous results showed the HLC group was significantly higher on the Doctor HLOC subscale ( $t=2.044$ ,  $p=.043$ ; HLC mean=15.11,  $SD=.02$ , COMP mean=14.03,  $SD=3.26$ ). In this study, psychosocial variables (depression, coping, hopelessness, optimism) were examined as potential mediators of the relationship between Doctor HLOC and protected health status (HLC vs. COMP group membership). Affective depression was identified as a mediator of this relationship, as both affective depression and Doctor HLOC independently were significantly related to protected health status, but when both were entered into the regression equation only affective depression was significant ( $B=-.016$ ,  $t(136)=-1.946$ ,  $p=.054$ ) whereas Doctor HLOC was no longer significant ( $B=.021$ ,  $t(136)=1.582$ ,  $p=.116$ ). Protected health status was related to lower depression and higher Doctor HLOC, which is consistent with the theory that it may be adaptive for individuals with a chronic illness to have strong beliefs in doctors as being in control of one's health. Future intervention studies may consider techniques to increase Doctor HLOC beliefs as a factor to protect HIV-positive individuals from depression and subsequent health problems.

#### P-038-F

### POSITIVE AFFECT PROMOTES DECREASES IN STIMULANT USE FOLLOWING A HIV SEROPOSITIVE DIAGNOSIS

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Among human immunodeficiency virus (HIV)-positive persons, stimulant use is associated with increased HIV transmission risk behavior, impaired adherence to anti-retroviral therapy, and elevated viral load. The Self Medication Hypothesis posits that negative affect impairs self-regulatory resources resulting in increased substance use, but empirical support is mixed. Positive and negative affect co-occur in the context of a chronic stressor such as being HIV-positive, and positive affect may independently promote decreases in substance use. We examined positive and negative affect as predictors of stimulant use in 123 newly diagnosed HIV-positive persons. Assessments were administered 1 month (T1), 2 months (T2), and 3 months (T3) following a HIV diagnosis. Positive and negative affect were measured using subscales of the differential emotions scale (DES) and the positive and negative affect schedule (PANAS) at T1 and T2. Participants rated the frequency of cocaine, crack, and methamphetamine use in the past three months from 0 (never) to 5 (daily) at T1 and T3. We created a composite score by summing ratings for each stimulant. Most participants were male (89%), and 87% of these were gay/bisexual. Fifty-four percent were Caucasian, 29% were African American, 11% were Hispanic, and 5% were Asian or Pacific Islander. Approximately 40% reported stimulant use at T1. The cross-lagged structural equation model was an adequate fit for the data ( $\chi^2(24) = 27.30$ ,  $p = .24$ ; CFI = .99; RMSEA = .03; SRMR = .03). After accounting for stimulant use at T1, a latent variable of positive affect at T2 predicted decreased stimulant use at T3 ( $\beta = -.29$ ,  $t = -2.54$ ,  $p < .01$ ). This was independent of the non-significant effect of a latent variable of negative affect at T2 on stimulant use at T3. Interventions that enhance positive affect may assist HIV-positive persons with decreasing stimulant use and enhancing disease management.

#### P-040-F

### DEVELOPMENT OF CONDOM OUTCOME EXPECTANCY SCALE IN JAPAN

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The spread of STDs for young generation is one of the most crucial issues in the Japanese public health. The purposes of this study were to develop the Condom Outcome Expectancy Scale (COES) and to explore the factors to be addressed in the health educational programs for promoting condom use. The subjects were 348 heterosexual Japanese university students (male=182, Female=166,  $M=20.18$ ,  $SD=1.28$ ). The subjects completed a scale was composed of 9 items. These items which were derived from the Modified Condom Outcome Expectancy Scale (Sherman. et al., 2003) were translated from English into Japanese. Data analyses were conducted by using an exploratory factor analysis, a confirmatory factor analysis and a two-way ANOVA. An exploratory factor analysis identified 2 factors:



Enhancement (3 items) and Contract (3 items). The factor showed highly internal consistency with Cronbach's alpha. A confirmatory factor analysis indicated that the structure of this scale satisfied the statistical requirements (GFI=0.954, AGFI=0.886, CFI=0.938). A two-way ANOVA revealed that condom use group had significantly higher score in Enhancement and Contract than non-condom use group in male. Similarly, condom use group had significantly higher score in Enhancement and Contract than non-condom use group in female.

These results supported the reliability and the structural validity of the scale as an assessment scale of Condom Outcome Expectancy. This study also indicated that non-condom user at the last sexual intercourse was low score in COES. Therefore, it is implying that those with low score of COES will be the first-priority targets of the health educational program for promoting condom use.

#### P-041-F

### HIV/AIDS EPIDEMIC FEATURES AND TRENDS IN IRAN, 1986-2006

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Background: data on HIV epidemiology and preventive measures in Islamic countries is limited. In recent years an increase in the number of new HIV/AIDS cases has been observed in several Middle East countries. It is important to know whether these recent trends observed in Middle East are also occurring in Iran. Design: This case series descriptive study describes the reported HIV/AIDS data for all notifiable cases during the period 1986 to 2006 in the Iran. Case definitions based on ELISA and Western Blot tests were used. Age, sex and source of transmission distribution were studied. Results: The cumulative number of reported cases of HIV/AIDS among Iranian up to the end of September 2006 was 13700. Over the 20-year surveillance period the rate of HIV/AIDS infections diagnosed annually among Iran citizens gradually increased and, over the period 1997-2004, it reached to 1.38 to 4.6 cases per 100,000 populations. The infection was most common in the age group 15-44 years (76.6%) and predominantly affected men (76.6%). Results show that injection drug use is the main source of transmission of HIV in Iran (64.58 %), and sexual contact is the second most important route of transmission (7.37 %). The number of HIV infections transmitted by blood or blood products transfusion declined to zero by year 2003. Conclusion: The rate of reported HIV/AIDS infections in Iran has increased significantly in the last few years. The number of HIV cases in Iran is limited with injection drug use being the main mode of transmission. Our findings highlight the need for intensified HIV prevention efforts within men who have injecting drug use and strengthened efforts to encourage at-risk youth to get tested for HIV. Keywords: HIV; AIDS; Surveillance; Iran

#### P-042-F

### INFLUENCE OF COGNITIVE RESERVE IN COGNITIVE IMPAIRMENT IN HIV-INFECTED PATIENTS

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Different findings confirm the presence of cognitive and

affective disorders in a substantial proportion of HIV-seropositive subjects, in different stages of the infection. Nevertheless, the concept of cognitive reserve (CR) suggests that innate intelligence or aspects of life experience like educational or occupational attainments may supply reserve, in the form of a set of skills or repertoires that allows some people to cope with progressing neurodegenerative diseases better than others. In consequence, the concept of cognitive reserve can provide a explanation for the fact that higher levels of educational and occupational attainment, or of intelligence, are good predictors of which individuals can sustain greater brain damage before demonstrating functional deficit. Design: Cross-sectional group comparison study, based on neuropsychological performance, of HIV-1 seropositive and HIV-1 seronegative participants. Subjects: Twenty medically asymptomatic HIV-1-seropositive subjects and ten HIV-1-seronegative controls. A battery of neuropsychological tests was administered to assess separately the psychomotor, executive function and memory performance. Mood status was evaluated through the Beck Depression Inventory (BDI), and subjective quality of life with the SF-36 questionnaire. Cognitive reserve scores were based on a combination of years of education, a measure of occupational attainment, and an estimate of premorbid intelligence. Results: The HIV-1-seropositive subjects with low cognitive reserve scores exhibited significantly greater deficits on measures of attention and information processing speed (Stroop,  $p=.003$ ), verbal learning and memory (Wechsler Memory Scale  $p=.029$ ), executive functioning (Wisconsin,  $p=.004$ ), and visuospatial performance (WMS-III, Visual reproduction subtest,  $p=.023$ ) than did the HIV-1-seropositive subjects with high cognitive reserve scores. Conclusions: In our sample neuropsychological impairments in HIV-1 infection are most evident in individuals with lower cognitive reserve; that would mean that, as has been found in other neurologic disorders, individuals with greater cognitive reserve may be less sensitive to the initial clinical effects of the underlying neuropathologic process.

### Track 'Traditional, Integrative & Complementary Medicine'

#### P-043-F

### STRESS REDUCTION BY LISTENING INSTRUMENTAL MUSIC DURING GI ENDOSCOPY.

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Background: Many patients fear GI Endoscopy. Natural anxiety may be aggravated by horror stories from friends or inappropriate remarks by endoscopy staff. Music serves on familiar conjunctures, such as in waiting rooms, and air travel, helping us to relax or increase our patience. Objective: To evaluate scientific and therapeutic possibilities. Method: Study was conducted on 110 consecutive patients undergoing GI endoscopy. Fifty-five patients listened to the recorded music, while the other group of 55 did not. BP, heart and respiratory rate recorded at the beginning and end of procedure. Procedure perception attitude scale analyzed. Results: Using paired T-test no statistically significant difference in the four parameters BP-S, BP-D, Heart and Respiratory rate. However data analysis between two groups had statistically significant difference in three parameters i.e. Bp-S, BP-D, R-Rate. Conclusion: Selective music is efficacious in reducing psychological distress during gastroscopic examination. Music could be applied to other medical situations as well, which tend to generate undue stress

and anxiety. Music as a familiar personal and culture medium could be used to ease anxiety, to act as a distracter, to increase discomfort and pain threshold.

**P-044-F**

**USE OF MUSIC IN GROUP THERAPY FOR PATIENTS WITH DEMENTIA: A DISCOURSE MAKER AND A CONTEXT REGULATOR**

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Music is increasingly being considered as a therapeutic tool for patients with dementia. Previous studies have suggested that music therapy has beneficial effects on behavior, cognitive function, and social adaptability in people with dementia. However, there is little understanding of the impact of music on contexts that arise in patients' groups. This study examined the role played by music as a cue for discourse and as a context regulator in a group of people with dementia. Eleven sessions of group therapy involving music from April 2004 to March 2005 were observed using an interaction-behavior tracking method in an outpatient clinic of a geriatric department. The interactions between music therapist and participants, or between the participants themselves, were noted. Through a qualitative analysis using a narrative approach (Coffey & Atkinson, 1996), 85 scenes were extracted as a meaningful unity and 3 overall categories were identified: (1) Context Construction, (2) Therapeutic Intervention, and (3) Crisis Management. Each category seemed to mirror a different dimension of the role of music used. The role of music used was linked to the participant's disease severity, the number of group members, and the program content in each session. By using music, a context just before playing one piece of music was cut off, and another context was reframed; this was particularly evident for crisis management with shifting a meaning of participant's improper behavior to a new, positive meaning. The results demonstrated that music quietly helps to frame and shift the context of group therapy sessions for people with dementia.

**P-045-F**

**PROFICIENCY IN YOGIC RESPIRATORY EXERCISE ACTIVATES CELLULAR IMMUNITY**

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Yoga is a popular method in relieving stress today. We can see some reports of physical changes describing how yoga improves respiratory, circulatory, endocrine, and metabolic functions. We examined changes of electroencephalograph (EEG) and cellular immunity before, during, and after yoga exercises, in an endeavor to detect the correlation between them. The subjects consisted of eight yoga instructors who had been practicing yoga for several years. A 10-minute-rest period, followed by a 15-minute yoga exercise called asana, a 15-minute respiratory exercise called pranayama (various specialized respiration methods continuously performed with the eyes closed), and a 20-minute meditation were performed. Throughout rest and yoga, brain rhythms were continuously recorded via two disc electrodes placed on each forehead

(Fp2). Blood samples were drawn before and after each exercise. NK activity and percentages of T-cell and B-cell subsets were measured. During the pranayama period, both a positive correlation between the change in abundance of the activated alpha waves and the ratio of changes in NK activity, and a positive correlation between the change in abundance of the activated alpha waves and the ratio of changes in the number of T lymphocytes were observed. Furthermore, a positive correlation was also observed between the change in amplitude of the activated alpha waves and the ratio of change in the number of CD4. These findings suggest that yoga creates a stress-free and mentally concentrative state which activates the functions of NK cells and T lymphocytes, mainly of CD4, within a short period of time. We conclude from these results that yogic respiratory exercise may be able to activate cellular immunity and to help recover the mental and physical harmony of human. Yoga is considered to have an effect of some re-activation of a latent ability of harmonization in which humans naturally possess.

**P-046-F**

**QIGONG ON MOOD AND SLEEP: IS THIS ANCIENT CHINESE METHOD AN EFFECTIVE PSYCHOTHERAPEUTIC TOOL?**

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Qigong is an ancient Chinese psychosomatic discipline which is part of Traditional Chinese Medicine. Training in qigong entails the integration of movement, breathing and meditation into a single multifaceted practice. Giving this holistic nature, qigong has been said to exert a number of physical as well as mental benefits; however, many of the beneficial effects commonly ascribed to qigong still remain unsubstantiated or need confirmation. The present study was specifically designed to assess the effects of qigong practice on mood and subjective sleep quality. 39 naive subjects participated in the study, of which 21 were allocated to the experimental group and the rest were assigned to the control group. Experimental subjects underwent a qigong training program for the period of one month. Several instruments to assess mood (anxiety and depression symptoms) and subjective sleep quality were employed one day before the experiment commenced and one day after it terminated. Analysis of covariance (ANCOVA) and Mann-Whitney "U" tests were performed as statistical analyses. After completing the qigong program, experimental subjects exhibited lower scores in anxiety and depression symptoms, as well as an increase in sleep duration. Therefore, our findings reveal that the practice of qigong for a short period of one month significantly enhanced psychological well-being, including subjective sleep duration, which adds further evidence of the remarkable clinical potential that qigong possesses.

P-047-F

### ASSESSMENT OF HAEMATOLOGICAL AND BIOCHEMICAL PARAMETERS IN LONG-TERM YOGA PRACTITIONERS

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Yoga is an ancient Indian discipline and a way of life, which is commonly included within the mind-body therapies for his holistic approach to health. In the present study we analyzed the effects of regular yoga practice on several haematological and biochemical parameters. 26 healthy volunteer subjects participated in the study, of whom 16 were allocated to the experimental group and the rest were assigned to the control group. Experimental subjects were yoga practitioners with a minimum of 3 years of practice. Blood samples for the quantification of haematological (red blood cells, haematocrit, haemoglobin, platelets, erythrocyte sedimentation rate -ESR-) and biochemical (glucose, urea, creatinine, uric acid, bilirubin, GOT, GGT, GPT, phosphatase alkaline, total proteins, albumin) parameters were taken in both groups. As statistical analysis, Mann-Whitney "U" test was performed. Results reveal that yoga practitioners displayed significantly higher values of haemoglobin and ESR, as well as lower albumin levels, than control. Thus, it can be concluded that regular yoga practice induces noteworthy changes in haematological and biochemical measures of clinical interest. The possible therapeutic implications of these promising findings, particularly with respect to the anaemic syndrome, should be further studied and assessed.

P-048-F

### LONG-TERM YOGA PRACTICE ON SLEEP SUBJECTIVE QUALITY, ANXIETY SYMPTOMS AND CORTISOL

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Yoga is an ancient Indian mind-body discipline in which body postures (asana), breathing exercises (pranayama) and meditation are integrated into a single multidimensional training. In western world, the growing interest in the positive effects of yoga on health and well-being has resulted in a remarkable increase in the number of studies exploring this interesting holistic approach (1). The purpose of the present study has been to examine the effects of yoga on sleep subjective quality, anxiety symptoms and cortisol in long-term practitioners of this discipline. 26 subjects participated in the study, 16 in the experimental group and the rest in the control group. Experimental subjects had been practicing yoga for a minimum of three years. For the quantification of the psychological parameters, blood samples as well as anxiety symptoms and sleep quality questionnaires were obtained from both groups. As statistical analysis, Mann-Whitney "U" test

was performed. Our results show better sleep subjective quality and higher levels of cortisol in yoga practitioners than in the control group. Thus, we can conclude that long-term yoga practice exerts a significant modulatory effect on sleep quality and cortisol blood levels. Further research is necessary to clarify the implications of this modulatory action of yoga on cortisol, as well as to explore its potential therapeutic use on sleep disturbances. 1. Cohen et al. Psychological adjustment and sleep quality in a randomized trial of the effects of a Tibetan Yoga intervention in patients with lymphoma. (2004). Cancer, 15, 2253-2260.

### Track 'Violence/Victimization/PTSD'

P-049-F

### FRUSTRATION FOR MOTHER AND THE TENDENCY TO ANGER OF THE CHILD

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The Scale of Frustration towards the Mothers, measuring the tendency to get frustrated with mothers was developed and the relationship between the tendency to get frustrated with the mother and the tendency to get angry was examined. Participants were 203 university students (84 males and 119 females). First, a free description questionnaire on dissatisfaction with mothers and expectations of mothers was administered. Based on the results, a scale that consists of 30 items was constructed and item analysis and factor analysis were conducted. Then, the Scale of Frustration towards the Mothers, consisting of 20 items in four sub-scales; "demands concerning freedom," "demands concerning love," "demands concerning child rearing attitudes," and "demands concerning housework" was developed. The reliability and validity of the scale was confirmed. Next, path analysis was conducted on the relationship between frustration toward mothers and the tendency to get angry for each sex, by using the scale of the Tendency to Lose the Temper (Fujii, 2005). The result indicated that males easily got angry in non-parental relations, such as with themselves or with teachers, when they had strong frustrations toward their mothers, whereas females got angry more often in the parental relation.

P-050-F

### CULTURAL VALUES REGARDING MALE HONOR PROTECT AGAINST DOMESTIC VIOLENCE IN ASIANS

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In many cultures, male honor concerns are related with domestic violence, with cultures that emphasize male honor often more permissive of spousal abuse. The relationship between male honor concerns and attitudes toward spousal abuse in Asians, however, has not been examined. To do so, 43 Asian participants at a highly international U.S. university completed measures of aggression, religiosity, ideological rigidity, attitudes toward male honor, attitudes toward male privilege, and attitudes toward spousal abuse. Demographic variables included age, birth order, gender, marital status, and parental status. Eighty-five percent of the subjects grew up in

East or Southeast Asia. A hierarchical regression analysis was conducted to predict attitudes toward spousal abuse, with demographic variables entered in on the first step, and psychological variables entered in on the second step. Three significant variables were found in the final model. Higher aggression ( $\beta = .40$ ,  $p < .05$ ) and male privilege ( $\beta = .48$ ,  $p = .01$ ) were related with greater justification for spousal abuse, but higher endorsement of male honor was related with lesser justification for spousal abuse ( $\beta = -.35$ ,  $p < .02$ ). Results indicate that cultural values regarding male honor may serve as a protective factor against spousal abuse in some cultures.

**P-051-F**

**THE RELATIONSHIP BETWEEN POSTTRAUMATIC COGNITIONS AND STRESS REACTIONS: THE NATURE OF TRAUMA ABOUT LETHALLY**

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**1 Introduction :** Little attention has been given to the influence of the trauma without a lethally that was inconsistent with the DSM Criterion A definition of PTSD (APA, 2000). Recently, however, it is suggested that trauma without lethally brings serious posttraumatic stress reaction (Gold, 2005). Moreover, a growing body of research has shown that suggests cognitive factors is at least as important as trauma severity (e.g. Foa et al., 1989). The purpose of this study was to investigate the relationship between the posttraumatic cognitions and stress reactions in the trauma without lethally group compare to the trauma with lethally experienced group. **2 Method :** The Traumatic Experiences Schedule (Sato & Sakano, 2001), four questions concerning the DSM Criterion A definition of PTSD, the Japanese-language version of the Impact of Event Scale-Revised (IES-R; Asukai et al., 2002), and Japanese version of the Posttraumatic Cognitive Inventory (JPTCI; Nagae et al., 2004) were administered to 302 undergraduates. Individuals were then divided into two groups, those who reported a trauma with lethally (L group) and those who reported a trauma without lethally (N-L group). **3 Result and Discussion :** As results of multiple regression analyses predicting IES-R from JPTCI, negative cognitions about the self on the N-L group, and negative cognition about self and world on the trauma with L group had negative influence on the IES-R. Regardless of the nature of trauma about lethally, it was suggested that interventions on negative cognition about self would be effective. In additions, the N-L group showed significantly greater severity of self-blame than the L group. However, it was clarified that self-blame had positive influence on IES-R in the N-L groups. Some researchers also pointed out that self-blame is somewhat protective against distress (e.g. Startup et al., 2007), so it would be worth examining the mechanism empirically in the future.

**P-052-F**

**INFLUENCE OF EMOTIONAL CONTROL AND THE ANTICIPATION OF RESULTS ON AGGRESSIVE BEHAVIOR WHEN INDIVIDUALS EXPERIENCE ANGRY EMOTIONS**

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The purpose of this study was to investigate the characteristics of behaviors that emerge when a person experiences angry emotions. A survey, involving the use of the thought-listing method, was conducted on 91 university students / postgraduates (number of effective respondents: 73; average age:  $20.58 \pm 1.71$  years). The contents of the survey form were as follows: 1) recent situations in which anger was felt and the strength of the anger at that time (expressed in terms of a numerical value between 0% and 100%), 2) behaviors thought to be generally suitable in that situation, 3) the behavior actually adopted in that situation and the suitability of the behavior, and 4) the reasons why a gap was produced between general suitable behavior and actual behavior. Among the obtained responses, those for questions 3) and 4) were classified using the KJ method. In addition, based on the students' responses regarding the suitability of behavior, the students were classified as belonging to the high group or low group (mean  $\pm 1$  SD); the results showed that in the high group, the category concerning "emotional control and the anticipation of results" accounted for the majority of the students' behavior. In the low group, the category concerning "difficulty in emotional control" accounted for the majority of the students' behavior. In the high group, non-aggressive behavior as actual behavior (Question 3) accounted for a large portion of the students' behavior, while in the low group, aggressive behavior accounted for more than half of the instances of the students' behavior. From the above results, it is suggested that emotional control and the anticipation of results affect aggressive behavior.

**P-053-F**

**TRAUMATIC EXPERIENCE-COMPARISON RESEARCH IN THE IDP ADOLESCENT POPULATION**

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In the ex-Yugoslavian conflict started in 1991 and finished in 95, about 4 million people among the whole population of 23 million in the ex-Yugoslavia became refugees/IDPs. WHO reported in 1995 that 800,000 refugees/IDPs, 20% of those vulnerable population, had been under the serious stress and in the need of the immediate help of the psychiatric / psychological expertise. Kosovo conflict followed in 1999 and it is estimated that there are still 200 thousand IDPs (internal displaced persons) from Kosovo living in Serbia. There are several definition for psychological trauma. Ispanovic-Radjkovic (1997) pointed out that it is a combination of Type 1 and Type 2 trauma to become a refugee using Terr's definition and that civil war trauma has a specific tendency for its effects due to the exhaustion of social resource. This research is aimed to assess how trauma affects the people in exile psychologically and how long it lasts in order to provide the people in need with the more effective psychological and humanitarian support in a sense of psycho-

social point of view, by statistical analysis to compare IDPs and non-IDPs of high school students in Serbia with PTSD, depression, hopelessness and self-esteem. The assessment was administered in 2002 and 2003 as well. The result indicated that the psychological effects of civil war trauma extends not only to the IDP population, but also to the local population. 2002 result showed the IDP population suffered from psychological aspect more severely, but 2003 result was not consistent with 2002. Most interestingly, there is a small, but POSITIVE correlation between Self-positiveness factor of Self-esteem Scale and three symptoms of PTSD.

**P-054-F**

**RELATIONAL AGGRESSION IN JAPANESE JUNIOR-HIGH SCHOOL STUDENTS: LINKS TO HOSTILE ATTRIBUTION AND FEELING OF ADJUSTMENT.**

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Bullying is one of serious problematic behaviors in school settings. Aggressions showed in bullying are including not only physical aggression such as hitting or kicking, but also "relational aggression" such as ignoring or exclusion from peer group. Relational aggression is harming others through manipulation and damage of peer relation, and is associated with various problems in both of victims' and perpetrators' adjustment. To reduce children's aggressive behavior, Social Information Processing (SIP) is one of effective approaches. In the present study, a relational aggressor's cognitive characteristic was studied, focusing on intent attribution that is second step of SIP and compared with physical aggression. We hypothesized that self schema regarding to being disliked by others (distrust self schema) and belief regarding to rationalizing aggression (aggressive schema) promote hostile attribution because it is suggested that schemata are referred as date when intent is reasoned in SIP. Additionally we examined relation between relational aggression and feeling of adjustment in school life. 390 Japanese junior-high school students (male=198, female=192) answered self-reported questionnaire measuring physical/relational aggression, relational aggression victimization, self schema, aggressive schema, hostile attribution, and feeling of adjustment. The result indicated that hostile attribution in relational provocation context was affected by both of distrust self schema and aggressive schema. It was supported that distrust self schema is used as clue in reasoning provoker's intent of behavior. High hostile attribution in relational situations predicted high relational aggression. But physical aggression was not influenced by intent attribution in the both situations. Furthermore, findings showed that relational aggression was increased by victimization of relational aggression. That is, victimization of relational aggression affected "infringed and maladjustment" positively, and "approved as classmate" negatively whereas relational aggressive tendency affect "approved as classmate" positively. Finally a possibility of reducing relational aggression and a relational aggressors' adjustment problem was discussed.

**Track 'Measurement and Methods'**

**P-055-F**

**HEALTH IMPACT MEASUREMENT OF PEOPLE FROM FLASH FLOODS AND MUDSLIDE DISASTER IN UTTARADIT PROVINCE**

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This research was quantitative and qualitative study. The objective of this study was to study the health impacts measurement (physical, mental, social and spiritual health) of people from flash flood and mudslide disaster in Uttaradit province. The sample of this study consisted of 600 families selected by simple random sampling. The instrument used in this study was a questionnaire developed by the researcher based on a literature review. The content was reviewed by 3 experts and reliability was tested by using Cronbach Alpha Coefficient ( $\alpha = 0.85$ ). The data were analyzed by using descriptive statistics and content analysis. The results revealed that the impact on physical health of the samples were injury (26.7%), disability (1.8%) and the most common diseases occurred were skin disease (49.0%), fever and rash (27.7%) and respiratory disease (25.7%). The impact of disaster resulting in damaging of the study samples' housing were 99.8%. Regarding the impact on mental health, 66.5% of the study sample felt anxiety and seemed anxious anytime there was rain at very high and high levels. For social impact, 40% of the sample felt that the disaster created environmental problems, 32.2% expressed that tourist area were destroyed and 30.5% were not satisfied with the support and help from the government. For the spiritual health impact, 49.2% of the sample felt the loss of the historic city in Uttaradit province, 42.5% felt loss of culture and spirituality due to the destruction of monasteries. However, there were some positive impacts 54% of the sample thought that there was increased love, understanding and harmony among family member. Forty seven point three percent of the sample expressed that there was more concern and empathy among people in the community.

**P-056-F**

**FINGER ARTERIAL FLOW-MEDIATED DILATION RATIO MODULATED BY SERUM ESTRADIOL AND FINGER ARTERIAL ELASTICITY IN HEALTHY YOUNG WOMEN**

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Estrogen-related vasodilatation is mediated by vascular endothelial cells. We examined the hypothesis that the endothelially mediated hyperemic vasodilatation of the finger artery should be positively correlated with serum estradiol as well as with the structurally determined finger arterial elasticity itself. Thirty-eight women with an average age of  $18.4 \pm 0.6$  years (mean  $\pm$  SD) participated in the study after giving their informed consent. Normalized pulse volume (NPV) was detected by finger photoplethysmographic

recording. The finger arterial flow-mediated dilation ratio (FDR) was estimated by the ratio of NPV during reactive hyperemia compared with NPV of the non-ischemic hand. For the measurement of FDR the probes were placed on the left and right index fingers. A blood pressure cuff placed on the left upper arm was inflated to 170mmHg pressure for 5 minutes, and then reactive hyperemia was observed for 150 seconds. The finger arterial elasticity index (FEI) was calculated from NPV, based on an exponential model of the arterial pressure-volume relationship. The FEI was measured by the probe on the left index finger using a vascular occluding maneuver. FDRs were  $1.67 \pm 0.74$  and  $1.62 \pm 0.67$  at 50-60 and 60-70 seconds after cuff release respectively. Correlation coefficients between FDR and serum estradiol were significant at 40-50 seconds ( $r=0.39$ ,  $p<0.05$ ), at 50-60 seconds ( $r=0.49$ ,  $p<0.01$ ) and at 60-70 seconds ( $r=0.52$ ,  $p<0.01$ ). FEI was  $0.0396 \pm 0.0083$  and the correlation coefficient between FEI and serum estradiol was not significant ( $r=0.08$ , ns). In multiple regression analysis of FDR in reactive hyperemia from serum estradiol and FEI, there was significant regression at 60-70 seconds:  $F(2, 35) = 10.15$  ( $p<0.01$ ), with the multiple correlation coefficient  $R=0.61$ . Standardized partial regression coefficients were significant for serum estradiol ( $\beta=0.49$ ,  $p<0.01$ ) as well as for FEI ( $\beta=0.32$ ,  $p<0.05$ ). In conclusion, FDR seems to reflect estradiol-related finger arterial endothelial function and be partially modified by finger arterial stiffness.

#### P-057-F

### ITEM REDUCTION AND DIMENSIONALITY OF THE MARITAL SATISFACTION SCALE (MSS) AMONG DANISH TESTICULAR CANCER SURVIVORS

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Background: As part of a larger study investigating long-term survivors of testicular cancer, we translated and validated a Danish version of the Marital Satisfaction Scale (MSS). The MSS consists of 35 items and a one-factor structure of the scale has been suggested. Methods: 317 Danish survivors of testicular cancer completed the MSS (mean age = 47,2 yrs.). Results: The mean score on the MSS was 82,8 (SD = 40,0) and Cronbachs alpha was 0,94. The results of a confirmatory factor analysis (CFA) indicated that the one-factor model was a poor fit to the present data ( $\chi^2 = 2683,77$ ,  $p < 0,00001$ , RMSEA = 0,118. An explorative factor analysis suggested a solution with four factors accounting for 51% of the total variance. The first factor was related strongly to three items concerning general satisfaction. The second factor was related most strongly to three items concerning conflicts. The third factor was strongly related to three items concerning homogeneity, and the fourth factor was strongly related to three items concerning sexuality. The remaining 23 items did not load highly onto any single factor and were deleted. The CFA was re-run and the fit for the four-factor structure was perfect ( $\chi^2 = 0,00$ ,  $p = 1,00$ ; RMSEA = 0,00). We repeated the CFA using questionnaire answers from 83 healthy Danish men (mean age = 30,4 yrs.), and again the fit for the suggested four-factor structure was perfect ( $\chi^2 = 0,00$ ,  $p = 1,00$ ; RMSEA = 0,00). Conclusions: Based on results from factor analyses, we suggest a 12-item, four-factor version of the MSS measuring general satisfaction, homogeneity, conflicts, and sexuality. Couples exposed to serious illness have been found

to be at greater risk for marital disruption. The 12-item MSS may be a useful tool for assessing marital satisfaction in this group.

#### P-058-F

### SEASONAL AND DIURNAL VARIATION IN SUBJECTIVE AROUSAL: RESULTS FROM THE SEASON STUDY.

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The Stress-Energy questionnaire was developed to measure subjective arousal as an affective correlate to physiological stress responses. Since we previously had observed a seasonal variation in salivary cortisol concentrations among workers at a regional hospital, it was also of interest to examine whether their ratings of arousal showed the similar overall pattern. Systematic fluctuations in data might obscure the interpretation of results in field-studies. Twenty-three administrators, or caretakers, completed a questionnaire one workday every month around the 15th, from December 2004 to November 2005 (16 women/ 7 men; age range: 32 to 61). Ratings of arousal were made in two dimensions: stress and energy; three times a day: at awakening, 8-hours after awakening (14:00), and at 21:00. Scores ranged from 0-5. Data were analyzed in a repeated measures design with Month (12 levels) and Time-of-Day (3 levels) as categorical predictors. A statistical interaction between Month and Time-of-Day ( $p=0.045$ ) showed in subsequent analyses that stress ratings made at 14:00 exhibited monthly variation. At 14:00, the four highest stress scores were observed in January, February, March and April. The four lowest stress scores were observed in July, August, September and October. Pair-wise comparisons showed that the peak score in April deviated from scores in June to October ( $p's < 0.03$ ). Stress and energy ratings at 14:00 were always higher than ratings at awakening or at 21:00. The data was also tested against a sine and cosine pattern which both showed a fit ( $p < 0.05$ ). In conclusion, the reminiscent of a seasonal pattern in subjective arousal was observed for stress ratings made 14:00. Both stress and energy ratings showed a marked diurnal variation. There seem to be a risk that both seasonal and diurnal fluctuations might obscure interpretation of subjective arousal.

#### P-059-F

### SEASONAL AND DIURNAL VARIATIONS IN PHYSICAL EXERTION AND SUBJECTIVE SLEEPINESS. RESULTS FROM THE SEASON STUDY

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Comparisons of self-rated measures collected during different time periods rely on a seasonal stability of measures, or knowledge about possible seasonal variations. For this reason month-to-month variations in self ratings of physical exertion and subjective sleepiness/wakefulness were examined. Twenty-three persons (16 women/ 7 men; age range: 32 to 61)

responded to a monthly questionnaire during one year. Each month, physical exertion (Borg CR-10, modified) and subjective sleepiness (Karolinska Sleepiness Scale, KSS) were rated three times a day: at awakening, early afternoon/mid day, and evening. Diurnal as well as month-to-month changes in ratings were examined by linear mixed model analyses. Ratings of physical exertion (CR-10) did not show any signs of a seasonal variation or other month-to-month fluctuations. However, significant diurnal variations were observed. CR-10 scores were lowest in the morning, and highest at mid day ( $p < 0.001$ ). This variation in physical exertion over the day, that is, the diurnal profile, did not show any seasonal variation. Ratings of subjective sleepiness (KSS) showed a month-to-month variation ( $p = 0.035$ ). Lowest daily mean KSS scores were observed in August, when the participants rated their sleepiness significantly lower compared to mid-winter months (December - February). Separate analyses of the three time points did not show any significant seasonal variations, although the evening scores appeared to vary more than morning ratings. When testing the observations against a sine function the results were not statistically significant ( $p = 0.08$ ). The ratings of sleepiness also showed an expected significant diurnal variation, with the highest score in the evening and lowest at mid day ( $p < 0.001$ ). The diurnal profile of KSS-scores did not show any seasonal variation. In conclusion, ratings of physical exertion were stable over 12 months, while ratings of subjective sleepiness were slightly lower in August compared to winter months. Both sleepiness and physical exertion varied significantly over the day.

#### P-060-F

### SEASONAL VARIATION IN SUBJECTIVE HEALTH COMPLAINTS AND SELF-RATED HEALTH: RESULTS FROM THE SEASON STUDY.

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Despite that illness and disease may be seasonally related, it is unknown whether this is expressed in subjective ratings of health complaints, or subjective evaluations of overall health. From a methodological perspective, seasonal variations might obscure the evaluation of rating scores in occupational health studies. Therefore, month-to-month changes were studied among 23 administrators or caretakers (as 16 women/ 7 men; age range: 32 to 61). Data was collected on one workday every month around the 15th, from December 2004 to November 2005. Self-rated health was measured with one question: "How do you feel right now, concerning your overall health and mental-well being", and was responded to on a 7-point scale (1= very poor; 7= very good). The Lund Subjective Health Complaints (LSHC) inventory measured 29 common complaints. Responses were made on a 5-point scale, reflecting how often a symptom had been encountered during the last 30 days: (0=never; 4=almost everyday). The mean of the 29-items was used as outcome (0-4). Data were analyzed in a repeated measures design with Month (12 levels) as categorical predictor.

There were no discernable variations across months for SRH-7 scores ( $p > 0.5$ ). LSHC scores were generally low, and were log-transformed before testing. LSHC scores varied across months ( $p < 0.03$ ). Pair-wise comparisons showed that the highest mean scores were observed in December, January and peaked in February. February ratings deviated from ratings made in April to November ( $p < 0.05$ ).

In conclusion, the single item self-rated health score seems to be a less sensitive measure for monthly changes when compared with the grand mean of the 29-item subjective health complaints score. Although it is debatable whether the pattern of differences in LSHC scores constitutes a season effect, the monthly fluctuations suggest that comparisons across months should be conducted with care.

#### P-061-F

### RELATION BETWEEN THE DEPRESSION AND THE SENSITIVITY TO REWARD AND PUNISHMENT

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**Introduction** Generally, major depressive disorder (MDD) shows the decline of interest and joy, so it is thought that major depressive disorder (MDD) suffers from a fundamental deficit in the sensitivity to reward (Costello, 1972). In addition, it is supposed that the sensitivity to punishment rises at the same time as the sensitivity to reward decreases. In this study, we aimed at examining whether the sensitivity to reward and punishment was different in depressed subjects and non-depressed subjects.

**Method** By a cut off point of The Center for Epidemiologic Studies Depression Scale (CES-D), subjects were distributed to depressed subjects and non-depressed subjects. Eighteen depressed subjects (five male and thirteen female) and eighteen non-depressed subjects (five male and thirteen female) participated in this experiment. For the Behavioral task to measure the sensitivity to reward and punishment, we used a reinforcement learning task (Frank et al., 2004) in this study. The reinforcement learning task (Frank et al., 2004) can examine which of reward and punishment subjects based on in reinforcement learning. In all subjects, informed consent was performed before this experiment.

**Results and Discussion** Depressed subjects show a more lower sensitivity than non-depressed subjects in reward ( $t(34) = -3.23, p < 0.01$ ). But, the two groups did not differ in the sensitivity to punishment ( $t(34) = 0.32, n.s.$ ). In this research, Depressed subjects show a deficit in the sensitivity to reward, but there were no difference between depressed subjects and non-depressed subjects in the sensitivity to punishment. It seems that a deficit in the sensitivity to reward leads to more depressive mood and decline of interest and joy. In treatment of the depression, it becomes important to raise sensitivity to reward. For such a treatment, we assume the behavioral activation therapy.

#### P-062-F

### DEVELOPMENT OF A SCALE TO MEASURE EMPLOYEE VIRTUES AND THEIR INFLUENCE ON HEALTH

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**Purpose:** The purpose of this study was the development and validation of a scale measuring virtues in working life. **Methods:** A questionnaire consisting of 67 items assessing

virtues and health was developed based on focus group interviews. Items were examined by two expert panels before their inclusion in the questionnaire, and focused on the virtues of pride, honesty, love and generosity. The questionnaire was administered in two waves to employees at a large paper and pulp manufacturer. The first data collection consisted of 37 employees (age distribution: 20-60 years). The second data collection included 51 employees (age distribution: 32-60 years). The questionnaire also addressed health problems, such as sick leave and depression, to establish a link between virtues and health. Reliability tests and factor analysis was performed. Findings: Internal consistency was high for all scales. Factor analysis identified a four factor solution. Items that did not have item-to-total subscale correlations above .50 were deleted. All factor loadings exceed .60 on their respective factor, with eigenvalues > 1, with correlations between the scales ranging between .205-.627. We examined the link between virtues and health using partial least squares modeling. Using an index constructed of the virtues, we found that the virtues were found to significantly reduce the number of sick days ( $t = 3.36, p < .01$ ), reduce depression ( $t = 3.90, p < .01$ ), increase happiness ( $t = 5.52, p < .01$ ), increase one's health ( $t = 1.99, p < .01$ ) and increase one's ability to get help ( $t = 2.53, p < .01$ ). Pride was found to be the most important virtue. Conclusion: The results indicate that the scale developed of the virtues is a valid and reliable instrument. The scale can be used to increase employee well-being and promote a virtuous lifestyle.

#### P-063-F

### THE RELATIONSHIP BETWEEN PATHOLOGICAL NARCISSISM AND TWO-TYPE ANGER

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**PURPOSE:** Individuals with pathological narcissism are prone to anger (Ichihashi, 2002). Although Kohut (1971) called their anger "narcissistic rage", few empirical studies have been reported. Kaneumi & Yamazaki (2005) performed factor analysis of the Trait Anger Inventory (Suzuki et al., 2001) and found two factors: "anger which was not concerned with others" and "anger which was evoked by others". The purpose of this study is to examine the relationship between pathological narcissism and two-type anger based on scores of Japanese university students.

**SUBJECTS:** The subjects were 191 male and 209 female university students. Average age of the students was 20.00 (SD1.40).

**METHOD:** The students were requested to complete the Narcissistic Personality Inventory Clinical Version (NPI-C) (Yamazaki et al., 2006), which contains three subscales: "need for attention and praise (AP)", "lack of empathy (LE)", and "a grandiose sense (GS)", "desire for perfectionism (DP)" (Sakurai et al., 1997), and the Trait Anger Inventory, which contains two subscales: "anger which was evoked by others (AO)" and "anger which was not concerned with others (AN)".

**RESULTS and DISCUSSION:** When Pearson correlations among NPI-C, AO and AN were computed, positive correlations between NPI-C and AO ( $r = .179, p < .001$ ) rather than NPI-C and AN ( $r = .111, p < .05$ ) were found. The results of multiple regression analysis revealed that (i) AP, GS, and DP had effects on AO, (ii) AP, LE, and GS had effects on AN.

Based on the result, individuals with pathological narcissism are prone to anger evoked by others in the face of being narcissistically injured by others, because they strongly have

desire to be perfect and obtain much attention and praise by others. Additionally because they are lack of empathy, even if not in the face of being narcissistically injured by others, they might be prone to anger which was not concerned with others.

#### P-064-F

### GRANDIOSE SENSE, DEPRESSION, SOCIAL WITHDRAWAL, ANGER AND PERFECTIONISM IN JAPANESE UNIVERSITY STUDENTS WITH NARCISSISTIC PERSONALITY

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**PURPOSE:** Due to the recent increase in numbers of adolescent patients with Narcissistic Personality(NP) Disorder in the clinical setting, it can be assumed that generally, there are a number of Japanese university students with grandiose sense. The purpose of this study is to examine the psychological factors to maintain the grandiose self.

**SUBJECTS:** The subjects were 400 university students(191 males and 209 females); their mean age was 20.0(SD1.40).

**METHOD:** The scales used were the Narcissistic Personality Inventory Clinical Version(NPI-C), which contains 3 subscales: "need for attention and praise(AP)", "lack of empathy(LE)", and "a grandiose sense(GS)", "desire for perfectionism(DP)", "depression(D) and social withdrawal(SW)" and "anger(A)".

**RESULTS and DISCUSSION:** The mean total NPI-C score was 63.82(SD11.45). The rate of high risk group was 13.8%. When the relationships among GS, DP, D, SW and A were studied, a weak positive correlation between GS and DP was found( $r = .176, p < .01$ ). Additionally, weak negative correlations were found between GS and D( $r = -.147, p < .01$ ) as well as GS and SW( $r = -.149, p < .01$ ). No correlations between GS and anger which was not concerned with others( $r = -.063, ns$ ) as well as GS and anger which was evoked by others( $r = -.009, ns$ ). The results of multiple regression analysis with step-wise method revealed that (i)LE had an effect on GS, (ii)AP had an effect on GS, (iii)anger which was not concerned with others had a negative effect on GS( $R^2 = .33, p < .001$ ).

Based on the results, grandiose self don't have empathy for other people's situations. Additionally grandiose self would desire to be attended and praised by others. It was suggested that depression and social withdrawal as negative psychological responses would not appear, and anger which was not concerned with others, namely chronic narcissistic rage(Chessick, 1987) as a trait of person was not positively related with grandiose sense, as long as grandiose self would function well in youths.

#### P-065-F

### PSYCHOMETRIC PROPERTIES OF BREAST SELF-EXAMINATION SCALE (THAI VERSION)

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Breast cancer is a leading cause of death among Thai women. Statistics show an increasing number of Thai women deaths due to breast cancer from 16.3 to 21.5 per 100000 deaths in the year of 1983 and 1999. The treatment of breast cancer can be



effective when the disease is detected at an early stage. Breast-self examination (BSE) is recommended by Thai Ministry of Public Health, stating that a woman should perform BSE every month. Champion Health Belief Model Scale has proven reliable and valid as a measure of such beliefs. This cross-sectional study describes the psychometric properties of breast self-examination scale (Thai version), which was derived from Champion scale, to measure beliefs about susceptibility to and the seriousness of breast cancer, and benefits and barriers to BSE. Champion scale was translated into Thai, and administered to a convenience sample of 232 female nurses aged 23 to 59 years old from a regional hospital. Cronbach alpha will be obtained to examine internal consistency reliability. Construct Validity will be measured using factor analysis. Items will be clustered into the four constructs measured, and retained with factor loading of .40 or above. The refined scale will be applicable for measuring breast cancer and BSE beliefs among Thai women.

**P-066-F**

**REGULATION OF FINGER SKIN BLOOD FLOW DURING BRAILLE READING: A COMPARISON OF RESPONSES OBSERVED IN BLIND AND SIGHTED SUBJECTS**

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**PURPOSE:** Braille reading ability in blind individuals, who routinely perform Braille reading, is superior to that of sighted subjects. This difference in Braille reading ability may be a reflection of cardiovascular regulation in the fingertips while the individual concentrates on finger perception. To investigate this thesis, we measured finger skin blood flow (FSBF), heart rate (HR), and mean arterial blood pressure (MAP) during Braille reading performed by blind and sighted volunteers who were blindfolded. **SUBJECTS:** We studied 7 blind subjects (3 males, 4 females; mean  $33 \pm 10$  years), who use routinely performed Braille reading and 7 sighted subjects (3 males, 4 females; mean  $30 \pm 8$  years). **METHODS:** FSBF (palmar digital artery of the third finger) was measured using laser Doppler velocimetry. The subjects were instructed to read a flat plate with raised letters (diameter, 3mm; height, 1mm) for 15sec using the forefinger, and to touch a flat plate without any raised letters. The FSBF, HR and MAP responses to the tactile discrimination task were compared between blind and sighted subjects. **RESULTS:** In both subjects, HR and MAP were slightly increased during finger reading but unchanged when touching the blank plate. Furthermore, FSBF was decreased when touching the plate with the raised letters, whereas blood flow was not affected by touching the flat plate. However, the onset of the decrease in FSBF in blind subjects preceded that in sighted subjects. This temporal difference in the FSBF response was followed by achieving a peak value after a delay of 5s. The changes in finger skin vascular conductance followed changes in FSBF, because the changes in MAP were negligible. **CONCLUSIONS:** These findings suggest that vasomotor control via sympathetic outflow during the finger discrimination task were changed by the experience of the task and might be associated with behaviorally relevant neuroplastic changes in the higher brain center.

**P-067-F**

**ENHANCED SENSITIVITY TO ANGER FACES IN SOCIAL ANXIETY**

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Previous research has shown that socially anxious people are sensitive to anger faces and direct attention to them. However, it is not clear yet whether socially anxious people could identify the emotional expressions accurately. In addition, it is suggested that anxious people could not control their attention and distractor stimuli might interfere their performance. In the experiment 1, we used a face identification task at two types of emotion (anger, neutral), and investigated the former suggestion. Forty-five participants completed the Brief Fear of Negative Evaluation Scale, and they were allocated to high and low social anxiety groups by using a median split on the score. The two faces were presented in the right and left, and participants were required to judge whether the faces were same or not. In the high socially anxious people, RTs to anger faces were shorter than those to neutral faces. But RTs to anger and neutral faces were not different in low socially anxious people. The results suggest that socially anxious people identified anger faces quickly. In the experiment 2, we investigated the effect of distractor stimuli. The procedure was identical to that of experiment 1 with the exception of distractor face appearing in the center. The distractor face was task-irrelevant stimuli and participants were required to ignore the distractor and identify two target faces. The participants were 39 students. When the distractor face was neutral expression, RTs to anger faces were shorter than those to neutral faces in high socially anxious people same as experiment 1. But when the distractor face was anger expression, RTs to anger and neutral faces were not different. The results suggest that socially anxious people could not identify anger faces efficiently while attending to task-irrelevant anger face.

**P-068-F**

**USING GROWTH CURVE MODELING TO ANALYZE THE INDIVIDUAL CHANGES IN DEPRESSION**

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Growth curve model is increasing popularity in Psychology. This model is used to analyze longitudinal data where the same variables are measured on the same individual at multiple occasions. This analysis is suited to understanding process and prediction of change, and it is more flexible and useful than traditional methods such as repeated measurement analysis of variance. In the present study, whether skills to alleviate catastrophic thoughts, one of the cognitive control skills (Sugiura & Umaoka, 2003), predicted the depression change overtime was investigated using growth curve model. Growth curve model was applied to data from 89 undergraduate students whose depression scores were assessed three times over four weeks using Self-rating Depression Scale (Zung, 1965). Skills to alleviate catastrophic thoughts were also assessed at Time1 using Cognitive Control Scale (Sugiura & Umaoka, 2003). Linear trajectory was fitted to individual depression change and skills to alleviate catastrophic thoughts predicted the slope and intercept of the trajectory. The effect

of skills for slope was significant ( $\beta = -.16$ ,  $t = -2.22$ ,  $p < .05$ ) and the effect for the intercept was approaching significant ( $\beta = .51$ ,  $t = 1.93$ ,  $p < .10$ ). This result indicates that individuals who are higher in skills to alleviate catastrophic thoughts decreased linearly in depression score over time. Such skills to stop negative thoughts may have some implications for prevention and intervention of depression. The present study highlights the utility of growth curve model in modeling longitudinal change in depression score. This model enables us to describe the process of change and individual difference, which is an advantage over traditional statistical models. Growth curve model may be potentially applicable and useful in many other areas of psychological and behavioral researches.

**P-069-F**

**EMOTIONS SCALE: DEVELOPMENT AND VALIDATION**

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Human emotions are often triggered rapidly and temporary; e.g., anger, fear, pleasure, sadness, etc. They are accompanied by physical and physiological changes. In social life, people control emotion for self. Then, it is difficult for person to know others real feeling. Therefore, it may be useful to use self-report about emotion. Rewards and punishments guide or determine behaviour of human and other animals (Rolls, 1999). Rolls showed human emotions by two-dimension model. Some of the emotions associated with different reinforcement contingencies. Intensity increases away from the centre of the diagram, on a contingencies consists of: (1) the presentation of positive reinforcer; (2) the presentation of a negative reinforcer; (3) the omission of a positive reinforcer or the termination of a positive reinforcer; and (4) the omission of a negative reinforcer; or the termination of a negative reinforcer (Rolls, 1999). It is probably acceptable to make a quantitative assessment of emotions. This study was conducted to develop Emotions scale based on diagram of Rolls. This study was approved by the ethics committee of Kyoto University's Faculty of Medicine (E21). The data were analyzed with SPSS for Windows. (version 10) statistical package. 536 college students (mean age 21, SD 0.17) participated in Japan. Factor analysis was applied to 83 items, and factor loading greater than 0.35 were 40 items, containing 5 factors. Cronbach's alpha coefficient value for each scales were ranging from 0.80 to 0.93. Criterion-related validity was demonstrated by the significant relationship with Visual Analogue Scale (VAS) ( $p < 0.05$ ). Additionally, there are correlated with each subscales of Emotions scale and Profile of Mood States (POMS), adequately. In conclusion, Emotions scale confirmed for its validity and reliability.

**P-070-F**

**WOMEN REFERRED TO OUTPATIENT CLINICS FOR MENSTRUAL COMPLAINT: WHAT IS THE IMPACT OF MENSTRUATION ON THEIR LIVES?**

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**Objectives:** To develop for clinical use an assessment of menstrual problems that describes both the symptoms experienced and the ongoing impact of periods on daily life.

**Materials and methods:** Participants were 952 women referred for menstrual complaint, to three gynaecology clinics in Scotland. All completed a basic questionnaire, 721 completed the proto-type menstrual assessment plus other health measures, and 222 of these undertook menstrual blood loss measurement. Principal component analysis was undertaken of the menstrual assessment, separately for items addressing practicalities and those addressing feelings. Each component was given a label reflecting variables contributing to it, and component scores analysed against other clinical and outcome data.

**Results:** Component "variable flow" comprises statements about unpredictable flow within the period and variation in heaviness period-to-period, a feature absent from the traditional classification of menstrual problems (heaviness, pain, PMS, cycle regularity), yet this component was third most important regarding variation explained. Scores for "variable flow" were unrelated to measured volume, but strongly related to the component labelled "worry". Scores for "worry" were also related to socio-economic deprivation, perhaps linked to difficulty obtaining/ understanding explanations. Scores for practical "impact of periods" and feelings of "containment distress" were strongly correlated (Spearman  $\rho = 0.65$ ,  $p < 0.001$ ,  $n = 617$ ), but of more interest is the fact that a large subgroup of women (30%) were discordant in these scores. Those markedly distressed by periods but not reporting excessive practical impact, or the reverse, are likely to need differing approaches to management. Duration of problem was correlated with scores on three "feelings" components ("burden", "containment distress", "had enough"), suggesting that timely intervention might be important. SF36 quality-of-life scores were largely uninformative about the complaint.

**Conclusions:** These findings highlight the potential clinical value of a descriptive assessment of impact of periods, with practical consequences and emotional reactions separately summarised.

**Track 'Psychophysiological Disorders & Sleep'**

**P-071-F**

**THE TREATMENT OF TRAUMATIC NIGHTMARES OF TORTURED PEOPLE**

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Nightmares are very common in tortured patients. The author works since 1992 at Redcross Centre for Tortured Refugees in Stockholm and has met more than two thousand tortured persons. There is a lack of good techniques in today's way of treating long time sleeping disorders caused by traumatic nightmares. The consequences can be chronic fatigue and cognitive function reductions, which create invalidating, invisible handicaps. The memory and concentration deteriorates, depression becomes worse, and the loss of memory makes new learning very difficult. The brain is under a very hard, continuous stress and strain. Sleeping pills or anti-depressants are not a long term solution. New types of treatment are needed. The author is since year 2002 systematically studied and treated more than twenty patients' nightmare with a special narrative method with cognitive

highlights. The conversation technique is built up like nine different steps, adapted to the American psychiatrist Montague Ullman's method. To work through a nightmare takes about five hours and twice that much if translation is needed by an interpreter. It can be very charitable to find some psychological meaning (key) to the nightmares. This method is a special kind of cognitive therapy and the patient is requested to deal with and concentrate on the problem and attack and defend himself against the danger (nightmare) instead to be afraid and flee. Maybe the brain creates the nightmares with a good purpose, anyhow. It is difficult to think that the brain would try only to hurt itself. Almost all patients have found that this method helps and require it again when/if the nightmares come back.

#### P-072-F

##### VERIFICATION OF PSYCHOLOGICAL MODEL OF SLEEP ONSET INSOMNIA USING PATH ANALYSIS

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[Introduction] In behavioral sleep medicine, increasing recognition of the mediating role of behavioral and cognitive factors in sleep onset insomnia has led to the psychological model of insomnia (Wicklow & Espie, 2000; Harvey, 2002; Broomfield et al., 2005; Espie et al. 2006). However, this kind of model is only the hypothesis model which was induced by previous studies and the study that evaluated each factor at the same time is not performed. The purpose of this study was to verify the psychological model of sleep onset insomnia using path analysis. [Methods] 370 university students (225 male, 145 female, mean age of 19.91yrs) completed the questionnaire which consists of (a) Japanese Version of Pittsburgh Sleep Quality Index (Doi et al., 1998), (b) Pre-sleep Selective Attention Scale (Yamamoto et al., 2007), (c) Pre-Sleep Cognitive Activity Scale (Munezawa et al., 2007; PCAS), (d) Beliefs about Sleep Scale (Yamamoto et al., 2005; 2006) and (e) Safety Behaviors Scale for insomnia (Munezawa et al., 2005). [Results] Result from a path analysis indicated that proposed model showed an acceptable fit ( $\chi^2(2)=4.689$  ( $p=.096$ ), GFI=.995, AGFI=.962, RMSEA=.060, CFI=.995). Standardized total effects on degree of sleep onset insomnia (Pittsburgh Sleep Quality Index's Component 2 Score) is .147 (Beliefs about Sleep), .225 (Pre-Sleep Selective Attention), .294 (Pre-Sleep Safety Behavior), .175 (Pre-sleep Cognitive Activity). [Conclusion] This study indicates that beliefs about negative consequences of insomnia activate "attentional bias" and it heightens cognitive arousal (pre-sleep worry and rumination) and leads to safety behaviors (sleep efforts). Consequently, these factors lead sleep onset insomnia. It is also assumed that attentional bias and sleep efforts play key role in the sleep onset insomnia.

#### P-073-F

##### IMPROVEMENT OF EXAGGERATED RESPONSE OF SALIVARY CHROMOGRANIN A IN PATIENTS WITH IRRITABLE BOWEL SYNDROME AFTER MUSCLE STRETCHING

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Background: Increasing knowledge of brain-gut physiology, mechanisms, and neurotransmitters and receptors involved in gastrointestinal motor and sensory function have led to the development of several new therapeutic approaches. Psychophysiological processing is supposed to play a crucial role in irritable bowel syndrome (IBS) but there has been no report on modulation of brain activity and stress marker chromogranin A (CgA) by muscle stretching. We hypothesized that abdominal muscle stretching on passive operation has a beneficial effect on a biochemical index of the activity of the sympathetic/adrenomedullary system (salivary CgA) and abdominal discomfort.

Methods: Twenty-three non-patients with IBS and 12 healthy subjects were studied of muscle stretch. For the 4-minute static stretching protocol, subjects engaged in either a 1-minute cyclic stretching protocol, 2 times right and left side rotation passively of their pelvic and trunk respectively by therapist. Abdominal discomfort, psychological condition were measured by Ordinate Scale. Salivary CgA were collected before and after stretch. Oxy-hemoglobin (HbO2) in the cerebral cortex were measured and analyzed by near infrared spectroscopy (NIRS). This research approved the ethics committee of Niigata University of Health and Welfare. Results: IBS group was significantly higher HbO2 of the parietal lobe than healthy controls during stretching ( $T=2.43, P=0.02$ ). Abdominal discomfort was decreased after stretch in IBS ( $F[3, 66]=3.71, p=0.02$ ). The protein corrected CgA tended to decrease in IBS after stretch ( $T=-1.06, P=0.29$ ). Conclusion: Our results suggested that possibility to improve IBS pathophysiology by abdominal muscle stretching with passive operation using NIRS and a biochemical index of the activity of salivary CgA. The skeletal muscle stretching is a unique method for relaxation and its simple and applicable in the daily practice. Further study on sympathetic/adrenomedullary system and muscle stretching in IBS is warranted.

#### P-074-F

##### DAYTIME WORRY AND SYMPTOMS OF INSOMNIA

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Background: Chronic insomnia is a common disorder with an estimated prevalence of 10-12% in the general population. During the past years there has been an increasing research interest in the cognitive factors involved in insomnia and new cognitive models based upon this research has been developed. One factor that has been of interest in insomnia is worry. The aim of the current study is to explore the relationship between

daytime worry about the consequences of insomnia and severity of insomnia symptoms.

Method: 353 college students participated in a survey study. Worry was measured using a newly developed questionnaire consisting of 11 items (Insomnia Daytime Worry Scale: IDWS). Insomnia symptoms were measured using the Bergen Insomnia Scale (BIS), a 6 item self-report instrument based upon the DSM-IV criteria for insomnia. The BIS has shown good psychometric properties. Depression was measured using the Beck Depression Inventory and anxiety was measured with the Beck Anxiety Inventory. Regression analyses were conducted in 5 steps to test the relationship between daytime worry and insomnia and the effect of potential confounding variables.

Result: The IDWS showed high levels of internal consistency. Daytime worry was found to be a robust predictor of insomnia symptoms over and above the effects of depression and anxiety. Age and gender did not have any effect on the results. Conclusion: Daytime worry about the consequences of insomnia seems to be important in insomnia. However, as this is the first test of the IDWS, the results should be treated with caution. Replications and further improvements are called for.

#### P-075-F

##### INSOMNIA AND METACOGNITION

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Primary insomnia is a common disorder with an estimated prevalence of about 10-12% in the general population (Ford & Kamerow, 1989; Pallesen et al., 2001) marked by the individual complaints of difficulty falling asleep, difficulty maintaining sleep, or non-restorative sleep. Cognitive Behavior Therapy for Insomnia (CBT-I) is a therapy comprising of several non-pharmacological interventions such as stimulus control, sleep restriction, relaxation training, changing beliefs about sleep, and education about sleep (Morin, 1993). CBT-I have been tested in randomized controlled trials and is a well-documented therapy for insomnia (Morin et al., 2006) that can be superior to pharmacological interventions (Morin et al., 1999; Sivertsen et al., 2006). However, compared to cognitive treatments for other disturbances effect sizes are smaller, many patients do not improve, and the average patient do not get into the good sleeper range (Harvey & Tang, 2003).

Although the field has seen the development of several new theoretical models recent years (i. e. Harvey, 2002; Lundh & Broman, 2000; Espie, 2002) there is still need for conceptual clarifications and further theoretical suggestions that may be helpful for the development of improved treatments of insomnia.

An outline of a model of insomnia that pays particular attention to the factors assumed to be important in the maintenance of insomnia will be presented. The model is theoretically derived from the S-REF model (Wells & Matthews, 1994), but is also influenced by the works of Morin (1993) and Harvey (2002). However, the model is distinct in the particular synthesis it provides and the implications for treatment.

#### P-076-F

##### SLEEP COMPLAINTS AND PSYCHOSOCIAL CHARACTERISTICS ASSOCIATED WITH HIGH AND LOW ENDS OF SLEEP-DURATION CONTINUUM

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Background: Although sleep duration is of great concern in sleep research, it is little known how sleep duration is related to other sleep components and psychosocial well-being in the Japanese. The present study was conducted on a representative sample of Japanese adults to explore the answers to this question. Methods: Subjects were 897 male and 911 female Japanese adults in the nationwide survey on sleep and health. The PSQI and the GHQ-12 were used to assess sleep complaints (e.g., difficulty in initiating or maintaining sleep, excessive daytime sleepiness) and psychosocial state, respectively. Actual sleep duration was not the number of hours spent in bed but actual hours slept. Logistic regression analyses were used to evaluate the associations (7-8hours of sleep as reference). Results: Actual sleep duration was normally distributed as follows: 5h>2.0%, 6h>9.7%, 7h>26.4%, 8h>33.5%, 9h>20.1%, 10h>5.8%, and 10h>2.4%. Those who were at the extreme high and low ends of actual sleep duration but did not have illnesses were 0.8% and 1.6%, respectively. Those who were male, elderly and had current medical history were more likely to sleep longer. There was no significant difference in sleep complaints between those who slept 7-8 hours and longer. Extremely long sleepers had more social dysfunctions such as experiencing difficulty in overcoming problems, making decisions, and playing a useful part in life. Subjects sleeping shorter had more sleep complaints and psychological distresses such as being insomniac, under strained, depressed, not confident, and not concentrated. Conclusion: Shorter sleep is associated with psychological features suggesting major depressive episodes. Extremely longer sleep may cause impaired social function due to the increased amount of sleep needed regardless of comorbidity.

#### P-077-F

##### RELATION BETWEEN CONCEPTUAL STRUCTURE AND SICKNESS TYPE IN SCHIZOPHRENIA

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<Objective> It is clarified that the cognitive dysfunction of schizophrenia affects its patients social adjustment. This research aims to clarify whether the conceptual structure that reflects the cognitive function of schizophrenia is related to the sickness type the symptom. <Subject and method> The subjects are 12 schizophrenia patients. Their sub-type classifications (DSM - 4) were three paranoid type patients, two disorganized type patients, and seven residual type patients. Conceptual <structures of the subjects were evaluated by using association experiment tasks. The index of the number of association, the number of mis-association, the relevance ratio, and the inversion association rate was considered as an index of the conceptual structure by the association experiment. <Result> The crowds of the sickness type by five paranoid type and disorganized patients are compared with seven residual type patients. It is thought that

the symptom of the paranoid type and the disorganized type is heavier than that of the residual type. In the result of the Kruskal Wallis authorization, the paranoid type and disorganized type groups amounts of taking medicine were significantly high compared with the residual type group. As a result of the comparison between crowds, a significant difference was not found in BPRS, the contraction organization, and the conceptual structure index. <Discussion> As a result of this research, it was clarified that the amount of medicine was high which was taken by the paranoid type and the disorganized type group. This is thought that a larger amount of medicine is needed because the paranoid type and the disorganized type are more active and more serious than other crowds symptoms among the sickness types.

**P-078-F**

**APPLICATION OF COGNITIVE THERAPY FOR ANXIOUS AND DEPRESSING-DREAMS OF NON-CLINICAL CLIENTS - EXPERIMENTAL INSPECTION OF REM TO ASSESS THE EFFECT OF TREATMENTS -**

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Dream content and images are amenable to the same cognitive restructuring as are automatic thoughts (Freeman, A., & White, B., 2004). This study examined the applicability of Hills cognitive-experimental dream interpretation model (1996) to the treatment of anxious dreams of a non-clinical dream sufferer. The client is a 21-year -old-female undergraduate student who recalled many anxious dreams including nightmares with sudden awakening. The client had a traumatic event about her mothers sudden death in her childhood, and a recent career decision problem triggered nightmare. The therapist adopted the brief cognitive intervention for her and interpreted her most anxious dream as a treatment material. The Hill model consists of 3 stages, 1) Exploration 2) Insight 3) Action. According to this model, the therapist helped the client find relationship of nightmare and her past traumatic event in stage1, and recognizes the waking event like quarrels with her brother triggers nightmare in stage2. Finally, in stage3, the therapist encouraged the client cognitive restructuring of negative dream images and to make decision about her career for her own sake. The intervention had positive effect to reduce anxiety in the dreams. We also used REM (Rapid Eye Movement) as an objective measure the change of anxiety of dream contents. In another study, we have already observed REM indicates the arousal level of the brain and the rise of REM occurs when anxious dreams are reported after awakening. So the therapist recorded Polysomnograms from her for three consecutive nights. The brief therapeutic intervention was done before the sleep of 3rd night to measure the treatment effect. The results indicated the decline both subjective anxiety score of dream contents and REM occurs after clinical intervention of cognitive therapy. To use REM is beneficial for an index of a treatment effect of cognitive therapy on dreams.

**Track ‘Screening & Early Detection’**

**P-079-F**

**LONG TERM CONSEQUENCES OF PREDICTIVE GENETIC TESTING FOR HUNTINGTON DISEASE ON MENTAL HEALTH**

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Background: Predictive genetic testing for Huntington disease (HD) might cause severe short-term psychological reactions in patients with poor mental health. Very few studies exist on the long-term effects of genetic HD testing. The aim of this study was to assess mental health and quality of life in persons who were tested for HD mutation, to compare mental health depending on the result of the genetic test (non-carriers, gene carriers and patients with HD) and to identify predictors of mental health via linear regression. Methods: The data were collected by self-report questionnaires. In total, one hundred twenty one individuals participated in this study: 52 were non-carriers, 54 were gene carriers and 15 were gene carriers suffering from HD. Results: Non-carriers and gene carriers showed better mental health and quality of life than HD-patients but did not differ from each other. In non carriers two variables predicted an increased level of depressive symptoms: low perceived social support and younger age. For gene carriers three predictors were found: low perceived social support, the expectation of an unfavourable genetic test result before testing and being childless. Conclusions: With regard to detrimental effects of HD testing on mental health, during genetic counselling specific attention should be paid to non-carriers and gene carriers with small social networks. Assessment of expectations prior to a genetic testing procedure may help to identify gene carriers at risk of poor coping after an unfavourable test result.

**P-080-F**

**DEPRESSION SCREENING TO AVERT SUICIDE EPIDEMIC IN JAPAN**

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An effective suicide prevention strategy should target potentially depressive persons in the workforce because most individuals who commit suicide suffer from depression. Screening for 1 or 2 depression scale items during mandatory annual health checkups may be an effective method for identifying major depression in Japanese workers.

The Profile of Mood States (POMS) and the Diagnostic and Statistical Manual of Mental Disorders-IV (DSM-IV) used for the diagnosis of major depression were administered to 1,621 workers at an institute in Tokyo, Japan, to compare the performance of individual questions. Screening parameters were calculated for every single item or for two-item combinations (15C2 = 105 ways) of a 15-item POMS-depression scale in both sexes. The overall prevalence of major depression was 3.5% (men, 3.0%; women, 4.8%). The highest area under the receiver operator characteristic curve (AUC) was obtained for the item “feeling blue” in both men

(0.86) and women (0.88). In women, no significant difference was found between the AUC value of this item and that of the original 15-item POMS depression scale. In men, the AUC value of this item was significantly different from that of the original 15-item POMS depression scale; however, when the 2 items “feeling blue” and “miserable” were combined, the resulting AUC value did not differ significantly from that of the original POMS depression scale. Therefore, simply ascertaining a mood of “feeling blue” may enable convenient and time-efficient screening for major depression in both male and female workers. Furthermore, the additional item “miserable” is more predictive of major depression among male than among female workers.

Depression screening by including an additional 1 or 2 questions in depression scales used for the diagnosis of major depression in annual health checkups is a potentially suitable approach for suicide prevention in Japan.

#### P-081-F

### DEVELOPMENT OF A SCREENING TEST FOR DEMENTIA - THE TAKEDA THREE COLORS COMBINATION TEST-

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In this study, we report on the development and potential use of a screening test for dementia which can be administrated and assessed easily in a short time by non-specialist clinicians, and represents no burden for those undergoing the screening. 360 senior persons participated in the research; 126 with Alzheimer's disease (AD), 60 with Vascular dementia (VD), 41 with mild cognitive impairment (MCI), and 133 healthy volunteers represented the control group. A screening test for dementia, which was a colored cards configuration memory task (the Takeda Three Colors Combination Test; TTCC) was examined for sensitivity and specificity as well as reliability and criterion-related validity. We conducted TTCC again one month later for all the groups except for the control group to calculate reliability. And then we calculated the rate of agreement between the 1st and 2nd trials and the Phi coefficient. Criterion-related validity was determined using the Revised Hasegawa Dementia Scale (HDS-R) as an external criterion. Significant differences were indicated between each group and the control group for sensitivity as follows: 0.94 for the AD group, 0.82 for the VD group, and 0.71 for the MCI group. Specificity was 0.83. While the Phi coefficient indicated 0.72 and the consistency percentage between first and second trials was 93.4%. A significant correlation between HDS-R and the TTCC results was obtained ( $Rho=0.66$ ,  $p<0.01$ ). The screening's administration and assessment procedures required only 1 or 2 minutes. Satisfactory sensitivity and specificity were indicated for both the AD and VD groups, and with sufficient reliability and validity also indicated, TTCC is demonstrated to be an effective dementia screening test.

#### P-082-F

### THE IMPACT OF BREAST CANCER GENETIC RISK ASSESSMENT ON INTENTIONS TO PERFORM CANCER SURVEILLANCE BEHAVIORS.

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One hundred and fifty four women undergoing breast/ovarian cancer genetic risk assessment completed questionnaires at entry into the assessment program and following risk provision, mapping their intentions to engage in a number of preventive behaviors, including seeing specialists, breast self-examination, and involvement in screening programs, including mammography. A number of potential predictors of intentions were also assessed following risk provision, including mood, perceived risk, perceived benefits of engaging in each behavior, and the perceived desires of their family and General Practitioner. Intentions to self-examine did not change following risk provision, although intentions to engage in some other preventive behaviors did lessen. Family and General Practitioners appeared to be strong social influences on behavioral intentions, as was the perceived benefits (in terms of early detection of disease and emotional regulation) of each behavior. Risk for cancer was not associated with intentions.

#### P-083-F

### FACTORS ASSOCIATED WITH INTRUSIVE CANCER-RELATED WORRIES IN WOMEN UNDERGOING CANCER GENETIC RISK ASSESSMENT

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One hundred and twenty eight women undergoing assessment for genetic risk of breast/ovarian cancer completed questionnaires at entry into the assessment process and following risk provision. The key variable of interest was the level of intrusive worries at each time, and factors associated with the level of intrusive worries following risk provision. Based on the CARA model (Renner 2004), it was expected that an unexpected level of risk (whether good or bad) would result in high levels of intrusive thoughts following risk provision. Other potential moderators of worry included neuroticism, level of threat experienced (low control, high perceived risk), the use of differing coping efforts, and the available social support. Of note was that while levels of intrusive thoughts fell in all risk groups following risk provision, unexpectedly only women found to be at population risk evidenced reported an increase of active attempts to distract from intrusive worries at this time. The CARA model was not supported. However, intrusion scores were independently associated with higher levels of neuroticism, a lack of confident support, and a confrontive coping response. Active avoidance scores were uniquely associated with being assigned as population risk, neuroticism, lack of confident and affective support, and the use of avoidant coping. Together, these variables accounted for 33 per cent of the variance in intrusion scores and 31 per cent of the variance in avoidance scores. The implications of these findings is discussed.

## Track 'Physical Activity'

P-084-F

### PHYSICAL ACTIVITY OF TOTAL HIP ARTHROPLASTY PATIENTS: THE INFLUENCE OF DEGREE OF URBANIZATION

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#### Purpose

A physical active lifestyle has health benefits, especially for patients after total hip replacement. Before developing interventions to stimulate physical activity, influencing factors on activity should be established in this population. Aim of the study was to determine whether the degree of urbanization influences physical activity level and compliance to physical activity guidelines of patients one year after surgery.

#### Methods

The Short Questionnaire to Assess Health-enhancing Physical Activity (SQUASH) was sent to patients of two hospitals in Groningen, the Netherlands, who had had a total hip replacement one year earlier. The SQUASH is a Dutch questionnaire giving an indication of the habitual activity level and determining compliance to physical activity guidelines. The degree of urbanization (large metro, small metro, large urban, small urban, rural) was determined by zip code.

#### Results

In total 465 patients returned the questionnaire (response rate 80%). Mean age was 71.3 ( $\pm 8.5$ ) years, mean BMI was 26.9 ( $\pm 4.2$ ) kg/m<sup>2</sup> and 75.5% was female. Median total activity was 1350 minutes per week. 67.5% met the physical activity guidelines. Whether or not patients complied to the activity guidelines did not vary between the degree of urbanization ( $p=0.82$ ). This is opposite to US data, reporting most inactivity in the rural areas. However, the activity score did vary between the urbanization categories ( $p=0.01$ ). Highest score was seen in rural areas, lowest in metro areas. Total minutes per week activity also showed a trend in this direction ( $p=0.11$ ). The difference between areas was caused by differences in moderate and high intense activities ( $p<0.01$ ), not in low intense activities ( $p=0.64$ ).

#### Conclusion

Degree of urbanization influences the amount of physical activity of total hip arthroplasty patients one year after surgery. The convenience of destinations could be an explanation. It seems that results from the US can not be transferred to the Dutch situation.

P-085-F

### SQUARE-STEPPING EXERCISE AND EXERCISE ATTITUDE IN OLDER ADULTS

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Developing novel exercises that highly motivate older adults to be physically active contributes to preserving their physical

independence. This study aimed to examine the effects of square-stepping exercise (SSE) on exercise attitude. Sixty-five participants aged from 65 to 74 years were recruited and randomly allocated into an SSE group ( $n = 32$ ) and a control group ( $n = 33$ ). The SSE group participated in 40-min SSE interventions twice a week for 3 months. During SSE, the participants simply walked along a thin mat partitioned into 40 squares (25 cm each) arranged in 4 rows. There were 196 square-step patterns in total, which were categorized based on progressively increasing levels of complexity. Participants were required to memorize the step patterns demonstrated by an instructor prior to each stepping. The participants came to enjoy its challenging complexity because we provided more complicated patterns after they became familiar with a pattern. The control group participated in an outdoor-walking session instead of performing SSE. At pre- and post-interventions, participants in both groups reported exercise-related self-efficacy, decisional balance (pros and cons), and behavioral skill. A significant time-by-group interaction ( $P < 0.001$ ) and a time effect ( $P = 0.02$ ) were observed for behavioral skill; the effect was larger in the walking group than in the SSE group. The reason that SSE could not improve the exercise-related behavioral skill as much as walking could might be due to difficulties in performing SSE by oneself. Significant time effects ( $P < 0.001$ ) but non-significant interactions were observed for self-efficacy and decisional balance (cons); both groups demonstrated considerably improved exercise attitude. The rest of the scales did not show any significance. Thus, we concluded that SSE could improve the exercise attitude in older adults. To improve much, an SSE program for home/personal use could be developed in future.

P-086-F

### TRAVEL PERCEPTIONS, BEHAVIORS, AND THE BUILT ENVIRONMENT BY DEGREE OF URBANIZATION

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**Objectives:** This study examines how engagement in transport-related physical activity (TPA), perceptions of the commute route, actual travel distance, and perceptions of travel distance vary by degree of urbanization in rural and remote areas of Central Queensland, Australia. **Method:** A random, cross-sectional sample of 1,230 adults aged 18 years and over residing in rural and remote Central Queensland were surveyed by telephone in October-November 2006. Engagement in and attitudes towards TPA, perceptions of the commute route, actual travel distances, and perceived appropriate travel distances for TPA were assessed. **Results:** For this study 765 adults were eligible for the analysis as they traveled to an occupation. Overall, 45% of respondents reported travel distances more than five kilometers (km) to reach their workplace, and 58% of individuals recognized 2-5km as an appropriate distance to travel via TPA modes. Respondents from small rural settings were more likely ( $OR = 2.32$ ) to engage in 3-5 sessions/week of occupation-related TPA than those from large rural settings. Also, participants from small rural and remote settings more frequently traveled greater than 20km to reach their occupation, reported fewer sidewalks and shops, and less heavy traffic enroute compared to respondents in large rural settings. **Conclusions:** Infrastructure for, and participation in TPA varies according to degree of urbanization. Increasing TPA participation in these

settings likely requires changing TPA culture and improving infrastructure.

**P-088-F**

**EXERCISE TREATMENT FOR DEPRESSION: AN EXAMINATION OF ASSOCIATED CHANGES**

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The study purpose was to examine the psychological, cognitive and physiological changes that accompany exercise-mediated amelioration of clinical depression. Depressed participants were randomly assigned to either a 12 week aerobic exercise (n=10) or stretching (n= 13) program. The outcome variables were depression severity, coping efficacy, episodic memory and cortisol awakening response (CAR). Both aerobic exercise and stretching were associated with significant decreases in severity of depression, and increases in coping efficacy and episodic memory over 12 weeks. CAR decreased in the aerobic exercise group and increased in the stretching group over the intervention period. Change in depression severity was significantly inversely associated with change in coping efficacy and change in episodic memory, though no significant correlations were found for CAR. Overall, this study demonstrates that exercise and stretching are efficacious depression treatments and are associated with positive psychological and cognitive changes.

**P-089-F**

**DEPRESSIVE SYMPTOMS, PHYSICAL ACTIVITY, EATING BEHAVIORS AND BMI: ACTION! TEACHER WELLNESS PROGRAM**

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Clinical depression has been related to unhealthy eating and physical activity (PA) behaviors and depressive symptoms have been related to PA. Purpose: To determine if depressive symptoms are related to PA and eating behaviors and if these behaviors are related to BMI among elementary school teachers participating in an obesity prevention study in the Greater New Orleans Area, USA. Method: The Center for Epidemiology-Depression (CES-D) scale was administered to elementary school teachers who also completed self-report uncontrolled eating and emotional eating scales. PA data were recorded with an accelerometer. Weight and height were measured with standardized digital scales and stadiometers and BMI was calculated as weight (kg)/height<sup>2</sup> (m). Results: Teachers (n=787) were 95% female, 75% white and about 72% overweight or obese. According to accelerometry, average minutes/day of sedentary behavior was 800 mins; average of light PA minutes/day was 20-30 minutes, and average moderate to vigorous PA/day was 1.5 minutes. CES-D scores were positively associated with uncontrolled eating (r=0.21) and emotional eating (r=0.27), both p<0.0001. Depressive symptoms were not significantly associated with either self-report PA or accelerometry. BMI was positively associated with uncontrolled eating (r=0.26), emotional eating (r=0.29), depressive symptoms (r=0.13), and inversely

associated with PA (r=-0.15), all p<0.001. Conclusion: While there are limitations to these cross-sectional data, the relationship between depression and BMI did not seem to be mediated by PA, but did seem to be mediated by uncontrolled and emotional eating. These data are highly informative for conducting population-based obesity programs.

**P-090-F**

**BEWARE: USE OF ACCELEROMETERS IN FIELD-BASED PHYSICAL ACTIVITY RESEARCH WITH WOMEN**

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Current research positions accelerometry as a “gold standard” measure of physical activity (PA). Experience conducting field-based research projects with women to assess validity of self-reported PA assessment and evaluating intervention effectiveness has identified two practical limitations: compliance with accelerometer wearing; and validity of established cut-points to identify time spent in PA of different intensities.

Using face-to-face dissemination and collection of MTI accelerometers to assess validity of a PA questionnaire (n=194), participant compliance with accelerometer wear-time, at least 10-hrs on 3d (including 1 weekend day) was 53%. Analyses using three different accelerometer-count cut-points (Freedson et al., 1998; Hendelman et al., 2000; Swartz et al., 2000) revealed significantly different estimates of moderate-intensity PA time. Cut-points from field-based research (Hendelman, Swartz) produced higher estimates, impacting on the strength of associations between the accelerometer and self-report data, thus different conclusions about the questionnaires validity.

Evaluating behaviour change during a 12-week intervention (n=100), participant compliance with accelerometer wear-time was 47% at baseline (face-to-face dissemination and collection) and 18-19% at weeks 6 and 12 (face-to-face dissemination and registered mail collection). Data using both lab- and field-based cut points to estimate moderate- and vigorous-intensity PA time showed that moderate-intensity PA estimates were significantly different. This has implications for interpreting the overall effectiveness of the intervention.

Although accelerometry is encouraged in field-based PA research, sole reliance on them for impact evaluation is limited by compliance and the ability to detect changes in specific types of PA being targeted (eg. walking). Practical and methodological issues require clarification before universal acceptance. These findings suggest a need for multi-method assessment of PA behaviour, detailed reporting of accelerometer data treatment and care in interpreting the findings from field-based accelerometry research. Further work to determine accurate field-based cut-points for types of PA engaged in by women is required.



P-091-F

**PHYSICAL ACTIVITY BEHAVIOURS OF CULTURALLY AND LINGUISTICALLY DIVERSE GROUPS WHO HAVE RECENTLY MIGRATED TO WESTERN SOCIETY: A REVIEW OF LITERATURE**

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Close examination of epidemiological data reveals particular burdens of disease in culturally and linguistically diverse (CALD) communities as these individuals adjust to both culture and modernisation gaps. Despite the increased risk of hypertension, diabetes, overweight/obesity, and CVD, individuals from CALD groups are less likely to be proactive in accessing health care or undertaking preventative measures to ensure optimal health outcomes. The purpose of this paper was to review literature addressing the effects of migration on the physical activity behaviours of CALD groups, explore the barriers and challenges of physical activity in CALD groups, and identify key strategies to increase physical activity participation for individuals from CALD groups. Electronic and manual literature searches were used to identify 57 publications which met the inclusion criteria. Findings from the review indicated that migration to western societies has a detrimental effect on the health status and health behaviours of CALD groups as they assimilate to their new surroundings, explore different cultures and customs, and embrace a new way of life. In particular, there is evidence that physical inactivity is common in migrant CALD groups, and is a key contributing risk factor to chronic disease for these individuals. Challenges and barriers that limit physical activity participation in CALD groups include; cultural and religious beliefs, issues with social relationships, socio-economic challenges, environmental barriers, and perceptions of health and injury. Strategies that may assist with overcoming these challenges and barriers consist of the need for cultural sensitivity, the provision of education sessions addressing health behaviours, encouraging participation of individuals from the same culture, exploration of employment situational variables, and the implementation of Health Action Zones in CALD communities. This information will inform and support the development of culturally appropriate programs designed to positively influence the physical activity behaviours of individuals from CALD populations.

P-092-F

**ADDRESSING THE CHALLENGES, BARRIERS AND ENABLERS TO PHYSICAL ACTIVITY PARTICIPATION IN PRIORITY WOMEN'S GROUPS: FINDINGS FROM THE WALK PROGRAM**

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The Women's Active Living Kits (WALK) Pilot Program was an Australian federal government initiative designed to identify the most effective model for extending physical activity participation in priority women's groups. A primary objective of the WALK program was to gather information concerning the physical activity behaviours of young and older women, mid-age women, women who are busy with careers and families, women from culturally and linguistically diverse

communities (CALD), Indigenous women and disabled women. The purpose of this paper was to address the barriers and challenges to physical activity participation in these priority women's groups and discuss possible strategies to assist with engaging these women in physical activity. Ten focus group evaluation sessions were undertaken with priority women's groups who took part in the WALK program. Participants were encouraged to share their opinions, perceptions and beliefs regarding women's physical activity behaviours, in a semi-structured, open table discussion. Two major themes emerged from the WALK focus group evaluations; challenges and barriers to physical activity participation and possible strategies that could enable future activity participation for these priority women's groups. The focus group participants reported a number of psychological and cognitive factors, socio-cultural factors, and environmental factors which they perceived restricted participation in physical activity. Participants also highlighted strategies they felt would enable physical activity participation. These strategies included; increased professional education regarding physical activity and alternative health behaviours, the use of an organiser/leader to facilitate the program, encouraging group activity, being culturally sensitive to the specific needs of other cultures, and developing a partnership with other community social service centres. These findings are valuable and should be used as a platform to inform the design and implementation of future physical activity interventions for priority women's groups.

P-093-F

**THE INDIVIDUAL, SOCIAL AND ENVIRONMENTAL INFLUENCES OF PHYSICAL ACTIVITY IN YOUNG WOMEN AT RISK OF DEPRESSION**

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**Introduction** Young women are at greatest risk for developing depression, and participation in physical activity may prevent or treat the disorder. While the relationship between physical activity and depressive symptoms in older women has been studied widely, young women as a population group have received far less attention. Therefore, it is necessary to examine the individual, social and environmental influences of physical activity in young women at risk of depression. **Methods** A community sample of young women aged between 18 and 30 years of age (n=310) completed a physical activity and health survey. The women provided survey data on walking for leisure, moderate and vigorous leisure-time activity, enjoyment of, and self-efficacy for walking and vigorous activity, motivation, physical activity barriers, social support for physical activity, sporting club membership, perceived access to environmental facilities and access to sporting equipment, and risk of depression (General Health Questionnaire). **Results** Walking for leisure was inversely associated with risk of depression ( $p < 0.05$ ). Logistic regressions showed that lower levels of enjoyment of walking (OR=1.79, CI=1.00, 3.22), a high level of barriers to be active (OR=3.50, CI=1.88, 6.52) and not being a member of a sporting club (OR=1.81, CI=1.10, 2.97) were all associated with being at risk of depression. Environmental variables were not associated with risk of depression in these women. **Conclusions** The results suggest that focusing on personal and social variables of physical activity may be important in addressing depressive symptoms in young women. Promoting walking in young women may provide a key avenue for

reducing depressive symptoms. Further investigation is required to better understand determinants of physical activity that predict being at risk of depression in young women.

**P-094-F**

**AN ASSESSMENT OF THE INDIVIDUAL, SOCIAL AND PHYSICAL ENVIRONMENTAL INFLUENCES ON PHYSICAL ACTIVITY IN THE WORKPLACE IN AN AUSTRALIAN WORKING POPULATION**

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**Introduction** Compared with research into influences on leisure-time physical activity, less is known about physical activity (PA) in workplace settings. The social ecological model posits that individual, social and physical environmental factors may be interacting at multiple levels to influence PA. Therefore, the aim of this research was to examine the multiple levels of influence on PA in the workplace. **Methods** A randomly selected population sample of either full- or part-time employed participants (n=1107; 42% men) completed a Computer Assisted Telephone Interview. Individual (e.g., no time), social (e.g., physical activity of colleagues) and physical environmental (e.g., facilities in workplace) influences on and participation in physical activity in the workplace were self-reported. **Results** 61% of participants reported regularly participating in physical activity in the workplace. Logistic regression analyses adjusted for age, sex and occupational status found individual factors; unable to find the time for PA [Odds Ratio (OR) = 0.7]; bored with walking the same routine [OR = 0.83]; and social factors; my employer does not allow time for PA [OR = 0.72] associated with lower odds of being active in the workplace. Other social factors including; my work colleagues regularly participate in PA at the workplace [OR = 4.4]; my managers regularly participate in PA at the workplace [OR=3.5]; my managers believe it important to participate in PA [OR =2.1]; and my managers believe it important to participate in physical activity [OR =1.8]; and physical environmental factors my workplace provides facilities that support being active at work [OR = 3.3] were associated with higher odds. **Conclusions** Interventions should address the PA-related social and physical environments in the workplace in order to promote physical activity in that setting.

**P-095-F**

**WHO ACTIVELY COMMUTES TO AND FROM WORK?**

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**Introduction:** Physical activity participation is influenced by a range of variables. Recent research has tried to elucidate the nature of these interactions so that more effective interventions can be designed and implemented. Reducing dependence on the private motor vehicles and prompting a shift back to the use of active modes of transport has been identified as a priority. **Methods:** An online survey of staff at a large metropolitan university included standard demographic

questions along with questions to assess transport mode to/from work, walking or cycling for transport and other leisure time activity. Staff were given 1-month to complete the survey and offered opportunity to win a prize for completing the survey. An active commuter was classified as someone who walked, cycled or used public transport to get to/from work. **Results:** Data from 1121 staff (58% women) revealed 249 staff were active commuters (n=246 walked/cycled to or from work & n=351 used public transport). Active commuters were more likely to be meeting national physical activity guidelines (76% vs 60% among car-users). Men were more likely to walk/cycle to/from work than women (OR=2.22, 95% CI 1.51-3.28). Those with less education were less likely to walk/cycle to/from work than more educated respondents (OR=0.35, 95% CI 0.18-0.69), and those classified as overweight/obese were less likely to walk/cycle to/from work than normal weight (OR=0.53, 95% CI 0.35-0.82). Respondents aged over 40-years were less likely to use public transport than those aged 18-30 years (OR=0.65, 95% CI 0.44-0.98). **Conclusion:** The usual suspects were identified as more likely to walk or cycle to/from work (i.e., men, the more educated and those of normal weight). Mid-aged adults were less likely to use public transport. The evidence for promoting active transport will be strengthened by consistent, accurate, assessment of transport-related activity and prospective evaluation of natural experiments and controlled trials.

**P-096-F**

**TEST-RETEST RELIABILITY OF PSYCHOPHYSICAL LIFT CAPACITY, IN PATIENTS WITH CHRONIC NON-SPECIFIC LOW BACK PAIN AND HEALTHY SUBJECTS.**

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Traditional clinical assessments of patients with non-specific chronic low back pain (CLBP) are most commonly based on tests of physical disability and physical capacity. Perceived disability is frequently inferred from physical performance measures but the outcomes may have little relation to actual functioning. This mismatch may negatively influence the willingness and sense of safety while accomplishing specific physical tasks loading the lower back. The psychophysical capacity, calculated as the acceptable maximal effort (AME) of the patient, expressed in Newton, divided by perceived exertion of the performance, expressed on a Borg scale, may help to address the sense of safety of the patient and may increase the willingness. Aim of this study was to analyse test-retest reliability of four psychophysical lift capacity tests: static leg lift, static trunk lift, static arm lift and the dynamic lifting capacity test. **Method:** 20 Patients with non-specific CLBP and 20 healthy subjects participated in this study. Psychophysical lift capacity tests were performed twice. Reliability was determined by calculating intra class correlations (ICC) between measurement 1 and 2 and by calculating the limits of agreement (LOA) as a measure for natural variation, expressed as percentage of the mean of measurements 1 and 2. **Results:** The ICCs for the psychophysical lift capacity ranged from 0.82 to 0.93 in patients and from 0.75 to 0.94 in healthy subjects. The LOA ranged from 42% to 93 % in patients and in healthy subjects from 29% to 92%. **Conclusion:** The present study shows that the four psychophysical lift capacity tests are reliable for

patients with non-specific CLBP and healthy subjects. However, a substantial amount of natural variation should be taken into account between two test sessions when interpreting the test results clinically.

**P-097-F**

**EXPLORING THE BARRIERS AND FACILITATORS TO PHYSICAL ACTIVITY IN PEOPLE WITH MULTIPLE SCLEROSIS**

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Despite growing evidence confirming the benefits of physical activity in people with Multiple Sclerosis (MS), they continue to engage in particularly low levels of activity compared to the general population and other chronic illness groups. Little research has investigated variables associated with, or predictive of, participation in activity among people with MS. In this study we aimed to identify barriers/facilitators to physical activity from the perspective of people with MS. A cross-sectional descriptive design was used, incorporating both quantitative and qualitative methods. Participants (n=285) were recruited from the MS Society and Auckland District Health Board in New Zealand. Participants completed a questionnaire containing standardised measures exploring physical activity, possible correlates of activity (such as fatigue, self-efficacy), the impact of MS, and perceived barriers to activity. A subset of participants (n=10) also took part in an in-depth interview exploring the barriers/facilitators in more detail. Univariable regression analyses identified perceived barriers to activity, physical and mental fatigue, exercise and chores self-efficacy, and fear avoidance to significantly predict physical activity. Subsequently, multivariable regression analyses found all but physical fatigue and fear avoidance remained significant, accounting for 55% of the variance in level of activity. Interview analyses indicated that cognitive and behavioural variables (such as fear-avoidance, symptom response, and negative thinking) were commonly reported and strongly referred to barriers for people with MS despite the lack of statistically significant predictors in measures. Other barriers/facilitators included safety concerns, significant life events, social support and perceived benefits of activity. Physical inactivity contributes to the onset of secondary conditions, reduced physical and mental functioning and social isolation in people with MS. Enhancing our understanding of the barriers/facilitators to activity from the perspective of people with MS has informed the development of a more responsive intervention aimed at facilitating engagement in physical activity that is currently being piloted.

**P-098-F**

**THE RELATIONSHIP BETWEEN PERSONALITY, THEORY OF PLANNED BEHAVIOUR AND PHYSICAL ACTIVITY IN INDIVIDUALS WITH TYPE II DIABETES**

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**Background**

There has been growing interest in the psychosocial correlates of physical activity within specific populations groups such as individuals with chronic disease. The purpose of the present study was to conduct a process analysis of the effects of personality on physical activity intention and behaviour using the Theory of Planned Behaviour (TPB) in a sample of individuals with Type II diabetes.

**Methods**

Participants were randomly selected from the Diabetes Australia Queensland membership database. Data were collected by means of two questionnaires. The initial questionnaire measured demographic characteristics, TPB constructs, physical activity intention and personality using the Five Factor Model (FFM). The follow up questionnaire assessed self-report physical activity behaviour over the previous two weeks.

**Results**

Intention, attitude, perceived behavioural control (PBC) and conscientiousness were significantly related to physical activity behaviour. Intention explained 28 percent of variance in physical activity behaviour, with the indirect measures of the TPB and personality failing to significantly increase the predictive ability of intention. Subsequent steps of the analysis revealed attitude, subjective norm and PBC explained 73% of variance in intention. The addition of the personality measures on the second step failed to significantly improve the predictive ability of the model. Mediation analysis found that attitude and PBC mediated the relationship between conscientiousness and intention.

**Conclusions**

The results provide sound support for the use of the TPB as a theoretical basis for the study of physical activity behaviour among the sample of individuals with Type II diabetes. These results provide preliminary evidence that targeting beliefs proximal to the behaviour (attitudes and PBC) may be effective in overcoming inherent qualities such as personality in order to produce physical activity behaviour change.

**P-099-F**

**ASSOCIATION BETWEEN PERCEIVED BARRIERS OF EXERCISE WITH SOCIODEMOGRAPHIC VARIABLES AMONG JAPANESE**

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**PURPOSE:** To identify perceived barriers of exercise and to evaluate the association of them with sociodemographic and behavioral variables among Japanese. **METHODS:** A cross-sectional study was conducted including 2,000 subjects who were randomly selected from the registry of residential addresses in 4 cities (Tsukuba, Koganei, Shizuoka and Kagoshima). The surveys were conducted twice for each

subject using questionnaires by mail from February to March of 2007. The data of second survey which included 436 respondents (mean age 46.6+/-14.1, male 46.8%) was analyzed for this study. The independent variables were sex, age, educational level, marital status, employment status, living with child, living with care receiver, self-rated health and frequency of exercise. The questionnaire of perceived barriers of exercise (Shimomitsu et al., 1999) was used for dependent variables. The barriers included 5 factors, "Discomfort", "Lack of time", "Lack of social support", "Poor motivation" and "Environment". For statistical analyses, Independent t-test and one-way ANOVA were used to compare each barrier by sociodemographic variables. RESULTS: Eight of nine independent variables except marital status were related to perceived barriers to exercise. Male perceived higher barrier of "Discomfort". Among younger age and highly educated subjects, "Lack of time" and "Poor motivation" were significant perceived barriers. People who were employed, living with child, and living with care receiver perceived "Lack of time" more than those unemployed, and living without child and care receiver. Self-rated health and frequency of exercise were both related to "Discomfort", "Lack of social support" and "Poor motivation". CONCLUSIONS: Specific associations of perceived barriers with sociodemographic variables were observed. Characteristics of subjects who perceived high barriers were male, younger age, highly educated, employed, living with child and living with care receiver among Japanese.

**P-100-F**

**PHYSICAL ACTIVITY, ENERGY EXPENDITURE AND BODY-WEIGHT CONTROL**

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*Department of medical science*

Background: Overweight and obesity present significant public health concerns because of the link with numerous chronic health conditions. Excess body weight is a result of an imbalance between energy intake and energy expenditure. Physical activity is the most variable component of energy expenditure and therefore has been the target of behavioural interventions to modify body weight. Methods: The intent of this paper was to review what is known on human studies that relate physical activity to changes in body weight. A systematic search was undertaken, using Medline and PubMed. Result: Regular physical activity may decrease energy balance through an increase in energy expenditure or an increase in fat oxidation. It may also contribute to weight loss by modulating nutrient intake. Conclusions: The effects of physical activity on energy metabolism and body-weight control remain incompletely understood. There is ample evidence that physical training is associated with low body weight and low fat mass. This relationship unambiguously indicates that negative energy and fat balances are associated with physical training.

**P-101-F**

**PHYSICAL ACTIVITY AND ABDOMINAL ADIPOSITY**

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The relationship between excess abdominal adipose tissue, metabolic and cardiovascular health risk has stimulated interest in the efficacy of physical activity in specifically

perturbing this adipose depot. The evolution of imaging techniques has enabled more direct measurement of changes in abdominal and visceral fat. The purpose of this summary was to systematically review the relationship between physical activity and abdominal fat. Methods: Database searches were performed on Medline and PubMed from 1995 to 2007 with Mesh words "exercise", "abdominal fat" and "visceral fat". Results: Nineteen randomized controlled trials (RCTs) and eight non-randomized controlled trials were selected. In RCTs using imaging techniques to measure change in abdominal fat in overweight or obese subjects, seven out of 10 studies (including three trials with type 2 diabetics) reported significant reductions compared with controls. Reductions in visceral and total abdominal fat may occur in the absence of changes in body mass and waist circumference. Waist-to-hip ratio is not a sensitive measure of change in regional adiposity in exercise studies. Limited evidence from a number of studies suggests a beneficial influence of physical activity on reduction in abdominal and visceral fat in overweight and obese subjects when imaging techniques are used to quantify changes in abdominal adiposity. More rigorous studies are needed to confirm these observations.

**P-102-F**

**PARTICIPANT USE OF, AND EXPERIENCE WITH, A COMMUNITY-FOCUSED PHYSICAL ACTIVITY WEBSITE**

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Despite the well documented potential of website physical activity programs, studies evaluating their efficacy highlight significant challenges in maintaining participant engagement. In an attempt to overcome these challenges, a user-centred approach was applied to the development of a new community-focused physical activity website. The website extended its focus beyond cognitive and behavioural strategies to include information on local opportunities for physical activity. Specific features of the website included a self-monitoring tool, bulletin-board, email access to a counsellor, a database of local opportunities for physical activity and email newsletters. This paper explores participant use of, and engagement with, this physical activity website in the context of a randomised controlled trial. Intervention group participants (n=54) were middle-aged adults (52±4.6). Objective website use data were collected for the duration of the trial. Post-trial focus group discussions were conducted with 10 participants to qualitatively explore participants experience with using the website. Seventy-eight percent (n=40) of participants logged into the website at least once. These participants logged in an average of 8.1 times. Website use declined substantially over time with 70% of all logins made during the first two weeks. Use of the interactive features of the website was low. Thirteen percent of participants (n=5) regularly used the self-monitoring tool and 25% of participants emailed the counsellor. One participant posted a message on the bulletin-board. Findings from the focus group discussions were positive. Participants liked that the website focused on their community and provided specific opportunities for physical activity. In particular, participants explained that this information motivated them to participate in physical activity. Although use of the community website was low, the findings from the focus group discussions suggest that a community-focused physical activity website has promise.

Additional strategies are needed to encourage long-term use of the program.

**P-103-F**

**SOCIODEMOGRAPHIC DETERMINANTS OF LEISURE-TIME SEDENTARY BEHAVIOR AMONG JAPANESE ADULTS**

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**OBJECTIVE:** The purpose of this study is to examine the association of sociodemographic variables with leisure-time sedentary behavior among Japanese adults. **METHODS:** A cross-sectional study was conducted in four Japanese cities (Tsukuba, Koganei, Shizuoka, Kagoshima). The sample of 2,000 adults randomly selected from the registry of residential addresses. A mail survey of 736 respondents (men: 45%, age: 20-69 yr, 47.9 ± 14.3 yr) included the following data: duration of leisure-time sedentary behavior (SB, min/day), sociodemographic variables (sex, age, education, job status, marital status and living with child). For statistical analysis, the odds of longer SB ( $\geq 180$  min/day) by the sociodemographic variables were calculated using logistic regression models. **RESULTS:** Participants who were 30-39 years old (OR, CI: 0.61, 0.38-0.99), 40-49 years old (0.52, 0.34-0.81) and 50-59 years old (0.61, 0.39-0.94) had a significantly lower odds ratio of engaging in longer SB compare with 60-69 years old. Lower educational attainment (1.37, 1.01-1.85), unemployed status (1.67, 1.18-2.35), no spouse (1.51, 1.07-2.14) and living without child (1.47, 1.06-2.03) were significantly related to longer SB. Analyses stratified by sex revealed specific relationships between sociodemographic variables and SB. In male, only unemployment status was significantly associated with longer SB. On the other hand, in female, older age, unemployment status and living without child were the risks of longer SB. **CONCLUSIONS:** Associations of leisure-time sedentary behavior with age, education, job status, marital status and living with child were observed. Furthermore, sex-specific relationships between sedentary behavior and sociodemographic variables emerged in this sample of Japanese adults.

**P-105-F**

**MEDIATORS OF CHANGE IN CHILDREN'S PHYSICAL ACTIVITY: A REVIEW OF THE LITERATURE**

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**Introduction:** The aim of this paper is to review published literature examining the effectiveness of physical activity intervention strategies that target mediators of behaviour change.

**Methods:** A search of electronic databases was conducted on original research articles written in English and published in peer-reviewed journals between January 1987 and September 2007. Inclusion criteria were: participants were aged 5-12 years; physical activity was the outcome measure; the sample size was greater than 50; and the study utilised a randomised controlled trial, group randomised trial or quasi-experimental

study design. Overweight or obesity treatment studies or studies of clinical populations were excluded. Based on the behavioural setting concept, the remaining studies were grouped under three intervention settings: school, family and community.

**Results:** The most effective children's physical activity interventions were delivered via the school setting and perceived attitudes and benefits of physical activity were the mediators of behaviour change. Interventions in family and community settings were less effective; however programs conducted in multiple settings (e.g. school and family/home) showed promise.

**Conclusions:** This review suggests that the mediators of physical activity change across school, family and community settings and are important to consider when developing children's physical activity interventions. A better understanding of the effectiveness of targeting mediators of behaviour change in physical activity interventions will allow the development of more effective interventions in the future.

**P-106-F**

**HABITUAL PHYSICAL ACTIVITY BEHAVIOR OF PATIENTS ONE YEAR AFTER TOTAL HIP ARTHROPLASTY**

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**Background and Purpose:** Despite the recognized benefits of regular physical activity on general health as well as musculoskeletal fitness, little is known about the habitual physical activity behavior of patients after Total Hip Arthroplasty (THA). Therefore we analyzed this behavior and the fulfillment of Dutch and international guidelines of health-enhancing physical activity of these patients one year after THA. **Subjects and Methods:** 230 patients after THA (mean age 71 ± 8.5 years; 77% women) were compared to 230 age- and gender-matched persons from a norm population. Amount of physical activity was assessed with the Short Questionnaire to ASsess Health-enhancing physical activity (SQUASH). Mann-Whitney test was used for differences in SQUASH (sub) scores, as well as differences in time spent in the different categories of physical activity. **Results:** Patients after THA were significantly more active than the norm population ( $p = 0.036$ ). In both populations most of the time was spent in light intensity activity. Patients after THA spent significantly more time in vigorous intensity activities ( $p = 0.004$ ). With respect to the category of physical activity patients after THA were significantly more active in sport ( $p = 0.001$ ), as well as leisure time physical activity ( $p = 0.002$ ). However, the norm population was more active in commuting activity. The guidelines were met by 65.7% of THA patients and 54.3% of the norm population. **Conclusions:** One year after THA patients are physically more active compared to a norm population. Nevertheless, a large percentage of these patients do not meet the guidelines of health-enhancing physical activity. Therefore they need to be stimulated to become physically more active.

P-107-F

### THE INFLUENCE OF PERCEIVED ENVIRONMENT ON PHYSICAL ACTIVITY OF CHILDEN

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The purpose of the study is to investigate the influence of environmental factors on physical activity among school-aged children comparison between urban and rural areas. Three hundred and sixty pupils of grades four and six from three primary schools in both Taipei city and Miao-Li County, which represented urban and rural areas, respectively. The environmental factors included subjective (perceived) factors from questionnaires. IPAQ was used to collect the data of physical activity of children. Physical activity was recorded by a three-day physical activity recall. A standard back-translation method recommended by the World Health Organization was employed. Besides descriptive statistics, the data were analyzed with analysis of variance, and logistic regression models. The results showed that the socio-demographic variables, social environmental and physical environmental factors were correlated the amount of physical activity. Gender, income, and education level of the socio-demographic variables, and negative feelings toward the physical environmental factors as well as social capital variables of social environment factors were significantly correlated with physical activity of their parents. They exercised less when they had negative feelings toward the environment, such as high crime rate, unsanitary environment. Meanwhile, they exercised more when there were more neighborhood interaction, mutual participation, and higher reciprocity. Also, more equipments of exercise increased physical activity of the children. Key words physical activity, schoolchild, environmental factor

P-108-F

### THE CONTRIBUTION OF PAST AND PRESENT WORKING CONDITIONS TO EDUCATIONAL DIFFERENCES IN LEISURE TIME PHYSICAL ACTIVITY

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Background: Leisure time physical activity (LTPA) is found to be more common in highly than in lower-educated individuals. It is suggested that the educational differences in LTPA may be explained by the past and present working conditions. The aim of the study was to examine how physical and psychosocial working conditions contribute to educational differences in LTPA in employed women and men.

Methods: The data were derived from Health 2000 Health Examination Survey, carried out in 2000-2001 in Finland and this study examined women and men aged 30-64 years (N=2720). The volume of LTPA, measuring frequency, duration, and intensity of activity, was divided into low, moderate, and high LTPA. Working conditions included

occupational physical activity, job demands and control, working hours, physical and ergonomic conditions, and physically active working history. Occupation, income, and commuting physical activity were also examined. Multinomial logistic regression analysis was used.

Results: Low LTPA was more common in lower-educated whereas high LTPA was more common in highly educated. The participation on moderate LTPA was almost equally common in all educational groups. Physically active working history contributed to the volume of LTPA the most among lower-educated women and men. Among lower-educated men, the volume of LTPA was determined by job control and among lower-educated women by current occupational physical activity. Among women, the differences in LTPA lost statistical significance when adjusting for all working conditions. Among men, the differences in LTPA remained statistically significant even after adjusting for all working conditions or for occupation, income and commuting physical activity.

Discussion: It seems that physically and psychosocially demanding working conditions determine the volume of LTPA more among lower educated women and men. Since working conditions were insufficient to determine the educational differences in LTPA among men, we need to search for alternative explanations.

### Track 'Socioeconomic Factors, Culture & Health'

P-109-F

### A STUDY OF INTERNET COMMUNICATION IN SENIOR HIGH SCHOOL STUDENTS FROM VIEWPOINT OF STRESS COPING BEHAVIOR AND SOCIAL SUPPORT

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Electric devices such as cellular phone, e-mail and so on enabled people to communicate with ease recently. According to Yamaguchi (2006), many adolescents communicate by means of e-mail and cellular phone with e-mail friends. It was found that introverts and nervous youths were fond of communication by computer mediated communication. The purpose of this study was to examine the relationship between internet communication and stress coping behavior and social support. 934 senior high school students were asked to evaluate the frequency of internet use and the degree of stress coping behavior and social support. The results were as follows; analyses of variance revealed that female students got much more social support than male students from mother, brother/sister, friends and e-mail friends. Subjects who had e-mail friends showed higher social support scores than those who had not from e-mail friends, online chat friends, blog and anonymous bulletin board system. On the other hand, subjects who had e-mail friends showed higher stress coping scores than those who had not. Subjects who had online chat friends got much more social support than those who had not from computer mediated communication. Subjects who participated in e-mail, online chat, blog and anonymous bulletin board system got much more social support than those who did not from computer mediated communication. It was discussed that even the communication by means of computer mediated devices played the important role of social support. It was also suggested that those who had high stress management ability or stress coping skill manipulated computer mediated devices actively and positively, namely the ability to manipulate

computer mediated communication was considered one of stress coping skill.

**P-110-F**

**SUBJECTIVE HEALTH COMPLAINTS IN RURAL TANZANIA**

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Subjective health complaints (SHC), with tiredness/fatigue and low back pain as the most frequent reported complaints, are common and a frequent reason for encounter with the general practitioner and a frequent reason for sickness leave. Historically, it has been argued that these complaints are a result of modern civilisation. Even if the complaints are common, they are still not fully understood, and investigation of these complaints in other cultures may give a better understanding of them. The aim of this study was to explore the level of subjective health complaints in a rural part of Northern Tanzania.

Method: Relatives and patients (n=358) at an outpatient clinic at a hospital in Mbulu district were selected for the study. The population consists of many different tribes, but the majorities are Iraqw and Datoga. These people are poor even by Tanzanian standards. Participants were given a questionnaire in Swahili consisting of subjective health complaints (SHC) and a locally adapted version of Modern Health Worries (MHW), including items of concerns found in the local folklore (e.g. names of local Gods). The 12 most common SHC were compared to one group from the general Norwegian population (n=1008) and one group of Norwegian patients with Neurasthenia (n=73).

Results: The Tanzanians had somewhat more SHC than the Norwegians, but when compared to the Neurasthenia patients, the Tanzanian group and the Norwegian group seemed quite similar in the level of complaints. The exceptions were headache (58% of Tanzanians compared to 36% of Norwegians) and anxiety (34% of Tanzanians compared to 10% of Norwegians). For anxiety, 15% of the variance was explained by fear of punishment from God.

Conclusion: Subjective health complaints are common, also in Tanzania. The high report of anxiety in the population in Tanzania may be related to religious fear.

**P-111-F**

**THE CURRENT PROBLEMS ABOUT MENTAL HEALTH IN JAPANESE WORKSITE-THE SYSTEMS FOR RETURN-TO-WORK AND THE FACTORS IN PSYCHOLOGICAL DIFFICULT CASES -**

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To clarify the current problems about mentally difficult cases and the systems to help them return to work in Japanese worksite, we implemented send a questionnaire to 1026 workplaces and 361 answered (response rate 35.2%). In results, there were 216 among 358 (60.3%) who had experienced cases with depression or other psychiatric disease of absent from work, 162 among 221 (73.3%) for recent one year. There were 130 among 220 (59.1%) who had

experienced case of retirement from work for mental difficulties, and 126 among 216 (58.3%) who had experienced mentally difficult cases to return to work. Those causes to make them difficult to return to work were derived from workplace environments (hard work 71.0%), recognition or self-esteem of difficult cases themselves (their responsibility 62.4%), and the relationships between health care staff and the psychiatric physician (46.0%). There were 56.3% who has no systems and no standards corresponding to absent cases while they were absent from work. There were 46.8% where no persons who judges whether the case could readjust to the job or not, namely the cases themselves or psychiatric physician decided them to return to work or. In addition, there were significant differences related to scale of workplaces in these results. In future, it is necessary that effective preventive action for mentally difficult cases corresponding to size of workplace is introduced and developed.

**P-113-F**

**SOCIOECONOMIC STATUS, COMORBIDITY, AND PATIENTS' NEEDS FOR TREATMENT OF ADULT AD/HD IN JAPAN.**

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Introduction: Seventy five % of adult attention deficit / hyperactivity disorder (AD/HD) patients show comorbidity with either psychiatric or other developmental disorders (Wilens et al., 2002), and their symptoms are also associated with impairments in occupational and social functioning. The purpose of this study was to investigate adult AD/HD patients' socioeconomic status, comorbidity, and their needs for the treatment in Japan.

Method: Participants were 53 diagnosed adult AD/HD patients (AD/HD condition), and 47 undiagnosed self-referred adult AD/HD (subclinical condition). Participants were asked to complete a questionnaire on: occupational status, whether diagnosed or not, diagnosed developmental and/or psychiatric disorders, first diagnosed age, evaluations for treatment (satisfactory and unsatisfactory factors for ongoing/received treatment), and their needs for treatment.

Results and Discussion: Half (AD/HD condition: 50.9%; subclinical condition: 55.8%) were employed permanently, and 17.0 % of AD/HD condition and 16.3% of subclinical condition were unemployed or seeking a current job. Although half patients in both conditions work as a permanent employee, AD/HD symptoms seem negatively affected occupational status whether they are diagnosed or not. Most of AD/HD condition had not been diagnosed in childhood (Average diagnosed age was  $33.34 \pm 8.52$ ). Thirty five point eight % of AD/HD condition was comorbid with other developmental disorders. Sixty % (AD/HD condition: 58.5%; subclinical condition: 61.8%) were comorbid with mental disorders. Consistent with previous studies, 81.1% of AD/HD condition was comorbid with either mental disorders or other developmental disorders. Doctors' attitude, and appropriate drug selection were main satisfactory factors of treatment. On the other hand, required long waiting time, and lack of knowledge about developmental disorders were main unsatisfactory factors of treatment. Finally, their needs for treatment were improvement of medical care system, treatments implementation other than medication, and dissemination of counseling. These results revealed actual

condition and patients' needs for treatment of adult AD/HD in Japan.

## Track 'Stress/Psychophysiology/PNI/PNE'

P-115-F

### PSYCHOPHYSIOLOGICAL DIFFERENCES BETWEEN MENTAL SILENCE AND RELAXATION. PROPOSAL FOR A NEW DEFINITION OF MEDITATION

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**Objective:** We aimed to determine if peripheral measures changed as predicted by the reduced arousal model of meditation when using a mental silence definition of meditation (using the Sahaja Yoga Meditation technique, SYM) **Materials and Methods:** We compared 14 meditators (with experience in attaining mental silence ranging from 1 to 20 years) with 9 non-meditators who were asked to rest (R). Each subject either meditated (SYM) or rested for 10 minutes in a controlled environment. Heart rate (HR) and skin temperature (ST) were measured. **Results:** Skin temperature of the SYM group decreased whereas the R group increased. The difference was statistically significant. Mean HR of the two groups did not differ. Self rating of the meditation experience correlated significantly with skin temp in the SYM grp ( $r=0.6$ ,  $p < 0.05$ ) but not in the R group. **Conclusion:** The reduced arousal model does not explain the changes observed in the SYM meditators. We propose that meditation and rest may not be psychophysiologicaly similar, when using a more specific understanding of meditation based on the idea of mental silence. It is a common assumption that meditation and rest provoke the same spectrum of physiological changes. Despite this meditation is becoming increasingly popular due to the perception that it is somehow unique. We propose that the discrepancy is due to lack of clarity about the definition of meditation. Close examination of the literature shows that meditation is a broad term under which many different conceptualisations exist. Many are contradictory and most are not consistent with the traditional understanding of meditation. We propose that a mental silence orientated definition of meditation may offer a way to address the important issues that may improve our understanding of meditation and its psychophysiological effects.

P-116-F

### THE EFFECT OF PROLONGED MENTAL STRESS UNDER GRADUATION EXAMINATION ON SALIVARY IMMUNOGLOBULIN A

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This paper is aimed at evaluating the effect of prolonged mental stress under graduation examination of students on their physiological states by assessing salivary secretory substances. The secretion of human immune and endocrine substances changes according to mental stress reflecting the changes of the activities of hypothalamus pituitary adrenal (HPA) axis and/or sympatho-adrenal medullary (SAM) system.

In addition, recent studies show that salivary secretory substances also change according to mental stress and, therefore, are taken as non-invasive biomarkers of human mental states. However, which types of stressors and its duration could be evaluated by such biomarkers is not well understood. Especially, while those biomarkers have been reported to increase according to short-term psychological stressor such as mental arithmetic task or color stroop test, the change according to long-term stressor and the interaction effect between long-term and short-term stressor is not well known. In the experiment, thirteen undergraduate male students was instructed to conduct 18 minutes of a simple arithmetic task, as a short-term stressor, two times at a week before and after graduation examination: in the meanwhile, subjects' daily mental stress was expected to change drastically. During the experiment, subjects' saliva was collected just before and after each arithmetic task and salivary immunoglobulin A (IgA) and cortisol was assessed as a biomarker of immune and endocrine system. As a result of statistical analysis, IgA concentration significantly increased by a short-term arithmetic task and the absolute value of IgA was also significantly higher before the graduation examination, while no significant interaction was observed. All the subjects thought to undergo prolonged mental stress before the graduation examination. Thus, this result would suggest that IgA could be a possible short-term and long-term stress biomarker by referencing the IgA increase during short-term stressor and its absolute value under long-term stressor, respectively.

P-117-F

### FACTORS ASSOCIATED WITH PROSPECTIVE DEVELOPMENT OF ENVIRONMENTAL ANNOYANCE

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Cross sectional studies have shown that attributing annoyance to environmental factors such as electricity and chemicals/smells is associated with reduced subjective health and daily functioning. With the aim to elucidate possible causality between on the one hand psychosocial work related factors and reduced well being, and on the other attribution to environmental factors, the present study examined different measures of the former set of variables at baseline in relation to prospective development of attribution of annoyance to environmental factors. A panel consisting of 9913 persons responded to an identical survey in year 2000 and 2005. The survey covered information about annoyance attributed to electricity and/or chemicals/smells (environmental annoyance, EA) as well as (1) Subjective health profile: self rated health, mental well being, sleep problems, daily functioning, every day stress and (2) Work related demands and control (job strain). Persons with EA at both baseline and follow up had at baseline a consistently negatively deviating subjective health profile and experienced more often everyday stress and a "strained" work situation, compared with persons with no EA, or EA only at one time point. However, also persons with no EA at baseline, but at follow up, showed already at baseline a similar, however milder, deviating profile compared with persons with no EA at either measurement points. The results indicate support for the hypothesis that conditions like "environmental illness" may origin in experiences of indistinct annoyance or discomfort, for which the individual searches explanation through the subsequent attribution to environmental factors.



P-118-F

### THE EFFECTS OF QI GONG IN PATIENTS WITH BURNOUT

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**Aim** The aim of the present study was to evaluate the effectiveness of Qi Gong in rehabilitation for patients with burnout regarding psychological and physical variables. **Methods** Eighty-two patients (68 women and 14 men, mean age  $44.3 \pm 9.1$ ), with diagnosed burnout who were on a waiting list to a cognitive-oriented behavioral rehabilitation program, were randomized to a 3 months Qi Gong intervention or a control group. Data on psychological and physical variables were assessed at baseline and after the intervention period. **Results** Both groups improved significantly over time with reduced levels of burnout, fatigue, anxiety, depression, balance and walking capacity. No significant difference in treatment efficacy between the groups was found. **Conclusion** The results of a Qi Gong intervention, twice a week for three months, were not better in comparison with a control group for patients with burnout regarding psychological and physical variables.

P-119-F

### LEVEL OF BURNOUT IN A WORKING POPULATION IN NORTHERN SWEDEN WITH REGARD TO WORKING CONDITIONS AND LIFE SITUATION

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In Sweden many people are on sick leave due to stress related illnesses. Burnout is a common mental and behavioral disorder related to working life, but also to a strenuous life in general. This study analyses and describes the degree of burnout in a working population in northern Sweden and its relation to work and life situation. The WHO MONICA-study (Monitoring of Trends and Determinants In Cardiovascular Disease) in northern Sweden examines regularly the health status of a random sample of the general population in the counties Norrbotten and Vasterbotten. In the 2004 survey a burnout instrument called the Shirom Melamed Burnout Questionnaire (SMBQ) was incorporated along with numerous social and work related questions. We chose to incorporate only working people (497 women and 503 men), 25-64 years old, in our study. Women had a significantly higher SMBQ-value than men. The importance of the gender variable diminished and became non significant when controlling for other variables. Significant independent factors in a stepwise multiple linear regression model were: demand and control at work, social support, physical activity, physical work load and age ( $R^2$  0.176). There were high significant correlations between SMBQ and both SOC (Sense of Coherence) (-0.7), and self estimated scales concerning sleep, health, self-confidence, work situation, and economic situation ([-0.3]-[-0.5]). This study shows that factors in work and life situation covariates with a burnout state. Although a gender difference was detected the significance disappeared when controlling for

other variables. Burnout (SMBQ) also correlates with other health indicators.

P-120-F

### ASSOCIATIONS BETWEEN NURSE STRESS LEVELS AND COMMUNICATION

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**AIM:** In the ever more burdened health care system there is an urgent need for investigating the relationship between jobrelated stress among nurses and quality of care. The aim was 1) To describe levels of stress among nurses working in different ward types, and 2) to examine the relationship between stress levels and confidence in and satisfaction with own communication with patients. **METHODS:** A convenience sample of 145 (60.4% response) nurses was recruited from a Danish university hospital. The nurses completed a questionnaire package including the Nursing Stress Scale (NSS), the Maslach Burnout Inventory (MBI), a Nurse-Patient Relationship Inventory (NPRI), and a Communication Related Self-Efficacy Scale (CoRSES). **RESULTS:** Compared to medical and surgical nurses, oncology nurses reported lower levels of stress (NSS total) ( $p=0.001$ ), emotional exhaustion ( $p=0.02$ ), and depersonalization ( $p=0.02$ ). Subgroup analyses (0-4, 5-9, and 10+ years of seniority) showed that ward differences were partly explained by seniority. Nurse total stress scores were negatively associated with confidence in own communication skills and their perception of patient satisfaction with nurse attentiveness and personal contact with the nurse ( $r=-0.20$  to  $-0.24$ ,  $p<0.05$ ). Nurses reporting higher levels of depersonalization felt less confident in their own communication and perceived the patients as less satisfied with nurse empathy, nurse attentiveness, and the personal contact with the nurse ( $r=-0.23$  to  $-0.27$ ,  $p<0.01$ ). **CONCLUSION:** In this sample of nurses, stress was related to type of ward and seniority. Higher levels of stress were associated with reduced confidence in and perceived patient satisfaction with own communication, suggesting that stress could influence the nurse-patient relationship. However, the study was cross-sectional, and we cannot say whether stress leads to lower quality of communication or vice versa.

P-121-F

### DO INFLAMMATORY BIOMARKERS MEDIATE THE ASSOCIATION BETWEEN PSYCHOLOGICAL FACTORS AND INCIDENCE OF CORONARY HEART DISEASE? THE WHITEHALL II PROSPECTIVE COHORT STUDY.

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**Background:** Inflammatory processes are hypothesized to be an important pathophysiological mechanism mediating the influence of psychological factors on coronary heart disease (CHD). However, no prospective study has confirmed or refuted this hypothesis. **Methods and Results:** To test this hypothesis, we used data from 6396 (4453 men and 1943 women) from the Whitehall II study, aged 35-55 years and free from clinically validated CHD at the start of the follow-up

period. Two major psychological factors were assessed; negative affect (NA) and psychological distress at phase 1 (1985-1988) and 2 (1989-1990). Inflammatory biomarkers (fibrinogen, high-sensitivity C-reactive protein, interleukin-6) and 12 baseline covariates including biological and behavioural CHD risk factors, sociodemographic variables and work stress were measured at phase 3 (1991-1993). CHD death, clinically verified first nonfatal myocardial infarction, and definite angina were followed up from phase 3 till phase 7 (2003-04). NA (Relative Index of Inequality (RII) =1.77, 95% CI 1.26-2.49) and higher psychological distress exposure (Hazard Ratio (HR) =1.70, 95% CI 1.32-2.20) were associated with higher CHD incidence in age and sex adjusted models. Additional adjustment for inflammatory markers had a marginal effect on these associations although all inflammatory markers were associated with higher CHD incidence. Conclusions: Our findings do not support the hypothesis that inflammation mediates the association between psychological factors and CHD. This evidence is important since it eliminates a strong candidate mediator between NA, psychological distress and CHD.

**P-122-F**

**A PHENOMENOLOGICAL STUDY OF OCCUPATIONAL STRESS**

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An individual's beliefs in relation to stress are likely to affect their perceptions, and hence their work related actions (such as absenteeism). In this paper, phenomenological representations of work stress were investigated utilising semi-structured interviews with 45 individuals from a range of occupations. The meaning of occupational stress, its antecedents and outcomes, and ways by which it may be managed were examined. Dominant factors were established through the use of thematic content analysis. Similarities and differences were found between laymen and professional discourses on work stress. Results indicate that representations of occupational stress are multi-faceted. Little consensus was found in how participants interpreted the concept: a diverse range of personal, environmental, and societal factors was highlighted. A different (and arguably more complex) range of definitions of work stress and the manner in which it impacts on individuals was revealed than has been reported in previous studies. The causes of stress at work were perceived as being predominantly organisational, but the impact of stress on the employee was more salient than organisational outcomes. Paradoxically, secondary and tertiary stress management techniques were thought to be more effective than interventions designed to prevent stress at work. Interviewees with line management responsibility were more likely to emphasise individual responsibility for managing stress, most others maintained that the individual and the organisation are equally responsible. The potential value of examining representations of work stress to the discussed and suggestions for future research are made.

**P-123-F**

**THE RELATIONSHIP BETWEEN SCHIZOTYPY AND CREATIVE ACHIEVEMENTS**

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Schizotypy has been paid to attention as a trait related to schizophrenia. In studies of schizotypy, the relationship between schizotypy and creativity is one of the most interesting things. For example, O'Reilly, Dunbar, & Bentall (2001) administered the Oxford-Liverpool Inventory of Feelings and Experiences (O-LIFE) assessing schizotypy to humanities and creative arts students. As a result, students in the creative arts scored higher than humanities students on unusual experiences. In present study, I aimed to verify that schizotypy is also related to creative achievements in students who do not major in arts.

Participants were 156 undergraduate students (50 females, 106 males) with a mean age of 19.0 years. They were asked to complete the O-LIFE and the Creative Achievement Inventory (CAI). The O-LIFE is a multidimensional measure of schizotypy. It has four subscales: Unusual Experience (UE), Cognitive Disorganization (CD), Introverted Anhedonia (IA), and Impulsive Nonconformity (IN). The CAI is an inventory of creative achievement. The CAI consists of six subscales: Art, Crafts, Performing Arts, Math-Science, Literature and Music.

99 students have some creative achievements (creative group) and 57 students have no creative achievements (non-creative group) in the result of the CAI. One-way ANOVA was conducted on each subscale of the O-LIFE at those who creative group and non-creative group. Only on UE, creative group had significantly higher score than non-creative group. In this study, we found that people who have some creative achievements tend to have higher positive schizotypy. So, in people who do not major in arts, the relationship between positive schizotypy and creativity was also found.

**P-125-F**

**BRAZILIAN ORGANIZATIONS: OCCUPATIONAL STRESSORS AND GENDER DIFFERENCES**

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Objectives: To identify and compare occupational stress that may affect the psychosocial well-being of male and female professionals who were randomly selected for the study. Methods: A sample of 600 professionals was selected from three large nationwide organizations in two large cities in Brazil. The subjects selected answered a two-folded questionnaire: (1) question one listed 18 work situations that may cause stress and asked respondents to identify those situations that caused them the most stress on the job. (2) a follow-up question asked them to rank those they had identified based on the number of problems the situations had caused in accomplishing their work. Results: The results indicate that there are some differences between the perception of males and females in terms of sources of occupational stress but there is a general agreement on the most dysfunctional stressors on the job. Conclusions: Overall, the study suggests that males and females experience occupational distress which in turn limits their effectiveness in performing their jobs. It extends the claim that occupational stress impacts on the

organizational member's well-being as well as on his performance at work and that every effort should be made to reduce work-related stress.

## Track 'Screening & Early Detection'

P-126-F

### SUBTYPES OF PERFECTIONISM AND ITS INFLUENCE ON ANXIETY

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Perfectionism used to be considered as a maladaptive characteristic and its relationships with psychological disorders have often been discussed. However, recent research on perfectionism focus on adaptive and maladaptive characteristics. Kobori & Tanno (2001) considered pursuit of perfection (PP) as a perfectionism characteristic, and personal standards (PS) and concern over mistakes (CM) as perfectionism cognition. Then, causal understanding of perfectionism and depression was studied using a path analysis. Results indicated that PP predicted PS and CM, and CM predicted depression but PS did not. The purpose of this study is to find a causal relationship between perfectionism and anxiety, considering how subtypes of perfectionism, such as PP, PS, and CM predict anxiety in order to fully understand psychological disorders. This study also examines if PP, PS, and CM are still related to anxiety when the effect of depression is partialled out, considering the influence of perfectionism and depression. Two hundred and fifty-four college students completed the Multidimensional Perfectionism Cognition Inventory (MPCI) and the State Trait Anxiety Inventory-Trait (STAI-T). The main results were as follows; 1) A path analysis showed that PP significantly predicted PS and CM. It also suggested PS did not predict anxiety but CM significantly predicted it, 2) partial correlation indicated that PP and PS were not correlated with anxiety after partialling out the effect of depression, though CM was related with anxiety. The results of this study proved that the perfectionism characteristic (PP) includes positive and negative influence, and that PS decreases anxiety when CM increases anxiety. It is also likely that PP and PS are affected by depression in the relationship between perfectionism and anxiety but it is not the case for CM. Future studies should consider how these cognitive processes are formed and how to change them in order to decrease anxiety to prevent psychological disorders.

## Track 'Stress/Psychophysiology/PNI/PNE'

P-127-F

### COPING PATTERNS AND SUBJECTIVE SATISFACTION ABOUT STRESS COPING IN INTERPERSONAL STRESS

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Stress responses to the hassles of everyday life are more influenced by subjective satisfaction about stress coping (SSSC) than they are by the goodness of fit hypothesis (GOF; Lazarus & Folkman, 1984) (Ono et al., 2005). SSSC has two factors pertaining to coping results and coping options. With regard to the relation between SSSC and coping, different types of coping other than GOF are associated with higher SSSC of coping options (Morimoto & Shimada, 2007). Although Folkman & Lazarus (1980) pointed out that individuals use different types of coping strategies, and not just a single type, the relation between these combinations of coping and SSSC remains unclear. This study examines the relation between a combination of coping strategies and SSSC in interpersonal stress. The subjects were university students and graduate school students (N = 97). The subjects were asked to answer the following questionnaires: free description of interpersonal stress, their level of expectation with regard to the development of the stressful situation, the degree to which the situation improved as expected, the control possibility of the situation, coping (TAC-24; Kamimura et al., 1995), and their SSSC (SimaQ; Ono et al., 2005). The results indicated that subjects could be grouped into one of two groups - avoidant coping group and problem - emotion focused coping group. Compared to the former group, the latter group is associated with a higher SSSC in terms of coping options. It is suggested that problem - emotion focused coping is more useful in raising SSSC about coping options than avoidance coping. For SSSC with regard to coping results, coping is not associated with it. It is also suggested that there is a weak relation between coping and being satisfied with the outcome of the coping, which is the coping result.

## Track 'Violence/Victimization/PTSD'

P-128-F

### ALLOSTATIC LOAD AS A MEDIATOR OF PSYCHOLOGICAL STRESS TO THE VASCULAR HEALTH STATUS IN HEALTHY YOUNG MEN

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Allostatic load (AL) as a multisystems model describes how psychosocial stress and lifestyle factors relate to a long-term health outcome. We examined the hypothesis that the AL should be a mediator of psychological stress to biomarkers of the vascular health status in healthy young men. Sixty men with an average age  $20.9 \pm 2.1$  years (mean  $\pm$  SD) were participated in the study after given their informed consent. Psychosocial variables were assessed by questionnaires: STAI, STAXI2, BAQ, CES-D, and lifestyles involving eating habit. AL was estimated by the mean of standard scores for 11 variables: resting systolic and diastolic blood pressure, waist/hip ratio, total cholesterol/HDL ratio, HDL, triglycerides, glycosylated hemoglobin, serum DHEA-S, saliva cortisol and MHPG, resting LF/HF ratio of heart period. As

biomarkers of the vascular health status, finger arterial elasticity index (FEI: Tanaka et al., 2005) was calculated from normalized pulse volume (NPV: Sawada et al., 2001), based on an exponential model of the arterial pressure-volume relationship. NPV was detected in a finger photoplethysmographic recording of the left index finger and FEI was determined using vascular occluding maneuver. Resting brachial-ankle pulse wave velocity (baPWV) was measured as an index of the vascular stiffness of large artery. Insulin resistance was evaluated by homeostasis model assessment (HOMA-IR). AL was significantly correlated with health status-related indices: FEI ( $r=-0.26$ ,  $p<.05$ ), baPWV ( $r=+0.37$ ,  $p<.01$ ), and HOMA-IR ( $r=+0.26$ ,  $p<.05$ ). Among the psychological variables, AL was significantly correlated with STAXI2 AX-O ( $r=+.26$ ,  $p<.05$ ), AC-O ( $r=-0.32$ ,  $p<.01$ ), AX-Index ( $r=+0.26$ ,  $p<.05$ ), BAQ irritability ( $r=+0.28$ ,  $p<.05$ ), and CES-D ( $r=-.26$ ,  $p<.05$ ). In addition, AL was significantly correlated with unhealthy eating habits of eating fast ( $r=+.26$ ,  $p<.05$ ) and eating a fat diet ( $r=+.31$ ,  $p<.05$ ). In conclusion, AL seems to mediate anger-related personality trait and unhealthy eating behavior to the vascular health status in healthy young men.

## Track 'Stress/Psychophysiology/PNI/PNE'

P-129-F

### POPULATION BASED NORMING OF JAPANESE PERCEIVED STRESS SCALE (JPSS)

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Background: The Perceived Stress Scale (PSS) is one of the few instruments to measure the individual's perception of stress and is widely used. The aims of this study were to establish the norm of the Japanese PSS (JPSS) by gender and age to provide a reference for interpretation of JPSS score and to reveal the relationship between social factors and JPSS score. Methods: Data were from the SF-36v2 national survey in Japan. A total of 4500 people aged 20 years or older were selected from the entire population of Japan using stratified-random sampling, and 2967 responded to the survey. 2964 people who responded the JPSS were analyzed. Results: The national norms of JPSS were 20.0 (SD: 7.2) for men and 19.8 (SD: 7.4) for women. The group of female in their 30s was the highest score of JPSS (23.0, SD: 7.4) than other groups. Overall, the groups of women and of people in their 20s to 40s were lower JPSS score. While married states, better educational states and higher income of men were associated with lower JPSS score, only income of women was associated with JPSS. Conclusions: Perceived stress was higher in women and in younger generation. The association of social factors and JPSS score was different for men and women. The norm of JPSS in Japan presented by this study should provide a reference source for meaningful interpretation for the stress study.

P-130-F

### AN EXAMINATION OF TEST ANXIETY AND STRESS COPING, APPRAISAL, RESPONSES

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There are many kinds of stressors exist in our daily life. Taking a test is ones of the strong and serious stressor to students. Feeling of some level of anxiety or stress regarding an upcoming exam is really common. Many students complain that they experience some levels of nervousness or apprehension concerning the exam. This kind of anxiety can be a important motivator, however, some of them experience test anxiety to such a level that it can lead to poor performance and interfere with their learning. The test anxiety can develop for a number of reasons and it is not easy to specify the reason. In this study, we examine some state factors which might influence a trait test anxiety level. We employed a questionnaire method. Undergraduate students who attended a class were participated in this study. Students were instructed that their answer of the questionnaire were not related to their grade of the class and they did not have to write their name on the questionnaires. Instead of writing a name, they made their own ID number and use it to following questionnaires. Firstly, before they informed concerning an exam, they answered a first questionnaire, which was test anxiety questionnaire and then they were informed that they would take an exam after two weeks the day. One week before the exam, they answered second questionnaires that were stress coping and stress appraisal questionnaires. Finally, they answered third questionnaire about 10 minutes before taking an exam. Thirds questionnaire contained the items concerning psychological and physiological stress responses and self-efficacy to the exam.

We will discuss the factors which would influence a trait test anxiety level in order to clarify an appropriate intervention method and timing to reduce the degree of test anxiety using the data.

P-131-F

### HEART RATE VARIABILITY DURING SINGING A CASE STUDY OF DIFFERENT KINDS OF SONGS

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AIM: The aim of the study was to examine heart rate variability during different kinds of singing. PROCEDURE: Two amateur singers who had had many years of training and also experience of singing solos and in groups were study subjects. They performed relaxed and strenuous songs with and without audience. Heart rate (HR) and variations of the heart rate (HRV) were measured as indices of physiological effects of singing during these different conditions. RESULTS: A repeated measures ANOVA with CONDITION (3 levels) as main factor was used after logarithm transformation to analyse HRV in the first singer between different conditions. There was significant CONDITION main effect in low frequency ( $F=14.759$ ;  $P=0.0006$ ) and high frequency ( $F=8.032$ ;  $P=0.0056$ ) power. The difference in LF was more pronounced without than with audience. Repeated Measures

ANOVA with CONDITION (3 levels) as main factor also revealed a significant main effect of condition in HR ( $F=54.98$ ;  $P=0.0001$ ). Two different conditions were compared for the second (baritone) singer. In this case the differences were smaller both with regard to HR and HRV did not attain statistical significance. CONCLUSION: The heart rate variability difference was quite pronounced between singing conditions particularly for one of the singers. This points at the potential importance of analysing heart rate variability during singing.

#### P-132-F

### DAILY HASSLES IN JAPANESE UNIVERSITY STUDENTS: AN INVESTIGATION USING DIARY METHOD APPROACH

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**Introduction:** Daily hassles have been proposed as a predictor of significant outcome, such as psychological symptoms (Lazarus & Folkman, 1984). Lazarus (1984) defined daily hassles as experiences and conditions of daily living that have been appraised as harmful or threatening to the one's well being. In the present study, we investigated frequently-experienced daily hassles and the relationship between the daily hassles and personal characteristics in Japanese university students using diary method approach. **Methods:** We developed the schedule of the diary form which assesses one's daily hassles, lifestyle, social supports, anxiety, and depression comprehensively. This schedule was administered to 68 university students (24 men and 44 women with mean age of  $20.1 \pm 1.3$ ). Participant completed this schedule for 14 consecutive days. **Results:** The three most frequently-experienced daily hassles were "Time pressure (25.5%)", "Things to do (24.2%)", and "Lack of rest (22.3%)". Females reported more daily hassles than males ( $t(66)=2.52$ ,  $p<0.05$ ). People who had good lifestyle experienced less daily hassles ( $t(66)=-2.20$ ,  $p<0.05$ ). Anxiety and depression had a significant correlation with daily hassles ( $r=0.66$ ,  $p<0.01$ ;  $r=0.35$ ,  $p<0.01$ ). No significant correlation was found between daily hassles and social support. **Discussion:** Result of frequently-experienced daily hassles revealed Japanese university students were mainly hassled by "Time pressure", "Things to do", and "Lack of rest". This may reflect the life situations in Japanese university students. We also found that gender, lifestyle, anxiety, and depression gave influence to daily hassles. These findings indicated that daily hassles differ among individuals, reflecting their personal characteristics. Though social support is regarded as moderator of the stress (Cohen & Symes, 1985), there was not such stress buffering effect in this study.

#### P-133-F

### THE RESPONSE CONTROL ASSOCIATED WITH IMPULSIVE BEHAVIOR THROUGH ERROR PROCESSING

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The impulsive behavior is defined as frequent errors and quick responses (Messer, 1976). The error-related negativity (ERN) and error positivity (Pe) are event-related potentials elicited

after incorrect response in the flanker task so on, and these are associated with action monitoring. In this study, impulsiveness was behaviorally examined using the flanker task, which is consisted of compatible (<<<<< and >>>>>) and incompatible (>><<> and <<><<) stimulus. Subjects need response control associated with impulsive behavior in order to perform. The present study examined the relationship between impulsivity due to task performance and error components. In experiment 1, healthy undergraduate and graduate university students performed the flanker task and were classified according to their performance. This resulted in an impulsive group (shorter response time (RT) and higher error rate), an average group (average RT and error rate), and a prudent group (longer RT and lower error rate). In experiment 2, the electrophysiological correlates of impulsiveness were investigated using error-related components. The EEG was recorded from fifteen scalp locations in impulsive and average groups, and averaged time-locked to the execution of correct and incorrect responses. After only incorrect response, ERN and Pe components were observed in both impulsive and average groups. However the impulsive group had smaller ERN amplitude than average group. Pe amplitude was not significant difference between groups. ERN is considered to reflect response conflict monitoring. These findings suggest differences in impulsivity due to task performance may stem from differences in response conflict monitoring. Moreover, these ERP measures may suggest the predictability on impulsiveness as one of personality traits.

#### P-135-F

### SLEEP QUALITY OR DEPRESSIVE SYMPTOMS AFFECTING DEVELOPMENT OF STRESS-INDUCED DISEASE

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As well as 62.7% of companies (500-999 employees) had workers, taking leaves of absence of more than one month due to mental illness 2005 in Japan (Ministry of Health, Labour and Welfare, 2006). In the year since 1998, the numbers of Japan's suicide, for which job stress was kind of responsible, have topped the 30,000 mark annually. This study was performed to detect the high risk workers for stress-induced diseases. To measure psychological stress, relative risk was used in the statistical analysis, by Job Content Questionnaire (JCQ) (Kawakami, 1998; Karasek, 1985), Pittsburgh Sleep Quality Index (PSQI), and Center for Epidemiologic Studies Depression Scale (CES-D). Participants were 585 workers (mean age = 47.6 years, SD = 12.5, male ratio = 91.1%), employed by three shipbuilding companies in Japan. They were examined at the end of July 2007 using the questionnaire including JCQ, PSQI, and CES-D. The following 5 months, 4 Participants suffered from stress-induced diseases, getting leaves of absence with certificate. According to the results, the relative risk of stress-induced diseases associated with low score ( $\leq 0.386$ ) in job strain index was 8.72 (95%CI: 1.3-60.7). That with high Global PSQI Score ( $\geq 11$ ), and that with high CES-D Score ( $\geq 18$ ) was 46.3 (95%CI: 7.1-299.3), and 13.3 (95%CI: 1.39-126.5), respectively. This study indicated that high risk factor for stress-induced diseases was low score in job strain, high Global PSQI Score, and high CES-D Score. Stress-induced diseases may be increased in frequency according to lower quality of sleep.

P-136-F

**ARTERIAL STIFFNESS AND HEMODYNAMIC REACTION PATTERNS DURING MENTAL STRESS**

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**Objective:** Hemodynamic reaction patterns associated with blood pressure elevations during mental stress show striking individual differences. These individual differences are considered to have etiological significance. We examined the relationship of responder type, the tendency to elicit a particular pattern of hemodynamic responses, to arterial stiffness. **Methods:** Eighteen young females, age of  $18.4 \pm 0.5$  years, participated in this study. Physiological data were obtained at rests and during two kinds of mental arithmetic tasks. Participants were classified as cardiac or vascular responders based on median split of mean hemodynamic profile during the tasks. Arterial stiffness was evaluated by brachial-ankle pulse wave velocity (baPWV), cardio-finger pulse wave velocity (cfPWV), cardio-finger vascular index (CFVI,  $\beta$ -index calculated from cfPWV and blood pressure), and finger arterial compliance index (CI). **Results:** During the tasks, cardiac responders showed significant increases in cardiac output, whereas, vascular responders showed significant increases in total peripheral resistance, although both groups showed comparable increases in blood pressure. At rests, there were no significant differences between groups in the hemodynamic parameters. However, cardiac responders showed significantly higher cfPWV ( $p = .005$ ), higher CFVI ( $p = .04$ ) and marginally lower CI ( $p = .06$ ) than vascular responders, although both groups showed comparable baPWV ( $p > .10$ ). **Conclusions:** Cardiac responders, individuals who have a tendency to elicit cardiac responses, showed increased arterial stiffness. Moreover, this relationship remained significant when adjusted for resting blood pressure level. The influence of exaggerated cardiac responses on arterial stiffness was the strongest in brachial artery. An early preclinical manifestation of pathophysiological state seems to emerge first in the peripheral muscle arteries.

P-137-F

**EFFECTS OF TRAIT SOCIAL ANXIETY ON CARDIOVASCULAR ACTIVITY AND PSYCHOLOGICAL RESPONSES DURING SPEAKING TASK.**

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The present study examined the effects of trait social anxiety on cardiovascular activity and psychological responses during speaking task. Thirty-four undergraduate students asked to perform a speaking task in laboratory. Two speech evaluators seated down in front of participants during speaking task. Systolic, diastolic, and mean blood pressure (SBP, DBP, and MBP), heart rate (HR), cardiac output (CO), and total peripheral resistance (TPR) were assessed during a rest, anticipation, speaking task, and recovery period. Psychological measures such as Affect Adjective Check List (AACL), Positive and Negative Affect Schedule (PANAS) and State Anxiety Inventory from State-Trait Anxiety Inventory (STAI-S) were obtained after a rest and between periods. After the experiment, participants filled out Interaction Anxiousness

Scale (IAS) and Audience Anxiousness Scale (AAS) to measure their trait social anxiety. And each participant's data was assigned to high or low social anxiety group by the score of IAS and AAS. The results indicated that the differences between high social anxiety group and low social anxiety group were not significant in cardiovascular activity during speaking task period. However, negative affect and state anxiety scores after speaking task period were increased in high social anxiety group more than low social anxiety group. From the results, it is suggested that the trait social anxiety effects on psychological responses such as subjective negative affect and state anxiety more than cardiovascular activity in social anxiety situation.

P-138-F

**INFLUENCES OF METEOROLOGICAL FACTORS ON THE PSYCHOPHYSIOLOGICAL REACTIONS OF MAN**

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The organism is affected by weathers on the whole and its component. Atmospheric pressure fluctuations can operate in various ways: reduce the saturation of blood by oxygen, mechanically annoy the receptors of pleura, peritoneum, synovial shells of joints, and receptors of vessels. The influence of meteorological parameters (temperature, atmospheric pressure, wind speed and low frequencies fluctuations of atmospheric pressure) on functional state of human organism at the different geographical regions was investigated. To include a wide range of climatic conditions, researches were conducted in three stages which differed by time of year and geographical regions.

There were two groups in Kiev, Ukraine (in spring and autumn periods) and one group in Shiraz, Iran (in winter period). Everybody should fill questionnaire of (self-feeling, activity, mood), following taking a computer-based test of visual sensor-motor reaction to conduct measuring latent periods (LP) by the "React 22". We have registered temperature, atmospheric pressure, wind speed and low frequencies fluctuations of atmospheric pressure at the time of experiment.

It has been shown that the optimum temperature of air, at which the functional state is the best, higher for men than for women. Fluctuation of atmospheric pressure is related to the realized indexes of the functional state (self-feeling, activity and mood) for men and unrealized to LP for women.

The low temperature and fluctuation of atmospheric pressure increase sensitivity of people to atmospheric pressure.

P-139-F

**ENDOCRINE MODULATORY EFFECTS AFTER A MINDFULNESS MEDITATION PROGRAM**

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Mindfulness meditation is an ancient and simple form of meditation from the Buddhist tradition, whose main emphasis lies in directing, focusing and maintaining nonjudgmental attention to present-moment experiences. Notwithstanding its apparent simplicity, this form of mental training has been said to induce several important physical as well as psychological benefits. In this regard, albeit the interest to verify the clinical efficacy of mindfulness practice has grown considerably in the last years, its specific impact on the endocrine system has been scarcely studied. In the present study we examined the effects of a mindfulness meditation program on several hormonal measures of the hypothalamic-pituitary-adrenal (HPA) and hypothalamic-pituitary-thyroid (HPT) axis, including PTH. 16 patients with depression and anxiety symptoms participated in this study; subjects underwent a mindfulness training program for the period of eight weeks. To quantify endocrine parameters (ACTH, cortisol, DHEA-S, TSH, T3, T4, PTH), blood samples were taken before and the end of the training program. Comparing pre-training with post-training, results reveal that after following this meditation program, the levels of DHEA-S and ACTH were significantly increased, while those of PTH were reduced. Our results, therefore, indicate that mindfulness meditation can influence the endocrine system by exerting a modulatory action on several hormonal parameters. Further investigation is needed to elucidate the psychobiological implications of these changes, as well as to assess its possible clinical repercussion.

## Track 'Work Related Health'

### P-140-F

#### JOB CONTROL AND RISK OF INCIDENT STROKE IN THE WORKING POPULATION IN SWEDEN

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**Objectives** Only a few studies on psychosocial work environment have focused on stroke as a specific cardiovascular disease (CVD) outcome, and the results are inconsistent. This study estimated the impact of job control on the risk of incident stroke, and examined whether the impact varied as a function of gender. **Methods** This was a register-based cohort study of nearly 3 million working people (30-64 years in 1990) with 13-year follow-up (1991-2003) for incident stroke (50,114 events). Job control was aggregated to the data by a secondary data source (job exposure matrix) in 1990. Gender-specific Cox regressions were applied. **Results** The age- and work-hours-adjusted hazard ratio (95% confidence interval) of lowest versus highest job control quartile was 1.25 (1.17-1.32) for any stroke; 1.33 (1.15-1.55) for intracerebral hemorrhage (ICH); and 1.22 (1.14-1.31) for brain infarction (BI) in women, and the corresponding figures for men were 1.24 (1.21-1.28); 1.30 (1.21-1.40); 1.23 (1.19-1.28). Adjustment for education, marital status and income attenuated these associations to 1.07 (1.01-1.14) for any stroke; 1.22 (1.04-1.42) for ICH; and 1.04 (0.97-1.12) for BI in women, and 1.08 (1.04-1.12); 1.12 (1.03-1.22); 1.08 (1.04-1.13), respectively, in men. **Conclusions** The relative risk of stroke was higher in low job control occupations. The impact of low job control on stroke subtypes varied as a function of gender. The relative risk of ICH was highest in women with low job control

### P-141-F

#### JOB STRAIN, IMMIGRATION STATUS AND SMOKING IN FEMALE HOTEL ROOM CLEANERS IN LAS VEGAS

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**BACKGROUND:** Although it is well documented that in the United States, women with low income are more likely to smoke than those with high income, little is known of the impact of work environment on smoking among women holding low-paid jobs in the service sector. In this study, we investigated the association between psychosocial working conditions and prevalence and intensity of smoking among female hotel room cleaners. **METHODS:** We conducted a survey on work and health among 776 female hotel room cleaners, most of which were immigrants, in Las Vegas, USA. Psychosocial working conditions were measured with the demand-control model. Associations between psychosocial working conditions and smoking prevalence (current smoker vs. current non-smoker) and smoking intensity (number of cigarettes smoked per day) were analyzed with multivariate regression analyses. Additional analyses were conducted taking into account ethnicity and immigration status. **RESULTS:** Job strain (the combination of high psychological demands and low decision latitude) was associated with both smoking prevalence (OR=2.23, p=0.006) and smoking intensity (regression coefficient=6.50, p<0.001) after adjustment for age, education, marital status, self-rated health, physical workload, and type of hotel. Effect sizes were substantially attenuated after further adjustment for ethnicity, but remained statistically significant (OR=1.87, p=0.04 and regression coefficient=3.52, p=0.03, respectively). Further analyses revealed that the potential confounding effect of ethnicity on the association between psychosocial working conditions and smoking prevalence was mainly explained by immigration status, with recent immigrants reporting less job stress strain and lower prevalence of smoking. **CONCLUSION:** Workplace smoking cessation programs may benefit from a primary prevention component reducing job strain among service workers. More research is needed on perceived and objective differences in psychosocial work characteristics across ethnic, immigrant and other social groups within the same occupation.

### P-143-F

#### WORK-ENVIRONMENT, PERFORMANCE-BASED SELF-ESTEEM AND WORK-FAMILY BALANCE AMONG DANISH KNOWLEDGE-WORKERS

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The global working life has increased demands to productivity, effectiveness and competitiveness. To meet the demands companies ask for professional, highly educated employees with strong personal competences and ambitions. One possible downside is that this development challenges the work-family balance and may result in discontent and conflicts. For this reason, we examined the associations

between work-environmental factors and work-family conflicts among 396 Danish knowledge-workers. In addition, we investigated whether performance based self-esteem mediated or moderated the associations. Participants were occupationally active respondents to the second National Danish Psychosocial Work Environment Study. Data were analyzed with a multiple GLM procedure in three steps. In the first step gender, family-status and several work-environmental factors were entered into the model. In the second step performance based self-esteem was added, and in the third step interaction effects between performance based self-esteem and the work-environmental factor were added. The results showed positive associations between reports of work-family conflict at the one side and on the other reports of quantitative demands and higher number of working hours. Further, work-family conflict was significantly higher for employees who, in order to meet a deadline, worked in evenings or weekends, skipped vacations or skipped lunch-breaks. A family friendly work-place culture protected against work-family conflicts, while influence and flex-time was unassociated with work-family conflicts. Performance based self-esteem was positively associated with work-family conflicts, but did neither mediate nor moderate the associations between work-environment and work-family conflicts. In conclusion, the results suggest that the job-demands faced by many knowledge-workers are closely associated with work-family conflicts. A family-friendly work place culture may reduce the conflict-level. Performance based self-esteem may increase the likelihood of conflicts but does not change the effects of job demands, long hours or deadlines on work-family conflicts.

#### P-144-F

### SENSE OF COHERENCE AND JOB STRESS

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**Introduction:** Sense of Coherence (SOC) scale measures the stress coping ability, viz. comprehensibility, manageability, and meaningfulness. Relationships of SOC scores to job stress measured by Job Content Questionnaire (JCQ), mental health status assessed by General Health Questionnaire (GHQ-12), and perceived health status were investigated in the present study.

**Subjects and Methods:** Self-administered questionnaires were distributed 400 workers in a manufacturing industry. Complete answers were recovered from 240 workers (60%, 213 males and 27 females) and used for the analysis.

**Results:** One hundred and eighty-nine workers with GHQ scores less than 12 points reported higher SOC scores as compared with 51 workers with higher GHQ scores (SOC =  $131.08 \pm 18.57$  and  $107.90 \pm 20.09$ , respectively,  $p < 0.05$ ). SOC scores were also higher in 198 workers who reported good health status than in 42 workers reported to be in poor health status (SOC =  $129.46 \pm 19.46$  and  $110.57 \pm 21.86$ , respectively,  $p < 0.05$ ). The multiple regression analysis controlling for age, marriage status, job position, years of working, and BMI indicated that SOC scores were related positively to lower GHQ and good health status. In Low-strain, Active, Passive, and High-strain groups categorized by JCQ scores based on Karasek's job-demand and -control model (41, 68, 88, and 43 workers, respectively), SOC scores were  $131.39 \pm 18.04$ ,  $130.91 \pm 20.66$ ,  $120.43 \pm 18.69$ , and  $125.37 \pm 26.29$ , respectively ( $p < 0.01$ , one-way analysis of

variance). Multiple comparison test showed that the scores in Passive group were significantly lower than in Low-strain and Active groups ( $p < 0.05$ ).

**Conclusion:** It is suggested that stress coping ability is higher in workers with good mental and physical health status. SOC scores were higher in Low-strain and Active groups, ie. with high job control groups, indicating that job control is essential in stress coping.

#### P-145-F

### INFLUENCE OF JOB-ROLE QUALITY, ANGER AND SOCIAL SUPPORT ON HEALTH IN WORKING WOMEN

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The objective of the present study was to analyze how job-role quality, anger and the social support influence direct and indirectly on the presence of symptoms report, risk habits of health and the cholesterol (HDL/LDL), in a sample of 402 working women between 27 and 71 years of age. A set of scales were applied that measured: symptoms report, health risk habits, anger in, anger out, social support and the quality of social roles. A blood sample was taken to evaluate the lipid profile. Path analysis was used and it was found that health risk habits, job support and job rewards were associated with more report of symptoms. In addition indirect relations between Job-role quality were observed (concerns and satisfactions) and the number of symptoms, mediate by job support. The findings allowed to verify relations in the health area, emotions and role quality in working women. These findings can be very useful for intervention programs in organizational settings.

#### P-146-F

### SOCIAL SKILLS ARE STRONGLY RELATED TO PSYCHOLOGICAL STRESS REACTIONS AMONG FEMALE NURSES IN JAPAN

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**PURPOSE:** The purpose of this study is to identify which psychological stress factors (job stressors, copings, social skills, job satisfactions, and social supports) are related to psychological stress reactions among Japanese nurses. **METHODS:** A survey was conducted of 1,820 nurses who worked for 5 general hospitals in Japan. One thousand five hundred and eighty-four nurses (response rates were 80.6%-99.6%) responded to self-administered questionnaires in June, 2005. Consequently, 1,140 female nurses (mean age=30.1, SD=7.81) who completed the questionnaire were the subjects to the final analyses. The questionnaire contained 6 scales: "Job stressors", "Copings", "Psychological stress reactions" assessed by the Job Stress Scale Revised version (Kosugi et al., 2004), "Social skills" (Tanaka & Kosugi, 2003), "Job satisfactions" (Tanaka, 1998), and "Social supports"



(Kosugi, 2000). Multiple regression analyses (stepwise) adjusted for age were performed to reveal the effects of "Job stressors", "Coping", "Social skills", "Job satisfactions", and "Social supports" for "Psychological stress reactions". RESULTS: The psychological stress factors that were significantly related to "Psychological stress reactions" were "quantitative" stressors ( $\text{Beta}=.320, p<0.001$ ), "qualitative" stressors ( $\text{Beta}=.394, p<0.001$ ), "problem-leaving" coping ( $\text{Beta}=.071, p<0.05$ ), "trouble-shooting" skills ( $\text{Beta}=-.256, p<0.001$ ), "management" skills ( $\text{Beta}=.053, p<0.01$ ), "communication" skills ( $\text{Beta}=-.110, p<0.001$ ), and satisfaction with "utilization of ability" ( $\text{Beta}=.058, p<0.01$ ). CONCLUSIONS: Whereas "quantitative" and "qualitative" job stressors were the strongest factors for nurses' mental health, social skills (especially "trouble-shooting" skills) were also strongly related to it. The increase of "trouble-shooting" and "communication" skills can be effective to reduce psychological stress reactions among female nurses in Japan.

#### P-147-F

### A QUALITATIVE STUDY -WORK STRESS, WORK SATISFACTION AND HEALTH STATUS ON NURSES AIDS IN LONG TERM CARE FACILITIES IN TAIWAN

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The purpose of this study was to find work stresses and health status for nurse aids in long term care facilities. A qualitative study method was conducted. Purposive sampling was employed, and a total of 30 subjects were recruited from a large long term care facilities in northern of Taiwan. After obtaining consent from participants, data was collected by the investigator through interview guide, the entire interview process and content was recorded anonymously. Interview data was then analysis by using the content analysis approach. The results showed as following: "Perceiving health status change" was the core category for describing and guiding the processes of coping strategies during work stress for nurse aids. "Perceiving health status change" was identified as the antecedent condition. Analysis showed three subcategories: "work stress", "worsen health condition", "adaptation", and "work satisfaction". The findings of this study can provide information to managers of long term care facilities, and those information will be effective ways to promote the staff member's morale and increase their work motivation, and finally can improve quality of care for the residents in long term care facilities. Moreover, those messages can be provided to related long term care facilities as a reference to improve quality of care.

#### P-148-F

### MUSCULOSKELETAL PAIN AND ENTHUSIASTIC AT WORK

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Background: The majority of sick leaves are related to musculoskeletal pain. Many organizations seek to prevent this by increasing job satisfaction. The aim of this study was to

study the prevalence of musculoskeletal pain and degree of job satisfaction among a group of workers reported to have higher levels of sick leave compared to the rest of the organization. Method: In a cross-sectional study with 198 employees (50% females) working in catering at 10 offshore installations, musculoskeletal pain, job engagement, job satisfaction and effort reward imbalance were measured. The level of sick leave for the total group was provided from company register. Results: The loss of working days due to sick leave in the catering department was high (10.2%) compared to the rest of the organization (4.6%). Most workers reported musculoskeletal pain (87%), had high job satisfaction (96%), felt enthusiastic at work (87%), and had effort-reward balance (99%). Conclusion: High job satisfaction, enthusiasm at work, and having effort reward balance do not prevent musculoskeletal pain.

#### P-149-F

### STUDY ON THE EFFECT OF SOCIAL AND EMOTIONAL CONTROL SKILL ON THE STRESS RESPONSE IN JAPANESE MALE WORKERS

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Objectives: The aims of this study were to examine the stress response in Japanese workers from the effect of Social and Emotional Control Skill that enables individuals to self-regulate socially and emotionally in order to understand their state of feelings correctly and to behave appropriately in different situations, and also to examine the way to improve Social and Emotional Control Skill. Method: A questionnaire survey was conducted with 700 Japanese workers. The questionnaire contained the participants' demographics such as gender, age and length of service, life-style related questions such as eating behavior and smoking, Emotional Social Support (ESS) from family, colleagues and others such as friends, Stress Response, and Social and Emotional Control Skill (SECS) that consists of empathetic skill, social skill, frankness skill, adaptation skill and creative skill, and WHOQOL-26. Results and Conclusions: Five hundred and three workers agreed to participate in the study. Thirty-four participants who were either female or gender unknown were excluded from the analysis, resulting in 469 valid samples. The mean age was 35.0 years (SD 6.46). A multiple regression analysis was performed using stress response and QOL as dependent variables, and age, length of service and the subscales of ESS and SECS as independent variables. The results revealed that social skill, adaptation skill and support from family have an effect on stress reduction. This suggests that the male workers need to enhance their social skill that enables them to control their feelings in a stressful situation and actively participate, and adaptation skill to build close relationships with colleagues, in order to reduce stress and improve QOL. The authors are currently conducting an educational intervention to improve Social and Emotional Control Skill of workers with a view to not only reducing workers' stress but also improving their work performance.

P-150-F

**IDENTIFYING FACTORS ASSOCIATED WITH GOOD HEALTH. JUST THE OPPOSITE SIDE OF THE COIN, OR?**

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Considering that work related illness constitutes a huge cost for individuals, workplaces and for the welfare state it would be of great value to understand how and under what circumstances people stay healthy. Identifying such health promoting, or salutogenic factors, have been recognized as a possible additional tool in the work towards creating a healthy and sustainable working life. A focus on reducing traditional risk factors is, however, still the first choice in occupational health research and our knowledge of the variation in ill health is still much greater than our understanding of such variation in good health. In this study, based on the Swedish level of living survey 2000, data on 3 116 gainfully employed men and women is used to analyze the associations between work environment exposures and good health and to explore whether, and in that case, to what extent determinants of good health and ill health are the same. Moreover the moderating role of sense of coherence between work characteristics and different health outcomes is being explored. The primary method used is logistic regression. The preliminary results indicate that assessed work environment factors are related, in a mirrored way, to good as well as poor health, although they generally tend to explain less of the deviation in good health i.e. they are more suitable as determinants of poor health.

P-151-F

**CONFLICT BETWEEN THE WORK AND HOME DOMAINS MAY BE IMPORTANT FOR UNDERSTANDING THE DIFFERENCE IN EXHAUSTION BETWEEN VOCATIONALLY ACTIVE MEN AND WOMEN**

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Background: Work-related stressors, which are generally more prevalent among women, are important in the development of exhaustion. In addition, the impact of conflict between the work and home domains may differ between the genders and contribute to the higher observed prevalence of exhaustion in women. Aim: To study whether gender differences in work-to-family conflict (WFC), family-to-work conflict (FWC), job strain (JST), and low job support (LJS) could explain differences in exhaustion. Methods: Cross-sectional study, using self-administered questionnaires of 2,726 men and 2,735 women, ages 45 to 64, vocationally active and residing in the city of Malmö, Sweden. Exhaustion was estimated as a low score on the Vitality scale of the SF36 instrument and JST and LJS were measured by a Swedish version of the demand-control-support instrument. WFC and FWC were measured by internationally previously published items. Results: Exhaustion, JST and FWC were more prevalent among women, and WFC among men. WFC, FWC, JST, and LJS were all strongly correlated to exhaustion in both genders.

Testing for interaction between WFC/FWC and JST revealed a moderate synergistic effect in both genders. When controlling for overtime every week, JST, LJS, FWC, country of birth, and chronic neck, shoulder, or lumbar pain, WFC remained a statistically significant risk factor for exhaustion in both genders. The OR was 2.2 (95% confidence interval 1.5 to 3.2) in men, and 3.4 (2.5 to 4.6) in women. The other risk factors also remained independently associated with exhaustion. Conclusion: WFC and FWC both contributed to exhaustion, as well as JST and LJS, in this healthy middle-aged vocationally active population. WFC explained, to a higher degree than the other factors tested, exhaustion in women. The results imply that work stress should be regarded in a wider context in order to understand gender related issues of exhaustion among vocationally active individuals.

P-152-F

**TRAINING OF ICU DOCTORS FOR THE COMMUNICATION WITH BEREAVED RELATIVES AFTER A SUDDEN DEATH - EVALUATION RESULTS**

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One of the typical tasks in medical psychology is the training of students and doctors for handling of difficult and straining social interactions in hospitals, e.g. the communication with bereaved relatives after a sudden death in the family. Especially for this situation the EDHEP Programme (European Donor Hospital Education Programme) has been developed for the training of doctors and nurses. ICU doctors often have to deal with persons in one of the most extreme and painful experiences and special communication skills are required to support the bereaved as well as to make the donation request. Referring to the evaluation data of 75 workshops in Germany, experiences of 143 ICU doctors (out of 760 participants) in the one day workshop are reported. The framework, working methods and issues of the workshops were clearly appreciated by the great majority of the participants. One third pleaded for a two day workshop, two thirds for a refreshment course half a year later. The main effects reported were that relatives could be helped, talked to and cared for in a better way (two thirds who markedly agree). The workshop participants also reported that they themselves were better able to cope with the situation (62%), were more inclined to take on the task following the workshop, and 72% felt better able to decide, when to ask for organ donation. Finally, the necessities and limits of psychosocial training for doctors and staff in this field are discussed. Key words: grief, bereavement, relatives, organ donation, staff training

P-153-F

**BENEFIT-FINDING IN HOSPICE WORKERS AND VOLUNTEERS**

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The experience of terminal illness, both on patients and those around them, has been increasingly studied in recent years. Studies of professionals caring for those who are terminally ill have investigated the impact of such work. In Japan, for example, a study of nursing staff involved in AIDS care at Komagome Hospital found that their anxiety levels were significantly higher than those of controls. International

research has reported a wide-range of psychological problems associated with working in this area. Similar findings have been reported for non-professionals, not just those involved directly in care but others such as siblings; in New Zealand, for example, the brothers and sisters of children with cancer have been reported to show elevated levels of depression.

In contrast (but not conflicting with) such findings, studies have also reported that individuals may derive a range of benefits from their involvement in this field; in the aforementioned New Zealand study, for example, children interviewed about their experience reported a range of benefits such as “it has taught me that life is a gift” or “it has brought our family closer together”.

Within hospice work, perhaps more than in other areas of health care, there is considerable scope for lay volunteers to make their own contribution to the service. The psychological impact on such volunteers has however been little researched. In order to explore this issue further with such volunteers a series of open-ended interviews was conducted with hospice-based professionals and volunteers in Auckland. Thematic analysis of the interviews revealed that despite the inevitable stresses, these groups too were able to find a range of benefits resulting from their involvement in such work.

## **Track ‘Alcohol/Smoking/Substance Abuse’**

P-154-F

### **REPORT OF AN ALCOHOL DEPENDENCE SURVEY**

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Objective: Health Japan 21 has announced targets of drinking control such as “20% cut of heavy drinkers” and “spread of knowledge about controlled and moderate drinking”. In this report, the results of a survey on alcohol dependence in small-scale office workers are presented. Methods: The subjects were 58 male workers at small-scale offices aged 20-64 years (mean, 45.33years). The survey was performed using a comprehensive stress questionnaire (K-F stress questionnaire) consisting of 138 questions of 11 categories. Results: The responses of 28 workers (48.3%) concerning alcohol dependence were graded as “caution needed”. Of these 28 workers, the responses concerning lifestyle, neurotic tendency, and aggressive personality were graded as “caution needed” in 61% or more, but those concerning fatigue were graded as “caution needed” in 45% or less. Discussion: Thomas (2001) observed that stress such as that due to anxiety over unemployment during an economic recession was related to increased alcohol consumption. Management had proposed office restructuring and cutting of overtime pay to cope with the recession. Whether these proposals were factors of the increase in alcohol dependent workers is unclear, but mental health protection measures are urgently needed for workers such as those with a high score of neurotic tendency.

## Track 'Health Education and Promotion'

P-155-RF

### THE EFFECTS OF DIARY-KEEPING ON WELL-BEING

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The purpose of this study was to investigate the effects of diary-keeping on well-being. Forty three undergraduates (24 males, 19 females) were randomly assigned into one of two groups. One was the Finding Happiness group, in which participants were asked to write any happy or positive event happened around them everyday. Another was the Reflecting Worry group, in which participants were asked to write any worried or concerned event happened around them everyday and to reflect how to cope with the event. Half of participants kept a diary on a notebook (Regular Diary group), while the other half kept a diary on the Internet (Web Diary group). Participants kept a diary for about 4 weeks. Immediately before and after diary-keeping, participants' general health, worry, self-esteem, general self-efficacy, negative rumination, and working memory capacity were measured. Concerning all variables, the amount of change from the pre-score to the post-score was calculated. 2 (Finding Happiness vs. Reflecting Worry) x 2 (Regular Diary vs. Web Diary) between-subjects ANOVA was performed. Result showed that, regardless of diary type, participants of the Finding Happiness group showed more increase in a sense of social value on abilities than those of the Reflecting Worry group. Reversely, participants of the Reflecting Worry group showed more increase in anxiety toward failures, and more decrease in forwardness of actions than those of the Finding happiness group. Finding happiness in our daily life is likely to make us realize our own good points, and this realization may result in self-reinforcement. Additionally, results of content analysis of web diaries revealed that the number of self-related words (I, we, me, us, etc) was more decreased from the first two weeks to the second two weeks in the Happiness Finding group than the Reflecting Worry group.

P-156-RF

### INCIDENCE OF OVERWEIGHT AND FRACTURE IN JAPANESE YOUNG ADOLESCENTS AND THEIR ASSOCIATIONS WITH PHYSICAL ACTIVITY

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It was reported that incidence rates of fracture and overweight in young adolescents have been increasing during the last decades in Japan. These health problems might be related to the unhealthy lifestyles such as inactivity and unhealthy dietary habits in their childhood, and further to the incidence of metabolic syndrome and lifestyle-related diseases in their adulthood. Therefore, modification of unhealthy lifestyles in young adolescents should be an important strategy as the first step for the prevention of lifestyle-related diseases in adulthood. Then we conducted this study to evaluate the current condition on fracture and overweight and also to examine the possible association of these health problems with physical activity among Japanese young adolescents in a local

community.

The subjects in this study were 231 boys and 227 girls from fourth grade in municipal elementary schools to third grade in junior high schools. The bone mass of the subjects were measured by ultrasound bone assessment (AOS-100NW, Aloka) and the body compositions were measured using body composition analyzer (Inbody 720, Biospace). Obesity was assessed by the Rohrer Index. Physical activity, dietary habits, quality of life, and health status were also assessed using a self-administered questionnaire. The statistical analysis between boys and girls was carried out using chi-square, and that between the index of fracture or overweight and physical activity were performed by t-test or analysis of variance.

As the results of all subjects, boys had a significantly higher incidence rate than girls (32.5% vs. 19.8% for fracture, and 20.3% vs. 14.1% for overweight) in both fracture and overweight. The significant differences ( $p < 0.05$ ) were observed between amount of physical exercise or total energy expenditure and overweight in both boys and girls, but not observed between that and fracture.

These results indicate that the incidences of obesity were associated with the physical activity.

P-157-RF

### DEVELOPMENT OF JAPANESE DECISIONAL BALANCE INVENTORY IN ORDER FOR INTERNET-BASED TRANSTHEORETICAL MODEL STRESS-MANAGEMENT

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AIM: The Decisional balance is one of the main constructs in Transtheoretical Model (TTM). It is the balance between benefits (Pros) and costs (Cons) of behavior changes. For an effective stress-management intervention based on TTM for Japanese, Japanese decisional balance inventory was developed in the present study. METHODS: 765 Japanese university students (276 males and 489 females) answered Internet-based questionnaires for an effective stress-management. 362 subjects participated in same survey two weeks later. 12-items were used for subject's decisional balance, which consisted of 6-items each for Pros and Cons of using effective stress-management activities. The algorithm "assuming five stages named as Pre-contemplation (PC), Contemplation (C), Preparation (P), Action (A), and Maintenance (M)" was used to determine their stages of change for stress-management behaviors. RESULTS: Confirmatory factor analysis for the original scale demonstrated enough Model fit indices (GFI=0.97, AGFI=0.96, RMSEA=0.05); however, new model, consisted of 4-items each, indicated higher-level GFI (0.98). The cumulated eigenvalue on the new model showed 40%, and all of the 8 items showed more than 0.40 factor loadings. The new model had higher internal consistency (Pros,  $\alpha = 0.76$  and Cons,  $\alpha = 0.62$ ) and intra-class correlation (Pros, 0.78 and Cons, 0.66). It was evident that there was significant interaction of decisional balance and the stage of change. Pros' level was higher at A and M than at PC, and lower at PC but higher at A compared with Cons' level. CONCLUSION: The decisional balance inventory for Japanese was constructed and its factorial validity was confirmed in terms of internal reliability and test-retest reliability. Furthermore, the new inventory corresponded with Transtheoretical theory as high-level Cons at lower stages and high-level Pros at higher change of stages. The decisional balance inventory

constructed in the present study was anticipated as useful tool for future theoretical and intervention studies of stress-management.

#### P-158-RF

##### **THE EFFECTS OF THE ASSUMED LETTER WRITING ON A HESITATION IN SELF-DISCLOSURE: SELF ASSUMPTION OR OTHER ASSUMPTION**

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**AIM:** Too conscious hesitation in self-disclosure influence bad mental health (Jourard, 1971 et al). "Assumed Letter Writing (ALW)" had been developed in order to advance self-disclosure (Fukushima, 1995). Participants in ALW write their daily thoughts and feelings as a letter from an assumed recipient, and reply for themselves as being the recipient. Its effect had been reported on several studies though, who should be assumed was unknown yet. The present study examined which of an ALW participant self or kindly other person should be assumed as the recipient. **METHODS:** 41 university students (13 males, 28 females) participated ALW intervention were divided in two groups. 20 students named "self assumption group" wrote their situation and feeling, and taken wards to themselves after that. Other 21 students named "others assumption group" wrote their situation and feeling as a letter for assumed kind others, and reply for the letter by themselves with imagining how he/she would write. Both groups were given 20 minutes for each task and total 4 times through 2 months. Hesitation in self-disclosure was measured before (pre) and after (post) the 2 months intervention, and at the 2 months later (follow). **RESULTS:** Hesitation in self-disclosure significantly decreased from pre to follow, though it was not changed from pre to post in self assumption group. While, others assumption group did not show any significant difference between the time periods. **DISCUSSION:** Self-reflection and self-monitoring might be formed in self assumption group. The time necessity to consider oneself was suggested by the result of decreased hesitation in self-disclosure not at pre-post but pre-follow. Self-comprehension eased a hesitation in self-disclosure more than assumed relationship with others. The present study suggested the importance of assuming oneself which decreased hesitation in self-disclosure, the function of ALW as "confrontation and awareness to self".

#### P-159-RF

##### **INTERPERSONAL STRESS AND POOR MENTAL HEALTH: THE MEDIATING ROLE OF LONELINESS**

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This paper investigates whether the lack of social connectedness, as measured by the subjective feeling of loneliness, mediates the well-known relationship between interpersonal stress and psychological distress. Furthermore, the relationship between interpersonal stress and somatic symptoms is explored. The study sample included 3,268 women and 3,220 men from Hordaland County in Western Norway. The main findings are that interpersonal stress influence psychological distress as well as somatic symptoms,

both directly and indirectly via paths mediated by loneliness. The size of the indirect effects varies, suggesting that the importance of loneliness as a mediator differs for depressive symptoms, anxiety symptoms and somatic symptoms. In the case of depressive symptoms more than 75% of the total effect was mediated through loneliness while in the case of somatic symptoms just over 40% of the total effect was mediated through loneliness. This study underlines the importance of social connectedness - or belongingness - for the experience of psychological distress and somatic symptoms in the face of interpersonal stress. The study also provides the first link between interpersonal stress, as measured by the BSRS, and somatic symptoms, extending earlier research on the relationship between interpersonal stress and psychological distress.

**Key-words:** Stress, interpersonal relationship, loneliness and mental health

#### P-160-RF

##### **DEVELOPMENT AND VALIDATION OF A JAPANESE VERSION OF THE SITUATIONAL CONFIDENCE TO MANAGE STRESS INVENTORY**

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**Purpose:** According to the Trantheoretical Model (TTM)(Prochaska & DiClemente, 1986), confidence is one of the predictors of progression through the stages of change, and it increases as stage progresses. To provide TTM-based stress-management intervention via internet in Japan, we developed a Japanese version of the situational confidence measure. This study describes its development and examines its reliability and validity. **Methods:** A Japanese version of Situational Confidence to Manage Stress Inventory (Norman et al.,1997), which assesses one's confidence to practice stress-management effectively in different situations that make it difficult to take effective stress-management behaviors, was developed. 765 Japanese university students (mean age 19.6, 64% female) completed this as part of an internet survey which includes the assessment of stage of change for effective stress-management. For test-retest reliability analysis, 362 participants were retested 2 weeks later. **Results:** Confirmatory factor analysis (CFA) on the original 1-factor 10-item model did not show adequate fit (GFI=0.87, AGFI=0.80, RMSEA=0.13). Eliminating 1 item with factor loading<0.4 and 2 items which showed high correlation with other items, a new 7-item model (factor loading>0.5 for all items, contribution ratio=38.6%) was developed. CFA on this new model showed adequate fit (GFI=0.97, AGFI=0.93, RMSEA=0.085), and Cronbach's alpha coefficient was 0.81. Intra-class correlation coefficient of test and retest was 0.60 (p<.001) and no difference was shown between two scores. From these results, this new measure was considered to be reliable. An ANOVA on confidence score of this new measure by the stage of change revealed significant differences of confidence between the stages, F(4,699)=7.00, p<.001. Individuals in the advanced stages reported significantly higher confidence, and the validity of the measure was supported. **Conclusions:** These results suggest that the new measure we developed is reliable and valid, and could be utilized as an instrument to predict stage progression in future intervention development.

(300 words)

P-161-RF

**EFFECT OF PREVENTIVE HOME VISITS USING OCCUPATIONAL THERAPEUTIC PROGRAM FOR ELDERLY PEOPLE LIVING IN 2 RURAL AREAS IN HOKKAIDO**

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**Background:** The national long-term care insurance system has shifted to emphasize prevention, but there are still few prevention programs to suit the frail elderly.

**Aim:** To investigate how effective is preventive home visits using 'Self-Assessment of Occupational Balance (SAOB)' to prevent community dwelling elderly from using a nursing-care. SAOB is a behavioral modification tool based on Occupational Science (Kobayashi, 2004). It enables the elderly to realize the individual meanings of their activities in ordinary life, and find what they want to do.

**Methods.**

**Design:** Randomized controlled trial with crossover.

**Setting:** Over 75 years old living in 2 rural areas in Hokkaido, certified as frail or needing support.

**Subjects:** 36 subjects were randomly allocated to either Group V1 (received visiting for 3months, then mailed information about nursing-care prevention) or Group C1 (Group V1 order in reverse).

**Content of visiting:** Visitors were health care professionals who received lectures before the intervention. They regularly visited the subjects once a month through three months, and carried out SAOB at the visit.

**Outcomes assessment:** The subjects were assessed one month before and after intervention phase by the national government screening test for preventive health care, and Tokyo Metropolitan Institute of Gerontology Index of Competence (TMIG -index of Competence) for higher-level functional capacity.

**Results:** 27 subjects were analyzed. The intervention had significant effect on TMIG-index of competence ( $p=.046$ ), and similar tendency was recognized intellectual activity ( $p=.083$ ). In stratified analysis by age and sex, similarly improvement were identified in over 82 years old than under 81 years old, and female than male.

**Conclusion:** The preventive home visits using SAOB were effective for elderly people with age of over 75 in certified as frail or needing support. Further modifications of this method are needed according to functional level and individual pleasure.

P-162-RF

**THE RELATIONSHIP AMONG THE STAGES OF CHANGE FOR REDUCING STRESS, STRESS-MANAGEMENT PRACTICES, AND DEPRESSIVE SYMPTOMS: ONE-YEAR LONGITUDINAL INVESTIGATION IN JAPANESE ELDERS.**

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The Transtheoretical model of behavior change has been applied to explaining both the acquisition and cessation of many health behaviors, and the stages of change is one of the main components of the model. In this study, we examined the distribution of stages of change for stress reduction at baseline

(Time1) and its change at 1 year follow-up (Time2), and the impact of stages of change at Time1 on depressive symptoms and stress-management practices at Time2 among Japanese elders. A total of 886 Japanese community-dwelling elders (mean age = 73.1; 431 male, 455 female) responded a single-item staging measure at Time1 and Time2, a 6-item stress-management practices questionnaire at Time2, and Japanese version of Hospital Anxiety and Depression Scale (HADS) depression subscale at Time2. The participants were divided into 5 stages: Precontemplation (PC; Time1: 44.6%, Time2: 53.2%), Contemplation (C; 6.7%, 6.5%), Preparation (PR; 7.2%, 4.6%), Action (A; 2.9%, 3.5%), Maintenance (M; 38.6%, 32.2%). The Time1 stages moderately correspond to the Time2 stages (Kappa index = .32,  $p < .001$ ). One-way ANOVAs revealed that there were statistically significant differences between the stages (HADS depression:  $F(4, 881) = 9.07$ ;  $p < .001$ ; stress-management practices: ANOVA;  $F(4, 881) = 30.63$ ;  $p < .001$ ). A post hoc analysis (Tukey procedure) indicated that HADS depression score for subjects in M was significantly lower than for subjects in PC and C, and stress-management-practice score for subjects in M was significantly higher than for subjects in PC, C, PR, and A. This is the first longitudinal investigation of stages of change for stress reduction of Japanese elders. Results suggest some characteristics of stage distribution and its change, and elders who maintain their stress-management practices are assumed to keep good mental health. (This work was supported by KAKENHI Grant-in-Aid for Young Scientists (B) 187304556)

P-163-RF

**ATTEMPT OF DEVELOPMENT OF THE SAFETY AND HYGIENE PETIT-GUIDE (HANDY GUIDEBOOK) FOR DISASTER RELIEF VOLUNTEERS**

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**Objective:** The objective of this study is to develop the safety and hygiene guidebook that easily used by the volunteers in the disaster field.

**Methods:** Authors investigated the actual condition of the disaster relief volunteers in fields, and developed a draft of the experimental safety and hygiene guidebook.

The main items are, self-examining checklist of their conditions before entering the work, management of the work allotment and the rest, watch health conditions of each other, and mental caring after the works.

The draft was distributed to the volunteers, and the enlarged copies were posted in each Volunteer Center during the relief from the Niigata-Ken Chuetsu-Oki earthquake. Interviews and observations were made right after the distribution, and three months later.

**Results:** The majority of the volunteers are not trained, and the most of the volunteers did not have any specialty skills or knowledge concerning safety hygiene. It is very hard to make the volunteers to understand the concept of the crisis management, because the orientation before the activity was very short time.

In the interview investigation, 68 volunteer center staff were interviewed. 41/68 (60%) staff were actually using the guidebook. 32/68 (47%) evaluated the guidebook as an appropriate explanatory material. As 249 volunteers were investigated, 204 (82%) had the guidebook. 182 /249(73%) volunteers evaluated the guidebook as they used it to manage own health.

Conclusion: A compact guidebook for disaster relief volunteer on risk management is useful. With the result of this research, the guidebook is now updated. The improved Petit-Guide should be distributed to more volunteers at the future disaster, and be examined. To reduce the number of casualties of volunteers during the disaster relief, the research on this safety and hygiene field should be kept. Authors will keep attempting to develop the handy guidebook to improve the work environment and knowledge of the volunteers.

Key Words: safety hygiene, crisis management, volunteers, disaster

#### P-164-RF

### **GUIDED COGNITIVE BEHAVIOURAL SELF-HELP TO ALLEVIATE TINNITUS DISTRESS - NEW WAYS OF DELIVERING BEHAVIOURAL MEDICINE INTERVENTIONS.**

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Some individuals with chronic tinnitus display high levels of distress due to the unwanted noise in their head. Cognitive behavioural therapy (CBT) is effective in reducing tinnitus distress, but this treatment is seldom available for those in need of help. Since 1998, a Swedish research project has been exploring the possibility of using CBT-based self-help treatments to help patients suffering from tinnitus. The self-help protocol has been researched and evaluated in several ways in a series of five trials, mixing randomized controlled trials with trials in ecologically valid settings with consecutive patients in routine care.

The results show that CBT-based self-help, delivered as a self-help book or via the Internet, decreases tinnitus associated distress as well as subjective loudness ratings of tinnitus. It is time-efficient for the therapist, and shows effects comparable to traditional CBT for tinnitus. The positive effects remain one year after treatment and are also apparent when the self-help treatments are applied in a routine clinical setting. Patients in routine care find the internet-treatment as credible as traditional individual or group treatment. Preliminary findings show that being guided by a therapist is probably important for outcome and attrition, that there might be specific predictors of treatment outcome for self-help approaches, and that patients' evaluations after treatment are quite similar to the evaluations of regular group treatment. The implications for the further development of both CBT for tinnitus and the use of self-help within the behavioural medicine area will be discussed.

#### P-165-RF

### **THE RELATIONSHIP BETWEEN HOPE AND PROBLEM-SOLVING ABILITY**

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Depression is one of the most common mental health problems in the modern society. Most individuals suffering from

depression experience deep feelings of sadness, worthlessness, and pain. One variable that may play an important role in prevention and recovery from depression is problem-solving ability. Snyder and his colleagues define hope as goal directed thinking in which the person utilizes pathway (the perceived capacity to find routes to desired goals) and agency (the requisite motivations to use those routes). Implicit in this concept is the notion that hope represents a general disposition to engage in conscious effort to obtain an goal. If this view is accurate, then hope should be significantly related to problem-solving ability. The purpose of this study was to clarify the relationship between hope, problem-solving ability, and well-being. The hope scale, the personal problem-solving inventory, and the satisfaction with life scale were used on 401 university students. Using the criteria in the past studies, participants were classified into high-hope groups and low-hope groups according to median split on hope scale's scores. The results of T-tests showed that compared to low-hope groups, high-hope groups had high problem solving confidence, approach-avoidance and personal control, all subscales of problem-solving ability. Hence, high-hope students were found to have greater problem-solving ability than low-hope students. A path model examining the influence of hope on problem-solving ability and well-being was assessed. The results indicated that hope had a direct influence on problem-solving ability and well-being. However, hope agency, but not hope pathway, was found to be a significant predictor in well-being. These findings suggest that nurturing hope can directly promote problem-solving ability and well-being. However, the present findings also suggest that promotion of well-being might include working specifically on increasing student's sense of hope agency rather than promoting their sense of hope pathway.

#### P-230-RF

### **THE EFFECTS OF MENTAL STRESS ON EXPRESSION OF BDNF AND CREB IN SOME BRAIN REGIONS OF SD RATS**

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Objectives: To study the pattern of changes of brain-derived neurotrophic factor (BDNF) and cAMP response element binding protein (CREB) gene expression in some brain regions after mental stress, and to further explore the protective effects and mechanisms of BDNF on the mental stress. Methods: We applied the Communication Box to establish animal model of mental stress, and assessed the rats anxiety behavior through the Open field test and elevated plus maze test, then used both in situ hybridization and immunohistochemistry techniques to measure the expressions of both BDNF and CREB in some brain regions, such as CA1, CA3, dentate gyrus (DG) of hippocampus, prefrontal cortex (PF), central amygdaloid nuclei (AG), shell of accumbens nucleus (NAC), periaqueductal gray (PAG), ventral tegmental area (VTA) and Dorsomedial hypothalamic nucleus (DM). Results: 1. In the Open field test, the surrounding entrances, the central entrances and the frequency of modify were lowest in physiological stress group, highest in control group, and the mental stress group were middle, and significant difference were found among three groups. In the elevated plus maze test, the open-arm number and times were also similar. 2. The expression of both BDNF protein and BDNF mRNA were significantly decreased at the oh after mental stress, the gray intensity of BDNF protein and mRNA in mental stress group were very significantly higher than that of control group; Then

both BDNF protein and mRNA have restored at 0.5h, 1h after mental stress, but still lower than the control level; There were no significant difference in almost regions (other than the BDNF mRNA in VTA region) between mental stress group and control group at 2h after mental stress; The expression of BDNF protein and mRNA continuously increased at 6h after mental stress (other than the BDNF mRNA in VTA region), and above the level of control group; Then reached to the peak at 24h after stress. The expression of BDNF mRNA of mental stress group was still lower than the level of control group in VTA at 24h after stress, the expression of BDNF protein was not in accordance with the BDNF mRNA in VTA. 3. At the 0h after stress, the expression of BDNF protein and mRNA were higher in all brain regions in physiological stress group, but lower in mental stress group, the gray intensity were significantly lower in former group than that in later group; At the 24h, the expression were also similar in majority regions except BDNF protein in CA3 and BDNF mRNA in PAG. 4. At the 0h after stress, the expression of P-CREB and CREB mRNA in mental stress group were significantly decreased than that in control group, but at the 24h, the both levels were significantly increased. 5. The gray intensity of BDNF were significantly correlated with that of P-CREB at both 0h and 24h after stress, and the BDNF mRNA were also significantly correlated with the CREB mRNA, and the BDNF and CREB have spatio-temporal associativity. Conclusions: The Communication Box model could induce obvious mental stress, BDNF could bring about protective effects on mental stress, which were involved in the heteromeostasis of mental stress, the protective effects of BDNF were realized may be through CREB pathway. Keywords: Brain-derived neurotrophic factor (BDNF); cAMP response element binding protein (CREB); Mental stress;

## Track 'Illness, Illness Affect, and Illness Behavior'

P-166-RF

### CROSS-CULTURAL STUDY OF EMOTIONAL REPRESSION AND SUPPRESSION, AND HEALTH

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Previous research has linked emotional inhibition with various aversive health outcomes. However, little health-related research has distinguished emotional inhibition due to a repressive coping style (denying the experience of negative emotions) from a suppressive coping style (acknowledging the existence of negative emotions but for reasons of social desirability having difficulty expressing them). We also know little about whether these emotional coping styles are similarly valid in different cultures. The current study sought to investigate whether students in New Zealand, Japan, and USA would show systematic differences in their emotional coping styles. It also examined whether repressive and suppressive individuals show similar psychological characteristics and various health status regardless of their cultural background. A total of 1416 undergraduates (491 New Zealand, 562 Japan, 363 Texas, USA) completed the same set of questionnaires addressing trait anxiety, social desirability (SD), positive and

negative affectivity, anger expression, the experience of physical symptoms, health behaviours, and the number of unwell days, and restricted days due to unwell health. Based on the Weinberger's operationalisation using trait anxiety and SD, repressive individuals (low anxiety and high SD), suppressive individuals (high anxiety and high SD), low anxious individuals (low anxiety and low SD), and high anxious individuals (high anxiety and low SD) were selected within each country. The results revealed similar distributions of repressive individuals and low anxious individuals across the three countries. However, USA students contained a lower percentage of suppressive individuals while Japanese students were over-represented in high anxious individuals. Psychological and health correlates of Japanese repressive and suppressive individuals were distinctly different from those of the USA and New Zealand cohorts. These results suggest that there are systematic differences in the way people deal with negative emotions depending on their cultural backgrounds, and the association between emotional inhibition and health also is distinguishable among cultures.

P-167-RF

### COGNITIVE-BEHAVIOURAL TREATMENT OF INFLAMMATORY BOWEL DISEASE. GROUP TREATMENT VERSUS SELF-HELP MANUAL: EMOTIONAL OUTCOMES.

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In previous works it was proved the efficacy of psychological treatment in the inflammatory bowel disease (IBD) to produce a clinical improvement in the emotional disorders of these patients. Nevertheless, there are patients that they can not benefit of the group treatment program because they live in distant areas or they present some physical impediment. For that reason, it is important to design self-help manuals that allow them to benefit of the psychological treatment program without moving of home.

The aim of this study was to design and to validate a protocolized psychological treatment program and a self-help manual, based on the coping model and a psycho-educational methodology, in which the following intervention modules were included: illness information, coping model, problem solving techniques, relaxation, social skills training, distraction and cognitive restructuring techniques.

The sample was formed by 97 IBD patients (33 were assigned to the group treatment program, 40 were assigned to the self-help treatment and 24 were assigned to the waiting list control group). The measured emotional variables were anxiety and depression.

The results reflected that both the group treatment program and the self-help treatment were effective to produce a significant clinical and statistical improvement in the anxiety ( $P < 0,001$  and  $P < 0,001$ , respectively) and depression ( $P < 0,001$  and  $P < 0,01$ , respectively), when comparing with the waiting list control group. That improvement stays in the 3, 6 and 12 months follow-up.

Keywords: Inflammatory bowel disease; cognitive-behavioural treatment; protocolized treatment; multi-component psychological treatment program; self-help manual.



P-168-RF

**COGNITIVE AND BEHAVIORAL FEATURES ON THE RECOVERY PROCESS OF LOSS**

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**[Introduction]** Grief is an essential component in order to adapt to loss and can elicit severe physical, emotional, and social problems if not processed appropriately (Cooley, 1992). Cognitive behavioral conceptualization of grief proposes that positive and negative cognitions and coping strategies play a key role in those problems after the significant loss (Boelen & Marcel, 2006). However there are few studies about grief focused on the aspects of cognition and behavior. The purpose of this study was to explore the cognitive and behavioral features of the recovery process of loss.

**[Method]** Subjects were eight undergraduate students (mean age = 21.88, SD = 2.93) who had experienced a significant loss, such as physical, psychological, and social loss (e.g., bereavement, breakup, moving, loss of possessions). They were requested to perform a set of questionnaires on the levels of grief, Posttraumatic Growth Inventory (PTGI), Japanese version of the Posttraumatic Cognitive Inventory (JPTCI), and Coping Scale (TAC-24) at the time of loss (T1) and the present (T2).

**[Results]** The results of t-test analyses showed that the score of PTGI on T2 was significantly higher ( $p < .05$ ) than that of T1 and the score of JPTCI on T2 was significantly lower ( $p < .01$ ) than that of T1. The score of problem-solving, support aspiration behavior and relaxation on T2 were significantly higher than those of T1 (collecting information;  $p < .001$ , positive reappraisal;  $p < .001$ , planning;  $p < .05$ , distraction;  $p < .001$ , catharsis;  $p < .001$ , relaxation;  $p < .05$ ). On the other hand, the score of giving-up behavior on T2 were significantly lower than that of T1 ( $p < .05$ ).

**[Discussion]** The results of this study suggest that increasing positive cognition, decreasing negative cognition and behavioral activation are important for the adaptive recovery process of loss.

P-170-RF

**THE INTERNAL WORLD OF PATIENTS WITH MAJOR DEPRESSIVE DISORDER**

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**ABSTRACT:** It is said that the lifetime prevalence of depression is about 6%. Depression is one of the frequent psychiatric diseases. Moreover, the prevalence of depression has assumed to rise further according to the social change in recent years. Because of the distortion of cognition and the continuity of the emotional disturbance which are peculiar to patients with depression, they have low self-evaluation and tolerance for stress. Therefore, the internal world of patients with depression has a huge feeling of difficulty more than it seems to have, even if they are in a recovery process.

The purpose of this study is to clarify the internal world of patients with depression.

The subjects are three patients diagnosed with major depressive disorder who agreed to participate in this study.

I conducted semi-structured interviews. The interviews were tape-recorded with subjects' agreement. I picked up all the

parts that subjects talked about their internal world (their feelings and ideas, etc.) from interview transcripts as labels. Then I illustrated them by the KJ method.

Results showed the internal world of patients with major depressive disorder included "Hedged in by Depression", "Slack", "Acceptance for Themselves", and "Acceptance for Others", etc.; and the relationship between these was clarified. It seems important that the support of patients with major depressive disorder should be based on understanding of their internal world.

P-171-RF

**INFLUENCE OF FREQUENCY OF LIFE EVENTS ON ACCURACY IN PREDICTION OF DEPRESSED PEOPLE**

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Since Beck (1967) asserted that depressed people had cognitive distortions, it has been discussed which the depressed have negative bias. Hypothesis that depressed people are not distorted is called depressive realism hypothesis. It is indicated that the frequency of events influences the accuracy in prediction of depressed people (Watanabe et al., 2005). A lot of studies have supported that their prediction is distorted negatively in low frequency condition. However, previous laboratory studies have seldom had ecological validity, so the present study investigated depressive realism, taking into consideration the frequency of events occurring in the ecologically valid setting. One hundred and eighty-three subjects completed CES-D, according to which 103 were in high depression group ( $CES-D \geq 16$ ) and 80 in low depression group ( $CES-D < 16$ ). They estimated the probability of 36 life events occurring. After 30 days they were required to report which events of them had occurred during this 30-day period. The events more than 50% of participants had experienced during the 30 days were defined as frequently occurred events, and the events less than 50% of them as infrequently occurred events. A bias score was analyzed with a 2 (group; the depressed, the non-depressed)  $\times$  2 (valence; positive, negative)  $\times$  2 (frequency; high, low) ANOVA. There was a trend of interaction between group and frequency, and a simple effect test revealed that depressed people made more accurate prediction of the frequent events than the non-depressed. On the prediction of infrequent events occurring, no differences were found between the depressed and the non-depressed. These results suggest that when the events occur infrequently, depressed people are likely to underestimate the probability of positive events occurring and to overestimate the probability of negative events occurring. When the events occur frequently, meanwhile, they can make accurate prediction.

## Track 'Measurement and Methods'

P-172-RF

### A NEW OBJECTIVE, SIMPLE AND RELIABLE METHOD FOR STRESS MEASUREMENT?

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Simple objective and reliable methods for the diagnosis of physiological stress are presently missing. Warning and defence reaction mechanisms are essential parts of the survival strategy of living organisms. Special polymodal receptors of the nociceptive system are present to detect tissue-damaging environmental stimuli, providing the organism with the information needed for an optimal response to adverse conditions - such as a reflex response or a withdrawal reaction. The receptors are susceptible to modulation by a variety of exogenous and endogenous substances, including sympathetic input, e.g. among individuals with mental and physiological stress reactions. Physiological stress is known to generally decrease the pain sensation

We hypothesise that in vital areas, physiological stress increases pain sensation and defence reactions as an enhancement of the survival potential, which can be used as basis for an objective, simple and reliable measuring method. We show that mental activation increases and physical activation decreases pain sensitivity of the chest bone in healthy opera solo singers ( $p < 0.0001$ ), and does so concomitantly with changes in Pressure-Rate-Product (a measure for the work of the heart) (correlation coefficient  $r = 0.54$ ,  $p = 0.00006$ ), Heart Rate ( $r = 0.55$ ,  $p = 0.00004$ ), Middle Blood Pressure ( $r = 0.42$ ,  $p = 0.004$ ), and Salivary Cortisol ( $r = 0.28$ ,  $p = 0.057$ ). No changes were observed in pain sensitivity on the index finger ( $p > 0.1$ ).

Presently, increased pain-sensitivity is regarded as a local response to tissue damage, as in inflammation or a general dysfunction as in neurogenic pain, and is not linked to defence reactions. We anticipate that the methodology has the potential for a broad range of practical applications, in cases where professionals or non-professional may benefit from a reliable measure for physiological stress reactions among healthy people for preventative measures.

P-173-RF

### INVESTIGATION OF THE RELATIONSHIP BETWEEN MOMENTARY FATIGUE AND RECONSTRUCTED FATIGUE, USING ECOLOGICAL MOMENTARY ASSESSMENT AND THE DAY RECONSTRUCTION METHOD

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Measuring subjective symptoms such as fatigue is elusive, because self-reports are prone to bias arising from retrospective recall. To address this concern, certain recording

strategies for assessing self-reported data have recently been proposed: ecological momentary assessment (EMA), and the day reconstruction method (DRM). EMA is a method to acquire self-reported information by using an electronic diary (ED), so avoiding recall bias by assessing phenomena immediately in everyday settings. DRM is a method by which subjects first recall and record behavioral episodes, and then record their experience of these behavioral episodes and any symptoms. DRM assumes that we can reconstruct subjective symptoms from autobiographical memory, but the validity of this assumption has not been rigorously examined. Therefore, this study investigates the relationship between momentary fatigue (MF) recorded with EMA and reconstructed fatigue (RF) recorded with DRM. Fifteen subjects (age  $22.4 \pm 3.0$  yrs) wore a watch-type computer as ED for one day and recorded momentary symptoms in each behavioral episode. They also filled out DRM questionnaires about the day when EMA was conducted, either before going to sleep on that day or before going to sleep the next day. Both the EMA and the DRM questionnaires consisted of items related to behavior, and visual analog scales (0-100) of fatigue and mood states as possible factors influencing RF. The relationship between MF and RF and the effects of momentary mood states on RF were tested using multilevel modeling. The association between MF and RF was significant (coefficient=0.53,  $p < .0001$ ); the effect of momentary anxiety on RF was significant (coefficient=0.085,  $p = 0.011$ ), independently of MF. These results suggest that the level of RF is associated with MF, but momentary anxiety can also be a factor influencing RF. These points should be taken into consideration when assessing subjective symptoms such as fatigue by means of DRM.

P-174-RF

### CLIENT'S VIEW OF PSYCHOLOGICAL AND MEDICAL TREATMENTS FROM A "LEARNING AND INSTRUCTIONAL SCIENCES" PERSPECTIVE: A NEW APPROACH

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The author (a psychologist)'s experience of clinical depression was analyzed using a "Learning and instructional sciences (LIS)" approach that emphasizes the significance of self-investigation. In Period I (1994-2000), the author was treated for depression with cognitive behavior therapy (CBT) by a professor of clinical psychology. In Period II (2000-2005), the author was treated for the same with pharmacotherapy by a psychosomatician and also hospitalized without informed consent. In Period III (2005-present), CBT and counseling based on a holistic medical approach was conducted by a psychosomatician elsewhere. As a result, the General Self-Efficacy Scale (GSES) score increased from "somewhat low" in Period I to "high" in Period III. GSES item analysis revealed that the author's self-efficacy concerning work and ability had been consistently high during both periods. The average satisfaction level in personal and workplace areas increased significantly from Periods I to III, while the scores in the family and relative areas increased from less than "somewhat dissatisfied" to "somewhat satisfied." The integration of evidence- and narrative-based approaches revealed the comparison of responses to hospitalization of her mother between Periods II and III. That is, the author became able to cope with this problem in Period III. She was also able to cope with other problems in the family and relative areas. Self-evaluation scores on items, "clarifying client's position,"

and “watching quietly and keeping a distances,” also increased after dealing with the hospitalization and other related problems. In sum, the therapist’s support for the author’s self-investigation, as well as the author’s trust in the therapist, were important for the success of the therapy. It was assessed by objective measures such as documents relating to the therapist’s conception of therapy, as well as actual treatments, and subjective means, such as records of her cognition, emotion, and behavior.

**P-175-RF**

**CONCEPTUAL CHALLENGES IN VALIDATION OF PERCEIVED GREENNESS IN LOCAL ENVIRONMENTS**

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**Background:** Previous studies have shown relationships between greenness and health. It’s not known how well residents’ self-reported perceptions of green attributes reflect local environments. We assessed test-retest reliability for factors related to greenness and attempted to validate these measures against an objective measure using a normalised vegetation index (NDVI).

**Methods:** A mail survey collected data from adults living in Warrnambool, Australia on items classified into four categories: aesthetics, types of green areas, sport /recreational facilities, and natural features. All items were scaled from 1 to 4, with higher scores indicating a higher greenness value for the characteristic. Participants were selected from areas classified as ‘high’ or ‘low’ green, based on satellite imagery data using a mean NDVI value calculated from a 400m buffer around each respondents address. Percentage of public open space (POS) was also calculated. To account for the dilution effect of water on average greenness, all water areas were removed from buffers when deriving values. A 1-week test-retest evaluation method was used. Individual test-retest reliabilities and intra-class correlations for subscales were calculated. Mean subscale scores for high/low NDVI were compared to assess construct validity.

**Results:** Ninety-four participants completed survey 1 (36.2% men), seventy-three completed both surveys (39.7% men). Individual items had moderate to high test-retest reliabilities, however results failed to demonstrate strong support for validity of the instrument. Only natural features showed significantly higher mean scores for those in high NDVI areas, with those in low NDVI areas having more POS. Perceptions appear to be linked to certain items (eg. trees, local parks) found in more established denser older areas and to available POS than to other green attributes.

**Conclusions:** Reliability of items was supported however demonstrating validity is more problematic. Lack of correspondence between subjective and objective measures present conceptual challenges in defining greenness in the environment. (Word count: 300)

**P-176-RF**

**CONSTRUCTIVISM PSYCHOTHERAPY APPROACH TO SOCIAL ANXIETY: A CASE REPORT**

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Role construct repertory test (Rep) is a constructive method of assessment which developed to grasp individual construct based on personal construct theory (Kelly, 1955). The present study aimed to conduct fixed role therapy (FRT) for high social anxiety individuals and to consider the change of their constructs after the intervention by means of Rep.

Two university students with a high social anxiety tendency were subject to intervention through FRT over two weeks with the purpose of reducing social anxiety. This study involved the following measurement scales: (1) Rep (element: 15 social situations; construct: 15 phrases displaying characteristic symptoms of social anxiety and 15 phrases that carry opposite meanings); and (2) the Japanese version of Liebowitz Social Anxiety Scale (LSAS-J).

Results of the intervention and the changes in the scores of LSAS-J of the two participants showed that social anxiety was reduced (score: pre 84, post 54; pre 52, post 39). In addition, the range of scores confirmed that the cognitive and behavioral constructs change according to various situations. The study also suggested the possibility of gaining an overall understanding of social anxiety symptoms.

(183 words)

**P-177-RF**

**QUANTITATIVE STUDY ON COMMON POINTS AND DIFFERENCES BETWEEN CLIENT-CENTERED THERAPY AND RATIONAL EMOTIVE BEHAVIOR THERAPY**

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It is very important for enhancing counseling effect to grasp the “function of dialogues” between clients and counselors. However, these dialogues were evaluated subjectively based on clinical experiences in many cases. The purpose of this study was to study quantitatively common points and differences in counseling process in both sides, using each well-known counseling scene for Rogers and Ellis as material. Material: “Three Approaches to Psychotherapy (Psychological & Educational Films, 1986)” Procedure: Japanese translation of the protocol in the counseling scene for Ellis and the counseling scene for Rogers was labeled with speech function category using manual of RIAS (Noro et al., 2007). Analysis: Number of times of transitions between labeled speech functions was made into matrix, and structure of transition in speech function was analyzed as dialogue structure according to mathematical principle of “System Functional Analysis (SFA; Imai, 2007)”.

Results of analysis of counseling scenes for Rogers and Ellis showed that common structure was seen in that the information on clients provided by “facilitation” on the side of counselors. In addition, in the counseling scene for Rogers, “facilitation” via “emotional expression” to speech from client was the characteristic dialogue structure.

P-178-RF

### **STANDARDIZATION OF THE SELF-EFFICACY FOR SOCIAL PARTICIPATION FOR PEOPLE WITH PSYCHIATRIC DISABILITIES (SESP-27)**

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In Japan, hospitalization of individuals with severe mental illness (SMI) is long especially in comparison with other countries. Therefore the support to the social participation of People with Psychiatric Disabilities is regarded as important on a problem of the rehabilitation. The providing of social resources in support of disabled persons (including places to work, housing and a secure income) is not sufficient for social participation to progress. It is believed that it is necessary for disabled persons to regain their confidence in order to take their own initiative in engaging in social participation. We therefore developed a "Self-Efficacy Scale for Social Participation" by focusing on the sense of self-efficacy. The purpose of the study was to standardize the Self-Efficacy for Social Participation for People with Psychiatric Disabilities (SESP-27). SESP-27 is a 27-item instrument rated on a 4-point scale that was developed to measure self-efficacy for social participation. It consists of 4 factors: "Trust in Self as a Member of the Society", "Self Management", "Social Adjustment", and "Mutual Support". Participants were recruited from 12 facilities in Japan, including hospitals providing psychiatric treatment, clinics, daycares, welfare factories, and livelihood support centers. A total of 340 people with SMI completed the SESP-27. We computed descriptive statistics for the SESP-27 total and subscale scores by age group, sex, and primary diagnosis. With regards to age and sex, there were no group differences on the SESP-27. Consumers diagnosed with mood disorders did score significantly lower than those with schizophrenia on the SESP-27 total and "Self Management" subscale scores; these differences remained significant even when general health was controlled for. The results indicate that diagnosis must be taken into consideration when assessing self-efficacy for social participation and that individuals with mood disorders may best benefit from interventions that foster their self-confidence in self management.

### **Track 'Physical activity'**

P-179-RF

### **ACCELEROMETER-DETERMINED PHYSICAL ACTIVITY IN PRESCHOOLERS AND THEIR PARENTS**

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**Objectives:** The purposes of this study were to develop a robust method for objectively quantifying physical activity (PA) in preschool aged children, examine the relationship between PA in preschoolers and their parents, and to investigate other potential child and parental associates of child PA.

**Method:** A sample of families with children aged 2-5 years were recruited in Auckland, New Zealand, from October 2006 to July 2007. Consenting children and parent(s) had their height, weight, and waist circumference measured and were asked to wear accelerometers over seven consecutive days, measuring PA in 15 second epochs. To account for over-dispersion in accelerometer counts, daily average activity rates per second were derived for each participant using negative binomial generalized estimating equation (GEE) models with an autoregressive order 1 (AR1) correlation structure. These rates were assumed to be exchangeable and normally distributed. Potential associates of children's activity rates were thus assessed using normal GEE models with exchangeable correlation structures.

**Results:** Accelerometer data were gathered from 78 children, 62 mothers and 20 fathers over a median of 6.5-7 days. Measurements made from successive epochs were generally moderately correlated. Paternal age, parental activity rates, and child age were associated with child activity rates in univariable analyses ( $P \leq 0.02$ ). In the final multivariable model, parental activity rates (mean 0.09, 95% CI 0.03, 0.16,  $P=0.01$ ) and child age (mean 0.11, 95% CI 0.01, 0.21,  $P=0.03$ ) were associated with child activity rates.

**Conclusions:** Preschool PA interventions may be most efficacious when parental uptake of PA is also encouraged, and younger children may stand to benefit more from increased activity. Accelerometer data can be successfully reduced to individual activity rates to mitigate current issues related to PA quantification using accelerometers.

P-180-RF

### **PREDICTING PHYSICAL ACTIVITY IN AN HYPOTHETICAL SITUATION: THE EFFECT OF A CORRECTIVE ENTREATY**

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Intentions formed in hypothetical situations are often overestimated compared to intentions formed in real situations. A corrective entreaty (CE) is a script used to make intention formation more realistic in hypothetical situations. A CE has yet to be applied in a physical activity context. The purpose of this project was to determine if intentions to attend a fitness class were different in a hypothetical versus real situation, and whether intentions formed in a hypothetical situation better matched behavior if a CE was administered. Undergraduate university students were recruited ( $N = 195$ ) and randomized into 3 groups: a) hypothetical (H); b) hypothetical with CE (HE); and c) real (R), and asked their intention and expectation to use a fitness pass. Fitness class attendance was measured both subjectively and objectively. As hypothesized, more participants in the H group reported a positive intention and expectation to attend a fitness class, compared to the HE and R groups, with the HE group most closely matching the R group. Significantly better correspondence was found between intention and behaviour and expectation and behavior in the HE and R groups compared to the H group when behavior was subjectively measured. We conclude that administering the CE reduced the discrepancy between intentions formed in the hypothetical situation versus the real situation, and resulted in better intention-behavior and expectation-behavior relationships in a hypothetical physical activity context.

P-181-RF

**EFFICACY OF GROUP- AND HOME- BASED PHYSICAL ACTIVITY INTERVENTION ON CEREBROVASCULAR RISK FACTORS AND FALL-RELATED PHYSICAL FITNESS.**

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Main causal factors in need of nursing care in Japan were cerebrovascular disease and fall. The purpose of this study was to examine the effects of Group- and Home-based physical activity intervention on cerebrovascular risk factors and fall-related physical fitness. Seventy two subjects were randomly assigned to intervention group (N=53) or waiting list control group (N=19). Finally, the results were analyzed for 67 subjects (intervention group: n=48 [female: 81.3%], Control: n=19 [female:84.2%]; age 70.9±5.8 years) as data from 5 subjects were incomplete. The intervention had 24 week duration. The behavioral goals in the home-based intervention were daily walking step and step exercise. Group-based intervention conducted for 90 minutes every week and included 10 min step exercise, health and exercise information, and some recreations. The main outcome measures were body weight, body mass index (BMI), blood pressure (BP), glucose and lipid metabolism, and fall-related fitness. Participants in both groups lost their weight and BMI and improved systolic and diastolic BP, total cholesterol, triglyceride, HbA1c, and atherosclerotic indices. But weight loss and BP reduction in the intervention group was superior. Participants in the intervention group increased walking steps ( $P<0.05$ ) and step exercise adherence was 85.4%. Participants in the intervention group improved the fall-related fitness (10 m maximum gait, Timed Up and Go test, Reaction Time, 30-second Chair-Stand Test, Functional Reach Test, Single-leg balance with eyes open test, step exercise test). These results suggested that home- and group-based physical activity intervention had beneficial effects on cerebrovascular risk factors and fall-related physical fitness.

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P-182-RF

**BARRIERS AND MOTIVATORS TO PHYSICAL ACTIVITY ENGAGEMENT IN OLDER ADULTS: RESULTS FROM THE HEALTHY STEPS STUDY**

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**BARRIERS AND MOTIVATORS TO PHYSICAL ACTIVITY ENGAGEMENT IN OLDER ADULTS: RESULTS FROM THE HEALTHY STEPS STUDY**

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The Healthy Steps study is a randomized controlled trial comparing the effectiveness of a pedometer-based with a time-based physical activity intervention program (the New Zealand Green Prescription) in low-active older adults. A prescription for physical activity (predominately walking) was administered by a primary care physician, and followed up with telephone-based support by trained physical activity counsellors. The aim of this study was twofold: firstly, to determine if perceived barriers and motivators for physical activity differed based on allocation to either the pedometer-based or time-based intervention; and secondly, to identify perceived barriers and motivators that were associated with successful intervention (i.e., increased physical activity levels after controlling for gender, age, weight, and chronic conditions). A subset of 80 Healthy Steps study participants (aged 65 and older) participated in this study by completing a questionnaire assessing barriers and motivators to physical activity. This questionnaire was completed at the end of the 12-month Healthy Steps study. Barriers and motivators for physical activity differed significantly in several ways. Perceived motivators were related to chronic conditions, with individuals with two or more conditions being more motivated to engage in activity ( $p=0.009$ ), as well as engaging in activity to alleviate pain ( $p=0.03$ ). Compared to those aged 65-85 years, older participants ( $>86$  years) perceived the phone support as a more significant motivator to keep active ( $p=0.03$ ). Perceived barriers to physical activity engagement were related to fear of injury for women ( $p=0.02$ ). Perception of an unsafe neighbourhood was a barrier towards walking activity for older participants ( $>86$  years) ( $p=0.03$ ). Perception of being too tired to engage in activity was a barrier for obese participants ( $p=0.04$ ). Participants with two or more chronic conditions perceived the weather as a barrier to activity engagement ( $p=0.01$ ). There were no significant differences in barriers and motivators based on participation in the pedometer-based versus time-based interventions. Significant differences were found based on intervention outcomes (i.e., physical activity increase or decrease): participants who demonstrated a decrease in physical activity perceived the telephone support ( $p=0.05$ ) and social interaction ( $p=0.02$ ) as more important motivators to physical activity engagement than did those who demonstrated increased physical activity over the intervention. These findings demonstrate that chronic illness, age, weight, and gender, as well as social support, can influence the barriers and motivators to physical activity engagement in previously low-active older adults.

P-183-RF

**FACTORS ASSOCIATED WITH THE STAGES OF CHANGE FOR STRENGTH TRAINING BEHAVIOR**

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**BACKGROUND:** In the current physical activity and public health recommendation with ACSM/AHA, the activities enhancing muscular strength and endurance are recommended as well as other activities such as moderate-intensity aerobic activity. However, few studies have paid attention to promotion of strength training behavior. Application of transtheoretical model would provide useful information for promotion of strength training behavior.

**PURPOSE:** The purposes of the present study were 1) to identify characteristics of the stages of change for strength training behavior and 2) to examine a relationship between the stages of change and self-efficacy for the strength training behavior.

**METHODS:** The sample was 5,177 Japanese adults (40.1±12.0 years) collected from the registrants of Japanese social research company. The study design was cross-sectional study using a internet questionnaire. Measured variables included the stages of change for strength training behavior, moderate-vigorous physical activity (IPAQ-SV), types of strength training, self-efficacy for strength training behavior, and socio-demographic variables.

**RESULTS:** Of all participants, 39.5% were in precontemplation of strength training behavior, 25.1% were in contemplation, 21.0% were in preparation, 5.6% were in action, and 8.8% were in maintenance. The most common type of strength training were at home (74.3%), usage of one's own body weight (60.4%), and one's own way (85.1%). ANCOVA revealed that there was significant association between stages of change and moderate-vigorous physical activity. Women, older, those who were unemployed, lower education, or lower income significantly tended to be classified into earlier stages (precontemplation or contemplation) with  $\chi^2$  test and Kruskal-Wallis test. In multiple logistic regression analysis, self-efficacy for strength training behavior predicted stages of change.

**CONCLUSIONS:** This study indicates the validity of applying transtheoretical model for strength training behavior. Approaches to promote strength training such as enhancement of self-efficacy targeting those who were in earlier stage (e.g. older women) would be needed.

#### P-184-RF

##### **FACTORS ASSOCIATED WITH ADHERENCE TO PRESCRIBED PHYSICAL ACTIVITY ? EVALUATION OF A REFERRAL SCHEME IN ROUTINE SWEDISH PRIMARY HEALTH CARE**

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The aim of this study was to describe 3 and 12-month adherence to physical activity referral (PAR) schemes and to analyse factors influencing the adherence. Prospective data were obtained for 90% of the primary health care units in the county of Östergötland, Sweden, in 2004 and 2005. Patients were followed up by questionnaire after 3 and 12 month. Analyses are conducted in terms of self reported adherence to PARs and change in physical activity level.

During the two-year period, a total of 6,300 patients received prescriptions for physical activity.

Two-thirds of the recipients were female (66.5%). Half of the patients were 45-64 years (49.7%). Two-thirds of the prescriptions were issued by physicians (38%) and nurses (31%). The most common reasons for issuing physical activity on prescription were musculoskeletal disorders (39.1%)

overweight (35.4%), high blood pressure (23.3%) and diabetes (23.2%).

Half of the patients (50.8%) who received a prescription for physical activity were recommended a home-based activity, such as walking.

Almost half (49%) of patients reported adherence to PARs in the 12-month follow-up and 52% reported an increased physical activity level. One-fifth (21%) of the patients were active but in another activity than the prescribed one (partly adhered). There were no significant sex differences in adherence at 3 and 12 months. No adherence differences were seen between age groups at 3 months, but the two oldest age groups had better adherence than the other groups at 12 months.

Adherence was associated with lifestyle activities, activities with higher intensity, and PARS issued by nurses. Lower adherence rates were found among patients issued PARs due to overweight, musculoskeletal, mental health problems, and sedentary behaviour. Neither goal-setting nor keeping a diary yielded higher adherence than not formulating goal and not keeping a diary, respectively, at 3 months among the 2005 patients.

#### P-185-RF

##### **LEISURE TIME PHYSICAL ACTIVITY AMONG HIGH SCHOOL STUDENTS: IDENTITY AND MOTIVATIONAL FACTORS**

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Previous research has found identity and motivational factors regarding sports and exercise to be associated with adolescents' participation in leisure time physical activity and other health-related behaviors. The purpose of the present study was to explore gender and age differences in this context. Participants were 212 students (43% male) at a higher-level high school in the Netherlands. Their age ranged between 11-19 yrs (M = 15.2, SD = 1.95). Participants were asked to complete a short paper-and-pencil questionnaire handed out by the teacher in the classroom. The questionnaire included measures of leisure time physical activity (LTEQ: Godin & Shephard, 1985), social identity, sports and exercise motives, and smoking behavior. Results. Both boys and girls identified (equally) strongly with being a sports person. No association between identity and age or leisure time physical activity was found. Gender and age differences were found for motives for being active; competition was a more important motive among boys, while girls attached more importance to improving health. With age, enjoyment became a less important motive, whereas improvement of appearance became more important. While identity was not associated with participation in leisure time physical activity, a stronger sports identity was related to less smoking behavior.

P-186-RF

**VALIDITY AND REPRODUCIBILITY OF A SHORT PHYSICAL ACTIVITY QUESTIONNAIRE USED IN LARGE-SCALE EPIDEMIOLOGICAL STUDY.**

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**Purpose:** The objective of this study was to evaluate the validity and reproducibility of a short self-administered physical activity questionnaire (the shorter PAQ) to estimate daily total energy expenditure (EE), which was used in the 5-year follow-up survey of the Japan Public Health Center-based prospective Study (JPHC Study). The JPHC study is a large-scale epidemiological study with more than 140,000 subjects. The validity of the questionnaire was examined in subjects with differing sex, ages, occupations, and living circumstances. The validity was compared to a longer PAQ, which was also used in the 10-year follow-up survey of the JPHC Study.

**Method:** The shorter PAQ consists of three items including vigorous, sedentary, walking/standing activities. The longer PAQ consists of nine items including occupational activity (four intensity levels), leisure time activity (four intensity levels) and sleeping. These were validated to the two four-day 24-hour physical activity records (24h-R) as a gold standard for the 111 volunteers in the JPHC study.

**Results:** Daily total EE estimated by the shorter PAQ, longer PAQ and 24h-R showed moderately strong correlation ( $r=0.55$  for the shorter and  $r=0.68$  for the longer). Correlations between the daily total EE by the PAQs and 24-R were moderately to strong for various subgroups such as sex, age, area, occupation, and BMI ( $r=0.36-0.70$  for the shorter and  $r=0.55-0.80$  for the longer). As for reproducibility, correlations between the two PAQs in different times (1st survey and 2nd survey) were almost the same level. ( $r=0.68$  for the shorter and  $r=0.69$  for the longer).

**Conclusion:** Results suggest that the shorter PAQ was valid in measuring the daily total EE for various subjects, although the longer PAQ showed higher validity. It can be useful considering the limitation of the number of questions in a questionnaire used in epidemiological studies.

P-187-RF

**SCREEN-BASED SEDENTARY BEHAVIORS AS PREDICTORS OF PHYSICAL ACTIVITY IN ADOLESCENCE**

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**Purpose:**

This study aimed to investigate whether recommendations of limiting screen time for children and adolescents to 2 hrs or less is associated with change in probability of meeting the recommendations of one hour/day of physical activity of

moderate to vigorous intensity (MVPA).

**Methods:**

The current research was based upon data collected through the Norwegian part of the survey "Health Behavior in School-aged children", using a nationally representative sample of 11-, 13-, 15-, and 16-year olds (N=6447). Logistic regression was conducted to investigate the associations between time spent in screen-based sedentary behaviors and meeting physical activity recommendations.

**Results:**

Preliminary results found the correlations between reported physical activity and time spent doing screen-based behaviors to be weak ( $r < -.11$ ). After adjusting for age, gender and SES, a positive association was found between spending 2 hrs or less watching TV (OR = 1.20), playing computer games (OR = 1.23), and using a computer for non-gaming purposes (OR = 1.15) and being physically active (one hr or more)  $\geq 5$  days/week.

**Conclusions:**

Adolescents spending two hours or less in the various screen-based sedentary behaviors were more likely to meeting the recommended amounts of MVPA. These results support the assumption that limiting the time children and adolescents spent in screen-based sedentary pursuits should be included in national guidelines as a part of efforts to promote physical activity.

P-188-RF

**A COMPARISON OF THE THREE DS OF URBAN FORM ASSOCIATED WITH WALKABILITY TO ANGULAR MEASURES OF PEDESTRIAN MOVEMENT**

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This study explores and compares two methodological techniques for assessing the built environment in relation to pedestrian movement. Specifically, we tested associations between the classical "3D" method of assessing urban form in terms of walkability and the space syntax method of assessing urban form in terms of natural movement across 201 neighbourhoods in Edmonton, Canada. The 3D method is based on quantifying density (neighbourhood density), design (street network patterns), and diversity (mixed land use) of a municipality or area. A 3D walkability index was then calculated based on density, design, and diversity. The space syntax method was based on angular analysis that involved quantifying angular choice and mean depth, along with angular choice weighted by segment length and angular mean depth weighted by segment length, as well as node count. GIS technology and the Depthmap software were used to map the neighbourhoods in terms of 3D, and space syntax measures respectively. We then calculated correlations (Kendall's  $\tau$  coefficient) to compare the 3D and space syntax assessments of built environment. Our results show limited support for the compatibility of the two methods (i.e.,  $\tau$  ranged from .005 to .38). Future work should test the two methods in relation to actual and self-reported pedestrian movement levels. It appears that the 3D and angular analysis methods are measuring independent aspects of the built environment which, together, could be used to better explain pedestrian behaviour.

P-189-RF

**ASSOCIATIONS AMONG PHYSICAL ACTIVITY STATUS AND WAIS-R SUBTEST SCORES IN THE CANADIAN STUDY ON HEALTH AND AGING (CSHA).**

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Recently cognitive neuroscientists and exercise psychologists have become interested in the bi-directional relationships between physical activity and cognitive function. Early indications are that the relationships are bi-directional. Several studies have demonstrated that exercise-induced cardiovascular fitness results in increases in cognitive abilities in older adults especially, while other studies have suggested that pre-existing individual differences in cognitive abilities are related to consistency in exercise behavior (as well as other types of health behavior). More recently, researchers have become interested in discerning which specific facets of cognitive function are most closely associated with regular physical activity. Some studies suggest that such associations are most prominent for executive abilities, however many of these investigations have assessed only a limited number of cognitive functions, and/or have used relatively small and selected samples.

In the current investigation, we examined the association between physical activity status (regular or not) and cognitive function in a sample of healthy older adults drawn from the Canadian Study on Health & Aging (CSHA). A total of 211 older adults (Mage = 77.9) underwent thorough medical examination to ensure freedom from dementia or other disease processes that might affect cognitive function at baseline, completed a risk factor questionnaire, and were administered a cognitive assessment battery. The assessment battery included an abbreviated version of the WAIS-R, containing subtests tapping predominantly verbal comprehension, verbal reasoning, working memory and executive function. Regression analyses revealed that only executive function was associated with physical activity status; specifically, those who were regularly active had higher scores on the WAIS-R subscale tapping executive abilities ( $p < .005$ ). This association survived adjustment for important demographic factors (i.e., age, gender) but was slightly attenuated by further adjustment for education. It is concluded that regular physical activity may be selectively associated with stronger executive abilities in older adults.

P-190-RF

**EFFECT OF BRIEF STRETCH EXERCISE TRAINING BEFORE BEDTIME ON MENOPAUSAL SYMPTOMS IN MIDDLE-AGED FEMALE WORKERS; A RANDOMIZED CONTROL TRIAL**

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*Physical Fitness Research Institute, Meiji Yasuda Life Foundation of Health and Welfare*

Purpose; Many middle-aged women experience unidentified complaint when going through menopause. There are some indications that physical activity may play a role in ameliorating menopausal symptoms, but there is conflicting evidence about this. In addition, a working woman has not enough time for the long exercise duration at the daytime. The purpose of this study was to investigate the effect of brief stretch exercise training before bedtime on menopausal

symptoms in middle-aged female workers.

Method; Forty peri- and post-menopausal women aged 40-66 years were recruited. All subjects worked in a life insurer and took no medication affecting menopausal symptoms. The subjects were randomly allocated to either a training intervention group ( $n=20$ ,  $50.7 \pm 7.0$  yr) or a wait-list control group ( $n=20$ ,  $51.2 \pm 7.9$  yr). The intervention group participated in a 3-week exercise program. The exercise program consisted of 5-10 min stretching according to yoga techniques and poses. The intervention group was instructed to perform the program immediately before bedtime at home every day and attended 1-hr weekly group sessions to learn the proper stretching techniques. Menopausal symptoms, including vasomotor, physiological, and somatic symptom were assessed by using the simplified menopausal index.

Results; The rate of compliance with the exercise program was 75.9% in intervention group. The intervention group showed a significantly greater decrease in vasomotor ( $-5.5$  vs.  $1.8$ ,  $P=0.005$ ), physiological ( $-6.3$  vs.  $-2.1$ ,  $P=0.012$ ), somatic ( $-2.6$  vs.  $0.1$ ,  $P=0.003$ ), and total ( $-14.4$  vs.  $-0.2$ ,  $P=0.002$ ) symptom indices than the control group, by ANCOVA after adjustment for state of menopause and initial value, respectively.

Conclusion; These findings suggest that the brief stretch exercise program that is practiced before bedtime is a practical method for use in daily life, and is effective in promoting greater improvements in menopausal symptoms in middle-aged female workers.

P-191-RF

**PSYCHOLOGICAL, SOCIAL, AND ENVIRONMENTAL CORRELATES OF MEETING PHYSICAL ACTIVITY RECOMMENDATION**

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Background: Although the beneficial effects of recommended level of physical activity on reducing chronic diseases is well-established, most of Japanese population is not sufficiently active. Thus, examining "correlates" is an important prerequisite for designing relevant policy and effective programs. The present study investigated psychological, social, and environmental correlates with meeting physical activity recommendation among Japanese adults.

Methods: Data were analyzed for 1932 male and female adults ( $43.6 \pm 13.0$  year) to an Internet-based cross-sectional survey. Self-report measure of physical activity, psychological (self-efficacy, pros and cons), social (social support, physician advice), environmental (home equipment, access to facilities, neighborhood safety, enjoyable scenery, and frequently observe others exercising, urban location), and demographic (gender, age, marital status, educational level, household income level, employment status) variables were obtained.

Abstract:

Background: Although the beneficial effects of recommended level of physical activity on reducing chronic diseases is well-established, most of Japanese population is not sufficiently active. Thus, examining "correlates" is an important prerequisite for designing relevant policy and effective programs. The present study investigated psychological, social, and environmental correlates with meeting physical activity recommendation among Japanese adults.



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**Results:** When adjusting for all other variables, self-efficacy, pros and cons, home equipment, enjoyable scenery, and urban location were statistically significant. Specially, self-efficacy, access to facilities, and enjoyable scenery in both genders and pros in males were positively associated with meeting physical activity recommendation. Living in suburban and rural areas in males as well as cons and living rural area in females found negative associations with the attainment of recommended physical activity level.

**Conclusion:** Gender-different psychological correlates and different environmental correlates of meeting physical activity recommendation from previous foreign studies were found, suggesting that the design of intervention, which would be taken into account of such gender- and country-specific characteristics, may be more effective in promoting physical activity among the general population of Japanese adults.

#### P-192-RF

### PREVALENCE AND CORRELATES OF DOG WALKING IN JAPAN

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**Background:** Dog walking is an important and unique potential benefit of dog ownership in terms of helping people physically active for health benefits. Thus, identification of the factors related to dog walking is crucial to the development of more effective interventions for increasing the proportion of dog owners who engage in the recommended amount of physical activity. The present study examined the prevalence and correlates of dog walkers.

**Methods:** Dog owners ( $n=931$ ), responded to an Internet-based cross-sectional survey, were analyzed. Self-reported physical activity, dog-specific (dog size, dog walking frequency and duration, attachment to dog), and possible demographic (gender, age, marital status, educational level, household income level, employment status, type of residence, other person lived with) variables were obtained. Dog owners were divided into either dog walker or non-dog walker groups. The recommended physical activity levels were dichotomized at 23 METs-hr/wk and 150 min/wk based on the Japanese physical activity guideline and the US Surgeon General's Report. A univariate logistic regression was utilized.

**Results:** Overall, 64.0% of dog owners walked with their dog. More dog walkers achieved both 23 METs-hr/wk and 150 min/wk than non-dog walkers (38.5% vs. 23.0%, 71.3% vs. 41.2%). On average, dog walking made up 29.8% of total physical activity minutes and 48.9% of total walking minutes in dog walkers. Dog walkers were significantly more likely to be unmarried (OR 1.60; 95% CI: 1.06-2.31), live with others (OR 0.45; 95% CI: 0.21-0.96), and have higher level of

attachment to their dog (OR 2.46; 95% CI:1.83-3.30) than non-dog walkers.

**Conclusion:** The findings confirm that the dog walking makes a significant contribution to dog owners achieving the recommended level of physical activity and that level of attachment to their dog is an important and strong factor for dog walking. More detailed studies are clearly required to examine such dog-specific correlates.

#### P-193-RF

### PROCESSING ACCELEROMETER DATA: THE IMPACT OF DECISION RULES

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The measurement of physical activity has long been a challenge. The increasingly widespread use of objective methods, such as accelerometers, has helped to overcome some of the challenges (e.g., recall bias). However, a number of other challenges have emerged, particularly in the area of data processing. There are at least 4 key decisions to be taken when processing accelerometer data and in the absence of a single accepted protocol researchers have not consistently applied the same processing rules. The purpose of this research is to investigate the impact of applying different rules to the same data set. The data were collected as baseline data for a larger intervention study and are from 311 7-11 year old children (49% male). Participants wore an Actigraph GT1M for 7 days during waking hours. The impact of decisions about cutpoints, day length, number of days, and non-wear period are considered. Different decision rules resulted in different numbers of participants being retained. The decision of which cutpoint to use for moderate-to-vigorous physical activity (MVPA) resulted in the biggest differences with estimates of mean MVPA varying from 34 to 161 minutes per day depending on which of five published cutpoints were employed. Decisions about day length and the number of continuous zero's considered indicative of not wearing the accelerometer also influenced output but the effect was much smaller ( $< 7$  minutes). Using a minimum of 4 days including one weekend day, 3 days including one weekend day or any 4 days had negligible impact on estimates of mean MVPA ( $< 1$  minute). Given the impact of processing rules, and noting that researchers often do not state all of their decision rules, caution should be exercised when comparing results between accelerometer studies. There is a need to develop a consistent approach to accelerometer data processing.

### Track 'Psychophysiological Disorders & Sleep'

#### P-194-RF

### PUPILLARY UNREST INDEX AND APNEA HYPOPNEA INDEX OF THE PATIENT WHO CAUSED A DOZE TRAFFIC ACCIDENT.

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The aim of the study was to examine the relationship of

pupillary unrest index (PUI) and the apnea hypopnea index (AHI) in the patients who experienced traffic accidents with doze. We examined the relationship of sleepiness and accident by 20 subjects (mean age 36.0 $\pm$ 7.5 yr, range 23 to 49 yr) who drive more than 1,000km a month regularly, had no medical history of narcolepsy. The subjects complained daytime sleepiness, and had a checkup in a sleep medical center from December, 2005 to December, 2007. Subjects filled out the questionnaire about a doze traffic accident, and then they were divided into two groups by the AHI. We performed the pupil diameter measurement in the dark place for 11 minutes from 11:00 AM to 13:00 PM. In Aichi Medical University Hospital, their AHI were calculated using overnight polysomnography. Pupil measurement was carried out by the infrared television pupillometer (F2D, AMTech, Germany) and PUI was calculated. The polysomnogram was recorded by Alice4 (Nihon Kohden, Japan). Relationship between PUI and AHI was examined by Pearson's correlation coefficient.

Sleep apnea syndromes group had higher score of PUI than not-sleep apnea syndromes group. Mean of PUI score at sleep apnea syndromes group (AHI $\geq$ 5, n=15) was 1.4 $\pm$ 0.5, and pupil diameter was 6.3 $\pm$ 0.7mm. Five of them caused a doze traffic accident. Mean of PUI score at non-sleep apnea syndromes group (AHI<5, n=5) was 0.8 $\pm$ 0.2, and pupil diameter was 6.9 $\pm$ 0.7 mm. None of them caused a doze traffic accident. In addition, AHI and PUI, PD were correlated strongly (Pearson's correlation coefficient, PUI; r=0.64, p<0.003, PD; r=-0.58, p<0.007).

#### P-195-RF

### THE RELATIONSHIP BETWEEN SELECTIVE ATTENTION TO ABDOMINAL SYMPTOMS AND ANXIETY IN INDIVIDUALS WITH IRRITABLE BOWEL SYNDROME

*Sugaya N, Nomura S*

*Faculty of Human Sciences, Waseda University*

Background: Although some previous researches suggested the relationship between selective attention to abdominal symptoms and anxiety in irritable bowel syndrome (IBS), there has been no study according to subtype of IBS based on bowel movement disturbance. The present study was performed to investigate the relationship among selective attention to abdominal symptoms, anxiety and abdominal pain or discomfort according to subtype of IBS.

Method: The participants were 1087 college students who completed a questionnaire that included the Rome II modular questionnaire, items about abdominal pain and discomfort of self-reported IBS questionnaire, the item of selective attention to abdominal symptoms, and the hospital anxiety and depression scale-anxiety scale (HADS-A).

Result: The participants included 206 individuals with IBS; 61 had diarrhea-predominant IBS (IBSD) and 45 had constipation-predominant IBS (IBSC). The overall IBS group scored higher on HADS-A than the control group (t=5.26, p<0.001). The IBSD and IBSC groups each had significantly higher scores for HADS-A than the control group (F=8.43, p<0.001). There was no significant difference of selective attention score between IBSD and IBSC. The results of partial correlation analysis controlled by HADS-A score showed that there were significant correlations between abdominal pain or discomfort and selective attention in overall IBS group (pain: r=0.40, p<0.001; discomfort: r=0.43, p<0.001) and IBSD (pain: r=0.54, p<0.001; discomfort: r=0.49, p<0.001), and between abdominal discomfort and selective attention in IBSC (r=0.52, p<0.01). After controlling for selective attention to abdominal symptoms, there were significant correlations

between abdominal pain (r=0.38, p<0.05) or discomfort (r=0.38, p<0.001) and HADS-A score only in IBSD. After controlling for abdominal pain and discomfort, there was significant correlation between HADS-A score and selective attention only in IBSC (r=0.37, p<0.05).

Conclusion: The results of this study suggested the differences of the relationship among selective attention, anxiety and abdominal pain or discomfort by the types of bowel movement disturbance.

## Track 'Screening and Early Detection'

#### P-196-RF

### MAMMOGRAPHY SCREENING: BENEFITS AND FEARS

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*1 DCE, University of Aveiro, Portugal; 2 Faculty of Medicine, University of Coimbra, Portugal; 3 IEP, University of Minho, Portugal*

The present study aims to characterize the benefits and barriers women face when doing a mammography screening to diagnose breast cancer, promoted by Portuguese League Against Cancer (LPCC) - Nucleus of Coimbra.

Methods: This is a transversal study carried through in a sample of 350 women, whose average of ages was 55 years old, who had answered the Portuguese version of the following evaluation instruments: Scale of susceptibility, benefits and barriers of the mammography (Champion, 1999); Scale of Concern with the Cancer (Lerman, 1991); Life Orientation Test (TOV - R, Portuguese version Monteiro, & Tavares & Pereira, 2005).

Findings: The woman who did the tracing for the first time present lack of information concerning the measures to be taken in order to prevent the breast cancer, reveal anxiety and declare that the main source of information had origin in stories of other women who already had done the test; the fears and concerns with the cancer as well as some pointed out optimism dispositional are enhanced.

Discussion: This study implication follows the direction of a bigger sensitization and adhesion to the tracing as well as to health promotion and breast cancer prevention. A follow-up study is recommended. Specific health education programmes should address woman in order to improve their knowledge, so they can change their behaviour concerning this kind of screening.

## Track 'Socioeconomic Factors, Culture & Health'

#### P-197-RF

### THE LINKAGE BETWEEN HEALTH BEHAVIOR AND SOCIAL CAPITAL IN A COMMUNITY

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*Niigata City Public Health and Sanitation Center*

Study objective

Social capital, as defined by quantity and quality of social interactions and resources in a community, is likely to be a factor of determinants of health.

The purpose of this study is to investigate the linkage between health behavior and social capital in a community.

#### Subject and Method

This study was based on data from the health survey 2007 in Niigata city.

The characteristics of the study participants were as follows: 33 communities 848 household members (men 394, women 454) age 20-94 (mean 54.8 in men, mean 55.9 in women)

We used face-to-face interviews with questionnaires to evaluate self-rated health status, health behavior (life style) and social capital in communities.

We selected 5 questionnaires regarding social capital, which showed positive relation to general health perceptions in the past study.

#### Results

The degree of regional safety showed positive relation to frequency of spontaneous exercise.

( $r=0.58$ ,  $P<0.001$ ) In addition, the degree of regional safety had also positive relation to sleeping time in community peoples. ( $r=0.44$ ,  $P<0.05$ ) But other social capital had no relation to self-rated health status and health behavior including dietary habit.

#### Discussion

Social capital regarding regional safety may have beneficial effects on health behavior like exercise and sleep, although multilevel analysis is necessary to verify social determinants of health.

#### P-198-RF

### MEN'S CONDOM BEHAVIOUR: CULTURE OF "LAZY" & ITS IMPACT ON NATIONAL RESPONSE TO HIV/AIDS

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Malaysia aims at reversing and halting the spread of HIV/AIDS by 2015 towards the achievement of the sixth Millennium Development Goal (MDG). Comprehensive condom programming is a crucial strategy as there is clear medical evidence that consistent condom use reduces the risk of HIV transmission between sexually active persons.

Thus, a cross-sectional rapid assessment, using mixed methods, was designed to examine condom practices/barriers, to assess the needs for and access to condoms among selected at-risk population groups in Kuala Lumpur viz. young workers, young students, sex workers, drug users, and men having sex with men. Data were collected from 240 multi-ethnic respondents through survey and Focus Group Discussion.

73% of respondents were sexually active, with 40% of them ever used and 33% never used condoms. Of the condom users, majority reported use as "sometimes"; while 50% of sex workers used condom "every time". Majority did not use condoms at first sexual intercourse, particularly among young respondents. Many also tended not to use condoms with primary partners. Two main problems experienced were condoms tearing and semen spillage. Decrease in sexual pleasure, lack of confidence in condom efficacy and embarrassment of being seen buying condoms were the often-cited barriers to condom use. Qualitative probing revealed low and inconsistent condom use that permeated all at-risk groups was associated with a culture of being "lazy" to use condoms and it was "lots of work". Yet, the anxiety about interruptions, losing erection and failure to ejaculate underlaid this apparent culture of laziness. Cultural inhibitions and non-acceptance of sex among the young, unmarried, and of diverse sexual orientations juxtaposed with socially valued masculine prowess in penetrative sex further compound difficulties of

consistent condom use.

Any national response to HIV/AIDS thus must be based on in-depth evidence of people's attitudes, sexual practices, and condom behaviour within individual and sociocultural contexts. The study shows that condom policy and programming ought to incorporate strategies that desensitize the condom, gender equality, behavioral change communication, improved access and availability of condoms.

#### P-199-RF

### AUSTRALIAN BABY BOOMERS: DIVERGENCE AND CONVERGENCE OF STEREOTYPED CHARACTERISTICS AND BEHAVIOURS.

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#### Purpose

High priority has been given to understanding the economic and social consequences of an ageing population. Baby boomers present the potential to redefine ageing: professed to become the healthiest, most productive and innovative group of older people. This research explored constructed versions of baby boomer realities, and the divergence and convergence of information.

#### Methods

A 12-month review of newspaper text, interviews with 10 experts from a variety of ageing research backgrounds, focus groups with older adults at different stages of retirement and questionnaires with over 700 mid-aged women were used to compare rhetoric, stereotypical language, behaviours and characteristics of Australian baby boomers. A framework of divergence and convergence was used, to summarise those criteria which apparently represent baby boomers.

#### Results

Results from this research provided key criteria to characterise Australian baby boomers based on the popularly held stereotype, and arguments and experiences which disconfirm this image. Text from 110 newspaper articles demonstrated 163 instances of persuasive language describing baby boomers, with particular differences regarding oversimplification and repetition, which served to reinforce the popular stereotype. A review of images which accompanied the text also provided further reinforced the stereotypical criteria. Divergence from the popularly held image of baby boomers occurred during expert interviews, with greater acknowledgement of heterogeneity and use of wider language patterns. Qualitative data from focus groups and questionnaires with men and women further dispute the popular stereotype, balancing the rhetoric with reality.

#### Conclusions

This research forms part of a wider PhD program of study, and aimed to enrich our knowledge of baby boomers. A triangulation of different methodologies was used to test the widely held assumptions which surround the behaviours and characteristics of Australian baby boomers, resulting in a number of arguments which challenge the social image.

P-200-RF

**THE DEVELOPMENT OF JAPANESE AMAE INVENTORY WITH RECEIVES FROM THE OTHERS.**

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Purpose: Amae is a vocabulary peculiar to Japan, and it is recognized that not only parents and child relationships but also human relations by adult (Doi, 1991). In addition to, human relations is related to Amae that it is felt to emotional dependence. Fujiwara et al.(1981) reported that the college students were depended on other persons in the 12 trouble situation. Toyama et al. (1991) & Kawano (2006) reported that the chief character and sense of values of "amae". Thus, there were many reports called expression of emotional dependence by the past study. However, there is little study of receiving the emotional dependence from other persons. This study aimed at creation of the scale which can measure not only expression of emotional dependence but also acceptance. Method: The participants were healthy 228 university students. The participants answered the questionnaire in the lecture time from January, 2008. The structure of questionnaire was eight items that we made based on Preliminary investigation originally.

Results: As a result of a factor analysis, two factors were extracted. The first factor was three items which was "I do the consultation of the trouble", "Of the daily life complain", and "I complained ". It about its feelings showed high factor loadings and named it "the expression of feelings". The second factor was two items which was "I ask for work to be possible by oneself" and "I did not keep the appointed time ". It was named as "selfish".

Conclusion: These results have suggested the validity of the questionnaire which receives the emotional dependence from the others.

P-201-RF

**COMPARISON OF SELF-EFFICACY FOR SOCIAL PARTICIPATION BETWEEN COMPETITIVELY AND NON-COMPETITIVELY EMPLOYED CONSUMERS WITH PSYCHIATRIC DISABILITIES**

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Lack of self-efficacy (confidence) for social participation and community living has been drawing attention as one of the important personal factors that impede social integration of individuals with severe mental illness (SMI). The Self-Efficacy for Social Participation for People with Psychiatric Disabilities (SESP-27) is a 27-item instrument rated on a 4-point scale that was developed to measure self-efficacy for social participation. This study compared the SESP-27 scores between competitively and non-competitively employed consumers. Results found that competitively employed consumers had significantly higher total and subscale scores. On the item level, group differences were significant on all but the following 7 items: "In the future, I can live a life that will satisfy myself," "I can break free from past failures," "If I try,

I can live while getting along with people around me," "I can do things without worry," "When I want to do something, I know how to do it," "I can make decisions on my own judgment," and "I can seek necessary information on my own." Competitively employed consumers scored significantly higher than non-competitively employed consumers on all items on the Mutual Support subscale. The results highlight the importance of fostering self-efficacy for social participation of people with SMI, especially those that are not in competitively employment. They may best benefit from interventions that help them increase self-confidence for mutual support.

P-202-RF

**PERCEIVED RACISM, DAILY NEGATIVE EVENTS, AND DIABETES CONTROL IN AFRICAN AMERICAN WOMEN WITH TYPE 2 DIABETES**

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AIMS: This pilot study investigated the interaction of lifetime perceived racism and daily negative events on diabetes symptoms and glucose levels in African American women with type 2 diabetes. METHODS: Lifetime perceived racism was measured at baseline with the Schedule of Racist Events (SRE). For 7 consecutive days participants provided daily data on acute negative events, diabetes symptoms, and glucose. Daily data were divided into individually determined AM and PM timeframes. For acute negative events, participants telephonically completed a 7-item negative event checklist. For diabetes symptoms, participants telephonically completed the Diabetes Symptoms Checklist. For glucose, participants wore continuous glucose monitors. SAMPLE: Nine participants were middle aged (years M=54), overweight (BMI M=35.5), treating diabetes with oral agents only (100%), with adequate glycemic control (A1c M=7.1). RESULTS: Multilevel linear regression was performed with SRE scores, AM negative events, and their interaction predicting PM hyperglycemia, controlling for AM hyperglycemia. The interaction between SRE and AM negative events significantly predicted PM hyperglycemia, \*p<.01. For people high on perceived racism, experiencing more negative events in the morning predicted more episodes of hyperglycemia later in the day; yet for people low on perceived racism, negative events in the morning had little effect on glucose levels later in the day. Multilevel linear regression was performed with SRE scores, AM negative events, and their interaction predicting PM diabetes symptoms, controlling for AM diabetes symptoms. The interaction between SRE and AM negative events significantly predicted PM diabetes symptoms, \*p<.01. For people high on perceived racism, experiencing more negative events in the morning predicted higher diabetes symptoms later in the day; yet for people low on perceived racism, negative events in the morning had little effect on diabetes symptoms later in the day. CONCLUSIONS: Lifetime perceived racism may prime individuals for heightened acute stress reactivity, thus affecting diabetes control. These findings should be replicated in a larger sample, exploring the mediating role of health behaviors.

## Track 'Somatoform Disorders/Chronic Fatigue/Medically Unexplained Symptoms'

P-203-RF

### THE FACTOR STRUCTURE OF THE CHINESE VERSION OF THE MULTIDIMENSIONAL FATIGUE INVENTORY (ChMFI)

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**Objective:** Chronic fatigue is a common physical complaint in the general population. However, there is no validated Chinese generic fatigue instrument currently available. This study aimed to assess the factor structure of the Chinese version of the Multidimensional Fatigue Inventory (ChMFI) in a Chinese adult sample. **Methods:** A total of 385 Chinese professional teachers completed the ChMFI, the Maslach Burnout Inventory (MBI) and the Medical Outcome Study 12-item Short-Form health Survey (SF-12). **Results:** Principal components analyses yielded a revised 5-factor structure, with a number of differences in item factor loadings. The revised 5-factor structure explained 60.51% of the total variance. The instrument possessed good internal consistency (Cronbach  $\alpha = 0.854$ ) and concurrent validity with MBI. Divergent validity was indicated by inverse relationships between ChMFI and SF-12. **Conclusions:** The present study suggests the ChMFI differs from the original MFI in terms of the factor structure. Despite the discrepancy in factor structure, the ChMFI had good reliability and validity, supporting the use of the scale in assessing chronic fatigue among Chinese.

P-204-RF

### THE FACTORIAL VALIDITY OF THE CHINESE VERSION OF THE CHALDER FATIGUE SCALE (ChCFS)

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**Objective:** This paper aims to evaluate the factorial and construct validity of the Chinese version of the Chalder Fatigue Scale (ChCFS) using a Chinese community sample. **Methods:** A total of 201 Chinese adults completed the ChCFS, the 12-item Short-Form Health Survey (SF12) and the Hospital Anxiety and Depression Scale (HADS). Confirmatory factor analysis (CFA) was conducted to assess the fit of a one-factor model, a two-factor correlated model, and a two-factor hierarchical model in both the 14-item and 11-item version of the ChCFS to the current data. **Results:** The ChCFS successfully replicated the original two-factor structure in the current Chinese community sample and the 11-item version demonstrated a better data-model fit than the 14-item version. The instrument possessed good internal consistency (Cronbach's  $\alpha = 0.863$ ). The convergent validity with HADS and divergent validity with SF12 were also evident. **Conclusions:** The ChCFS is a valid and reliable instrument to be employed among Chinese adults in the general populations.

## Track 'Stress/Psychophysiology/PN/PNE'

P-205-RF

### THE SHORT-TERM EFFECT OF WORRY POSTPONEMENT AND SUPPRESSION

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Worry has been determined to be a central factor in generalized anxiety disorder (GAD) and has been associated with other several psychopathological conditions. For treating GAD, a key component of a typical cognitive-behavioral protocol has been used. The method is to postpone worry to a special 30 minutes worry period later during the same day. The primary aim of this postponement module is to help the patient regain control of and reduce worry. On the other hand, a simply attempt to suppress a certain thought is often counterproductive and it is said the paradoxical effects.

This study examine whether a short term of worry reduction intervention and suppression can change worry frequency, duration and controllability. Ninety-seven university students completed Penn State Worry Questioner (PSWQ) and thought their own worry for 5 minutes. They kept a log of their worry frequency for 5 minutes, of whom a third were instructed to try to postpone worrying to later, another third were instructed to try to suppress worrying. After 5 minutes log, they answered some question about controllability and worry duration.

The group who suppressed their worry reported shorter its duration than other groups ( $p < .01$ ). But no other difference was significant. So it wasn't confirmed that effect of postponement but also paradoxical effects. The implications of these data are discussed.

P-206-RF

### EFFECT OF SENSE OF COHERENCE ON STRESS RESPONSES : IT'S CHARACTERISTIC DIFFERENCE OF HARDINESS

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Sense of Coherence (SOC) consists of comprehensibility, manageability, and meaningfulness. Many studies have suggested that SOC is associated with successful coping with stressors. Also, this function on stressors coincides with clinical and scientific implication of hardiness including factors such as challenge, control, and commitment, and it's difference was not clear. So the purpose of the present study was to examine the effect of three factors of SOC on stress responses and it's characteristic difference of hardiness. Two hundred sixty four Japanese university students and graduate students (124 men, 139 women, and 1 unwritten) answered the Japanese version of SOC scale (Yamazaki, 1999), the hardiness scale (Tanaka & Sakurai, 1996), and shortened form of the stress response scale (Okayasu, Shimada, & Sakano, 1992). The result of the analysis of covariance structure showed that the number of significant paths from SOC to stress responses is larger than hardiness and especially meaningfulness reduces all the stress responses. These results suggested that each factor of SOC play a different role on reduction of stress responses, and the impact of SOC is stronger than hardiness.

P-207-RF

**SLEEP, STRESS, AND ALLERGIC SYMPTOMS IN ATOPIC AND HEALTHY STUDENTS**

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Studies indicate that allergic patients display higher levels of anxiety and may sleep worse than healthy individuals. Studies also suggest that stress and poor sleep may aggravate allergic inflammation and symptoms of allergy, but this is inadequately studied.

We examined subjective allergic symptoms, components of stress and health behaviors in response to a brief naturalistic stressor in atopic and healthy students. 19 healthy and 21 atopic (all with rhinitis, 16 with asthma) students were evaluated during a calm and a stressful academic study period. Perceived stress was recorded with a visual analogue scale. In addition, self-rating scales were used to measure anxiety, self rated health, sleep, and type A (i.e. stress) behavior pattern. A symptom diary was used for the week preceding each of the two evaluations.

In response to examination, perceived stress increased in all participants ( $p = .000$ ). Anxiety increased, and self rated health and sleep quality deteriorated ( $p's < .008$ ). Compared to healthy students, atopics reported overall higher levels of allergic symptoms ( $p's = .001 - .08$ ), higher levels of anxiety ( $p = .022$ ), and had less sufficient sleep ( $p = .004$ ). In response to stress, atopics increased and controls decreased stress behaviors ( $p = .012$ ). However, allergic symptoms did not change in response to stress ( $p's = .56 - 1.0$ ).

In sum, both healthy and atopic participants responded to stress with aggravations in anxiety, sleep and subjective health. However, atopic students displayed more overall symptoms of distress than healthy subjects. Despite higher stress and impaired sleep, no effects on allergic symptoms were seen. This could be due to not having a follow-up period after stress exposure, or to the fact that included students suffered from rather mild atopic disease and were not exposed to allergen during the study period.

P-208-RF

**HIGHER LEVELS OF IL-1RA IN LONG-TERM SURVIVORS OF TESTICULAR CANCER WITH CHRONIC CANCER-RELATED FATIGUE**

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Objective: Chronic cancer-related fatigue (CRF) is twice as common among Norwegian long-term survivors of testicular cancer (TCSs) than is chronic fatigue in normative samples. Previous studies have suggested a link between high levels of fatigue and elevated levels of proinflammatory cytokines. The purpose of this study was to examine whether plasma levels of IL-1ra, sTNF R1, IL-6 and serum levels of morning cortisol were associated with chronic CRF in TCSs.

Methods: Participants were 97 Norwegian TCSs with chronic CRF and 195 TCSs without aged median 45 years (range 23-73), examined at a median of 11 years post-treatment (range 5-20). Participants got a mailed questionnaire including the Fatigue Questionnaire, and a medical examination within three months at which blood samples were drawn for the measurement of cytokine and cortisol levels by the ELISA method.

Results: Significantly higher levels of IL-1ra were found in TCSs with chronic CRF compared to those without ( $p = .014$ ). TCSs with and without chronic CRF did not differ in neither levels of sTNF R1, IL-6 nor morning cortisol. The crude effect of IL-1ra on chronic CRF was  $OR = 1.69$  ( $p = .015$ ), with IL-1ra explaining 2.9% of the variance in chronic CRF. Univariate adjustments for age, follow-up time, education, histology, treatment modality, somatic comorbidity, hazardous alcohol use, smoking, unemployment or neuroticism, did not change OR significantly. Peripheral neuropathy, subjective health complaints and depression were significantly associated with both IL-1ra and chronic CRF and thus confounding the association ( $p = .491$ ). Adjustment for depression alone increased the explained variance to 32%, while adjustment for all confounders raised it to 37%.

Conclusion: TCSs with chronic CRF had significantly higher levels of plasma IL-1ra compared to TCSs without. However, the association did not remain significant after controlling for depression. This suggests a mediating role of depression in the relationship between IL-1ra and chronic CRF in TCSs.

P-209-RF

**LEVELS OF ANXIETY AND DEPRESSION DURING THE FIRST YEAR OF COLLEGE.**

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The first year of college is a transitional period often linked with significant levels of stress. Yet, college populations are frequently used as a convenient standardization sample, considered representative of the overall population. The present study aimed to examine psychological parameters such as anxiety and depression, associated factors, somatic symptoms, and comorbidity trends in a sample of students entering college in Cyprus. Participants ( $N = 170$ , 94 female,  $Mage = 19.05$ ) were recruited from the orientation program during the first week of classes at the University of Nicosia, and completed a packet of questionnaires consisting of a demographic questionnaire and measures of depression, stress, anxiety, and fear (BDI-II, ASI-36, STAI, PDSR, FSS, ACQ, AAQ). Depression, and State and Trait anxiety were at levels higher than what is expected for the general population, although lower than what is usually reported in clinical samples (BDI-II  $> 13 = 16\%$ ; STAI-S:  $M = 40.53$ ,  $S.D. = 10.20$ , STAI-T  $M = 39.78$ ,  $S.D. = 11.08$ ). Participants also reported low levels of anxiety control and high levels of fear. Despite high symptom reporting, only 1.7% of the sample reported having received some form of psychological assistance, while 1.1% reported receiving medication. Interestingly, statistically significant sex differences were not

identified for any of the measures. Significant correlations were found between the ASI and the BDI-II, the FSS, and the PDSR. Results raise concerns regarding the extent to which the symptoms reported by the students are transient, and dissipate throughout the college period, or are predictors of later psychological difficulties. This would be a crucial step in determining the needs for provision of counseling and support services for college students. A further step would be to determine whether the lack of sex differences is specific to this population, or is a general trend in the Greek-Cypriot population.

#### P-210-RF

##### **THE INFLUENCE OF SOCIAL ANXIETY TENDENCY ON STRESS REDUCTION OF SOCIAL SUPPORT IN JAPANESE COLLEGE FRESHMEN**

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The purpose of this study was to examine whether the social anxiety tendency in Japanese college freshman predicts the effect of social support on stress reduction. The one hundred ten six undergraduated students (60 men and 56 women with mean age  $\pm$  SD of  $19.0 \pm 1.1$ ) were required to complete many self-reported questionnaires twice; both immediately after the enrolment (the beginning of May; Time 1) and before summer break (the end of July; Time 2). The questionnaire in Time 1 consisted following inventory; 1) Fear of Negative Evaluation Scale short version (Sasagawa et al., 2004). The questionnaires in Time 2 consisted following inventories; 1) Interpersonal stressor inventory (Hashimoto, 1997), 2) Social support inventory (Fukuoka et al., 1997), 3) Stress response scale (Suzuki et al., 1998). ANOVA with social anxiety (high, middle, low; between subjects) on the total score of social support revealed no significant differences. Social anxiety tendency in the students can't predict the amount of the evaluation of social support. While ANOVA with 3 social anxiety (high, middle, low; between subjects)  $\times$  3 social support (high, middle, low; between subjects) on the score of stress-responses which were consisted for 3 stress responses category (depression-anxiety, irritability-anger, helplessness) revealed a trend of interaction effect on the depression-anxiety and helplessness scores ( $F [4,106]=2.35, p < .10$ ;  $F [4,106]=2.06, p < .10$ ), the results revealed that social anxiety tendency in the students has the no effect of social support on stress reduction on expected direction. A major outcome of the present study was that the stress reduction of social anxiety tendency in the students needs the different functions of social support which adapt to student's condition.

#### P-211-RF

##### **CORTISOL AWAKENING RESPONSE AND PERCEIVED FATIGUE ON WORK DAYS AND WEEKENDS IN WOMEN**

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Purpose: There is accumulating evidence of hypothalamic-pituitary-adrenal (HPA) axis disturbances in chronic fatigue

syndrome (Amanda et al., 2004). Recently, it is thought that the salivary cortisol awakening response (CAR) can serve as a reliable marker of HPA axis to respond to stress (Steptoe, 2007). The present study was to investigate the relationship between the CAR and perceived fatigue on the work days and the weekends in women.

Method: The participants were healthy 58 women (20-50 years old). The saliva samples were collected over the work days and the weekends. Participants were instructed to collect saliva on six occasions each day: before sleep, immediately on awakening, 30 minutes after awakening, and then as near as possible to 10:00 am, 12:00 pm, and 3:00 pm. At the time of saliva, they provided a rating of fatigue level on a five-point scale where 1 = low and 5 = high.

Results: CAR of all subjects were greater on work days than weekends. Also, awakening responses (30 minutes after waking) were larger on work days in the high fatigue group than the low fatigue group. In addition to these, CAR (directly after awakening, 30 minutes after waking) and the level of cortisol at 10:00 am were significantly higher on weekends in the high fatigue group than the low fatigue group.

Conclusion: Perceived fatigue was associated with a promoted CAR, especially on weekends. These findings suggest that the high fatigue group could not enough rest even on weekends, because of too much stress. Also, the chronic fatigue may be associated with disruption of HPA axis function. CAR can be a useful indicator of stress and fatigue state.

#### P-212-RF

##### **RELATIONSHIP BETWEEN THE DEPRESSION AND CORTISOL AWAKING RESPONSE ON THE JAPANESE WOMEN.**

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Purpose: Recent evidence suggested that the cortisol awakening response (CAR) is influenced by awakening time in healthy persons (Edwards et al., 2001). Moreover, CAR attracts attention as an index of the stress response. This study investigated relationship between the CAR on the workday and the weekend and the depression which was evaluated by the Center for Epidemiologic Studies Depression Scale (CES-D).

Method: The participants were healthy 44 women of university staff. At first, the subjects completed CES-D. The saliva samples were collected over the same workday and the weekend. Subjects were instructed to collect a single morning cortisol profile at home. Subjects were told to obtain six saliva samples during a single day: sleeping, directly after awakening, 30 minutes later, and at 3 PM, and 5 PM.

Results: In the total study sample, cortisol levels showed the typical response pattern with maximum cortisol levels at 30 minutes after awakening. Thus, CAR was observed by the subjects. CAR of the weekend in the healthy group ( $CES-D < 16$ ) was lower than the workday. CAR of the workday in the depression group ( $CES-D \geq 16$ ) was the same level as the healthy group. However, CAR of the weekend in the depression group was the same level as the workday, and was higher than it of the healthy group.

Conclusion: The healthy group has suggested resting to the weekend and carrying out stress buffer. This result suggests that the depression group has the weekend in the stress state. Thus, the allostasis load shown by CAR is large in the depression group. CAR is potentially a useful marker to study the association with the stress state.

P-213-RF

**EFFECTS OF HARDINESS ON SUBJECTIVE STRESS AND APPRAISAL TO ACUTE STRESS**

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Although many previous studies have reported hardiness - a personality trait composed of commitment, control and challenge - to decrease life events stress and negative appraisal of those events, hardiness studies on acute stress are still lacking. This study examined the effects of hardiness on the subjective stress and the appraisal after acute laboratory stress. Forty-six undergraduates or graduate students, answered a hardiness scale for Japanese students, were administered 20 min Uchida-Kraepelin psychodiagnostic (UKP) test as a stressful task. Subjective stress was measured with Phasic Stress Scale (PSS) before and after the UKP test. After the task, participants filled out questionnaires appraising workload and disgust for the task. Low-hardiness group (n=23) showed more subjective stress increase than high-hardiness group (n=23). However there were no significant differences between two groups in the appraisal. The results suggest that hardiness decrease the subjective stress but have little effect on the appraisal to acute laboratory stress.

P-214-RF

**THE EFFECT OF PART-TIME JOB THROUGH SOCIAL SKILLS AND SELF EFFICACY ON INTERPERSONAL STRESS**

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**[Introduction]** The researches about stress management revealed that increasing social skills(SS) and general self efficacy(GSE) lead to decrease stress. A variety of training for enhancing SS or GSE was developed. The purposes of this study were to explore the effect of the experience of part-time working on SS and GSE, and to explore the influence of SS and GSE on interpersonal stress responses.

**[Method]** The subjects were 212 undergraduate students. They were requested to perform a set of questionnaire such as Kikuchi's Scale of Social Skills (Kikuchi, 1988 : KiSS-18), General Self Efficacy Scale (Tohjoh, Sakano, 1986 :GSE), Stress Response Scale(Suzuki et al., 1997: SRS-18), and the appraisals of part-time working (job rank, seeking advance, confidence in skills of job, affection for workplace.)

**[Results]** Results of ANOVA revealed that the subjects who had confidence and affection scored higher than those who did not have in KiSS-18(p<.01) and GSES(p<.05). Structural equation model (SEM) analyses revealed that anxiety about failure, the subscale of GSES, affected both directly and indirectly to interpersonal stress responses both directly and indirectly (positive correlation.) Further, 'anxiety about failure' affected to coping with trouble, the subscale of KiSS-18 (negative correlation.) 'Coping with trouble' affected to interpersonal stress directly (negative correlation.) (p=.15, CFI=.99)

**[Discussion]** The result of this study suggested that to decrease interpersonal stress in part-time job, to enhance confidence, affection, and to develop skills of coping with

trouble should be focused on.

P-215-RF

**MENTAL STATES OF THE OCCUPATIONAL THERAPY STUDENTS BEFORE CLINICAL PLACEMENTS, AND THE INFLUENCES OF PERSONALITY TRAITS AND COPING STYLES ON THEIR MENTAL STATES**

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**Abstract:** The aims of this study were to investigate 1) The mental states of the occupational therapy students just before their clinical placements, 2) The influences of each student's personality traits and coping styles on their mental states. Thirty-two third-year occupational therapy students in a four-year occupational therapy school participated in this study. They completed the following questionnaires a month before their clinical placements: Profile of Mood States-Brief Form (POMS), General Self-Efficacy Scale (GSES), Ego Aptitude Scale (EAS), The Narcissistic Personality Inventory Short version (NPI-S), and Tri-Axial Coping scale 24 (TAC24). POMS, which consists six-subcales of Tension-Anxiety, Depression-Dejection, Anger-Hostility, Vigor, Fatigue, Confusion, was used to measure the details of their mental condition. The other questionnaires were used to measure the personality traits and coping styles as factors affecting to their psychological status. Their mean scores of POMS subscales were compared, by using one-sample t-tests, to the standard scores that were showed in the preceding study. In addition, multiple regression analyses were performed to investigate the influences of personality traits and coping styles on their mental states before their clinical placements. The significant differences compared to the POMS standard scores were observed in Tension-Anxiety (Male: p<0.001[standard<OT-students], Female: p<0.01[standard<OT-students]), Depression-Dejection (Male: p<0.01[standard<OT-students], Female: ns), Anger-Hostility (Male: ns, Female: p<0.05[OT-students<standard]), Vigor (Male: p<0.01[OT-students<standard], Female: ns), Fatigue (Male: p<0.05[standard<OT-students], Female: p<0.10[standard<OT-students]), and Confusion (Male: p<0.001[standard<OT-students], Female: p<0.01[standard<OT-students]). The results of multiple regression analyses indicated that the students' mental states before the clinical placements tended to be affected by each student's personality traits and coping styles. The occupational therapy students had higher stress levels before their clinical placements. The stressful mood states were affected by the personality traits and the coping styles. Therefore it is important to consider each student's mental states, personality traits and coping styles in order to provide appropriate supports and learning opportunities.



## Track 'Stress/Psychophysiology/PN/PNE'

P-216-RF

### EFFECT OF MEDIATION FACTOR OF SUBJECTIVE SATISFACTION FOR RESULT OF COPING IN INTERPERSONAL STRESS SITUATION

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Subjective satisfaction for result of coping (SSRC) is regulated by the level of expectation or hope about stress events. However, early researches have not examined factors regulating SSRC in the unexpected situation (One et al., 2005). The purpose of this study was to examine mediation effects of the kind of coping and cognition in the coping selection on SSRC in such situation.

Subjects were 97 undergraduate students and graduate school students (mean age 19.67, SD=2.81). Subjects were asked to complete the following questionnaires: (a) Free description concerning interpersonal stress situation (b) the degree that the situation became as good as expected (c) tri-axial coping scale (TAC-24: Kamimura et al., 1995) (d) cognitive process of coping selection (Suzuki, 2006) (e) Satisfaction in Stress Management for Adolescent Questionnaire (SimaQ; Ono et al., 2005). Subjects who were not in the expected situation were used for analysis (N=63).

The result of an ANCOVA revealed that a significant interaction existed between TAC-24 (problem solving and the support desires, problem evasion, positive interpretations and distractive recreation) and coping selection (problem solving, emotion adjustment, habit, elimination) ( $F = 4.25, p < .05$ ). SSRC of the subjects who took problem evasion coping for elimination were higher than subjects who took the same coping for emotion adjustment. Furthermore SSRC of those who took problem solving coping for emotion adjustment were higher than subjects who took problem evasion coping for same the reason. These results indicate SSRC in such a situation that there is not any other available coping is different from that in the situation where coping is selected preferentially.

P-217-RF

### LONG-TERM HIGH NEED FOR RECOVERY IS RELATED TO POOR WELL-BEING AND DECREASED DIURNAL CORTISOL VARIABILITY

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Background: Chronic stress, particularly combined with a lack of recovery, has repeatedly been shown to lead to reduced subjective health. Long-term sustained stress activation may alter the feed-back system of the HPA axis, resulting in a lesser flexibility, which may appear as a flattened variability over the day.

Aim: To study whether a long-term high need for recovery results in flattened cortisol variability.

Methods 176 men and women, aged 51 (23-65) years, responded to a questionnaire, with 2-3 years time lag, and sampled salivary cortisol at morning awakening, at +30 minutes and at 9 p.m. The questionnaire comprised the Swedish Occupational Fatigue Inventory (SOFI), Self-Rated Health (SRH-7), and the single item "time needed to feel

recovered after a work week", with the response dichotomized as "long" (> 1 day) or "short" (1 day or less) need for recovery. From the responses at both measurements (T1 and T2), a four-level long-term need for recovery variable was computed (constantly short, decreasing, increasing, and constantly high need for recovery). The variable Cortisol Decline over the Day (CDD) at T2 was computed as the difference between maximal morning concentration and evening concentration.

Results: The need for more than one day to feel recovered after a work week at T2 was associated with a more flattened CDD ( $p=.003$ ), and with a poorer self-ratings on SOFI and on SRH-7 ( $p<.001$ ). CDD and the self-reported health measures were not significantly related to each other. For the long-term need for recovery variable similar but weaker associations between either constantly short or decreasing vs increasing or constantly high need for recovery on the one hand and a flattened CDD ( $p=.02$ ), as well as for fatigue and self-rated health ( $p<.001$ ), was found.

Conclusions: Long-term high need for recovery after the work week may be independently associated to both poor well-being and to a decreased flexibility in the HPA axis.

P-231-RF

### EFFECTS OF NEGATIVE MOODS AND THEIR INTERVENTIONS ON THE OCCURRENCE AND DEVELOPMENT IN PATIENTS WITH MORBIDITY OF ACUTE CORONARY EVENTS

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#### Objective

To explore the effects of negative moods on the occurrence and development in patients with morbidity of acute coronary events, and to observe the treatment efficacy of interventions of negative moods in the patients with acute coronary events.

#### Methods

Part I Effects of negative moods on the occurrence and development of the acute coronary events in patients with acute myocardial infarction (AMI)

125 cases admitted patients AMI were chosen as subjects, male 83 cases, female 42 cases, ages 36~48 ( $58.6 \pm 12.1$ ) years old. All the patients had normal intelligence, and had the education level of primary school or more advanced school. One week before admission, all the cases were tested by SAS and SDS, and divided into group I (SAS score >50), group II (SAS score ≤50), group III (SDS score <0.50), group IV (SDS score ≥0.50). The clinical index and ECG were observed and analyzed in each group.

Part II Effects of interventions of negative moods on the treatment efficacy of angina pectoris and morbidity of acute coronary events in patients with acute coronary heart disease

According to the diagnostic criteria recommended by WHO, 90 cases admitted patients with angina pectoris were chosen as subjects, who were divided into drug group and intervention group by the matches of sex, disease course and occupation between two groups, each group including 45 cases. Drug group was treated by normal therapy. Besides the normal treatment, intervention group were added the treatment of correcting negative moods. The treatment efficacy, ECG changes and morbidity of acute coronary events were compared between two groups.

#### Results

##### Part I

There were 47 cases (37.6%) in group I, 78 cases (62.4%) in group II. The morbidities of ventricular tachycardia,

ventricular fibrillation, cardiac sudden death, postinfarctional angina pectoris and reinfarction in group. increased significantly compared with those in group II ( $P<0.05$ ). There were 69 cases (55.2%) in group III, 56 cases (44.8%) in group IV. The morbidities of ventricular tachycardia, ventricular fibrillation, cardiac sudden death, postinfarctional angina pectoris and reinfarction in group III decreased significantly compared with those in group, ( $P<0.05$ ).

#### Part II

In drug group, there were 27 cases (60.0%) had obvious treatment efficacy, and 16 cases (35.6%) had certain treatment efficacy. In intervention group, there were 38 cases (84.4%) had obvious treatment efficacy, and 7 cases (15.6%) had certain treatment efficacy. The rate of obvious treatment efficacy in intervention group increased more highly than that in drug group ( $P<0.05$ ). In drug group, there were 11 cases (24.4%) appeared obvious improvement of ECG, and 13 cases (28.9%) appeared certain improvement of ECG. In intervention group, there were 26 cases (57.8%) appeared obvious improvement of ECG, and 11 cases (24.4%) appeared certain improvement of ECG. There were obvious difference in ECG improvement between two groups ( $P<0.05$ ). The controlled period of the attack of angina pectoris were 5~13 days, even 8.7 days in drug group, 3~11 days, even 6.5 days in intervention group, and there was an obvious difference between the two groups ( $P<0.05$ ). After treatment for 3 months, the morbidity of acute coronary events was 21.05% in drug group, 4.76% in intervention group, and there was an obvious difference between the two group ( $P<0.05$ ).

#### Conclusions

1. Some patients with AMI have the negative moods of anxiety or depression, which can aggravate the occurrence and development of AMI, can induced serious acute coronary events (such as cardiac sudden death) to affect disease changes and life qualities of patients with AMI.

2. The therapy of intervention of negative moods has an obvious effects in patients with angina pectoris, which suggests that intervention of negative moods has an important meaning in rehabilitation of coronary heart disease and in prevention of the occurrence of acute coronary events.

#### Key words:

Negative moods; Coronary events; Intervention; Acute myocardial infarction

## Track 'Traditional, Integrative & Complementary Medicine'

### P-218-RF

#### AROMATHERAPY MASSAGE BENEFIT PATIENT WITH IDIOPATHIC ENVIRONMENTAL INTOLERANCE IN SHORT TERM MOOD CHANGES: A PILOT STUDY.

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Background: Idiopathic Environmental Intolerance (IEI) or Multiple Chemical Sensitivity is an illness that associates with diverse environmental factors tolerated by majority of people. IEI patients report varieties of symptoms such as fatigue, anxiety, headache, lack of concentration, or depression without physical signs or biomedical test abnormalities, and most of them are provoked by odorous substances. Although there are

many researches concerning definition or mechanisms of IEI, clinical trials to reduce IEI symptoms are lacking. We focused on aromatherapy which has been reported to relieve depression and/or anxiety. As both IEI and aromatherapy relate with perceptual, behavioral, or cognitive outcome by olfaction stimuli, we made a unique hypothesis: the application of pleasant scent with relaxant experience reduce the negative cognitive processing of odor and help in reducing IEI symptom.

Method: Out patients who visited W clinic assuming that they had an IEI have been invited to the cross-control randomized intervention trial since October, 2007. Intervention group received four aromatherapy massages with each lasting for one hour, and a control group was under observation. Background aldehyde and VOC levels in their homes were measured. Outcome measurements were IEI-score, POMS, and STAI. Qualitative questions according to aromatherapy were also asked.

Results: Eleven subjects signed up for intervention study and nine completed the midterm evaluation. Up to 20 subjects were expected to enroll by the end of 2008. Eight completed four aromatherapy sessions (including cross-over). Due to small number, there were no significant differences for both case and control for the IEI-scores, POMS and STAI comparing between baseline and midterm. However, POMS' Tension-Anxiety and Fatigue factors had been significantly reduced when compared before and after each massage.

Discussion: Effect of aromatherapy intervention to reduce IEI symptoms was still unknown. For short-term effect, each aromatherapeutic session caused positive mood changes in the IEI patients.

### P-219-RF

#### RELAXATION EFFECT CAUSED BY FINGER ACUPRESSURE ON PLANTA PEDIS

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Acupressure is an ancient Chinese healing therapy based on the principles of acupuncture, and utilizes fingers to press key locations on the surface of the skin to stimulate the body's natural self-curative abilities. It is beneficial as it can relieve pain and bring the body back into the harmonious balance, and is widely used especially for busy persons under stress. This paper describes the effects of acupressure on the changes of cardiovascular responses and spectral power of brain waves in 15 healthy young college students (20 1.5 years, 6 males, 9 females). Acupressure was given on right and left soles each for five minutes. Subjects were classified into three groups: Sym-Group in which sympathetic nervous activities were increased during acupressure, Para-Group parasympathetic nervous activities were increased and Others. Continuous electroencephalograms were recorded from 19 electrodes (10-20 system) during acupressure. Spectral power coherence (8-10 Hz) was increased between frontal and left temporal sites in Sym-G group ( $p < 0.05$ ) during right foot acupressure while the similar increase was observed only in frontal sites in Others group. Both heart rates and pulse wave velocities decreased during the acupressure similarly in these three groups. The results suggest that the manner of the cardiovascular response to acupressure is clearly different from those of EEG and autonomic nervous system.

P-220-RF

**A STUDY ON THE P300 EVENT-RELATED POTENTIAL COMPONENT AFTER THE ACUTE INTAKE OF VEGETABLE JUICE**

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It is well known that oxidant stress caused by free radicals in the living body contributes to the various chronic diseases, such as stroke, Alzheimer's disease and Parkinson's disease. However, this oxidant stress is also known to be suppressed to some degree by the intake of vegetables containing antioxidants. In addition, it is reported that there is a negative relation between increased vegetables intake and Parkinson and Alzheimer's disease. This study examined the effect of the vegetable juice intake on the brain activity using an event-related potential (ERP). Six healthy male subjects participated in the experiment. All procedures were approved by the Ethics Committees of the Graduate School of Science and Technology, Shizuoka University. We have measured ERPs caused by auditory oddball tasks before and after the intakes: vegetable juice and mineral water, and compared the amplitudes and latencies of P300. After vegetable juice intake, the latency of P300 was shortened significantly compared with that obtained for mineral water, whereas there was no significant difference in P300 amplitudes between both intakes. These results indicate that the shortening of P300 latency may reflect the change of cortical activities caused by the vegetable juice intake.

**Track 'Violence/Victimization/PTSD'**

P-221-RF

**BEHAVIOR, DISSOCIATIVE EXPERIENCES AND PSYCHOPATHOLOGY AFTER A MOTOR VEHICLE ACCIDENT**

*Pires T, Maia Â*

*University of Minho, Portugal*

**INTRODUCTION:** Motor vehicle accidents (MVA) are an important cause of death in occidental countries, and it is the first cause of death in youth. Alcohol, substance abuse, speed and other risky behaviours have been identified as explanatory reasons for these fatalities. Survivors frequently develop psychopathology after a traumatic experience as MVA, and acute stress disorder (ASD), depression, anxiety, phobic anxiety and PTSD are the most studied problems. In a previous longitudinal study with 42 victims we found that peritraumatic dissociation at the time of MVA predicts PTSD 4 and 24 months later, a result that match literature on trauma reactions.

**AIM and METHOD:** The aim of the study was to evaluate ASD and other symptoms in 65 MVA victims (51 males and 14 females; mean age 33 years), admitted to hospital. Most of the victims (91%) were vehicle drivers or passengers and the accident reasons they report were inattention (30,7%), speed

(20%), alcohol abuse (4,6%), little rest (6,2%), atmospheric conditions (3,1%), road signals (1,5%) and road conditions (7,7%).

Participants filled in Peritraumatic Dissociative Experiences Questionnaire (PDEQ) Stanford Acute Stress Reaction Questionnaire (SASQ) and Brief Symptoms Inventory (BSI), 5 days after the accident.

**RESULTS:** Subjects with ASD (46,2%) have more global psychopathology symptoms than subjects without ASD (53,8%). Dissociative experiences accounts for 42,3% of ASD symptoms, and are related with somatization, depression, anxiety, phobic anxiety, psychoticism, interpersonal relations and obsessive-compulsive symptoms ( $p < .001$ ).

**CONCLUSION:** Risk behaviours are an important reason for the MVA in this study, and the number of participant that developed ASD is high. Taking into account that peritraumatic dissociation and psychopathology symptoms shortly after a traumatic experience predict long term impact, health professionals, including should improve primary intervention with direct MVA victims and their families. In a social and community level, education should be provided in order to reduce accidents and their consequences.

P-222-RF

**ALCOHOL CONSUMPTION AND SICKNESS ABSENCE: EVIDENCE FROM PANEL DATA IN FINLAND 1993-2005**

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Nordstrom has argued using aggregate time series data from Sweden covering the time period 1935-2002 that national per capita alcohol consumption is strongly associated with sickness absence. Nordstrom's provocative claim is plagued by several methodological fallacies, however. To circumvent these, we used information on sickness absences and use of alcohol among consecutive annual representative random samples (of 5000 persons, respectively) of working age Finns from the Health Behaviour Monitoring System of the National Public Health Institute in the period 1993-2005. The response rate averaged 73%. The data was aggregated on NUTS3 regional level and linked to the gender-specific regional unemployment rates derived from Statistics Finland. The period examined is particularly interesting because of high unemployment rate of the early 1990's caused by a severe depression as well as a substantial lowering of alcohol prices caused by taxation change in 2004. In this paper, following the methodology suggested by Ruhm, fixed-effect models were used to examine within- region changes in alcohol consumption. Individual level control variables - years of education, age, age squared and marital status - were also used. As descriptive results, both genders showed an increase of sickness absences across time, and women tended to report more sickness absences than men. The province of Uusimaa, including the Helsinki Metropolitan Region, showed highest level of sickness absences among the 18 regions. As the main finding, alcohol consumption was indeed found to be associated with sickness absence among both genders, particularly among men whose alcohol consumption in the average was higher than that of women. As the most vulnerable measure of our study prevalence figures of alcohol consumption are likely downward biased. As we are interested in the time period change, though, this is not to hurt our conclusion that Nordstrom's claim has validity.

P-223-RF

**THE RELATIONSHIP AMONG STRESSORS, COPING STRATEGIES, AND STRESS REACTIONS IN JUNIOR AND SENIOR HIGH SCHOOL TEACHERS: COMPARISON OF VIGOR AND NEGATIVE STRESS REACTIONS**

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*Department of Psychology, Hiroshima University Graduate School of Education*

This study examined the relationship among stressors, coping strategies, and stress reactions of Japanese junior and senior high school teachers, comparing vigor with negative stress reactions. One thousand teachers were randomly selected. In February and March 2006, participants received a questionnaire by mail to rate individual factors (age, sex, and job tenure), job stressors (job demands and job control), vigor and negative stress reactions (anger, fatigue, anxiety, depressive symptoms, and physical complaint) from Brief Job Stress Questionnaire (Shimomitsu et al., 1998), and coping strategies (positive reinterpretation and growth, mental disengagement, focus on and venting of emotions, use of instrumental social support, active coping, denial, religious coping, humor, behavioral disengagement, restraint, use of emotional social support, substance use, acceptance, suppression of competing activities, planning) from COPE inventory (Carver, et al., 1989). Three-hundred forty-two participants returned the questionnaire. After excluding 23 participants, hierarchical multiple regression analyses were conducted for the responses of 170 male and 149 female teachers (mean age of 42.8 and 38.3, respectively) to demonstrate how individual factors, stressors, and coping strategies were related to vigor and negative stress reactions. The results indicated: 1) job demands, job control, and positive reinterpretation and growth positively related to vigor in men; 2) high levels of job control and positive reinterpretation and growth and low levels of job tenure, and behavioral disengagement related to high levels of vigor in women; 3) job demands related to vigor only in men, and job tenure and behavioral disengagement related to vigor only in women; 4) job control related to vigor and negative stress reactions among both sexes; 5) factors that related to high levels of vigor were different from those that related to low levels of negative stress reactions. Interventions not only reducing negative stress reactions but also enhancing vigor might be effective.

P-224-RF

**RELATIONSHIP BETWEEN WORKING HOURS, COPING SKILLS, AND PSYCHOLOGICAL HEALTH IN JAPANESE DAYTIME WORKERS: NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY AND HEALTH WORK AND HEALTH SURVEY IN 2006**

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This study examined the relationship between coping skills, working hours, and psychological health among Japanese daytime workers. Self-administered questionnaires were mailed to a randomly selected sample of 2,000 workers who were members of a pre-recruited market research panel. A total of 1,821 participants responded (response rate = 91.1%). After excluding 601 participants, the responses of the

remaining 1,220 subjects were analyzed. The mean age was 41.7 years ( $\pm$  SD 11.5) for men ( $n = 732$ ) and 41.3 years ( $\pm$  SD 11.3) for women ( $n = 488$ ). Participants completed a questionnaire regarding working hours, coping skills (Carver, 1997), and psychological health (negative emotions, fatigue, and concentration/activity levels; Sasaki et al., 2007). Working hours were classified into three categories: (1) 60 hours or less a week, (2) 61 to 65 hours a week, and (3) 66 hours or more a week. Analyses of covariance were conducted to determine the effects of number of working hours and coping skills on psychological health with control for sex, age, drinking, job type, and employment type. Results revealed that working hours were significantly associated with fatigue and concentration/activity levels. High use of instrumental support and positive reframing were significantly associated with low levels of negative emotions, fatigue, and concentration/activity levels. High use of self-blame, denial, substance use, venting, self-distraction, religion, and behavioral disengagement were significantly associated with high levels of negative emotions, fatigue, and concentration/activity levels. This study suggests that improving coping skills such as using instrumental support or positive reframing may reduce the adverse health effects of long working hours.

Acknowledgements: The present study was supported by grant-in-aid for project research on prevention of accumulated fatigue due to overwork from the National Institute of Occupational Safety and Health, Japan (P18-01).

P-225-RF

**AN INVESTIGATION INTO THE SELF-REGULATION OF SLEEP BEHAVIOUR**

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Introduction: Studies estimate that 10% to 40% of the population are chronically sleep-deprived. Sleep-deprivation research has largely concentrated on its effects on work rather than how work demands influence sleep. From a self-regulation perspective, sleep behaviour involves a series of controlled decisions about taking steps in the sleep process, coping with competing goal demands, and regulating emotions that may interfere with sleep. In recognition that goals to get sufficient sleep often compete with work-related goals, sleep promotion interventions often focus on promoting a healthy balance by enhancing the priority given to specific sleep goals. The present study of employed adults explored their sleep and work priorities and their associations with sleep behaviour.

Method: Adults employed full-time ( $N = 57$ ) completed measures of sleep priorities, general work priorities, work-goal processes (cognitions and emotions relating to self-set work goals), stress, and depression. Sleep behaviours were assessed with the Pittsburg Sleep Quality Index and the Pre-Sleep Arousal Scale.

Results: No significant differences emerged between work priorities and sleep priorities ( $t = .82, p = .42$ ). Step-wise regressions revealed that, contrary to expectations, higher sleep priority was associated with poorer sleep in terms of less sufficient sleep ( $t = -2.05, p < .05$ ) and greater pre-sleep arousal ( $t = 3.88, p < .01$ ). Work-goal processes were associated with lower sleep sufficiency ( $t = -5.76, p < .01$ ) and later wake time ( $t = 5.19, p < .01$ ). Associations were significant after controlling for perceived stress, depression, and demographic factors. Regression analyses also support the alternative hypothesis that poor sleep enhances sleep as a priority.

Conclusion: The findings provide insights into sleep self-regulation dynamics and suggest that sleep-deprived

individuals automatically heighten the priority of their sleep goals. They suggest that sleep promotion efforts should refocus away from attempts to increase attention on sleep goals, and instead assist people in managing work-related cognitions and emotions.

**P-226-RF**

**RELATIONSHIP AMONG JOB DEMANDS, JOB CONTROL, SOCIAL SUPPORT AND DEPRESSION OF JAPANESE SCHOOL TEACHERS**

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The aim of this study was to examine the relationship among job demands, job control, social support and depression of Japanese teachers. Participants were randomly selected from 1,000 junior and senior high schools, and received a questionnaire by mail in February and May 2006 (response rate = 34.2 %). Demographic variables (sex and the length of service) and the degree of job demands (quantitative, qualitative and physical load), job control, social support (from supervisor, colleague, and family and friends) and depression were asked. 328 teachers completed the questionnaire (174 males, 154 females). Hierarchical multiple regression analyses were conducted by sex, to examine the relationship among job demands, job control, social support and depression. The independent variables were introduced into the equation in the following order; Step 1: the length of service, Step 2: job demands, job control and social support (from supervisor, colleague, or family and friends), Step 3: two-way interaction terms (job demands  $\times$  job control, job demands  $\times$  social support, and job control  $\times$  social support), Step 4: three-way interaction terms (job demands  $\times$  job control  $\times$  social support). The results showed that: 1) High levels of job demands were associated with high levels of depression in both sexes; 2) High levels of job control and social support from supervisor were associated with low levels of depression in both sexes; 3) Among the high job demands group, high levels of social support from colleague was associated with low levels of depression in women; 4) Among the low job control group, high levels of social support from family and friends were associated with low levels of depression in men. Buffering effects of social support on the relationship between job demands and job control, and depression may be differed by sex, although further study should be needed.

**P-227-RF**

**ASSOCIATION OF STRESSFUL LIFE EVENTS AND PSYCHOLOGICAL STRESS REACTIONS WITH SICKNESS ABSENCE AMONG JAPANESE EMPLOYEES**

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**Objective.** To examine the association of stressful life events and psychological stress reactions with sickness absence among Japanese employees

**Method.** We analyzed questionnaire data and registered data regarding sickness absence from work for up to 5 months after survey completion.

We assessed 2,545 male and 89 female participants who completed the questionnaire. Stressful life events and psychological stress reactions (fatigue, irritability, social

anxiety, poor physical state, and mild depressive state) were assessed based on Job Stress Scale Revised version. Sickness absence data regarding whether or not the employees availed of sickness absence for the 5 months after the survey were obtained from the company. Logistic regression analyses with odds ratio (all independent variables were included—total number of stressful life events, total impact of stressful life events, and each subscale of psychological stress reactions) were used to determine the influence of job stress on sickness absence; controls were established for the sex and age.

**Results.** The logistic regression analyses showed that high scores regarding the total number of stressful life events and a subscale of psychological stress reactions—mild depressive state—were significantly associated with a risk of sickness absence, with odds ratios of 1.071 (95% CI, 1.028-1.116) and 1.042 (95% CI, 1.011-1.075), respectively.

However, the total impact of stressful life events and the other subscales of psychological stress reaction, namely, fatigue, irritability, social anxiety, poor physical state were not significantly associated with the risk of sickness absence.

**Conclusion.** The total number of stressful life events and some psychological stress reactions may be important for prediction of sickness absence among Japanese employees. The results might have important implications in possible interventions aimed at reducing the excessive health risk posed by stress. A study is currently being conducted for critical examination of the observed associations.

**Track ‘Work related health’**

**P-228-RF**

**JOB STRESS AND MALE MENOPAUSE SYMPTOMS IN A JAPANESE MEDIUM-SIZED COMPANY**

**Taniguchi T (1), Fujii Y (1), Hirokawa K (2)**

*1 Okayama Prefectural University; 2 Fukuyama University*

The purpose of the study was to investigate the relationship between job stress and male menopause symptoms in a Japanese medium-sized company. A cross-sectional survey including the Job Content Questionnaire (JCQ) (Kawakami, 1998; Karaseck, 1985) and the Aging Males' Symptoms (AMS) scale (Heinemann et al., 1999), health behaviors (currently smoking, drinking frequency, exercise, and body mass index), history of disease (hypertension, diabetes, cardiopathy, cerebrovascular), and blood sampling of cortisol, testosterone and dehydroepiandrosterone (DHEA), was conducted. Among 656 male workers, 507 men responded to the questionnaires, and the final number of participants was 256 men (mean age = 50.4 years, SD = 9.1) who completed all relevant questionnaires and blood sampling. In the total score, 74 men (28.9%) had no/ little symptoms, 75 men (29.3%) had mild symptoms, 69 men (27.0%) had moderate symptoms, and 38 men (14.8%) had severe symptoms. The respondents were classified into two groups: no/ little symptoms and positive symptoms. Logistic regression analyses adjusting for age showed that men with high job demand increased their menopause risks (OR = 2.33, 95% CI: 1.13-4.83), compared to those with low job demand. When age, cortisol, testosterone, DHEA levels and health behaviors were adjusted, men with high job demand increased their menopause risks (OR = 2.62, 95% CI: 1.20-5.73) compared to those with low job demand, and men with medium workplace support increased their menopause risks (OR = 2.27, 95% CI: 1.01-5.10) compared to those with high workplace support. Our finding suggested that high job demand was associated with male menopause symptoms, whereas workplace support may

reduce them. (256 words)

P-229-RF

# **DEVELOPMENT OF “STRESSOR SCALE FOR HIGH SCHOOL TEACHERS**

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The purpose of this study was to develop “Stressor Scale for High School Teachers”. In the first investigation, high school teachers (n=190) completed free response format about “work related stressor”. In consequence, 144 items were extracted by KJ-Methods. Two graduate students majored in clinical psychology, a high school teacher and a professor majored in psychosomatic medicine evaluated content validity. In consequence, 67 items were picked out. In the second investigation, high school teachers (n=201) completed prototype “Stressor Scale for High School Teachers” and Japanese version of General Health Questionnaire-28items (GHQ-28) for verifying internal consistency and construct validity. Exploratory factor analysis revealed five factors structure: Factor 1 “Organization and Job Environment”; Factor 2 “Busyness”; Factor 3 “Teaching”; Factor 4 “Job Specifications except Teaching” ; Factor 5 “Student Guidance”. Cronbach’s coefficient alpha of all items was .93. Item-total correlation and good-poor analysis indicated that all items contributed to reliability of “Stressor Scale for High School Teachers”. Correlation coefficients between each factor score and total score of “Stressor Scale for High School Teachers” and GHQ-28 were .17-.55 ( $p>.01$ ). This result was interpreted as high construct validity of “Stressor Scale for High School Teachers”. There was no difference between female and male in the score of “Stressor Scale for High School Teachers”.As a result, “Stressor Scale for High School Teachers” that is composed of 44 items and that is 5 factors structure was developed. And it was confirmed that this scale had enough reliability and validity.  
(243words)

## Symposia, Saturday 30 August

SS34

### Cross National and Cross Cultural Studies of Social Support ? Toward Understanding the General and the Specific

*Chair (s) : Edwin B. Fisher*

Social support is one of the most important variables in health; its absence, social isolation, is as lethal as smoking a pack of cigarettes per day. Social support also entails features that may vary across settings, peoples, cultures, and nations. This symposium will address international commonalities in social support as well as aspects that appear specific to setting and group. From Japan, Norito Kawakami will describe comparisons of social support in reducing the impacts of job overload among US and Japanese workers. For Japanese workers, the main effect of supervisor support was most evident, whereas for US workers buffering effects (interactions with) job overload were apparent for support from supervisors, coworkers and spouses. From Norway, Irene Oyeflaten will describe relationships between Directive support (controlling, prescriptive) and greater subjective health complaints among rehabilitation patients. In contrast, Nondirective support (cooperative, accepting feelings and choices) is associated with lower levels of subjective health complaints in US samples. From the US, Jeanne Gabriele will describe differences in response to an e-coaching weight loss intervention. Greatest satisfaction with support, alliance, and engagement was in response to a Nondirective intervention for European Americans but in response to a Directive intervention for African Americans. The chair, Edwin Fisher, will discuss these and broader patterns of findings regarding Nondirective and Directive support in samples from varied ethnic groups and nations. Across all of these, a theme emerges. It appears there are fundamental aspects of social support that are fairly universal, such as benefits of support in mitigating effects of job overload or other stressors, or the fundamental distinction between Nondirective and Directive support. In contrast, support may vary by source (supervisor, coworker, spouse), specific pathways (main effects vs buffering modifiers of stressors), and specific group (those from different countries or African American vs European American groups).

SS34-1

### WORKSITE AND NON-WORK SOCIAL SUPPORT AND PSYCHOLOGICAL DISTRESS AMONG WORKERS IN THE US AND JAPAN

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**Objective:** Previous literature suggests different roles of worksite and non-work social support in the US and Japan. We tested a US-Japan difference in main and buffering effects on psychological distress of different sources of social support in a sample of workers.

**Methods:** We analyzed data from cross-sectional surveys of job stress in the US and Japan (Roberts, Kawakami & Haratani, 1992). Workers employed in two plants of an electric manufacturing company in Japan (n=2,309) and in a plant of its subsidiary company in the US (n=184) were surveyed using a self-report questionnaire. Four types of social

support (support from a supervisor, coworkers, a spouse, and friends) were measured by a modified version of a scale by House (1980). Job overload was measured by using a scale developed by Caplan et al. (1975). The Japanese translations were checked through a back-translation procedure; these scales showed high internal consistency reliability in Japan and the U.S. Psychological distress was measured by using the 20-item CES-D. Direct and buffering effects against (i.e., interaction with) job overload of each type of social support on psychological distress were analyzed by multiple linear regression simultaneously controlling for gender and age.

**Results:** A series of multiple linear regressions showed that supervisor support had a significant main effect on psychological distress among the Japanese workers ( $p < 0.01$ ), while supervisor support had a significant buffering effect among the US workers ( $p < 0.01$ ). Also for support from coworkers and spouse, buffering effects were significant among the US workers and more prominent than among the Japanese workers.

**Conclusions:** Main effects of supervisor support for Japanese workers and buffering effects of worksite and non-work social support for the US workers may be important, which agrees with theories and literatures on cultural difference in the workplace social structure.

SS34-2

### NONDIRECTIVE SOCIAL SUPPORT AND SUBJECTIVE HEALTH COMPLAINTS AMONG NORWEGIAN AND UNITED STATES SAMPLES

*Oyeflaten I (1), Eriksen H R (2), Gabriele J M (3), Fisher E B (4)*

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This study examined differences in reports of Nondirective support (ND; cooperative, accepting feelings and choices) and Directive support (DIR; taking control, prescriptive) and relationships with Subjective Health Complaints (SHC) among Norwegian rehabilitation patients' and a US sample of African American (AA) and European American (EA) adults. **Methodology:** From Norway, 132 consecutive patients (mean age = 45) in a 4-week, in-patient, rehabilitation program reported support from their families and from rehabilitation staff. The convenience sample of 305 US adults (mean age = 53) included 55% AAs and 45% EAs.

**Results:** In all cases, reports of ND were higher than DIR ( $p < .001$ ) but EA reported higher ND than AA and AA reported higher DIR than EA ( $p < .001$ ). Although Norwegian patients reported greater support from rehabilitation staff ( $p < .001$ ), only support from family was related to SHC. In particular, DIR from family was associated with reports of greater musculoskeletal, gastrointestinal, and pseudoneurological SHC (standardized beta coefficients = .301, .337, .212; all  $p < .05$ ). In contrast, ND was associated with lesser musculoskeletal, gastrointestinal, and pseudoneurological SHC (standardized beta coefficients = -.241, -.261, -.237; all  $p < .05$ ) in the US sample. Turning to differences among subgroups, among both AA and EA, ND was associated with lesser SHC, but among EA, DIR was also associated with greater SHC. Suggesting discriminant validity of all of these findings, support was generally unrelated to flu or allergy SHC.

**Conclusion:** The distinction between ND and DIR is robust across family versus professional staff, patient vs. non-patient samples, Norwegian vs. US samples, and AA vs EA groups.

In general people report higher ND than DIR, ND is associated with fewer SHC, and DIR with greater SHC. However, specific pathways linking these types of support with SHC vary across groups and settings.

### SS34-3

#### **EFFECTS OF NONDIRECTIVE AND DIRECTIVE SUPPORT ON ALLIANCE, SATISFACTION, AND ENGAGEMENT IN AFRICAN AMERICAN AND EUROPEAN AMERICANS IN THE UNITED STATES**

**Gabriele J M**

*Washington University in St. Louis, St. Louis, Missouri, U.S.A.*

This study assessed the effects of Nondirective support (ND) and Directive support (DIR) on working alliance, support satisfaction, and program engagement in European Americans (EA) and African Americans (AA) participating in a 12-week e-coaching weight loss program. Overweight adults (N = 68, M age = 44.8 years, 73.5% EA) were randomly assigned to one of two e-coach conditions: ND (collaborative, flexible, guided by needs and perspectives of recipient) or DIR (prescriptive, protocol driven). Each week participants received by e-mail 1) a weight loss lesson and a web link which allowed them to report their weight, daily calories, and exercise and 2) feedback graphs and individualized weight loss support and suggestions. These were structured to reflect either ND or DIR support (e.g., “those in similar situations often find it helpful to...” versus “this coming week, you should...”). Controlling for gender, age, and education, significant interactions were found between support condition and ethnicity on alliance ( $p < .01$ ), satisfaction ( $p < .05$ ), and engagement ( $p < .01$ ). Generally, EA reported higher levels of alliance, support satisfaction and engagement in the ND condition, while AA reported higher levels in the DIR condition. EA reported significantly greater alliance in ND (4.32 on a 5 point scale) than DIR (3.50). In AA, alliance was nonsignificantly higher in DIR (4.40) than ND (3.89). Similarly, EA reported greater support satisfaction in ND (3.52 on a 4 point scale) than DIR (2.72) while AA reported high support satisfaction in both DIR (3.22) and ND (3.18). Regarding engagement, EA reported significantly greater engagement in ND (16.41) than DIR (14.26). In contrast, AA reported significantly greater engagement in DIR (16.50) than ND (10.50). These findings show the salience of the ND-DIR distinction when incorporated into interventions, as well as pointing to interactions of type of support with varying group characteristics.

### SS31

#### **Brain, behavior, metabolism and obesity**

**Chair (s) : Ursula Stockhorst**

The brain has an important influence on the regulation of food-intake and energy metabolism. The present symposium addresses these questions in an interdisciplinary approach, reporting data obtained in animals (Woods) healthy humans (Stockhorst et al., Hallschmid et al.), and obese, prediabetic subjects (Hallschmid et al.).

The brain is sensitive to external environmental signals of food. It thereby enables the organism to make so-called anticipatory or cephalic-phase responses already when confronted with food-related stimuli. So far, the cephalic insulin response was examined. Woods will show that in addition to insulin, other food-intake related hormones (ghrelin, glucagons-like peptide) are subject to a centrally-

mediated anticipatory secretion, triggered by environmental signals that predict food. This allows that animals anticipating eating a large meal secrete numerous metabolic hormones enable more food to be consumed.

There is increasing evidence that the brain's influence on food-intake is at least partly accomplished by peripheral hormones acting on the brain. An interesting candidate is insulin. Insulin receptors are found with a high density in the olfactory bulbs, the hypothalamus, the hippocampus and cerebral cortex. Two of the papers deal with the function of insulin in the human brain, reporting data obtained after intranasal administration of the hormone. Central insulin reduces food intake - especially in males (Stockhorst et al.). It has catabolic properties, reducing body-fat, an effect also obtained by intranasally administered melanocortins (Hallschmid et al.). Obesity in humans was associated with a relative lack of insulin in the cerebrospinal fluid and with diminished central nervous sensitivity to the catabolic effects of insulin and melanocortins (Hallschmid et al.). Moreover, central insulin has memory-improving effects, mainly affecting spatial memory, predominantly in females (Stockhorst et al.).

In sum, the present symposium addresses important topics of the brain's influence on food-intake, weight-regulation and obesity and reveals clinical implications for Behavioral Medicine.

### SS31-1

#### **LEARNING TO ANTICIPATE FOOD: THE EFFECT ON METABOLISM**

**Woods S C**

*Department of Psychiatry, Obesity Research Center, University of Cincinnati, USA*

Background and questions:

Food interacts with numerous ongoing homeostatic processes when it enters the body, processes that control ongoing metabolism. Individuals living in predictable environments learn to make anticipatory responses when confronted with food-related stimuli. These are collectively called cephalic responses, with cephalic insulin secretion being the most-studied; cephalic insulin enables the consumption of larger meals, in part by reducing meal-associated glucose rises. We asked whether other hormones are secreted cephalically when meals are anticipated and how they interact with metabolic processes.

Methods:

Male rats with iv catheters received ad lib food (controls) or else all of their food in the same 4-h window (1200 to 1600-h) each day (meal-fed, MF). Intake and body weight were assessed daily. After 14 days, blood samples were taken starting at 1000-h).

Results:

MF rats weighed slightly less than controls but were gaining weight at the same rate. Glucose was stable in both groups between 1000 and 1200-h, although slightly lower in MF rats. Insulin increased significantly in MF rats at 1145-h. Ghrelin began increasing in the MF rats at 1100-h, and was significantly higher than that of comparably fasted controls. Glucagon-like peptide-1 GLP-1 increased significantly in MF rats beginning at 1045, peaked at 1100, and returned to baseline by 1115-h.

To determine the function of the cephalic GLP-1, MF rats received the selective GLP-1 receptor antagonist Exendin-[desHis-1,Glu-9] (“exendin”) or vehicle, ip, at 1000-h. One week later the groups were reversed, such that each rat received both exendin and vehicle. Several weeks later the



same rats underwent the same two procedures except that the exendin was administered at 1145-h. Exendin at 1000-h significantly reduced subsequent food intake whereas at 1145-h it significantly increased intake.

**Discussion:**

Animals anticipating eating a large meal secrete numerous metabolic hormones that act together to enable more food to be consumed.

**SS31-2**

**EFFECTS OF INTRANASAL INSULIN ON FOOD-INTAKE, MEMORY, AND ENDOCRINE PARAMETERS IN HEALTHY MALE AND FEMALE HUMANS**

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*1 Department of Psychology, University of Osnabrueck, Germany; 2 Institute of Medical Psychology, University of Duesseldorf, Germany; 3 Clinic of Endocrinology, Diabetology and Rheumatology, University of Duesseldorf, Germany*

**Background and questions:**

Insulin plays an important role in the brain and has a variety of behavioral and metabolic effects: It acts as a central adiposity signal, mainly for visceral body fat tissue, and thereby affects food-intake, predominantly in males. Central insulin also influences memory function. Whereas most data are based on animal studies, we examine healthy male and female humans.

**Methods:**

Thirty male and 30 female students were randomly assigned to receive six times either intranasal insulin (20 iU every 15 min) or 0.2 ml of placebo. Blood glucose, plasma insulin, leptin, cortisol and estradiol were repeatedly sampled per session. Declarative memory functions as well as acoustically evoked potentials (AEPs) were assessed in baseline and twice during intranasal treatment. Food-intake was measured by a test meal delivered at the session's end. Additionally, sleep duration and daily food-intake were assessed on the treatment day and during the subsequent week.

**Results:**

Data reveal a gender-specific effect of acute administration of intranasal insulin on food-intake: Only in males, not in females, calorie-intake was lower after insulin compared to placebo. Gender-specificity also applies to blood-glucose changes and insulin: Within the euglycemic range, only male subjects demonstrate a decrease relative to baseline during insulin treatment compared to placebo, and an increase in plasma insulin. Additional hormone analyses are under progress. In memory, a selective improvement in a spatial-memory task was found, mainly in females.

**Discussion:**

We find a differential sensitivity of male and female humans to the anorexigenic effects of intranasally administered insulin, and interestingly a gender-specificity also concerning blood-glucose and selected hormones. Memory improvement affects spatial memory, here mainly in females. Effects on AEPs, mood and sleep will be also reported. Mechanisms accounting for gender-specificity of central insulin's effects and the clinical relevance of our results will be discussed.

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**SS31-3**

**OBESITY, DIABETES AND BRAIN FUNCTIONS**

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**Background and questions:**

Increasing evidence suggests that the brain plays a dominant role in the regulation of energy metabolism and body weight and that obesity and type 2 diabetes mellitus derive from malfunctions of joint central nervous pathways. In a series of studies, we investigated the role of central nervous neuropeptidergic signaling in healthy, normal-weight humans and in obese, pre-diabetic patients.

**Methods:**

Central nervous effects of insulin and of MSH/ACTH4-10, a melanocortin receptor agonist, were assessed by means of intranasal administration of the compounds. Insulin acts in the brain to reduce food intake and body weight and is considered a major adiposity signal. In addition, it triggers memory formation and enhances mood. Melanocortins are pivotal mediators of anorexigenic/catabolic effects, i.e. they inhibit caloric intake and increase energy expenditure.

**Results:**

In normal-weight men, long-term intranasal insulin administration induced loss of body fat and improved declarative memory. In contrast, insulin treatment did not induce any significant reduction of body weight and body fat in obese men. However, in accordance with the effects in normal-weight men, declarative memory was improved and hypothalamic-pituitary-adrenal axis activity was reduced in obese subjects after insulin treatment. Correspondingly, prolonged administration of MSH/ACTH4-10 induced weight loss in normal weight, but not in overweight humans. Furthermore, obesity in humans was shown to be associated with a relative lack of insulin in the cerebrospinal fluid.

**Discussion:**

These results indicate that obesity is associated with diminished central nervous sensitivity to the catabolic effects of insulin and melanocortins. Impairments in central nervous catabolic signaling cause hepatic insulin resistance, indicating that obesity and type 2 diabetes are linked via defects in neuronal energy sensing and processing. Restoring neuronal insulin and/or melanocortin signaling by effective intranasal administration of the compounds may thus prove beneficial in the prevention and treatment of both disorders.

**SS37**

**IPEN: International research on physical activity and the environment**

*Chair (s) : James Sallis*

Physical activity is a public health priority internationally. The Centers for Disease Control and the WHO now recognize the importance of the built environment in physical activity promotion. Research to date on the built environment has been led by the USA and Australia, yet these countries have limited variability in walkability that is likely to underestimate associations. It is therefore important to study a wider range of environments which can only be provided by an international study that includes countries with greater density, pedestrian zones, good public transport and extensive bike networks. IPEN (International Physical activity and the Environment Network) was established to provide common methods for researchers that will facilitate comparability of results across countries. The aim of this symposium is to present methods

and findings from multiple countries: USA, Australia, Japan, and Czech Republic. Dr Sallis will provide an overview of IPEN, then summarize primary results from studies in the USA and Australia whose design and methods are the basis for IPEN. Dr Inoue will present one of the first studies of the connection between neighborhood environments and physical activity from Asia. His study in four Japanese cities finds results from Western studies mostly generalize to Japan. Dr Mitás from the Czech Republic will describe an ongoing study. Development patterns in formerly-communist Central European countries provide excellent opportunities to test environmental hypotheses. Presenters will demonstrate how common methods can be used across countries and highlight the unique features of built environments and data sources in their countries. The Discussant will be Dr Duncan Macfarlane from Hong Kong who will compare and contrast findings from different countries and comment on the potential scientific and policy impacts of these international collaborative studies.

### SS37-1

#### **IPEN: OVERVIEW, COMMON METHODS, AND INITIAL FINDINGS**

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1 San Diego State University, San Diego, CA USA; 2 University of Queensland, Brisbane, Australia; 3 Ghent University, Ghent, Belgium

The International Physical activity and the Environment Network - IPEN - was established in 2004 to support research into physical activity and the built environment around the world. A common study design and core set of measures is being promoted, based on similar studies conducted in the USA and Australia. Use of common methods will allow pooling of data and comparison of results across countries. Common measures are: the Neighborhood Environment Walkability Scale (NEWS), the International Physical Activity Questionnaire (IPAQ) long version, accelerometer data, and GIS-based environment assessment. The NQLS Study in the USA recruited 2200 adults from 32 neighborhoods that varied on walkability and income. Participants living in high-walkable neighborhoods (high residential density, mixed land use, connected streets) had more minutes of physical activity from accelerometer monitoring, reported more walking for transportation, and had lower rates of overweight/obesity than those living in low-walkable neighborhoods. Using very similar methods, the PLACE Study in Australia recruited 2650 adults and found walkability was related to frequency and duration of walking for transportation. This international replication demonstrates the feasibility of a multi-country study. The IPEN network has 300 registered members in over 40 countries. IPEN-recommended surveys have been translated into 9 languages, and IPEN based studies have been funded in 10 countries. The IPEN website posts measures and protocols. Funding is being sought to support a coordinated international study with high quality control standards and analyses of pooled data. Eventually, IPEN data will allow analyses of walking for transportation, leisure physical activity, total moderate-vigorous physical activity and obesity. It is hypothesized that specific environmental attributes will support each of these outcomes. The potential for these data to inform national and international policies will be highlighted.

### SS37-2

#### **RELATIONSHIPS BETWEEN ENVIRONMENTAL ATTRIBUTES AND WALKING FOR VARIOUS PURPOSES AMONG JAPANESE ADULTS**

**Inoue S**

*Department of Preventive Medicine and Public Health, Tokyo Medical University*

**OBJECTIVE:** To determine whether relationships between walking and environmental attributes found in Western populations generalize to Japanese adults.

**METHODS:** A cross-sectional study was conducted in four Japanese cities (Tsukuba, Koganei, Shizuoka, Kagoshima). A mail survey was completed by 736 randomly-selected respondents (37% response rate; 45% men; age: 20-69 yr,  $47.9 \pm 14.3$  yr). Duration of walking (min/week) was reported for 4 purposes: commuting, leisure, daily errands such as shopping, and other purposes. Perceived environments were assessed by self-administered questionnaire, Abbreviated Neighborhood Environment Walkability Scale (ANEWS). For statistical analyses, walking duration and environmental variables were converted into dichotomous variables. Logistic regression models were used to compute the odds of total walking, walking for daily errands and leisure walking in relation to environmental variables, adjusted for age, sex and education.

**RESULTS:** Five of eight environmental variables, residential density (OR, 95%CI: 1.97, 1.44-2.68), access to services (1.50, 1.11-2.04), street connectivity (1.40, 1.02-1.92), sidewalks (1.36, 1.00-1.85) and aesthetics (1.38, 1.01-1.88), were associated with total duration of walking. Environmental variables related to walking were different depending on the purposes of walking. Subjects who perceived high residential density (2.04, 1.46 - 2.83), good access to services (1.63, 1.18-2.26) and good street connectivity (1.49, 1.06-2.1) tended to walk more for daily errands. Environmental attributes associated with leisure walking were sidewalks (1.57, 1.13-2.19), aesthetics (1.99, 1.41-2.81) and traffic safety (1.42, 1.02-1.97). Stratified analyses by sex revealed other sex-specific relationships. Environmental attributes were more strongly related to daily walking among women and to leisure walking among men.

**CONCLUSIONS:** Environmental attributes consistently correlated with walking in Western countries were also related to walking among Japanese adults. Purpose-specific and sex-specific relationships between walking and environmental attributes emerged in this study.

### SS37-3

#### **A COORDINATED APPROACH TO RESEARCH ON PHYSICAL ACTIVITY AND THE ENVIRONMENT IN CENTRAL EUROPE**

**Mitás J, Fromel K**

*Center for Kinanthropology Research, Palacky University*

Studies are underway in the Czech Republic using the IPEN study design and measurement methods. Because of similar conditions and existing collaborations, we plan to expand the study to Poland and the Slovak Republic. The history of urban development in Central Europe allows tests of environmental hypotheses that are relevant to development policies in these countries and elsewhere. Historically, city centers were characterized by high levels of walkability. During the communist era, residential construction was dominated by prefabricated apartment blocks built in the periphery of towns

without infrastructure such as shopping areas, but with good public transport. Newly built residential areas are mostly constructed further into the outskirts. New developments follow a US suburban model with separation of homes and shops and lack of public transportation. These distinct models of development will allow us to test hypotheses about the separate and combined effects of residential density, mixed land use, and public transport in relation to physical activity outcomes. A particular strength of our studies is the availability of very detailed Geographic Information System (GIS) data. These data allow development of innovative variables to support complex GIS analyses of associations between environment and physical activity. For the IPEN studies we use standardized questionnaires, including the ANEWS environmental survey and long IPAQ to assess physical activity. For objective monitoring of physical activity, we use pedometers and accelerometers. Ethics committees do not allow use of incentives for participation, so we are using structured feedback from objective monitors to enhance participation rates. The IPEN studies have strengthened collaborations with researchers in several universities. Policy makers in the health, transportation, recreation, and city planning sectors are interested in using the data to improve policy and practice.

### SS39

#### **Concepts, mechanisms and treatment in chronic fatigue and Somatoform Disorders**

*Chair (s) : Rona Moss-Morris and Alexandra Martin*

Chronic fatigue syndrome (CFS), somatization, preoccupation with an imagined or slight defect in one's appearance, as well as pseudo-neurological conditions such as functional dysphonia are some of the various manifestations of medically unexplained syndromes. This list of syndromes highlights the potential heterogeneity of medically unexplained disorders. In this symposium we address a range of issues in relation to these disorders including possible mechanisms, clinical features, prevalence and treatment. The first two presentations address disorder related mechanisms and symptoms in CFS using experimental methods. The first explores the role of neuropsychological functioning in CFS when compared to autoimmune-thyroid disease patients and healthy controls (Dickson, Toft & Ronan O'Carroll). Compared to the other groups, CFS patients show a primary attention deficit which is independent of mood. The second looks at the role of a range of cognitive mechanisms including catastrophising, symptom focusing and fear avoidance beliefs in willingness to undertake a strenuous exercise test (Wearden, Riste & Bentall). Contrary to expectations, cognitive factors do not predict exercise performance, although fear avoidance is associated with perceived exertion on the task. The third presentation uses an epidemiological approach to assess the prevalence and features of Body Dysmorphic Disorder (BDD) and to compare clinical and behavioural features of BDD with those of multi-somatoform syndrome (Martin, Rief, Glaesmer & Braehler). BDD is shown to be a common disorder in the community with significant overlap with other somatoform syndromes. The last paper develops and evaluates a new cognitive-behavioural treatment (CBT) for Functional Dysphonia (Deary). The results of this pilot randomised controlled trial suggest that combining CBT with speech and language therapy has some important advantages over speech and language therapy alone.

### SS39-1

#### **A COORDINATED APPROACH TO RESEARCH ON PHYSICAL ACTIVITY AND THE ENVIRONMENT IN CENTRAL EUROPE**

*Mitas J (1), Fromel K (2)*

*1 Olomouc University, Czech Republic; 2 Center for Kinanthropology Research, Palacky University*

Studies are underway in the Czech Republic using the IPEN study design and measurement methods. Because of similar conditions and existing collaborations, we plan to expand the study to Poland and the Slovak Republic. The history of urban development in Central Europe allows tests of environmental hypotheses that are relevant to development policies in these countries and elsewhere. Historically, city centers were characterized by high levels of walkability. During the communist era, residential construction was dominated by prefabricated apartment blocks built in the periphery of towns without infrastructure such as shopping areas, but with good public transport. Newly built residential areas are mostly constructed further into the outskirts. New developments follow a US suburban model with separation of homes and shops and lack of public transportation. These distinct models of development will allow us to test hypotheses about the separate and combined effects of residential density, mixed land use, and public transport in relation to physical activity outcomes. A particular strength of our studies is the availability of very detailed Geographic Information System (GIS) data. These data allow development of innovative variables to support complex GIS analyses of associations between environment and physical activity. For the IPEN studies we use standardized questionnaires, including the ANEWS environmental survey and long IPAQ to assess physical activity. For objective monitoring of physical activity, we use pedometers and accelerometers. Ethics committees do not allow use of incentives for participation, so we are using structured feedback from objective monitors to enhance participation rates. The IPEN studies have strengthened collaborations with researchers in several universities. Policy makers in the health, transportation, recreation, and city planning sectors are interested in using the data to improve policy and practice.

### SS39-2

#### **NEUROPSYCHOLOGICAL FUNCTIONING IN CHRONIC FATIGUE SYNDROME- A COMPARISON WITH AUTO-IMMUNE THYROID DISEASE AND HEALTHY PARTICIPANTS**

*O'Carroll R, Dickson A, Toft A*

*Department of Psychology, University of Stirling*

**Aims:** Previous research exploring neuropsychological impairment in Chronic Fatigue Syndrome (CFS) has generated inconsistent findings and has been criticised for a) its "one off" cross-sectional approach; and b) its lack of appropriate clinical comparison groups. This study attempted to longitudinally investigate neuropsychological function in individuals with CFS and compared them with both healthy participants and a clinical comparison group (individuals with Auto Immune Thyroid Disease) (AITD).

**Method:** Neuropsychological evaluation was administered at two time points, five weeks apart. Twenty-one individuals with CFS, 20 individuals with AITD and 21 healthy participants were matched for age, premorbid intelligence, education level and socio-economic status. All groups also

completed measures of illness perceptions, mood, self-esteem and quality of life at both time points.

Results: The CFS group showed significantly greater impairment on measures of immediate and delayed memory, attention and visuo-constructional ability, and reported significantly higher levels of anxiety and depression than the AITD and healthy participants. After controlling for mood, the CFS group still demonstrated significant impairment in attention. The CFS group also reported significantly lower self-reported quality of life (QOL) than the AITD and healthy participants. In terms of illness perceptions, the AITD group believed that their condition would last longer, that they had more personal and treatment control of their condition, and reported less concern than the CFS group.

Conclusions: These results suggest that the primary cognitive impairment in CFS is attention and that this is not secondary to affective status. The cognitive deficits in CFS that have previously been reported (e.g. in memory, spatial ability and psychomotor functioning) may reflect a secondary consequence of a core attentional deficit.

### SS39-3

#### **PERFORMANCE ON A TIMED STEP TEST IN CHRONIC FATIGUE SYNDROME PATIENTS: THE ROLE OF ILLNESS BELIEFS.**

**Wearden A J (1), Riste L (1), Bentall R (2)**

*1 University of Manchester; School of Psychological Sciences; 2 University of Bangor, School of Psychology*

Aims: We aimed to assess the role of illness beliefs in willingness to undertake an exercise test, and to examine factors contributing to perceived exertion on the test. We predicted that 1) unwillingness to attempt the test would be associated with fear avoidance, 2) failure to complete the test would be correlated with symptom focusing and catastrophising and 3) perceived exertion on the test would be associated with symptom focusing and depression.

Method: Two hundred and ninety-six patients with a diagnosis of CFS (Oxford criteria), recruited from UK primary care, were assessed at entry to a randomised controlled trial. Two hundred and thirty were female (78%); the mean age was 44.6 years (s.d.11.4). Patients completed questionnaire measures of self-reported physical functioning, depression and anxiety symptoms, and illness beliefs. Measures derived from the step-test included time taken to complete 20 (or fewer) steps, pre- and post-test pulse rates and a measure of perceived exertion taken at the end of the test.

Results: Two hundred and thirty five patients (79%) attempted the step-test. 194 (66%) completed the twenty steps. There was no significant difference in fear avoidance scores between patients who attempted and did not attempt the step test. Patients who attempted the test had significantly higher self-reported physical functioning scores. In a logistic regression, completion of the step test was predicted by self-reported physical functioning, heart rate change and perceived exertion, but not by symptom focussing or catastrophising. Fear avoidance and depression were correlated with perceived exertion; however, in regression analysis, only self-reported physical functioning, rate of stepping and pulse rate predicted perceived exertion.

Conclusions: Contrary to expectations, our study suggested that performance on a timed step test is not determined by illness beliefs.

### SS39-4

#### **BODY DYSMORPHIC DISORDER AND SOMATISATION SYNDROME IN THE GENERAL POPULATION**

**Martin A, Glaesmer H, Braehler E**

*Philipps-University Marburg, Section for Clinical Psychology and Psychotherapy*

Aims: Body Dysmorphic Disorder (BDD) is characterized by the preoccupation with an imagined or slight defect in one's appearance, which leads to significant distress and/or impairment. While the disorder is classified among the Somatoform Disorders in DSM-IV, the knowledge about nosologic similarities of BDD and the other Somatoform Disorders that are mainly characterized by disabling medically unexplained somatic symptoms is very limited. The aims of this general population based study were to assess the prevalence and features of BDD as well as the direct comparison of BDD with multi-somatoform syndrome regarding clinical and behavioural characteristics.

Methods: A representative sample of the German population (2,510 subjects) completed self-report measures to assess BDD criteria (DSM-IV) and its associated characteristics, multi-somatoform syndrome (PHQ-15), depression severity (PHQ-9), health care utilisation, trauma experiences (CID1) and quality of life.

Results: The prevalence rates were 3.5% for BDD and 4% for multi-somatoform syndrome (PHQ). Females were affected significantly more often with BDD than males, while there was no significant association with age. Individuals with BDD, relative to individuals without BDD, reported significantly more often a history of cosmetic surgery, higher rates of suicidal ideation and higher rates of traumatic experiences. The mean number of additional somatoform symptoms was significantly higher in BDD cases than in controls ( $p < .001$ ); accordingly BDD subjects also showed an increased risk for comorbidity with multi-somatoform syndrome. The direct comparison of BDD with the somatisation syndrome group revealed more similarities than differences with regard to features such as health anxiety, health care utilization and depressive symptoms.

Conclusions: The current findings indicate that self-reported BDD is a common disorder in the general population that is associated with significant morbidity. This study also showed some similarities with other somatoform syndromes. Implications for diagnostic procedures and treatment will be addressed.

### SS39-5

#### **USING A COGNITIVE BEHAVIOURAL MODEL TO UNDERSTAND AND TREAT FUNCTIONAL DYSPHONIA**

**Deary V**

*Institute of Health and Society, University of Newcastle*

Aims: Functional Dysphonia (FD) is a medically unexplained condition characterised by alteration or loss of voice in the absence of physical pathology. Standard speech and language therapy (SaLT) improves voice but not the associated levels of anxiety, depression and poor general health. The present research programme has attempted to systematically develop and apply a cognitive behavioural model of medically unexplained symptoms (MUS) to conceptualise FD, and to improve the treatment of it.

Methods: First a series of exploratory interviews with

dysphonic clients and a literature review were used to build a model of FD in terms of predisposing, precipitating and perpetuating factors. Factors identified from this stage were then used to design a training package for a SaLT therapist, comprising the CBT model and treatment interventions. This was then trialled in a consecutive cohort pilot of standard SaLT (n=15), followed by CBT training, followed by a SaLT+CBT treatment (n= 13). Both interventions were delivered by the same briefly trained SaLT therapist.

Results: General Health Questionnaire scores improved significantly in both groups ( $p<0.05$ ) but improved significantly more in the SaLT+CBT group ( $p<0.05$ ). Hospital Anxiety and Depression improved significantly in the CBT group only ( $p<0.05$ ). Voice improved significantly in both groups ( $p<0.01$ ).

Conclusions: These results, and further interviews with both new FD clients and pilot study participants, have been used to inform the design of an exploratory RCT of SaLT versus SaLT+CBT, both delivered by a briefly CBT trained SaLT therapist. This phase is ongoing and data from it will be used to design a multi-centre RCT with the therapist as unit of randomisation. The development of this research programme offers new insight into an under-researched MUS, and provides a model for developing complex interventions in the conceptualisation and treatment of physical symptoms.

## SS35

### Health problems and risk behaviors in adolescence

*Chair (s) : Annette M. La Greca*

While adolescence is the healthiest period during the lifespan, with the lowest morbidity and mortality, this is also a time when important behaviors emerge or intensify that can increase immediate and/or long-term risk for health problems. Examples include substance use, dietary and activity patterns, and media exposure. Moreover, and the low morbidity notwithstanding, a portion of adolescents do experience significant health problems, then often of a chronic nature. Examples of note in this symposium are asthma, cerebral palsy, and autism. The overarching goal of this symposium is to provide a forum for the presentation of contemporary multidisciplinary research conducted in the United States and Australia on contributions to and consequences of health problems and risk behaviors during adolescence. To this end, four presentations are proposed for this symposium, each describing empirical research.

Common themes are present in the research described in these presentations, of which can be highlighted four in this overview. First is developmental nature of the problem being studied. That is, adolescence is a period of rapid changes across domains. Second, the family is an important component of the lives of adolescents. Of course, the family can both influence health and experience consequences of health problems. Third, both influences on and consequences of health problems occur at multiple levels. Research therefore needs to capture information broadly, preferably from all the way from biological to behavioral and on to socio-cultural domains. A final, and related, theme is the necessity to obtain information from multiple perspectives whenever possible. Commonly this involves data gathering via self- and maternal-report, but can also include direct observations.

## SS35-1

### MULTILEVEL INFLUENCES ON AND ADVERSE HEALTH OUTCOMES IN MAJOR RACIAL/ETHNIC GROUPS: THE HEALTHY PASSAGES STUDY

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*1 University of California, Merced, USA; 2 Emory University, USA; 3 University of Texas School of Public Health, Houston, USA; 4 Centers for Disease Control and Prevention, USA; 5 RAND Corp., Los Angeles, USA; 6 RAND Corp., Los Angeles, and Children's Hospital Boston/Harvard Medical School, USA*

Major health issues in adolescence commonly include substance use, sexual activity, mental health problems, injuries, and obesity-related behaviors. Early adolescence is a period when many behaviors that increase risk for adverse outcomes in these areas occur and track into adult life. Yet, relatively little is known about early modifiable determinants of engagement in these adverse health outcomes (AHOs). This study of early adolescents examined associations among substance use, pre-sexual activity, aggressive behavior, emotional dysfunction, unintentional injury, low physical activity, and poor nutritional intake, and potential determinants hypothesized at multiple levels of influence, including biology, intra-personal, family, peers, school, community, and media. A main purpose was to examine whether the pattern of associations differed among major racial/ethnic groups. Healthy Passages is a community-based, multi-site, longitudinal study. Sampling procedures ensured that the enrolled sample had sufficiently large representation of the major racial/ethnic groups in the U.S. (34% African American, 34% Hispanic, 24% white; also 9% other not included in this analysis). Wave 1 data collection occurred in three communities and enrolled 5148 5th grade children (age  $M = 11.1$ ) in public schools and their parents. Computer-assisted home interviews were conducted separately with each child and a parent (or primary caregiver filling a parental role). Multi-level structural equations analyses were conducted to examine correlates for these AHOs beyond basic demographic variables and their invariance across the three major racial/ethnic groups. While the patterns of correlates differed across different AHOs, it was invariant for each AHOs across the three race/ethnic groups. Nonetheless, the latent variable of social and school functioning was a correlate of 7 of 8 AHOs across all three major racial/ethnic groups. These findings suggest that, at least in early adolescence, important influences on the engagement in AHOs are shared among African American, Hispanic, and white youth.

## SS35-2

### INTERNET USE, EXPOSURE TO INTERNET PORNOGRAPHY, AND SEXUAL BEHAVIOR AMONG MIDDLE SCHOOL YOUTH

*Thiel M, Markham C, Peskin M, Tortolero S*

*University of Texas-Houston School of Public Health, USA*

Significant concern has been raised regarding adolescents' risky behaviors online and the potential for exposure to pornography online. However, few studies have examined the influence of pornography among adolescents, particularly exposure to pornography on the Internet. Therefore, this study examined the following research questions. First, what is the prevalence of exposure to Internet pornography and other risky Internet behaviors? Second, is exposure to pornography online

and other risky Internet behaviors associated with increased sexual behaviors among middle school youth? This cross-sectional study examines data collected from It's Your Game, an HIV, sexually transmitted infection, and pregnancy prevention program being evaluated in ten inner-city middle schools. Of the 1,221 participants, 57% were female, 43% were African-American, and 55% were under 13 years old, with a mean age of 12.5 years (SD = .69). Associations between Internet use, exposure to Internet pornography, and sexual behavior were examined using univariate and multivariate logistic regression controlling for gender, race/ethnicity, age, family structure, and parental education. Ten percent of students had experienced sexual solicitation from someone they met online and 8% had met someone in person they first met online. A significant proportion of participants (62%) said they had accidentally seen pornography online and 35% of participants said they had purposefully viewed pornography on the Internet. In the univariate and multivariate analysis, students who experienced sexual solicitation from someone they met online and students who had purposefully viewed pornography online were more likely to report lifetime and current sex. Additional research is needed to understand the impact of Internet use and exposure to Internet pornography on adolescents' sexual behavior.

#### SS35-3

### PARENT BEHAVIOUR AS A RISK FACTOR FOR ADVERSE PSYCHOSOCIAL OUTCOMES IN ADOLESCENTS WITH ASTHMA

**Cesareo J, French D**

*University of Western Australia, Australia*

Family dysfunction is a well established risk factor in child and adolescent chronic illness. We examined illness-specific behaviour within the family as a potential mediator of this effect. Adolescent reports of the kinds of support they receive and its perceived helpfulness may shed light on the risk behaviours associated with family dysfunction.

Respondents were 103 adolescents aged 13-14 years with a current diagnosis of asthma (45 mild, 34 moderate and 24 severe). They reported Quality of Life (QoL) using the KINDL Questionnaire (Ravens- Sieberer & Bullinger, 1998) and completed a Social Support Interview adapted from La Greca et al. (1995) during a home visit. Parents were not present during this interview, which assessed perceptions of the supportive and unsupportive asthma-related behaviours provided by family and friends. The Family Assessment Device (general functioning scale) was completed by mail by a parent of each adolescent.

Family functioning was related to the self ( $r = -0.23$ ,  $p < 0.05$ ) and family ( $r = -0.22$ ,  $p < 0.05$ ) scales of the QoL instrument. Responses to the Social Support Interview were coded qualitatively (the kinds of support perceived as helpful and unhelpful) and quantitatively (degree of helpfulness/unhelpfulness for each behaviour). Adolescents reported many more supportive than unsupportive behaviours, for example in connection with taking medication 79% of parent behaviours were perceived to be supportive and 21% unsupportive. It was however negative, rather than positive behaviour that was related to QoL; mediation analysis demonstrated that negative parent behaviour fully mediated the relationship between family dysfunction and QoL.

Neither family dysfunction nor QoL were illness-specific measures, and were reported by different informants, yet the perception by adolescents of unhelpful parental behaviours such as nagging, panicking or smoking in the home explained their relationship. These findings suggest that interventions

may be best directed at infrequent but important behaviours within the home

#### SS35-4

### THE RELATIONSHIP BETWEEN CAREGIVING TIME AND MENTAL HEALTH AND WELL BEING OF MOTHERS CARING FOR CHILDREN WITH CHRONIC DISABILITY

**Sawyer M (1), Baghurst P (1), Bittman M (2), Crettenden A (3), La Greca A (4), Martin J (5), Raghavendra P (6), Russo R (1), Iannos M (1)**

*1 Women's and Children's Hospital, Adelaide, Australia; 2 University of New England, Australia; 3 University of Adelaide, Australia; 4 University of Miami, USA; 5 Autism SA, Australia; 6 Novita Children's Services, Australia*

This presentation will describe the results of a study which compared the daily care-giving activities, time required for care-giving, and intensity of care-giving demands, for three groups of mothers. The groups consisted of: (i) mothers of children with autism ( $n=100$ ), (ii) mothers of children with moderate to severe cerebral palsy (Gross Motor Classification Scale Score (GMFCS) Level 2-5;  $n=100$ ), and (iii) mothers of children without chronic illness ( $n=50$ ). The study also investigated the extent to which care-giving time mediated the relationship between chronic childhood disability and maternal psychological adjustment and well-being. Information about care-giving activities was obtained using a time-diary based on the instrument employed by the Australian Bureau of Statistics (ABS) for its national time use survey. The time-diary divides the hours of the day into five minute intervals and collects the 'main' or primary activity and any simultaneous or secondary activities. Mothers also rated the intensity of physical and emotional effort they expended for each activity for the care and supervision of their child. The 30-item General Health Questionnaire (GHQ) and the Assessment of Quality of Life (AQoL-2) were used to assess maternal mental health and quality of life. Preliminary analyses of 135 diaries showed that mothers of children with autism and cerebral palsy spent similar amounts of time each day caring for their children (Cerebral Palsy Mean= 7 hours, 15 minutes, Autism Mean= 6 hours, 11 minutes). However, mothers of children with cerebral palsy spent more time in activities requiring high or very intensive levels of effort providing physical and emotional care (e.g. feeding, toileting, dressing, soothing) than mothers of children with autism. In contrast, mothers of children with autism spent more time in teaching and behaviour management activities (e.g., reprimanding, resolving disputes, giving directions, helping with homework). Fifty-two percent of mothers of children with autism and 36% of mothers of children with cerebral palsy scored above the clinical threshold on the GHQ.

#### SS3

### Targeted treatment of chronic pain

**Chair (s) : Dekker J**

Multidisciplinary treatment is a cornerstone of the management of chronic pain. The multidisciplinary approach has been shown to be effective: improvements in physical, emotional and social functioning following treatment have been demonstrated. The relevant targets of effective treatment remain elusive, however. Similarly, it is not clear which treatment components are most effective in reaching these targets. The aim of this symposium is to open the black box of

chronic pain treatment: which are the relevant targets and which are the effective components in treating chronic pain ?

Dr. Zautra will address mindfulness and related emotion-regulation interventions in the treatment of chronic pain. The results of a randomized clinical trial will be presented, showing that the emotion-regulation aspects of mindfulness-based methods of treatment are most beneficial to those with chronic depression.

Dr. Dean will present on the role of self-efficacy in chronic pain. Low self-efficacy has been shown to predict future disability, particularly in people with persistent pain. Interventions targeting self-efficacy at pain onset may lead to less future disability.

Dr. Crombez will talk on pain coping addressing a solution aimed at relief (assimilation) or a solution aimed at acceptance (accommodation). His research suggest that assimilative coping, which is primarily characterized by attempts to solve pain, not accepting that pain is insoluble, and not believing that a meaningful life despite pain is possible, becomes maladaptive when pain becomes chronic.

Dr. Stultjens will address the relationship between various cognitive processes which have been shown to affect treatment outcome in chronic pain. His research shows that the wide variety of cognitive processes can be reduced to a limited set, suggesting a more parsimonious set of treatment targets in chronic pain.

Together, these presentations significantly enhance our understanding of relevant targets and effective components of the treatment of chronic pain.

### SS3-1

#### COMPARISON OF COGNITIVE-BEHAVIORAL AND MINDFULNESS MEDITATION INTERVENTIONS ON ADAPTATION TO RHEUMATOID ARTHRITIS

**Zautra A J, Davis M C, Finan P, Reich J W**  
*Arizona State University Department of Psychology*

Background: There have been no randomized clinical trials examining the value of mindfulness and related emotion-regulation interventions in comparison to other active therapies.

Purpose: This research examines whether cognitive behavior therapy and mindfulness interventions that target responses to chronic stress, pain, and depression reduce disease activity and improve the mental health of older adults with rheumatoid arthritis (RA).

Method: 144 RA participants were clustered into groups of 6-10 participants, and these clusters randomly assigned one of three treatments: Cognitive-Behavior Therapy for Pain (P), Mindfulness Meditation and Emotion Regulation Therapy (M) or Education Group only (E), which served as an attention placebo control. A multimethod approach was taken, employing daily diary and laboratory assessment of pain, and affective response.

Results: Participants receiving P showed the greatest improvement in self-reported pain control; both groups showed more improvement in coping efficacy than the education group. The relative value of the treatments varied as a function of depression history. RA patients with recurrent depression benefited most from M across several measures including negative and positive affect, and physician-rating of joint tenderness.

Conclusion: The finding suggest that the emotion-regulation aspects of mindfulness-based methods of treatment were most beneficial to those with chronic depression.

### SS3-2

#### HEALTH SELF : EFFICACY BUT NOT PAIN PREDICTS DISABILITY IN THE GENERAL ADULT POPULATION

**Dean S G (1), Taylor W J (1), Siegert R J (2)**

*1 Rehabilitation Teaching and Research Unit, School of Medicine and Health Sciences, University of Otago, Wellington, New Zealand.; 2 Department of Palliative Care, Policy and Rehabilitation, School of Medicine at Guy's, King's College and St Thomas' Hospitals, King's College London UK.*

Background: Numerous recent studies report consistent evidence associating self-efficacy with pain and disability. However, such studies have generally been cross sectional in design and conducted in clinical populations, particularly chronic pain services. Less is known about the pain, disability and self-efficacy relationship in the general population.

Purpose: To assess the relationship between pain, self-efficacy, and disability in a general population sample studied at two time-points over 18 to 24 months.

Method: This postal survey comprised one component of a large population based study to determine rheumatic disease epidemiology in New Zealand (NZ). Participants were randomly selected from the general electoral registers of the lower North Island, an area representing 12.6% of total NZ population.

Results: There were 289/471 (61%) eligible participants (original sample of 540) at baseline and 139/289 (48%) at follow-up survey. Baseline health self-efficacy (Perceived Health Competence Scale) predicted subsequent physical functioning (partial eta squared 0.073,  $p=0.003$ ) in a multivariate model. Together with baseline physical functioning, age and sex, this model explained 44% of variance in subsequent disability. Baseline pain, general self-efficacy and psychological distress did not independently predict future disability scores. There was a trend towards the dominant relationship between baseline health self-efficacy and future disability only occurring in people with persistent pain.

Conclusion: Health self-efficacy is associated with disability in a general population setting and low health self-efficacy predicts future disability independently of other predictors of disability, particularly in people with persistent pain. Interventions that modify self-efficacy in the general population at pain onset, may lead to less future disability. Such interventions could be in primary care or health promotion settings, need not necessarily require specialised psychological expertise for delivery and could include graduated activity prescriptions, education, or self-management strategies.

### SS3-3

#### ATTEMPTING TO SOLVE THE PROBLEM OF PAIN: A QUESTIONNAIRE STUDY IN ACUTE AND CHRONIC PAIN PATIENTS

**Crombez G**

*Department of Experimental-Clinical and Health Psychology, Ghent University*

Background: When faced with the problem of pain one can attempt a solution aimed at relief (assimilation) or a solution aimed at acceptance (accommodation).

Purpose: Using the dual process model of adaptation to pain, this study compares acute and chronic pain patients on their

approach to problem solving.

Method: 364 patients were recruited from clinical settings, 303 with chronic pain and 61 with acute pain, and completed a range of measures of both affect and pain related behavior, including the Pain Solutions Questionnaire. The effects of overall duration of pain were also investigated.

Results: Chronic pain patients reported greater disability and catastrophic thinking about pain, but not more severe pain than acute pain patients. They also reported more assimilative coping than acute pain patients. Assimilative coping was associated with greater disability, greater attention to pain, and more catastrophic thinking about pain, beyond the effects of demographic variables and pain severity. Pain duration did not moderate these associations. Only in the case of catastrophic thinking about pain was it found that the effects of assimilative coping were moderated by pain duration. For chronic pain patients catastrophic thinking about pain was greater when assimilative coping was higher.

Conclusion: Results are in line with the dual process model outlined by Brandtstädter and Renner (1990): a persistence of assimilative coping, which is primarily characterized by attempts to solve pain, not accepting that pain is insoluble, and not believing that a meaningful life despite pain is possible, becomes maladaptive when pain becomes chronic.

#### SS3-4

### **THE RELATIONSHIP BETWEEN SELF-EFFICACY, COGNITIVE COPING STRATEGIES, KINESIOPHOBIA AND ILLNESS BELIEFS IN PATIENTS WITH CHRONIC WIDESPREAD PAIN**

*Steultjens M P M, Rooij A, Dekker J*

*VU University Medical Center and EMGO Institute, Amsterdam, The Netherlands / Jan van Breemen Institute, Amsterdam, The Netherlands*

Background: Psychological processes play an important role in the development, persistence and severity of chronic pain and related symptoms (fatigue, depression, activity limitations). Different theoretical frameworks describe these psychological processes, such as Bandura's self-efficacy theory, the fear-avoidance/kinesiophobia model, the self-regulatory model of illness beliefs and models of cognitive coping. The question arises whether these theories describe distinctly different processes or whether there is considerable overlap between them.

Purpose: To investigate the relationships and underlying factors of measures of self-efficacy, kinesiophobia, cognitive coping reactions and illness beliefs.

Methods: Data were obtained from the baseline measurements of a prospective cohort study of 138 patients with chronic widespread pain. Measures included the DGSS (general self-efficacy), TSK (kinesiophobia), CPV (cognitive coping reactions) and IPQ-R (illness beliefs). Spearman correlations were calculated to assess relationships between the measures. An explorative orthogonal factor analysis was performed to assess which latent factors are reflected in these measures.

Results: Within the cognitive coping reactions, two groups could be discerned: negative emotional coping cognitions (e.g., catastrophizing) and 'active' coping cognitions (e.g., diverting attention away from pain, reinterpreting pain). Within the illness beliefs, a similar divide was present between negative emotional beliefs and beliefs focused on personal control or treatment control over pain. Negative emotional coping correlated with kinesiophobia. Self-efficacy was associated with active coping and control beliefs, and negatively associated with negative emotional beliefs. The factor analysis revealed four underlying factors: 1) negative

emotional cognitions (catastrophizing, low self-efficacy, emotional illness beliefs, kinesiophobia) 2) active coping reactions 3) control beliefs and 4) illness timeline beliefs.

Conclusion: It appears to be possible to reduce a wide variety of cognitive processes to a limited set of underlying factors based on measures derived from different theoretical frameworks. These factors identified both negative emotional cognitions and resilience cognitions.

#### SS32

### **A meeting of minds?: patient and practitioner attitudes to medicines and the implications for interventions to facilitate adherence.**

*Chair (s) : Rob Horne*

Nonadherence to prescribed medication remains an impediment to optimum outcome in most long-term medical conditions. Despite its high costs for individuals and society, effective interventions to facilitate adherence remain elusive. Recent systematic reviews of the topic have called for more innovative approaches based on sound theoretical models. A key requirement is a framework for operationalising the salient beliefs influencing motivation to start and continue with treatment. The Necessity-Concerns Framework (NCF) shows promise in this respect. In studies ranging across long-term medical conditions in different countries and cultures, nonadherence was related to how patients judge their personal need for medication relative to their concerns about potential adverse effects, derived from 'common-sense representations' of prescribed medicines and pharmaceuticals as a class of treatment.

This symposium will present empirical studies of the application of the NCF and medication representations to the problem of nonadherence in mental health. Dr Aikens will begin with a presentation of a prospective longitudinal study of 166 patients initiating medication for a major depressive disorder in which medication beliefs were predictive of medication-related behaviour (adherence and reporting of side-effects). This will be followed by two studies applying the same theoretical framework to examine the neglected topic of practitioner beliefs about medicines. Dr Clatworthy will discuss variation in beliefs about prescribed medicines between different health professionals and their patients with bipolar disorder and discuss the implication of nonconcordance for adherence and adherence interventions. Drs Byrne and Deane will follow with two studies examining the effects of practitioner beliefs about medicines on the implementation of adherence support interventions for patients receiving psychotropic medication.

The discussion component will be split into two sections. The symposium will begin with a brief outline of theories of medication representations and the NCF. This will be followed by the three empirical papers after which the discussant will place these findings from mental health in the context of previous studies in other conditions and outline the implications for theory and practice

#### SS32-1

### **HOW DO BETWEEN PATIENTS' BELIEFS ABOUT THEIR ANTIDEPRESSANTS RELATE TO PAST AND FUTURE SIDE EFFECTS AND ADHERENCE?**

*Aikens J E*

Antidepressant side effects and nonadherence complicate depression treatment and often lead to poor outcomes.



Patients' beliefs about treatment probably play an important role in the genesis of side effects and nonadherence, and may also evolve as treatment progresses. In 166 adult outpatients (ages 18-75) who were initiating citalopram for major depressive disorder, we assessed depression, treatment beliefs (perceived necessity and harmfulness), medication adherence, and side effects at baseline and Weeks 2, 4, 6, 9, and 12. Regression analyses were used to consider treatment beliefs in relation to prior and subsequent side effects and adherence. Baseline Harmfulness beliefs predicted Week 2 side effects ( $p < .001$ ). Baseline Necessity beliefs predicted Week 9 adherence ( $p = .036$ ). Finally, Week 6 Harmfulness related to concurrent adherence, as well as concurrent and future side effects (Weeks 6, 9, and 12, all  $p$ 's  $< .025$ ), but not prior side effects ( $p = .11$ ). Negative beliefs about antidepressants are robust predictors of subsequent side effects and nonadherence. Interestingly, beliefs do not seem to be affected by early treatment experiences such as side effects. Follow up research should test whether side effects, nonadherence and depression outcomes can be improved by modifying treatment-interfering belief sets or by adjusting treatment to patients' beliefs.

#### SS32-2

### **HEALTH PROFESSIONALS' BELIEFS ABOUT MEDICATION PRESCRIBED FOR BIPOLAR DISORDER AND ADHERENCE: VARIATION BETWEEN PROFESSIONAL GROUPS AND PATIENTS**

*Clatworthy J*

Patients' beliefs about medication prescribed for bipolar disorder have been associated with nonadherence to medication. Patients' beliefs may be influenced by those of their Community Mental Health Team (CMHT) key worker. Key workers come from a variety of professional backgrounds (psychiatric nurses, psychiatrists, support workers, social workers, occupational therapists), each receiving different training. This cross-sectional UK study compared beliefs about medication prescribed for bipolar disorder across professional groups working within CMHTs. 152 members of CMHTs in Sussex Partnership NHS Trust completed questionnaires exploring their beliefs about medication prescribed for bipolar disorder and patients' adherence to medication. ANOVAs with Tukey's post hoc tests were used to compare beliefs across professional groups. Psychiatrists were more likely than other health professionals to believe that medication is necessary in the treatment of bipolar disorder ( $p < .05$ ), and were least concerned about potential adverse effects of medication ( $p < .05$ ). There was agreement across professional groups that approximately 80% medication needs to be taken in order for it to be effective. Psychiatrists and social workers were significantly more likely to believe that patients take less than instructed than occupational therapists, nurses and support workers ( $p < .05$ ). Patients reported significantly lower need for medication in the treatment of bipolar disorder than psychiatrists ( $p < .05$ ). In prescribing consultations between patients and psychiatrists, there may be an undisclosed and hidden disparity in perceptions of medication necessity for bipolar disorder. The implications of differences in perceptions of medication between professional groups for the consistency of adherence related advice and support will be discussed.

#### SS32-3

### **RELATIONSHIPS BETWEEN MENTAL HEALTH CLINICIANS' BELIEFS ABOUT MEDICINES AND ATTITUDES TOWARD SUPPORTING ADHERENCE ON SELF-REPORTED ADHERENCE STRATEGY USE WITH PATIENTS.**

*Byrne M K, Deane F P*

Non-adherence to psychotropic medications remains a major factor in poor clinical outcomes. This paper reports the result of two studies that sought to identify the extent that clinician beliefs and attitudes about medicines were related to effort and adherence strategy use with patients. In Study 1, 292 mental health clinicians completed a questionnaire with a focus on supporting adherence in individuals with psychosis. Clinician beliefs about their own adequacy to enhance adherence significantly predicted actual efforts to enhance adherence. Higher clinician empathy for the patient's experience of non-adherence was related to poorer outcome expectancy. In Study 2, 72 clinicians completed a questionnaire about supporting adherence amongst individuals with depression. Adequacy and beliefs that medicines are harmful and overused, were related to how much clinicians reported using adherence strategies with patients. The role of clinicians' beliefs and attitudes on their efforts and work with patients to support their medication adherence will be discussed along with implications for training.

#### SS16

### **Biobehavioral Processes Relating Psychosocial and Metabolic Factors to Cardiovascular Disease Risk**

*Chair (s) : Neil Schneiderman*

Psychosocial and behavioral factors have been shown to increase the progression of atherosclerosis and cardiovascular disease (CVD) risk through a number of biological processes. One way of investigating these processes is to study biological responses to acute psychological stressors. Standard psychophysiological stress testing, for example, has allowed individual differences in inflammatory responses (e.g., interleukin-6, C-reactive protein) to be assessed under controlled conditions. These differences, in turn, have been related both to psychosocial factors and to CVD risk. Increased CVD risk has also been related to Post Traumatic Stress Disorder (PTSD) as well as to procoagulant factors (i.e., fibrinogen, clotting factor VIII, tissue factors, von Willebrand factor) and proinflammatory measures (i.e., tumor necrosis factor alpha, interleukin-1 beta, interleukin-4). Current work is being conducted on inflammation and coagulation in post-myocardial infarction patients who developed PTSD in conjunction with their heart attack. The Watanabe heritable hyperlipidemic rabbit has provided an important model for examining relationships among psychosocial variables and biological processes including insulin resistance, oxidative stress and inflammation in the progression of atherosclerosis. Such models are important as they permit the direct manipulation of the psychosocial environment and close observation of disease progression under carefully controlled conditions.

SS16-1

**INFLAMMATION, PSYCHOSOCIAL FACTORS, AND CARDIOVASCULAR DISEASE RISK : INSIGHTS FROM PSYCHOPHYSIOLOGICAL STUDIES**

**Stephoe A**

*University College London, London, UK*

There is growing interest in the possible role of inflammatory responses in mediating associations between psychosocial factors and cardiovascular disease. One way of investigating these effects is to study inflammatory responses to acute psychological stress. Standardized psychophysiological stress testing allows individual differences in inflammatory responses to be assessed under controlled conditions. Over recent years, we have carried out a series of studies involving both young and middle-aged adults, with blood samples taken at baseline and up to two hours after the administration of standardized behavioral tasks. We have found that the concentration in the blood of several inflammatory markers, including interleukin-6 (IL-6), fibrinogen, leptin and C-reactive protein, increases following tasks. The time course of these responses is variable, and there are also wide individual differences in the magnitude of responses. These differences are related to psychosocial factors. For example, individuals of low socioeconomic status show larger IL-6 responses, while people suffering from work stress show larger C-reactive protein responses. Inflammatory responses are also associated with central adiposity, and with structural changes in the arterial walls as indexed by vascular distensibility. In longitudinal analyses over 3 years, we have found that individual differences in inflammatory stress responses predict increased clinical blood pressure levels, and increased risk of the metabolic syndrome, independently of covariates such as age, gender, socioeconomic position, smoking, alcohol consumption, physical activity, medication and baseline levels of clinical risk. These findings provide substantial support for the hypothesis that inflammatory responses partly mediate psychosocial influences on cardiovascular disease risk.

SS16-2

**POSTTRAUMATIC STRESS DISORDER (PTSD) AND POOR CARDIOVASCULAR HEALTH: IMPORTANCE OF ALTERED INFLAMMATION AND BLOOD COAGULATION**

**von Känel R**

*Swiss Cardiovascular Center, Bern University Hospital, Switzerland*

Applying a structured clinical interview in 394 patients with a previous myocardial infarction (MI), we found a prevalence of DSM-IV PTSD related to the MI of 10%. Epidemiological studies have shown that patients with PTSD run an increased risk of developing cardiovascular disease. Emerging evidence also suggests an increased risk of recurrent cardiovascular events in MI patients with PTSD. The mechanisms contributing to first-time or recurrent MI in patients with PTSD may relate to behavioral and physiological processes. Studies from our laboratory suggest that circulating procoagulant factors (i.e. fibrinogen, clotting factor VIII, tissue factor (TF), von Willebrand factor) and proinflammatory measures (i.e. tumor necrosis factor (TNF)-alpha, interleukin (IL)-1beta, IL-4), all of which are pertinent to atherosclerosis initiation and progression, might play an important role. Particularly, TNF-alpha ( $p=0.038$ ), and soluble

TF ( $p=0.041$ ) were higher in 14 patients with PTSD than in 14 traumatized non-PTSD controls. Moreover, in patients with PTSD, but not in controls, plasma fibrinogen level was positively associated with hyperarousal severity ( $p=0.014$ ) and total PTSD symptom severity ( $p=0.045$ ). While we found this increase in biological risk markers of atherosclerosis in PTSD patients without MI, we are currently performing studies on inflammation and coagulation in post-MI patients who developed DSM-IV PTSD related to their heart attack. The relevance of PTSD for cardiovascular medicine is substantial. Studies on biological risk factors involved in the atherosclerotic process offer one possibility to better understand through which mechanisms PTSD may reduce cardiovascular health in general and enhance the risk of MI in particular.

SS16-3

**THE ROLE OF BEHAVIORAL INACTIVITY, INSULIN RESISTANCE, OXIDATIVE STRESS AND INFLAMMATION IN THE PROGRESSION OF ATHEROSCLEROSIS IN THE WATANABE HERITABLE HYPERLIPIDEMIC RABBIT**

**McCabe P M**

*Daniel A. Nation, Larry G. Brooks, and Neil Schneiderman, Department of Psychology, University of Miami, Coral Gables, FL, USA*

Our lab has demonstrated that social environment influences the progression of atherosclerosis in the Watanabe Heritable Hyperlipidemic Rabbit (WHHL), an animal model of disease characterized by a genetic defect in lipoprotein clearance. Socially isolated WHHLs exhibited profound aortic atherosclerosis, and were more physically inactive, gained more weight and were hyperinsulinemic compared to WHHLs in paired social conditions, suggesting that insulin metabolic variables may play a role in disease progression. In a subsequent study, it was shown that young individually-caged WHHLs are insulin resistant relative to New Zealand albino rabbits (normal comparison control), and that dietary restriction, but not aerobic exercise, improved insulin sensitivity in these WHHLs. We have also demonstrated that individually-caged WHHLs exhibited greater vascular oxidative stress than socially paired WHHLs, as indexed by increased NAD(P)H oxidase activity in the aortic vessel wall. Taken together, these studies suggest that in the WHHL model behavioral inactivity is associated with increased adiposity, insulin resistance, hyperinsulinemia, and heightened vascular oxidative stress; factors which may play an important role in the progression of atherosclerosis in these genetically dyslipidemic animals. Because adipose tissue is a major source of proinflammatory cytokines, we are currently examining cytokine release from cultured adipocytes and macrophages. It is hypothesized that social environment modulates inflammatory responses via neuroendocrine influences on adipocyte and macrophage release of cytokines.

SS29

**Developing and evaluation interventions to help smokers stop smoking: general population and primary care based approaches**

**Chair (s) : Florian Vogt**

Although many smokers attempt to stop smoking each year, most of these attempts are unsuccessful. Smokers' chances of stopping smoking may be increased by targeting smokers

directly and indirectly, via primary care. This symposium brings together recent research from four multidisciplinary groups developing and evaluating existing interventions in the general population of smokers and via primary care.

Marc Willemsen, STIVORO, Netherlands, presents the results from a randomised controlled trial of an automated e-mail messaging system to prevent relapse (n=1084). Six month follow-up data suggest that sending smokers 10 short emails in the first three months with practical supportive information tailored to the process of quitting increases quit rates.

Ciska Hoving, University of Maastricht, Netherlands presents the results of a randomised controlled trial of a computer-generated tailored letter for smokers (n=483) recruited via primary care practices. While evidence of effectiveness for the tailored letter exists in other settings, the follow-up data at 6 months indicated no improvement in quit rates compared to standard care.

Andrew Wilson, University of Leicester, UK, presents data from practice records of 39 primary care practices and a separate survey among smoking patients (n=404) evaluating primary care physicians' interventions regarding the prescription of drugs to treat nicotine addiction. The findings suggest that more could be done in primary care to ensure that smokers use readily available stop-smoking interventions for which there is good evidence of effectiveness at achieving quitting.

Florian Vogt, King's College London, UK, presents the findings of a qualitative study among smokers to explore the nature of their perceptions regarding the effectiveness of stop-smoking interventions. In contrast to pharmacological and surgical interventions, the effectiveness of stop-smoking interventions was underestimated, seemingly because the variation in effect between users was overestimated. The findings provide guidance for the development of information to increase uptake of underused stop-smoking interventions.

## SS29-1

### **STOPMAIL: EFFECTIVENESS OF AN AUTOMATED E-MAIL RELAPSE PREVENTION INTERVENTION FOR SMOKING CESSATION.**

*Willemsen M C, van Emst A J, Wiebing M A*  
STIVORO, The Hague, Netherlands

**Background and objective.** This study aimed to design, implement and evaluate an automated e-mail messaging tool to help quitters prevent relapse, called StopMail. StopMail starts when a quitter types in a quit date in an application form on a website. The intervention consists of 10 brief motivation enhancing messages sent to participants at strategic times, beginning with a welcoming email, followed by a second message at the quit date and ending after 3 months. The contents of the information is tailored to the quitting process (not individually tailored).

**Methods.** A short screening questionnaire was used to select study subjects from a large database of potential respondents. 1,084 respondents who smoked and wanted to quit smoking within the next month were sent a baseline questionnaire through email (Computer Assisted Self Interviewing) and were then randomized to receive either the e-mail messages (N=487) or no intervention (control group; N=599). After 6 months, a follow-up questionnaire was sent through e-mail.

**Results:** The response to the follow-up was 87% in the intervention group and 86% in the control group. Preliminary analyses revealed that in the intervention group 20.6% were not smoking compared to 13.9% in the control group ( $p<.005$ ). Seven day abstinence was 17.7% compared to 12.4% in the control group ( $p<.01$ ). A logistic regression

analysis showed that quitters who had been exposed to the StopMail were 1.5 times more likely to say that they had not smoked in the past 7 days compared to smokers who had not been exposed (OR = 1.53; 95%CI = 1.09 - 2.14).

**Conclusions:** Our data suggest that sending smokers a series of 10 short and attractive emails with practical supportive information tailored to the process of quitting, can help to increase the likelihood that a quit attempt will be successful.

## SS29-2

### **EFFECTIVENESS OF A COMPUTER-GENERATED SMOKING CESSATION INTERVENTION IN DUTCH GENERAL PRACTICE**

*Hoving C, Mudde A N, Dijk F, de Vries H*  
University of Maastricht, Netherlands

**Background and objective.** A previous study showed a computer-generated tailored intervention to be efficacious regarding smoking cessation rates and abstinence. The current study was conducted to test the intervention's effect under real life circumstances in Dutch general practice setting.

**Methods.** An RCT conducted (comparing usual care with provision of a single tailored letter), recruiting a total of 483 adult smokers through 75 general practices in the Netherlands. Follow-up was conducted six months after baseline. Furthermore, studies were conducted regarding the adoption and implementation willingness among general practice staff.

**Results.** In contradiction with results from the efficacy study, results indicate no effect of the tailored intervention on smoking cessation outcomes. Both experimental and control group show a high quit rate (50 vs. 41%), compared to what would be expected from natural quitting processes. However, these quit attempts did not result in long-term success in both conditions (point prevalence abstinence 15% in both conditions).

**Conclusion.** It can be concluded that in order to truly test the effect of an intervention, testing under real life circumstances is an essential step. Explanations for the lack of findings will be discussed.

## SS29-3

### **NICOTINE ADDICTION TREATMENT IN UK GENERAL PRACTICE: EFFECTIVE BUT UNDERUSED**

*Wilson A*  
University of Leicester, UK

**Background.** Support of smoking cessation is the most cost effective intervention in primary care. In the UK general practitioners can prescribe drugs with proven efficacy to treat nicotine addiction, but little is known about how they are used in routine practice.

**Aim.** To examine GP prescribing of NRT and bupropion and whether these drugs are used according to evidence based guidelines.

**Methods.** Two related studies were undertaken. The first study used a database derived from 39 general practices in the east midlands of England. In the second study we sent a questionnaire to a sample of patients recently prescribed NRT or bupropion.

**Results.** From the GP database, we found that 1892/19492 (6.4%) smokers were prescribed nicotine addiction treatment over the two years examined (2001-3). Smokers living in more deprived areas were more likely to receive treatment, as were male smokers, those aged 25-74, and those with smoking

related morbidity. The patient survey achieved a response rate of 44% (400/904). Treatment was initiated at the request of the patient in 65% of cases. Most patients reported they had been advised to set a quit date and had received information on how to use the treatment, but 15% reported they had not been offered follow up.

**Conclusion.** The low percentage of smokers receiving nicotine addiction treatments and the finding that these treatments are usually initiated by the smoker suggest that general practitioner could be more effective in promoting smoking cessation.

#### SS29-4

### **UNDERSTANDING SMOKERS' PERCEPTIONS OF THE EFFECTIVENESS OF HEALTH-RELATED INTERVENTIONS: A REPERTORY GRID APPROACH.**

*Vogt F (1), McEwen A (2), Ashworth M (1), Armstrong D (1), Hankins M (1), Hall S (1), Marteau T M (1)*

*1 King's College London, UK; 2 University College London, UK*

**Objective.** Smokers' perceived ineffectiveness of smoking cessation interventions is a strong predictor of them not using any in quit attempts. The aim of this study is to explore the nature of these perceptions.

**Method.** A sample of 18 adult smokers was interviewed using the repertory grid method (RGM) to elicit the constructs underlying their perceptions of the effectiveness of a range of health-related interventions. A selection of nine health-related interventions with mixed levels of effectiveness (three to stop smoking, three to prevent heart disease, and three targeting a mixture of ailments) was used as prompts. Questionnaires were then produced and sent to participants to rate the extent to which each of the constructs elicited was relevant for each health-related intervention. Data were analysed using principle components analysis (PCA).

**Results.** The constructs clustered around three components: "effect on ailment", "effect varies between users", and "holistic effect". Interventions perceived to have an effect on the ailment were also perceived to have an effect that doesn't vary between users and to have a non-holistic effect. In general, pharmacological and surgical interventions matched these perceived characteristics but stop-smoking interventions did not. Based on published literature, in relation to the other interventions, stop-smoking interventions were underestimated in terms of the effectiveness.

**Conclusion.** Smokers' erroneous perceptions about the relative lack of effectiveness of stop-smoking interventions may be altered by providing comparisons with treatments of similar effectiveness but which are perceived by smokers as more effective because they are seen as not varying with individual characteristics and perceived to be less holistic.

#### SS41

### **Culture-Specific and Cross-National Aspects of Peer Support in Disease Management and Health Promotion**

**Chair (s) :** *Edwin Fisher and Brian Oldenburg (discussant)*

Social support is 1) very important in health and mortality (its absence, social isolation, being as lethal as smoking one pack of cigarettes per day); 2) an important ingredient in efforts to sustain preventive and disease management behaviors; and 3) likely to vary considerably in different cultures and settings. This symposium will explore these issues through evaluations

of peer support interventions for prevention and disease management in varied national settings. From Thailand, Boosaba Sanguanprasit will present evaluation of a group support intervention to assist adults' management of hypertension and type 2 diabetes. Participants initiated organization of additional group support meetings and showed improvements in self efficacy, exercise, metabolic control, blood pressure, and quality of life. From India, Ashok Jhingan will present a program that integrated support among adults with diabetes, their families, and their primary care providers. With over 650 adults with diabetes and 15 primary care physicians participating, this program sharply increased key management indicators such as yearly glycated hemoglobin assessments and eye examinations. From the USA, David Marrero will describe a program that trained peers to implement the preventive interventions of the Diabetes Prevention Program. The peer-based intervention has achieved sustained weight losses comparable to those obtained through the high level of attention from professional clinical research staff in the highly successful Diabetes Prevention Program. All three presenters will emphasize ways in which their research reflects both a) aspects of social support specific to their settings and cultures, and b) aspects that appear to be common across cultural, national and population differences. The discussant, Brian Oldenburg, will add observations from work in Australia, Malaysia and South Africa and discuss emerging perspectives on how peer support interventions are, at once, both shaped by specific cultural contexts as well as a universal influence on health and health behavior.

#### SS41-1

### **GROUP SUPPORTS AND EXERCISE ADHERENCE AMONG NON-INSULIN DEPENDENT DIABETIC MELLITUS AND/OR HYPERTENSION PATIENTS.**

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This study aimed to motivate exercise behavior and adherence among adults with type 2 diabetes mellitus and/or hypertension attending a diabetes clinic at Nakornpathom hospital. It emphasized group support and used the Transtheoretical model and Active Learning to guide the group support intervention.

One hundred participants recruited into the program met entry criteria: willingness to participate, at least 35 years old, fasting blood sugar not greater than 300 mg/dl, and systolic blood pressure between 140-180 mmHg. The intervention program consisted of slide presentation, group discussions, aerobic exercise practices, and group supports. The program lasted six months. At the end of three-months, participants requested formation of a support group to meet every other month. Data were collected before, after, and three months after the end of the program using structured interview. Chi-square and t-test were used for data analyses.

Out of 100 patients recruited into the program, 47 adhered to the program and joined the support group. Those who dropped out were not significantly different from those who remained, except for perceived susceptibility to disease's complications. At the end of the program and during the follow-up period, the participants had significantly increased

perceived self-efficacy and adequate aerobic exercise, reduced blood sugar and blood pressure levels, and improved quality of life ( $p < .05$ ).

Results from this study showed that active learning and group supports improved aerobic exercise behavior and adherence, ability to control blood sugar and blood pressure levels among adults with type 2 diabetes and hypertension. It is therefore important to encourage patients to share their experiences and motivate each other for the development and sustainability of new health behaviors.

#### SS41-2

### IMPACT OF PEER SUPPORT IN EFFECTIVE DIABETES CARE

*Jhingan A*

*Delhi Diabetes Research Centre, Delhi, India*

Improvement in the quality of diabetes care is essential for reducing diabetes complications. Large number of diabetic patients attend primary care physician in their locality. Therefore, it is essential to involve the family members, diabetic patients and health care providers simultaneously to educate about the frequency of performance of relevant lab tests and improvement of metabolic control. Fifteen primary care physicians and 650 diabetic patients and their relatives participated in this two year study.

At the end of the 2-year period, the percentage of patients receiving glycated hemoglobin tests (HbA1c) at least once a year increased from 15% to 38%. Similarly, the percentages of patients visiting eye clinic at least yearly rose from 20% to 35% and percentages of patients undergoing microalbuminuria tests rose from 5% to 30%. Lipid testing increased from 11% to 33%.

Peer support plays a crucial and important role in the outcome of diabetes care. People who are suffering from the disease can be 'Role Models' for others in abolishing the myths and apprehensions surrounding management of diabetes, which is very commonly present in a country like India. This study demonstrates the efficacy of diabetes education involving diabetic patients, peers and primary care physicians simultaneously in their surroundings. This type of intervention improves quality of care, better metabolic control and would help in prevention of diabetes complications.

#### SS41-3

### TRAINING LAY PERSONS TO DELIVER DIABETES PREVENTION PROGRAMS: THE YMCA PROJECT.

*Marrero D G, Ackermann R T*

*Diabetes Translational Research Center, Indiana University School of Medicine, Indianapolis, Indiana, USA*

**Objective:** The incidence of type 2 diabetes is increasing at epidemic rates in virtually every country in the world. This is largely due to changes in lifestyle that have resulted in increases in obesity and sedentary behavior. Increasing evidence illustrates that type 2 diabetes can be prevented or delayed by interventions that assist high risk persons in losing 5-7% of their body weight and increasing their physical activity by at least 150 minutes per week. This research, however, was conducted in research settings with considerable resources and implemented by trained health care professionals.

**Methods:** We adapted the intervention used by the Diabetes Prevention Program (DPP) for delivery by lay persons in

community settings without previous experience in delivering diabetes prevention programs. Training is conducted over 2.5 days and includes review of specific program content, strategies for initiating groups, methods for conducting evaluation and techniques to improve group dynamics.

**Results:** Using a controlled design, we have shown that group classes conducted by trained lay personnel results in weight loss that is similar to that achieved in the Diabetes Prevention Program (6.5%) and that this weight loss is maintained at 12 months post program ( $p = .001$ ). Subjects in the intervention condition also showed significant reduction in LDL values ( $p = .001$ ).

**Conclusions:** These data demonstrate that lay persons can be trained to effectively implement a structured diabetes prevention program. The delivery of primary prevention programs in communities using effective, low cost methods is vital if the epidemic of diabetes is to be addressed.

#### SS5

### Classification and Intervention for Medically Unexplained Symptoms.

*Chair (s) : Rief W*

Medically unexplained physical symptoms are a major challenge not only for the general health care system, but also for the development of reliable and valid classification approaches and effective interventions. In the paper by Barsky, the major conceptual problems around the category "somatoform disorders" are summarized. He will outline the multi-factorial etiology of physical complaints, and the problem of distinguishing minor symptoms from pathological somatization. Subsequently, the paper by Rief et al. will present data of a general population sample including more than 2,500 participants which analyses reasons for doctor visits, and the individual determinants of the decision threshold for requesting medical help. Per Fink summarizes the advantages of the newly established diagnosis of bodily distress disorder, which has been introduced after analysing data of large primary care samples. He also summarizes brain imaging findings for various functional somatic syndromes indicating cerebral dysfunction in these patients. Using the example of chronic low back pain, a frequent condition that is typically not explained by medical findings, core principles of psychological interventions will be highlighted. Glombiewski et al. present data of a randomized clinical trial including nearly 130 patients who received either psychological interventions, or psychological interventions with additional biofeedback tools, or waiting list. Together with her colleagues, the author can demonstrate that psychological interventions are highly effective, and that additional biofeedback tools increase treatment motivation.

#### SS5-1

### RETHINKING THE SOMATOFORM DISORDERS

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Considerable dissatisfaction and controversy surround the current conceptualization of the somatoform disorders. Three particular difficulties stand out: they are difficult to distinguish from non-pathological somatization; it is difficult to establish with certainty that a given somatic symptom is disproportionate to demonstrable medical disease; and somatization is frequently a non-specific, secondary feature of

some other underlying psychiatric disorder. These difficulties arise because medically unexplained symptoms are multifactorial in origin and therefore frequently not psychopathological. Medically unexplained symptoms have been variously understood as a response to life stress, a form of illness behavior, a non-verbal interpersonal communication, a personality trait, the product of internal psychological processes and early childhood experiences, and the result of sociocultural forces.

It is suggested that the lack of a medical basis for the somatoform patient's symptoms be de-emphasized, and that these disorders be reconceptualized as disorders of maladaptive coping with, and inability to tolerate, somatic distress. According to this conceptualization, the hallmarks of the somatoform disorders are unusually numerous and intense somatic symptoms; a fixed belief in the medical seriousness of symptoms that are not due to a serious medical condition; extreme levels of disability and role impairment; illness as the dominant feature of the individual's self-identity; the refractoriness of the symptoms to palliative treatment; and a characteristic, maladaptive pattern of medical care utilization.

## SS5-2

### **DETERMINANTS OF REQUESTING MEDICAL TREATMENT IN PATIENTS WITH PHYSICAL COMPLAINTS**

*Rief W, Mewes R, Brahler E  
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**Background:** It is hypothesized that individuals differ substantially in their decision process when to request medical interventions. For comparable physical conditions, some people might attend doctor offices, while others try to cope themselves. This threshold for searching medical interventions is analyzed in a population-based sample.

**Methods:** A representative sample of the German general population (N=2510; 1142 men, 1368 women) was subdivided into somatizers (N=712) and controls (N=1796) using the Patient Health Questionnaire (PHQ)-15. A general tendency to visit doctors even for minor reasons was assessed using a self-rating scale. This scale asks whether people would search for medical help if they suffer from typical medical conditions (e.g., headache, blood in the stool, loss of appetite, back pain).

**Results:** Somatizers were substantially more impaired in mental health. Higher somatization, unemployment or retirement, a lower threshold for doctor visits, and higher posttraumatic symptomatology were consistent and unique positive predictors for health care utilization (HCU) in the past twelve months. In the control group, higher HCU was also related to increasing age and female gender, whereas married people showed elevated HCU in the somatizing group.

**Conclusions:** Not only symptoms per se, but also a lower threshold for doctor visits contribute to increased HCU. Psychopathological and demographic variables can further predict HCU in somatizing persons and controls. To reduce treatment costs and to increase quality of life of people with increased HCU, this should be taken into consideration in intervention programs.

## SS5-3

### **ARE SOMATIZATION AND FUNCTIONAL SOMATIC SYNDROMES BRAIN DISORDERS?**

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The essential feature of Somatization or functional disorders is that the patients present with functional symptoms, i.e. medically unexplained symptoms.

At present, we do not have any general agreement on how to define and classify these patients. In DSM-IV and ICD-10, these illnesses are mainly classified as somatoform disorders. Besides, each medical specialty has developed their own syndrome alias for the illnesses as for example Chronic Fatigue Syndrome, Fibromyalgia, Irritable Bowel Syndrome, Chronic Whiplash and Multiple Chemical Sensitivity.

Recently, a new empirically established diagnosis of Bodily Distress Disorder has been introduced. This diagnosis may unite and replace many of the functional somatic syndromes and some somatoform disorder diagnoses.

Symptom profiles suggest that the cause of the disorder can be ascribed to centrally controlled mechanisms rather than abnormalities in specific peripheral organ systems. Brain imaging findings in various functional somatic syndromes have indicated a cerebral dysfunction in these patients. However, the patient group can also be characterised by different psychopathological and psychological characteristics. The paper will present data on the issue and discuss these aspects of patients with Bodily Distress Disorder.

## SS5-4

### **PSYCHOLOGICAL TREATMENT OF CHRONIC BACK PAIN : A RANDOMIZED CONTROLLED TRIAL COMPARING TWO INTERVENTIONS**

*Glombiewski J A, Tersek, J, Rief W  
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The purpose of the study was to examine the supplemental value of EMG biofeedback training when added to an outpatient cognitive-behavioural treatment of chronic back pain.

128 chronic back pain patients were assigned to Cognitive-Behavioural Therapy (CBT), Cognitive-Behavioural Therapy supported by biofeedback (CBTB) or Wait List Control (WLC).

Measures (questionnaires as well as psychophysiological measures of stress reactivity to different stress conditions and muscle tension) were taken at pre-treatment, posttreatment and 6-months follow up.

The results at post-treatment indicated significant improvements in functioning on measures of pain intensity (ES = .79), perceived level of disability (ES = .52), coping strategies (ES = 1.09), psychological distress (ES = .41) and other outcome variables in both CBT and CBTB conditions. These improvements were not evident for the WCL condition. At 6 months follow-up, treatment gains were maintained for both treatment groups. There were also changes in psychophysiological reactivity to stress due to treatment. The addition of biofeedback had positive effects on the acceptance of treatment and on satisfaction with treatment.

These findings have important implications on treatment of chronic back pain. The advantages of including biofeedback in cognitive-behavioural treatment of chronic back pain will be discussed.

## SS18

### **Cultural Variations in Screening Programs for Colorectal Cancer**

*Chair (s) : Lina Jandorf  
Colorectal Cancer (CRC) typically begins with small*

noncancerous polyps on the lining of the colon and rectum. These polyps are actually small growths of tissue that take years to develop. Certain polyps, called adenomatous polyps or adenomas, can become cancerous. If they are detected early, before they develop into cancer, the disease is effectively prevented. Unfortunately, most CRC cases are detected in an advanced stage of disease. This problem is crucial because stage of disease is directly related to survival. In addition, there is considerable variability in the incidence and mortality rates of CRC among different ethnic and racial groups. Screening guidelines for CRC are complex. Currently, the American Cancer Society recommends four screening procedures for average risk individuals: Fecal occult blood test (FOBT), flexible sigmoidoscopy (FS), double-contrast barium, and colonoscopy. Colonoscopy, which involves visual examination via a tube equipped with a micro-TV camera (with immediate surgical removal of polyps), is associated with a 76-90% reduction in mortality and is seen by various professional associations as the preferred screening method because it is the most sensitive procedure for detecting polyps and preventing CRC. However, CRC screening still lags behind screening for other cancers. Understanding barriers to colonoscopic screening, and the development of appropriate interventions could significantly reduce the burden of CRC. Research is particularly needed in populations with low screening rates. Three talks in this symposium address this topic, discussing screening among the Japanese, African Americans, and Americans of Hispanic origin. The fourth talk addresses issues surrounding CRC prevention among people with inflammatory bowel disease (IBD), who are at high risk for CRC and who, after screening, may face the difficult decision to prevent CRC by undergoing prophylactic removal of their colon. Each talk discusses how findings can be translated to interventions that help reduce CRC morbidity and mortality.

#### SS18-1

### **SURGICAL DECISION MAKING AMONG HIGH RISK INFLAMMATORY BOWEL DISEASE PATIENTS REFERRED FOR PROPHYLACTIC SURGERY TO REMOVE THEIR COLON**

**Rini C, Jandorf L, Itzkowitz S H**

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Inflammatory bowel disease (IBD) is a chronic disease associated with severe relapsing and remitting gastrointestinal symptoms and steadily increasing risk for colorectal cancer (CRC). Patients with longstanding disease undergo frequent screening for pre-cancerous cell changes (dysplasia) or CRC. Prophylactic surgical removal of the colon (colectomy) is recommended when CRC is present. Patients with dysplasia or refractory disease may also be referred for prophylactic colectomy; however, their need for surgery is not as clear-cut, so they face a complex choice between high CRC risk and life-altering surgery that most strongly prefer to avoid. Little is known about how they make this decision or factors that influence it. We report preliminary analyses from an ongoing study of predictors of IBD patients' prophylactic colectomy decision making. Of particular interest were interpersonal factors, including the physician-patient relationship and the role played by significant others. Participants were 27 US men and women with IBD who had been referred for prophylactic colectomy. They were 28-75-years-old and predominantly White, married, and well-educated. Nineteen patients had surgery and eight declined it. Several interesting findings emerged. First, nearly half (42%) made their decision immediately, suggesting a need to consider perceptions of

CRC and colectomy that patients bring to this decision. Second, compared with patients who had surgery, those who declined it were more fearful of its effects on loved ones ( $p < .01$ ), suggesting the need to consider how important life goals impact decision making. Indeed, patients whose significant others wanted them to decline surgery were much less likely to have it ( $p < .001$ ). Other predictors of surgery included higher perceived CRC risk ( $p < .01$ ) and greater trust in one's physician ( $p < .001$ ). Symptom severity, difficulty managing symptoms, and sociodemographic characteristics, unexpectedly, were not predictors. These findings will help guide development of decision aids and interventions for IBD patients referred for prophylactic colectomy.

#### SS18-2

### **PROCESSES OF CHANGE AND STAGE FOR UNDERGOING CRC SCREENING AMONG US AFRICAN AMERICANS**

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In the US, African Americans (AAs) have a higher mortality for colorectal cancer (CRC) and lower rates of screening for CRC compared to Whites. Thus, it is critically important to develop educational materials that are culturally relevant for AAs. Based on previous studies and focus groups conducted with AAs we have developed culturally-tailored print educational materials. Guided by the Transtheoretical Model's (TTM), these materials match information provided to the person's stage of readiness to engage in CRC screening. We are currently investigating the effectiveness of these culturally-tailored and stage-matched materials for increasing CRC screening among AAs as compared to standard educational materials in a Randomized Control Trial (RCT). The initial data from AAs participating in our trial is used here to investigate the application of key TTM constructs (Pros and Cons, their relation or Decisional Balance (DB) and Processes of change [POC]) to the early stages of undergoing screening among AAs. To date, 146 AAs ages 50 years or older who are at average risk for CRC have been recruited from primary care settings. 60 were classified as being in Precontemplation and 85 were classified as Contemplation/Preparation. One participant was not classified by stage. As expected, those who were in Precontemplation were lower on Pros, higher on Cons, and had a more negative DB ( $ps < .05$  to  $.001$ ). Those in Precontemplation were also lower on the POCs: Commitment to Regular Screening, Thinking Beyond Oneself, Information Sharing and Communication, and higher on Avoidance of the Health Care System ( $ps < .05$  to  $.000$ ). These data suggests that among those at the early stages for readiness to undergo a screening colonoscopy, interventions to address Pros and Cons and POCs may be associated with increased consideration and preparation for CRC screening among US AAs.

#### SS18-3

### **DEVELOPMENT OF CULTURALLY RELEVANT COLORECTAL CANCER INTERVENTIONS FOR DIVERSE URBAN HISPANICS**

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Hispanics are the fastest growing minority group in the United

States. Colorectal cancer (CRC) is a major cause of cancer deaths among US Hispanic men and women. An important, modifiable way to decrease mortality from CRC is to increase rates of CRC screening and early detection of CRC. Clinical research indicates that a substantial number of CRC deaths could be prevented through screening followed by the removal of polyps. Unfortunately, the majority of Hispanics do not get screened. Evidence suggests that traditional interventions are not sensitive to levels of readiness to undergo screening or differences in cultural values of those targeted for intervention. Traditional interventions present standard information in a single format which do not insure a match between what is presented and what the individual needs or can use. To understand the potentially unique factors that are barriers and facilitators to CRC screening among Hispanics, nine focus groups were conducted. Focus group methodology is a well-established tool for understanding issues that are relevant to a population and increase the validity of research findings. Additionally, they explore novel constructs that have not been identified in the literature. Thirty five Hispanic men and women from diverse countries of origin participated. Groups were conducted separately for men and women as well as for those who had had a screening colonoscopy versus those who had not. Key reasons for screening included peace of mind; trust in one's health provider; influence from family and friends; and wanting to prevent CRC. Key barriers included not knowing about the importance of the test; fear of finding out they had cancer; fear of the examination itself; and lack of symptoms. These results will direct the next phase of our work, including the development of appropriate interventions to increase participation in CRC screening among Hispanics.

opportunistic screening.

Future perspective: To properly conduct evidence-based cancer screenings programs, appropriate understanding of the guidelines is needed. Information due to the new guidelines has been published through several types for both public health professionals.

#### SS18-4

### CANCER SCREENING PROGRAMS IN JAPAN

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Background: In Japan, two types of cancer screening are practiced; population-based screening and opportunistic screening. Based on the Health Service Law for the Aged of 1982, population-based screening programs have been mainly conducted for all residents aged 40 years and over. At present, 5 cancer screening programs are conducted nationwide, and over 25 million people are screened annually. On the other hand, opportunistic screening depends on individual members of the public requesting screening or their health advisors recommending it; this type of program is also common and is conducted in clinical settings using various modalities.

Cancer screening guidelines: In 2001, the research group for cancer screening funded by the Ministry of Health and Welfare in Japan recommended the five cancer screening programs. Since 2003, our research group has revised cancer screening guidelines based on a standardized method as follows: gastric, colorectal, lung and prostate cancer screening. Implementation of guidelines: Although the recommended methods have been employed in most of local municipalities, the screening rates of 5 programs have been approximately 18%. In fact, the screening rates in Japan are lower than those in the US and European countries. Prior to 2000, breast cancer screening consisted of physical examination; since 2000, mammography screening was introduced as population-based screening. In 2005, although 95% of local municipalities conducted mammography screening, the actual screening rate was 7.1 %. However, new cancer screening modalities that lack sufficient evidence have attracted public interest and have been introduced in both population-based screening and



OS28

## Track : 'Work Related Health'

Chair (s) : *Reiner Rugulies*

## Track 'Work Related Health'

OS28-1

### FACTORS ASSOCIATED WITH GOAL COMMITMENT OF IMAGING UNITS STAFF

*Gronroos E*

*Metropolia University of Applied Sciences*

In many countries like Finland, lack of staff in imaging units has been everyday reality for years. In previous studies commitment to units goals has been a strong predictor of staff turnover. Aim of the study was to examine factors associated with goal commitment of imaging units staff. The main data was collected via web questionnaires in ten Finnish radiographic departments in South of Finland in spring 2007. These departments united in 2006 to a large commercially based unit. The web link with an enclosure letter was sent to 150 staff members of all occupational groups - assistive staff, radiographers, radiologists - of the unit. It was received 73 responses, response rate 49%. The level of goal commitment was compared to data collected in same units from the same target group in spring 2005, response rate 60%. The data collected in 2007 was analysed by using logistic regression analysis. Difference of the goal commitment level between years 2005 and 2007 was analysed by using dependent samples t-test. Results: Factors predicting goal commitment at the imaging units were age, having children, work experience at health care, transformational leadership climate of the unit and clear functional environment at the department. Best predictors for goal commitment were having children and clear functional environment. Level of goal commitment was significantly lower after departments united to large commercially based imaging unit. Discussion: The study implies the meaning of leadership climate to the goal commitment in imaging units. Clear functional environment e.g. clarity of rules, functional principles and operational environment is essential for imaging units staff to for goal commitment. Current trend to unite smaller departments to large commercially based units may not be favourable to goal commitment of the health care staff.

OS28-2

### JOB INSECURITY, LABOUR MARKET CHANCES AND DECLINE IN SELF-RATED HEALTH IN DENMARK

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BACKGROUND: Job insecurity has been found to be associated with poor health in several studies. However, generalizations of findings between countries are difficult to make, due to differential societal conditions. Denmark, for example, has a special labour market system, called "flexicurity", which is characterized by weak employment protection laws but relatively high unemployment benefits. The aim of this study is to investigate if job insecurity and

poor labour market chances predict a decline in self-rated health in a representative sample of the Danish workforce. METHODS: Prospective cohort study with a representative sample of the Danish workforce using the Danish Work Environment Cohort Study. Job insecurity, labour market chances, self-rated health and numerous covariates were measured in 1809 women and 1918 men who responded to a questionnaire in 1995 and again in 2000. Multivariate logistic regression analyses were used to analyze the impact of job insecurity and labour market chances measured in 1995 on decline in health in 2000. RESULTS: Women with job insecurity had an increased risk of a decline in health at follow-up, after adjustment for all covariates (OR=1.78, 95% CI: 1.24 to 2.54). Effect estimates were strongest among women 50 years of age or younger with poor labour market chances (OR=2.13, 95% CI: 1.32 to 3.45). Among men, there was no main effect for job insecurity. However, men aged 50 years or younger with poor labour market chances showed an OR of 1.64 (95% CI: 0.95 to 2.84) for a decline in health. CONCLUSION: Job insecurity is a predictor for a decline in health in employed women in Denmark. Among men, a suggestive effect of job insecurity was found in employees aged 50 years or younger with poor labour market chances.

OS28-3

### PSYCHOSOCIAL WORKING CONDITIONS AND DEPRESSIVE SYMPTOMS : FINDINGS FROM THE SWEDISH LONGITUDINAL OCCUPATIONAL SURVEY OF HEALTH

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Introduction: Working conditions such as psychological demands, decision latitude, and poor interpersonal relationships are suggested risk factors for depression. However, there are relatively few prospective studies of work characteristics and depression in nationally representative populations. Aim: To study the association between working conditions in 2003 and depressive symptoms 2006 in Swedish men and women. Material and methods: The study is based on respondents to the Swedish Work Environment Survey 2003, a sample of gainfully employed Swedes 16 to 64 years of age. This baseline survey measured psychosocial factors at work such as high demands, low decision authority, lack of support and conflicts. A follow up was conducted in 2006 as part of the Swedish Longitudinal Occupational Survey of Health (SLOSH), by means of extended questionnaires answered by 5141 employed persons and 844 who had left the labour force. Depressive symptoms were measured by a short version of the depression subscale of Symptom Checklist 92 (SCL-92). Logistic regression analysis was performed adjusting for age, social class, sector, and depressive symptoms in 2003. Results: In men, lack of support from superiors (Odds Ratio 1.52; 95 % Confidence Interval 1.15-2.01) and conflicts with fellow workers (OR 1.48; CI 1.10-1.99) was associated with later symptoms of depression. In women, lack of support from fellow workers (OR 1.61; CI 1.22-2.13) as well as high demands (OR 1.25; CI 1.02-1.52) and low decision authority (OR 1.24; CI 1.02-1.52) was significantly related to symptoms of depression. Conclusion: This study supports an association between poor human relations and subsequent depressive symptoms in both men and women. The strongest predictor

was lack of support, though different sources of support seemed to be of importance for men and women.

OS28-4

**SLEEP, SLEEPINESS, SHIFT WORK AND OCCUPATION**

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Shift workers sleep less than non-shift workers, but it is not clear to what extent type of occupation is important. We studied relations between sleep, sleepiness and other sleep characteristics, occupation, shift work, and subjective health in a population of 40-45 year olds participating in the Hordaland Health Study 1997-1999. Participation rate was 63 %. A randomly selected half of the subjects answered a questionnaire on sleep habits and problems, questions on shift work and occupation,  $n = 7782$ . Occupations classified were: Leaders, non-personal service workers, personal service workers, farmers and fishery workers, craft-and construction workers, plant-and machine operators, and drivers. Sleep duration in shift workers was 15 min shorter than in non-shift workers. Differences in night sleep duration between occupational groups were present in non-shift workers in particular: Craft workers, plant operators and drivers slept less than leaders, non-personal and personal service workers. Within some occupations (leaders, personal service workers, and plant operators), shift workers slept less than non-shift workers. Rise time varied between occupations and explained as much as 15 % of the sleep duration variance. Risk factors for sleepiness, insufficient sleep, falling asleep at work and insomnia for shift- or non-shift workers and for the different occupations were investigated using logistic regression analyses, with leaders as the reference for the occupational groups, and adjusting for gender, work hours, subjective health, education and income. Shift workers had increased risk for falling asleep at work and for insomnia. When adjusted for shift work, craft workers, plant operators and drivers had increased risk of daytime sleepiness and of falling asleep at work compared to leaders. Conclusion: Occupation has separate effects on sleep duration and sleep characteristics in addition to the effect of shift work.

OS28-5

**LEADERSHIP OR PERCEPTION OF LEADERSHIP? A MULTILEVEL ANALYSIS ON LEADERSHIP AND SUBORDINATE WELL-BEING**

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Objectives: To study the relation between leadership and subordinate well being. Is subordinate well-being determined by factors related to the leader or individual perception of the leader?

Method: Multilevel regression analysis with data from cross-sectional self-report and 1 year follow-up on registered sickness days was used to calculate variance components. 2915 employees (93% response rate) , including 322 leaders in a Scandinavian insurance company filled in an annual

survey that included measures of work related exhaustion, job satisfaction, engagement, and psychosocial work environment. 50% were females and 55% were between 31-50 years of age. Results: Individual perception (individual level) of leadership explained 27% of the total variance for social support, 20% for work related exhaustion, 17% for job satisfaction, 11% for engagement, and 0% for job demands. Furthermore, the leader factor (group level) explained 13% for social support, 8% for work related exhaustion, 7% for job satisfaction, 3% for engagement, and 0% for job demands of the total variance. Individual perception of leadership was related to sick leave ( $OR = 1.2$ , 95% CI 1.17-1.23,  $p < .001$ ). There was no significant ( $p = .95$ ) effect of the leader factor on sick leave.

Conclusion: Optimal interventions aiming at improving health factors in working life should not be directed only at leadership behaviour. The individual perception of leadership may be more important in explaining subordinate health than the actual leader.

OS28-6

**STRESS AT THE WORKPLACE: COULD BE MANAGED BETTER?**

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We studied the effects of a short structured stress management training (Williams LifeSkills Program, WLS) on workplace stress and stress related symptoms in Hungary. Data was collected from 76 voluntary participants from diverse workplaces (63 women, 13 men; mean age: 40,7 ys,  $sd = 10,5$ ) who completed the 16 hours training program and completed the questionnaires at baseline, after the intervention and/or 4-6 month after the training. The outcome measures were Siegrist Work-Stress Questionnaire (ERI), Cohen Perceived Stress scale (PSS10), Spielberger Trait Anxiety Inventory (STAIT), shortened Beck Depression Inventory (BDI), Patients Health Questionnaires (PHQ15), WHO Well-being (WWB5), overall satisfaction with life. The mean ERI (Effort/Reward) rate for the whole sample was  $0,77 \pm 0,5$ , there was no gender difference. ERI was strongly correlated with perceived stress and symptom scores. After the intervention the work-stress indicator ERI have not changed significantly, while over commitment, perceived stress, anxiety and subjective somatic symptoms scores decreased significantly, and these effects were maintained at follow-up. People with high ERI at baseline (cut point at percentiles 50) showed greater improvement, in the group with low ERI there was no significant change. High stress level at work is associated with higher stress related symptom scores. This short stress management training resulted in long term symptom reduction without influencing the stress load at the workplace. We emphasize the importance of individual coping abilities and the potential benefit of structured behavioural interventions. Acknowledgements to the WLS Facilitators Piroska Balog, Csilla Raduch, Noemi Keresztes, Tamas Martos, Magda Rohanszky. Research supported by the grants TS-049785/2004 and NKFP 1b/020/2004.

OS29

**Track :**  
**‘Alcohol/Smoking/Substance Abuse’**  
**‘Stress/Psychophysiology/PNI/PNE’**

*Chair (s) : Antti Uutela*

**Track ‘Alcohol/Smoking/Substance Abuse’**

OS29-1

**THE PERFORMANCE OF INTUITIVE MEASURES OF HEAVY DRINKING IN PREDICTING ALCOHOL-RELATED HOSPITALISATIONS AND DEATH DURING EIGHT YEARS OF FOLLOW-UP**

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**Objective:** To test the performance of intuitive measures of alcohol drinking patterns that do not require the estimation of standard drinks in identifying drinkers at risk for alcohol-related harm in a population where heavy episodic drinking is common. **Methods:** In this prospective cohort study, a general population sample of 9,407 alcohol drinking males aged 20 to 54 at baseline were followed-up eight years. The outcome measure was alcohol-related hospitalisation or death determined by using the International Classification of Diseases tenth revision, Finnish modification. Alcohol consumption was measured by overall frequency of drinking, average quantity of intake for beer, wine and spirits separately (asked as glasses and bottles), frequency of intoxications, frequency of hangovers and frequency of alcohol-induced pass-outs. Cox proportional hazard models were used to analyse the survival time data. Areas under the receiver operating characteristics curves (AUC) were used to evaluate the performance of alcohol consumption measures in differentiating at-risk drinkers. **Results:** Average quantity of intake for wine, and spirits, frequency of hangovers, and frequency of alcohol-induced pass-outs each predicted alcohol-related harm independently. Frequency of alcohol-induced pass-outs showed the best performance in differentiating at-risk drinkers (AUC=0.76; 95%CI=0.72 to 0.79), while the average intake of wine showed the poorest performance (AUC=0.55; 95%CI=0.50 to 0.59). Average quantity of intake for spirits, frequency of intoxications, frequency of hangovers, and frequency of alcohol-induced pass-outs had all a similar performance in differentiating at-risk drinkers. **Conclusions:** Information about average quantity of intake for spirits combined with information on frequency of subjectively defined hangovers and alcohol-induced pass-outs may be used as an alternative approach to identify at-risk drinkers in epidemiological studies. These measures have also potential to be used as a basis of brief intervention, because advice would not require complex conversion of standard drinks.

OS29-2

**ALCOHOL DRINKING BEHAVIOR AMONG SCHOOL STUDENTS IN BANGKOK: ROLE OF SOCIAL RELATIONS, INDIVIDUAL DIFFERENCES AND ENVIRONMENTAL FACTORS.**

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**Introduction:** Socio-ecological models have found family relationships, peer influence and school effects to be significant predictors of substance use in western societies. There is lack of research exploring these relationships using measures adapted to Asian cultures.

**Aims:**

1. To construct social relationships measures within the Thai context.

2. To predict the relationships of social factors, environmental factors and individual differences with alcohol drinking behavior in adolescents.

**Method:** Measures for family relationships, peer influence and school connectedness were developed for the Thai context. Avoidant coping was constructed using subscales of denial, behavioral engagement and venting from the Brief COPE inventory. Alcohol drinking behavior (ADB) was measured as a composite scale. Participants comprised of 292 students aged 15-18 attending two secondary schools and two vocational schools in Bangkok. A predictive model for ADB was developed using hierarchical multiple regression.

**Findings:** Internal consistency reliability for all measures ranged from 0.705 to 0.790. The final model (R<sup>2</sup>=0.353) included the following variables: gender (= 0.21; P<0.001), age (= 0.15; P=0.004), peer influence (=0.13; P=0.017), avoidant coping (= 0.13; P=0.012), school connectedness (= 0.15; P=0.006), and being offered alcohol (= 0.38; P<0.001). Being offered alcohol (R<sup>2</sup>=0.172) was the best predictor. Peer influence (R<sup>2</sup>=0.023) and Avoidant coping (R<sup>2</sup>=0.025) were positively associated while school connectedness (R<sup>2</sup>=0.030) indicated a negative association.

**Conclusion:** Social relations such as peer influence and school connectedness play a significant role in ADB. Family relationships were an insignificant factor. Adolescents with avoidant coping had a higher tendency for ADB. However, being offered alcohol was the most significant influence. This pattern of influences provides a basis for appropriate school health intervention to address ADB in an urban setting.

OS29-3

**ALCOHOL CONSUMPTION AND SICKNESS ABSENCE: EVIDENCE FROM PANEL DATA IN FINLAND 1993-2005**

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Nordstrom has argued using aggregate time series data from Sweden covering the time period 1935-2002 that national per capita alcohol consumption is strongly associated with sickness absence. Nordstrom's provocative claim is plagued by several methodological fallacies, however. To circumvent these, we used information on sickness absences and use of alcohol among consecutive annual representative random samples (of 5000 persons, respectively) of working age Finns

from the Health Behaviour Monitoring System of the National Public Health Institute in the period 1993-2005. The response rate averaged 73%. The data was aggregated on NUTS3 regional level and linked to the gender-specific regional unemployment rates derived from Statistics Finland. The period examined is particularly interesting because of high unemployment rate of the early 1990's caused by a severe depression as well as a substantial lowering of alcohol prices caused by taxation change in 2004. In this paper, following the methodology suggested by Ruhm, fixed-effect models were used to examine within-region changes in alcohol consumption. Individual level control variables - years of education, age, age squared and marital status - were also used. As descriptive results, both genders showed an increase of sickness absences across time, and women tended to report more sickness absences than men. The province of Uusimaa, including the Helsinki Metropolitan Region, showed highest level of sickness absences among the 18 regions. As the main finding, alcohol consumption was indeed found to be associated with sickness absence among both genders, particularly among men whose alcohol consumption in the average was higher than that of women. As the most vulnerable measure of our study prevalence figures of alcohol consumption are likely downward biased. As we are interested in the time period change, though, this is not to hurt significantly our conclusion that Nordstrom's claim indeed seems valid.

#### OS29-4

### THE RELIABILITY AND VALIDITY OF THE KOREAN VERSION OF DRINKING REFUSAL SELF-EFFICACY QUESTIONNAIRE-REVISED (DRSEQ-R)

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The purpose of this study is to test reliability and validity of the Korean version of Drinking Refusal Self-Efficacy Questionnaire-revised(DRSEQ-R) when the scale was applied to Korean college students. The original DRSEQ-R was designed to assess an individual's belief in their ability to refuse drinking alcohol by Oei et al.(2005) and consisted of three factors(social pressure, opportunity, emotional relief).A methodological study design with the exploratory factor analysis and correlation coefficients has been used. DRSEQ-R was translated into Korean. The translation equivalency was obtained by translation, back translation, bilingual. Reliability and validity of DRSEQ-R was tested with sample of 201 college students in Korea. The subject consisted of 106 males and 95 females with age of 18-30 years old. Principal component factor analysis was used to evaluate the construct validity and Cronbach's alpha was used to evaluate the internal consistency. The factor analysis showed three factors having eigen value greater than 1 were explaining 66.3% of total variance and the corresponding factors were emotional relief(48.01%), drinking contextual opportunity(11.18%), and social pressure(7.14%). The internal consistency was acceptable(alpha=.937). All three factors were negatively correlated with alcohol dependency and heavy drinker presented lower DRSEQ-R than non- heavy drinker. The above results suggest that the DRSEQ-R is reliable and valid instrumental scale to measure for drinking refusal self-efficacy of Korean college subjects, but follow-up studies are needed to test the criterion and concurrent validity.

## Track 'Stress/Psychophysiology/PNI/PNE'

#### OS29-5

### CHEWING GUM ALLEVIATES NEGATIVE MOOD AND REDUCES CORTISOL DURING AN ACUTE LABORATORY PSYCHOLOGICAL STRESSOR

**Scholey A**

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The notion that chewing gum may relieve stress was investigated in a controlled laboratory experiment. A multi-tasking framework which reliably evokes stress and also includes performance measures was used to induce acute laboratory stress. Using a randomised crossover design forty participants (mean age 21.98 years) performed on the multi-tasking framework at two intensities (on separate days) both while chewing and not chewing. Order of stress level and chewing conditions were counterbalanced. Before and after undergoing the platform participants completed the state portion of the State-trait anxiety inventory, Bond-Lader visual analogue mood scales (VAMS), a single stress VAS and provided saliva samples for cortisol measurement. Baseline measures showed that both levels of the multi-tasking framework were effective in significantly reducing self-rated alertness, calmness and contentment while increasing self-rated stress and state anxiety. Cortisol levels fell during both levels of the stressor during the morning, reflecting the predominance of a.m. diurnal changes, but this effect was reversed in the afternoon suggesting a measurable stress response. Pre-post stressor changes for each measure at baseline were subtracted from change scores under chewing and no chewing conditions. During both levels of stress the chewing gum condition was associated with significantly better alertness and reduced state anxiety, stress and salivary cortisol. Overall performance on the framework was also significantly better in the chewing condition. The mechanisms underlying these effects are unknown but may involve improved cerebral blood flow and/or effects secondary to performance improvement during gum chewing.

#### OS30

### Track : 'Cardiovascular & Pulmonary Disorders'

*Chair (s) : Bruce Alpert*

## Track 'Cardiovascular & Pulmonary Disorders'

#### OS30-1

### HISTORY OF DEPRESSION, NITRIC OXIDE, AND ENDOTHELIN-1

**Wagner J A (1), Tennen H (1), Burg M M (2), Khanna A (1), White W B (1)**

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Background: A history of depression is associated with endothelial dysfunction. Proper endothelial function is determined by the net balance of vasodilators, the most important of which is nitric oxide (NO), and vasoconstrictors such as endothelin (ET-1). Little is known about the

relationship between depression history and these vasoactive substances. We therefore investigated levels of NO and ET-1 in subjects with a history of depression versus never depressed controls. Measures: Depression history was assessed by Structured Clinical Interview for DSM-IV and current depressive symptoms were measured with the Center for Epidemiological Studies Depression scale (CESD). ELISA was used to determine concentrations of NO (R&D Systems; intra-assay coefficient of variation [CV]=1.8) and ET-1 (Alpco Diagnostics; intra-assay CV=3.5). Procedures: Venous catheters were inserted, and after a 20 minutes rest period, blood was drawn for determination of NO and ET-1 from plasma. Prior to blood draws, subjects fasted and refrained from medications, caffeine, and exercise for 12 hours. Results: 26 community-based, non-smoking postmenopausal women (age,  $61 \pm 9$  years; 85% Caucasian; 35% with hypertension) with no ischemic heart disease, no current mood disorder, and no current antidepressant use were recruited; women with history of depression were over-sampled. In ANOVA, women with a history of depression ( $n = 9$ ) had lower NO levels ( $17.4 \pm 5.4$  mol/l) than their never depressed counterparts ( $n = 17$ ) ( $31.5 \pm 3.4$  mol/l),  $F(1,26)=4.42$ ,  $*p<0.05$ . Addition of hypertension or CESD scores to the equation did not attenuate the effect for history of depression. There was no association between depression history or CESD scores and ET-1 levels. Conclusions: These preliminary data suggest that a prior depressive episode is associated with decreased NO levels independent of current mood. Thus, endothelial dysfunction observed in previously depressed persons may be characterized by inadequate generation of NO rather than excessive ET-1.

### OS30-2

#### HISTORY OF DEPRESSION AND SURVIVAL AFTER ACUTE MYOCARDIAL INFARCTION

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Major depression (MD) is a risk factor for mortality after myocardial infarction (MI). The level of risk may depend upon whether the depressive episode is the patient's first. We compared post-MI survival in patients with a first episode of MD to those with recurrent MD after an acute MI. A 29-month (median) follow-up was conducted. The cohort included 370 patients with an initial MD episode, 550 patients with recurrent MD, and 408 nondepressed patients. Death occurred in 3.4% of the nondepressed patients, 18.4% of those with initial MD, and 11.8% of those with recurrent MD. Compared to the nondepressed group, patients with initial MD (HR=5.2; 95% CI: 2.9-9.3;  $p<0.0001$ ) and recurrent MD (HR=3.3; 95% CI: 1.8-5.9;  $p<0.0001$ ) had shorter survival. Adjustment for a mortality risk index reduced but did not eliminate the effects of initial (HR=3.5; 95% CI: 2.0-6.4;  $p<0.0001$ ) or recurrent (HR=2.6; 95% CI: 1.5-4.7;  $p<0.0001$ ) episodes. Thus, both initial and recurrent MD episodes predicted shorter survival after acute MI, but the former were more strongly predictive than the latter. Exploratory analyses suggested that this is not due to more severe heart disease, poorer response to depression treatment, or a higher risk of cerebrovascular

disease in patients with initial than recurrent MD.

### OS30-3

#### POSITIVE AND NEGATIVE AFFECT AND RISK OF CORONARY HEART DISEASE: THE WHITEHALL II PROSPECTIVE COHORT STUDY.

**Nabi H**

*National Institute of Health and Biomedical Research*

Objectives: To examine the associations between positive and negative affect and subsequent coronary heart disease events independently of established risk factors and of each other. Design: Prospective cohort study with follow up over 12 years. Setting: 20 civil service departments originally located in London, Britain. Participants: 10 308 civil servants aged 35-55 years at entry into the Whitehall II Study in 1985. Main Outcome measures: Fatal coronary heart disease, clinically verified incident non-fatal myocardial infarction and definite angina ( $n=619$ ). Positive affect and negative affect were assessed using the Affect Balance Scale. Results: There was no evidence of an association between positive affect and coronary heart disease. Higher negative affect was associated with an increased incidence of coronary events (relative index of inequality, RII=1.55, 95% CI 1.17-2.05) in an age-sex-adjusted Cox regression model. This association remained after adjustment for socio-economic position and ethnicity, biological (hypertension, blood cholesterol, body mass index, diabetes) and behavioural (smoking, alcohol consumption, daily fruits and vegetables intake, exercise) risk factors, and psychological stress at work (RII=1.60; 95% CI 1.20-2.13). Additional adjustment for positive affect had little effect on this association. Conclusions: Negative affect is predictive of development of coronary heart disease in men and women who were free of diagnosed CHD. The absence of evidence of an association between positive affect and subsequent CHD suggests that positive emotions might have a prognostic rather than an aetiological role for CHD.

### OS30-4

#### TREATED HYPERTENSIVES HAS STILL HIGH RISK OF STROKE IN THE GENERAL POPULATION: THE JICHI MEDICAL SCHOOL COHORT STUDY

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Purpose: Although it is confirmed that antihypertensive treatment for Hypertension (HT) reduces stroke, studies which examine risk of stroke reduced in controlled hypertensives as low as in normotensives. We examined the risk of stroke in hypertensives with or without antihypertensive treatment in the general population. Methods: Multi-center population-based cohort study. A total of 11,103 men and women were eligible. Subjects were divided into three categories; normotensives (blood pressure  $<140/90$  mmHg); treated hypertensives, and non-treated hypertensives (blood pressure

$\geq 140/90$  mmHg without antihypertensive treatment). The treated hypertensives were divided into controlled and uncontrolled. The non-treated hypertensives also divided into mild HT, and moderate or severe HT. Result: Mean follow-up duration was 10.7 years. Risk of all stroke was significantly higher in hypertensives than in the normotensives (Treated HT: hazard ratio; 3.00, 95% confidence interval; 2.00-4.51 in men and 3.34, 2.29-4.87 in women, Non-treated HT: 2.56, 1.83-3.57 in men and 1.93, 1.35-2.76 in women). Risk of stroke in controlled treated hypertensives was about three times as high as that in normotensives (2.96, 1.66-5.26 in men and 3.69, 2.20-6.17 in women). Risk of stroke was about 2.5 times higher in individuals with hyperglycemia than in those with normoglycemia among both treated hypertensive men and women. Conclusion: Compared with normotensives, significantly higher risk of stroke was seen in all hypertensive categories. Residual confounding might affect the result that risk of stroke was higher in controlled treated HT than in non-treated mild HT. Moreover, it is important to control BP and blood glucose in hypertensives in order to reduce the risk of stroke.

### OS30-5

#### **HEART FAILURE PATIENTS PRACTICING TAI CHI HAVE REDUCED SYMPTOMS OF DEPRESSION, HEART FAILURE SYMPTOM SEVERITY & FREQUENCY**

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Heart Failure (HF) is associated with debilitating symptoms and loss of quality of life, which can lead to increased depressive symptoms. Moreover, depression can increase risk for future cardiac events and mortality in HF patients. Previous studies have found that depressive symptoms were reduced after completion of a Tai Chi program, however this has not been explored to our knowledge in HF patients. The present study explored changes in symptoms of depression, HF symptom severity and frequency in HF patients practicing Tai Chi. HF patients ( $n = 38$ ) ages 37-81 (mean = 61.8, S.D. = 5.2) either received Tai chi training twice per week ( $n = 19$ ) for 12 weeks or were in a waitlist control group ( $n = 19$ ). At baseline and after the 12 week intervention period patients completed the Beck Depression Inventory (BDI) and Minnesota Living with Heart Failure Questionnaire (MLHFQ) questionnaires. Repeated measures analysis of variance (ANOVA) revealed decreased BDI depressive symptom scores ( $p = 0.05$ ), and reduced HF symptom frequency ( $p = .045$ ) and symptom severity ( $p = 0.05$ ) measured with the MLHFQ. Results from this preliminary study suggest that Tai Chi training reduces depressive symptoms, HF symptom severity and frequency. Future longitudinal studies with a larger cohort are needed to determine whether there are corresponding physiological and clinically significant changes in HF patients practicing Tai Chi.

### OS31

#### **Track : 'Work Related Health'**

*Chair (s) : Akihito Shimazu*

#### **Track 'Work Related Health'**

### OS31-1

#### **PSYCHOSOCIAL WORK ENVIRONMENT AND SYMPTOMS OF ANGINA PECTORIS: COMPARING BRITISH AND FINNISH MIDDLE-AGED WHITE-COLLAR EMPLOYEES**

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**Purpose:** This study aimed to examine whether psychosocial work environment and working overtime are associated with angina pectoris (AP) symptoms among British and Finnish employees.

**Methods:** Pooled data derived from postal questionnaire surveys among 45 to 60 year-old female and male employees of the Whitehall II Study ( $n=4551$ , 27% women) and the Helsinki Health Study ( $n=6070$ , 82% women) were analyzed. AP symptoms (Rose Questionnaire) were examined as outcome. Independent variables were job strain, job demands, job control, and working overtime. Logistic regression analysis was used, stratified by cohort and gender. Models were adjusted for age, marital status, occupational class, smoking, drinking, physical inactivity, unhealthy food habits, and obesity.

**Results:** AP symptoms were reported by 5% of women and 3% of men in the Whitehall II cohort, and by 6% of women and 4% of men in the Helsinki Health Study cohort. Older men reported AP symptoms more often than their younger counterparts, while among women this was not observed. High job strain was strongly associated with AP among men in London (OR 2.12; CI 95% 1.09-4.13) and women in Helsinki (OR 1.92; CI 95% 1.34-2.75). A similar pattern was suggested among men in Helsinki, but not among women in London. Additionally, low job control, high job demands, and working overtime were associated with AP symptoms among women in Helsinki. The patterns were similar among men in London. All found associations were independent of socio-demographic factors, occupational class, health behaviors, and obesity.

**Conclusions:** Psychosocial working conditions, particularly job strain, were associated with the AP symptoms. The associations were largely similar among employees from Helsinki and London. These results emphasize the importance of psychosocial job strain to the AP symptoms across national contexts.

### OS31-2

#### **WORK-RELATED PSYCHOSOCIAL STRESS AND DEPRESSIVE SYMPTOMS IN CENTRAL AND EASTERN EUROPE**

**Pikhart H (1), Nicholson A (1), Pajak A (2), Malyutina S (3), Kubinova R (4), Peasey A (1), Bobak M (1), Marmot M G (1)**

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University, Krakow, Poland; 3 Institute of Internal Medicine, RAMS, Novosibirsk, Russia; 4 National Institute of Public Health, Prague, Czech Republic

**Background:** Psychosocial factors at work have been shown to be associated with various health outcomes but the effect on mental health has not been extensively studied. This presentation focuses on the relationship between psychosocial factors at work and depressive symptoms in Russia, Poland and the Czech Republic, countries undergoing social and economic transition.

**Aims:** To examine the association between the effort-reward imbalance (ERI), job demand-control at work (JDC), and social support at work, and depressive symptoms in three populations in Central and Eastern Europe in the HAPIEE Study. **Methods:** Men and women aged 45-69 years completed a questionnaire in 2002-2005 that included questions on ERI, overcommitment, JDC, job social support, the full CES-D scale of depressive symptoms, and a range of other indicators (wave 1 of the study). The individuals were revisited after 3 years and asked about wide range of indicators including CES-D scale (wave 2). Regression modeling was used to estimate the association between CES-D in wave 2 and psychosocial characteristics collected in wave 1 taking CESD score in wave 1 into account. Only men and women who were full-time working at the time of first interview were used for the analysis. **Results:** After controlling for country, age, sex and range of social and behavioural variables, ERI, JDC and overcommitment were strongly related to CES-D score. Adjustment for socioeconomic position did not substantially change the results. When all psychosocial variables were used at the same model, the estimated effects were reduced but still associated with depressive symptoms. **Conclusions:** Stress at work and outside work expressed by ERI, overcommitment and JDC is associated with depressive symptoms in 3 populations of Central and Eastern Europe.

#### OS31-3

### DOES EFFORT-REWARD IMBALANCE LEAD TO ADVERSE HEALTH OR VICE VERSA? TESTING RECIPROCAL RELATIONS IN A 3-WAVE PANEL SURVEY

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**Aim:** This study examined normal, reversed and reciprocal relations between effort-reward imbalance (ERI) and adverse health (i.e., psychological distress and physical complaints) in a 3-wave panel survey.

**Method:** Questionnaires were distributed to all employees, who worked at the production assembly line of a construction machinery company in western Japan, with a 1-year time lag per web. Hypotheses were tested using structural equation modeling (SEM: Amos 7.0J).

**Results:** (1) SEM revealed cross-lagged and causally dominant effects of ERI on both psychological distress and physical complaints after 1 year for both T1-T2 and T2-T3. However, ERI at T1 did not have significantly lagged effects on either T3 psychological distress or T3 physical complaints. (2) Cross-lagged effects of psychological distress on ERI were found after 1 year for both T1-T2 and T2-T3. However, we did not find significantly lagged effects of physical complaints at T1 on ERI at T2 as well as that of physical complaints at T2

on ERI at T3. In addition, neither T1 psychological distress nor T1 physical complaints did have significantly lagged effects on T3 ERI. **Conclusion:** These findings suggest that (perceived) ERI and employee health influence each other reciprocally rather than uni-directionally, and that psychological distress was more reactive to ERI than physical complaints over a 1-year time lag.

#### OS31-4

### BEHAVIORAL DETERMINANTS AS PREDICTORS OF RETURN TO WORK AFTER LONG-TERM SICKNESS ABSENCE

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**Background:** The Attitude- Social influence- self-Efficacy (ASE) model is an widely used behavioral model, which is derived from the Theory of Planned Behavior. To date, little it known about as to whether the behavioral determinants of the ASE model are associated with time to return-to-work (RTW). Insight in this relationship might help in the design of measures to prevent or at least reduce work disability. **Aim:** The present study examines the relationship between the behavioral determinants of the ASE-model and the time to RTW in persons with long-term sick leave who are at risk of becoming permanently disabled. **Method:** The study was based on a sample of 926 employees on sickness absence (for 6-12 weeks). The employees filled out a baseline questionnaire and were subsequently followed for 10 months. Information on sociodemographic and behavioral characteristics as well as on time to RTW were collected. Data on time to RTW was also obtained from the occupational health service. Cox proportional hazards regression analyses were used to identify the behavioral determinants of time to RTW. **Results:** High social support during sickness absence (RR=1.23, 95% CI 1.03-1.47, p=0.02) and high willingness to expend effort in performing a specific behavior (subscale of self-efficacy measure) (RR=1.37, 95% CI 1.08-1.75, p=0.00) are associated with a shorter time to RTW. In the univariate Cox regression model Work Attitude was also significantly associated with the time to RTW (RR=1.19, 95% CI 1.01-1.40, p=0.03), but it did not remain in the final multivariate model (p=0.06). **Conclusions:** The prospective results are suggesting a relationship between the behavioral determinants and the time to RTW. This confirms the usefulness of the ASE-model in predicting the time period to RTW. Addressing ASE determinants in future intervention studies among absent workers might help to reduce the time to RTW.

#### OS31-5

### DO HUMANS ADAPT TO EXTREME ENVIRONMENTS?

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Lack of human adaptation to extreme environments may influence work capacity, performance, and health. Personnel selected for over wintering in the Antarctica may be exposed to extreme demands. This may influence the normal regulation of the HPA axis and cortisol secretion as described in terms of

the stress response. The aim of the study was to examine if saliva cortisol profiles were related to performance and health of personnel selected to over winter at research stations in the Antarctica. 35 individuals selected for over wintering in the Antarctica were tested at 3 different periods; early winter, mid winter, and just before departure from Antarctica. Cortisol levels during the day were measured on 3 consecutive days at early winter, mid winter and just before departure. Five samples were collected each day; at wake-up time, 15 and 45 min after wake-up time, at 1500h, and 2200h. Mixed model analysis showed that the personnel were significantly less activated during mid winter ( $p < .01$ ) and just before departure ( $p < .001$ ) compared to early winter. Adaptation and work performance of personnel was evaluated by the stations commander just before departure. Participants who were well adapted, with good performance and might be selected for over wintering again had significantly higher awakening cortisol response (ACR) compare to those who would not be selected ( $p < .01$ ). Personnel with poor performance had significantly lower ACR ( $p < .001$ ) compared to other personnel. There were no association between subjective health complaints, scores on different psychological instruments (Selection of Antarctic Personnel battery (SOAP) and ACR. The results show that high activation may be good for performance in highly selected personnel. This is consistent with the cognitive activation theory of stress (CATS).

Key words: Extreme environments, polar work, cortisol diurnal rhythm, adaption, health

## OS32

### Track : 'Socioeconomic Factors, Culture & Health' 'Cancer'

Chair (s) : Sakari Karvonen

### Track 'Socioeconomic Factors, Culture & Health'

## OS32-1

### THE MAGNITUDE OF THE EFFECTS OF INDIVIDUAL TAXABLE INCOME, HOUSEHOLD TAXABLE INCOME AND HOUSEHOLD CONSUMPTION INCOME IN 1997 ON MORTALITY IN FINLAND IN 1998-2004

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The aim was to improve understanding of the nature of the association between income and mortality by analyzing its magnitude and shape according to various income components, both before and after adjustment for other socio-economic factors. This was a prospective record linkage study of Finns aged 30 years and over in 1997. Information on individual and household taxable income, household consumption income, and socioeconomic factors is from the Statistics Finland Labour Market Data File. Mortality follow-up is from 1998 to 2004. The results show that among 30-64-year-olds all income measures are strongly associated with mortality, with weaker effects among women. After adjustment for education, social class and economic activity these associations diminish by 50% or more; individual

taxable income remains most strongly and household consumption income most weakly associated with mortality. Among the over-65-year-olds the associations are weaker, particularly for household consumption income. For men and women the association between individual and household taxable income and mortality is not consistently strongest in the lowest income quintiles. For household consumption income mortality does not increase particularly rapidly at the lower end of the income distribution. Overall, by showing a 1) weaker association of household consumption income, the income measure that best captures consumption potential, than individual income with mortality particularly at older ages, 2) a strong reduction in the association between different income measures and mortality after adjustment, and 3) weak evidence of curvature for household consumption income, these data indicate that the magnitude of the effects of income may be easily overestimated. The findings thus caution against causal explanations based mainly on material factors and indicate that as a measure of social position income should be used cautiously in health inequalities research.

## OS32-2

### SOCIO-ECONOMIC INEQUALITY IN HEALTH AMONG JAPANESE WORKING POPULATION: JICHI MEDICAL COHORT STUDY.

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One of the most reproducible demographic findings in modern society is the inverse association between socio-economic status and mortality. There were few studies on socio-economic demographic differentials in mortality among Japanese working population. The purpose of the study was to examine occupational status as determinants of all cause mortality, controlling for potential confounding factors. Data of the base line survey were collected between 1992 and 1995, and ultimately 6,929 Japanese workers aged 65 years and younger (3,333 men and 3,596 women) from 12 rural communities across Japan participated. The hazard ratio of death (HRs) and 95% confidence intervals (95% CIs) from all causes were calculated using the Cox proportional hazard model. White-collar men in a general level showed an increased mortality risk compared to white-collar men in a managerial level (HR = 1.78, 95%CI 1.07-2.97). Blue-collar men in a general level also showed a tendency of an increased mortality risk compared to white-collar men in a managerial level (HR = 1.56, 95% CI 0.92-2.64), whereas those in a managerial level did not (HR = 1.02, 95% CI 0.47-2.24). No significant association was found among Japanese working women. Low occupational grade could contribute to the increased all-cause mortality among Japanese working men.

## OS32-3

### HEALTH AND WELFARE IN RURAL FINLAND - CHANGES OVER TIME (1991-2003)

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Regional disparities have been rapidly growing over the past decade. In Finland, rurality is increasingly becoming a



synonym of poorer welfare and health. Particularly the dynamics of changes over time in different types of rural area is poorly understood. The aim was to describe changes of time in health and welfare between different types of rural areas and to compare them with national average. By comparing three North-eastern regions we assessed whether there are spatial peculiarities in the development. Twenty indicators were selected from national registers to measure dimensions of welfare and health. Municipal-level information came from administrative registers and included data of reimbursement of drug costs and hospitalisations. Trends between types of municipalities were compared with those of the national average. Rural areas were categorised as rural areas near cities, rural areas proper and sparsely populated areas (SPAs). Even though the level of welfare differed, the development was similar in all areas in the early 1990s. The first point of departure was seen in mid-1990s as sparsely populated rural areas suffered from structural and economic problems longer than other areas. For example income support remained especially in the SPAs at a higher level than the national average. This change was accompanied with more severe health problems (e.g. steeper increase in special reimbursement rights) in these areas few years later and, finally, towards the end of the decade accumulation of psychosocial problems (e.g. children taken into custody rocketed quicker from 1998-99 onwards). Especially remote SPAs experienced a kind of "a vicious circle" in their welfare development in which problems in one welfare dimension were soon echoed in another dimension. Heightened structural problems were followed by poorer health which in turn was echoed by the psychosocial dimension. Few spatial peculiarities were observed as main trends were similar in all three localities.

#### OS32-4

### **SOCIO-CULTURAL FACTORS AFFECTING MATERNAL AND CHILD HEALTH IN NEPAL**

**Bhandari J**

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**Introduction:** Nepal, as one of the least developed countries in the world, is facing several development challenges of poverty, illiteracy and public health. Most importantly, the Maternal Mortality Rate (MMR) of the country is 539 per 100,000 live births which is one of the highest in the world. Similarly, infant and child mortality rates are also significantly high. Majority of the total population are living in rural areas and heavily relying on subsistence agriculture. The rural areas of the country acutely lack health infrastructure, socio-economic and health services. **Purpose:** The purposes of this paper are to present socio-cultural factors affecting children and women's health and suggest programmatic strategies to improve their health in the rural areas. **Description of Methods and Procedures:** The following qualitative research methods were largely used to collect information for analysis: a) Focus Group Discussion (FGD) with mothers and school children, b) In-depth interviews with mothers, school children and key stakeholders, and c) Participatory observation. **Results:** There are a number of socio-cultural barriers to access and utilize maternal and child health services. These are significantly affecting communities in accessing and utilizing the maternal and child health services. The wide spread gender inequality and discrimination, age-old misconceptions about safe delivery and child-birth, traditional health-care seeking behavior, indigenous health care practices and myths regarding sexual and reproductive health, marriage, trafficking, domestic violence, sexual harassment, poor awareness on the needs and

benefits of maternal and child health services in the communities, lack of trained human resources and supportive environment for utilization of maternal and child health services. Besides, economic and physical barriers are also responsible for creating barriers to use maternal and child health services in the rural communities.

#### OS32-5

### **SPATIAL AND CONTEXTUAL EXPLANATIONS OF THE LANGUAGE-GROUP MORTALITY DIFFERENTIAL IN FINLAND**

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**Background:** The considerable difference in life span between Finnish and Swedish-speaking Finns has been known for over half a century - the male and female Finnish speakers have higher mortality than their Swedish-speaking counterparts. In a recent study we have shown that this difference has persisted during the period of 1988-2004 and actually widened further, when the pre-retirement age-groups are considered. This adverse development is most notably attributable to deaths due to alcohol related diseases, suicides and other external causes.

**Data and methods:** The data are based on an 11% sample of Finns aged 15 years or more at the end of year 1987 - obtained from the Statistics Finland Labour Market data file covering all Finns. The data set further includes an over sample of deaths covering 80% of all deaths in the period of 1988-2004. Adjusted hazard ratios are calculated using Cox regression in STATA.

**Aim:** We have previously shown, that only less than a half of mortality differential between the language groups is explained by traditional sociodemographic markers. In this study we aim to further disentangle the unexplained part of the difference by taking spatiality and contextual effects under closer examination.

**Anticipated result :** According to our preliminary results, contextuality is a major factor in any attempt to fully understand the persistence of the language-group mortality difference in Finland. This is partly because of to some extent isolated location of the Swedish-speaking minority. This means, that this minority is actually a majority in a local perspective, thus enabling it to avoid the possible adversities of minority status per se.

### **Track 'Cancer'**

#### OS32-6

### **PREDICTORS OF CHANGE IN THE PREVALENCE OF MAJOR DEPRESSION FROM 3 TO 15 MONTH POST-SURGERY IN A 1-YEAR FOLLOW-UP STUDY OF A NATIONWIDE COHORT OF DANISH WOMEN TREATED FOR LOCO-REGIONAL INVASIVE BREAST CANCER.**

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**AIM:** To identify predictors of change in prevalence of major depression from 3 to 15 months after surgery for invasive breast cancer.

**METHODS:** A total of 4917 women aged 18-70 yrs. with no previous cancer and receiving standardized treatment constituted the study cohort. A questionnaire package including Beck's Depression Inventory (BDI-II) and the Impact of Events Scale (IES) was mailed out 3-4 months post-surgery (baseline) and 15-16 months post-surgery (follow-up). Response rates were 68% at baseline and 93% at follow-up. Probable cases of major depression were identified according to the manual (cutoff  $\geq 17$ ). The Danish Breast Cancer Cooperative Group (DBCG) and the surgical departments provided information on eligibility, disease-, treatment-, and comorbidity data for the cohort. Information concerning psychiatric history, sociodemographics and socioeconomic status were obtained from national longitudinal registries.

**RESULTS:** A significant reduction in the prevalence of major depression ( $p=0.006$ ) was observed from baseline (13.6%) to follow up (12.0%). Younger age was identified as a risk factor for impaired adjustment in a logistic regression adjusted for baseline BDI scores ( $OR=0.981$ ;  $p=0.009$ ). Mastectomy (compared to lumpectomy;  $OR=1.30$ ;  $p=0.049$ ) was the only clinical risk factor, after adjustment for age and baseline BDI-scores. Negative household net-wealth ( $p=0.036$ ) and having no children living at home ( $OR=1.45$ ;  $p=0.041$ ) were sociodemographic risk factors. Smoking ( $p=0.001$ ), alcohol consumption ( $p=0.024$ ), and physical functioning ( $p=0.001$ ), adjusted for age, surgery, net-wealth, children and BDI baseline scores, were all significant risk factors. After adjustment for clinical, sociodemographic, and health-behavioral risk factors, IES-avoidance ( $OR=1.023$ ;  $p=0.005$ ), but not IES-Intrusion ( $p=0.225$ ), was an independent risk factor for impaired adjustment.

**CONCLUSION:** Clinical, sociodemographic, and health-behavioral risk factors for impaired adjustment in the year following treatment for breast cancer were identified. Avoidance was found to be an independent risk factor. Patients exhibiting these characteristics may benefit from targeted supportive interventions.

**OS33**

**Track :  
'Health Behavior'  
'Screening & Early Detection'**

*Chair (s) : Paul Bennett*

**Track 'Health Behavior'**

**OS33-1**

**IS COLON CANCER INFORMATION A SOURCE OF EXERCISE MOTIVATION FOR FIRST- AND SECOND-DEGREE RELATIVES OF COLON CANCER PATIENTS?**

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The study examined whether colon cancer information is a meaningful source of exercise motivation for first- and second-degree relatives of colon cancer patients using a Protection

Motivation Theory (PMT) framework. Participants were 98 inactive relatives of colon cancer patients who were randomly assigned to one of two treatment conditions: PMT group (intervention); and non PMT group (attention control-AC). At baseline (T1) participants completed demographic information and a questionnaire designed to assess their beliefs towards exercise and colon cancer as well as their exercise intentions. At T2 (one week following T1) participants watched one of two DVDs created for the study. The intervention DVD contained exercise and colon cancer information that was rooted within the four major components of PMT: perceived vulnerability (PV); perceived severity (PS); response efficacy (RE); and self-efficacy (SE), while the AC DVD contained general diet and cancer information. Immediately following the DVD, participants completed the same measures as in T1. A 2(group)X 2(time) repeated measures ANOVA showed that there were significant interaction effects for RE ( $p<0.05$ ,  $2=0.07$ ) and SE ( $p<0.05$ ,  $2=0.05$ ), while trend effects were observed for PV ( $p=0.07$ ,  $2=0.03$ ) and intention ( $p=0.07$ ,  $2=0.03$ ). At T1, RE, SE and PS made significant and unique contributions to exercise intention, explaining 21% of the response variance. Whereas at T2, SE, RE and PS made significant and unique contributions to exercise intention, explaining 55% of the response variance. Overall, the results of the study demonstrate that a single exposure media intervention grounded in a PMT framework can change individuals' exercise and colon cancer beliefs, as well as change their exercise intentions.

**OS33-2**

**SELF-AFFIRMATION AND HEALTH BEHAVIOR CHANGE**

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**Objective.** Evidence shows that self-affirmation has a positive effect on message acceptance and other variables that motivate behavioral change; however, at least in the health domain, this has not been translated into actual behavioral change. We propose that particular features of the previous studies may account for this failure; the current study addresses this. It is designed to test whether a self-affirmation manipulation can increase a health-promoting behavior (fruit and vegetable consumption). It also explores the extent to which efficacy variables mediate the self-affirmation and behavior relationship. **Design.** Women ( $N=93$ ) were randomly allocated to a self-affirmation or control task prior to reading a message regarding the health-promoting effects of fruit and vegetables. **Main Outcome-Measures.** Response-efficacy, self-efficacy and intention measures were taken immediately after exposure to the message followed by a 7-day diary record of fruit and vegetable consumption. **Results.** Self-affirmed participants ate significantly more portions of fruit and vegetables, an increase of approximately 6.5 portions across the week, in comparison to the control group. Self- and response-efficacy were significantly higher in the self-affirmed condition. The behavioral effect was mediated by response-efficacy. **Conclusion.** The study has both theoretical and practical implications. We explore the consequences for self-affirmation theory of the effects of the manipulation on self- and response-efficacy. Practically, the study confirms that self-affirmation manipulations can successfully promote health behavior change.

## Track 'Screening & Early Detection'

OS33-3

### LIVING AT RISK: A LONG-TERM FOLLOW-UP STUDY OF WOMEN AT INTERMEDIATE RISK OF FAMILIAL BREAST CANCER

**Bennett P**

*University of Cardiff, UK; reTrace Study Team*

**Objective:** To investigate the long-term implications of genetic assessment for women identified as being at intermediate risk of familial breast cancer. **Design:** Long term follow-up of randomised controlled trial cohort. **Setting:** Primary care. **Participants:** Cohort of women assessed to be at intermediate risk during the TRACE trial of genetic assessment in Wales (1996-1999). **Method:** Postal questionnaire including measures of cancer worry, risk perception and health service resource usage. **Results:** Reductions from baseline levels of anxiety were maintained for 5-6 years following risk provision, with relatively consistent levels of cancer worries over short- and long-term follow-up. The majority of women (64 per cent) could not remember or were uncertain about the risk label they had been given. High reported health care usage was associated with perceptions of poor health, higher trait anxiety, and low use of avoidance as a coping strategy. **Conclusions:** Reductions in anxiety following genetic risk assessment were maintained in the long term, even though factual knowledge of actual risk level has not. Whilst those exhibiting higher trait anxiety are likely to be higher users of health services, women using avoidant coping strategies to cope with their health anxieties may be under using health services.

OS33-4

### LESS THAN ONE THIRD OF WOMEN WITH RISK FACTORS FOR GESTATIONAL DIABETES ARE EXPOSED TO ORAL GLUCOSE TOLERANCE TEST DESPITE LOCAL SCREENING PROGRAMS

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**Background:** Obstetric history and specific risk factors before and during pregnancy are often indications for screening for gestational diabetes (GDM) during pregnancy. **Purpose:** This study aims to compare women with and without risk factors for GDM in relation to self-reported health status and different outcomes of pregnancy. **Method:** The study was population-based and retrospective, based on a questionnaire and data excerpted from medical records. Women (n=827), giving birth after 23 gestational weeks and with competence in Swedish at the two largest hospitals in the Northern Sweden participated. **Results:** Preliminary results indicated that women at risk for GDM rated their health status before the pregnancy as poorer than women without risk. Further, women at risk were characterized by less education and reported more problems related to body weight. In the beginning of the pregnancy, at least one risk factor was recorded for 25 % of the women, of which 25 % developed additional risk factors during pregnancy compared to 13 % of women with no risk factors before pregnancy ( $p<0.000$ ). Despite local screening programs, only 29 % of the pregnant women that should have been screened for GDM, were actually screened. GDM was found in 8 % of the screened women. Developing risk factors

during pregnancy showed significantly more often proteinuria ( $p=0.017$ ), induction of labour ( $p=0.015$ ), preeclampsia ( $p=0.037$ ), intrapartum bleedings exceeding 1000 ml ( $p=0.02$ ) and heavier babies ( $p<0.000$ ) compared to women with no risk factors during pregnancy. Further analyses are ongoing and will be presented at the congress. **Conclusion:** Despite local screening programs, a majority of women at risk were not screened for GDM during pregnancy. Developing risk factors during pregnancy increases the risk for adverse outcomes of pregnancy. There is a need for better compliance to the local screening programs in order to detect GDM among the women at risk.

OS33-5

### THEORISING, MEASURING AND PREDICTING "ACCEPTABILITY" OF GENETIC SCREENING AND PREVENTIVE TREATMENT: A STUDY OF RELATIVES OF PEOPLE AFFECTED BY PAGET'S DISEASE OF THE BONE

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**BACKGROUND.** Increasingly, research focuses on acceptability of health services to users. If acceptability is construed as "intention to act" then behavioural theories can inform investigations of acceptability. This study explored acceptability of two potential services: genetic screening for relatives of people with Paget's disease of the bone (PDB); and preventive treatment for those at risk for PDB because they carry relevant genes. Genetic factors play a role in PDB, which disrupts normal bone architecture, causing pain, deformity, and fractures. Health psychology offers two broad approaches to predicting illness-related behaviour: focusing on beliefs about the illness or about the behaviour. We examined illness representations using Leventhal's Common-Sense Self-Regulation Model (CS-SRM), and cognitions about behaviours (taking a genetic test; taking preventive treatment) using the Theory of Planned Behaviour (TpB), to predict and explain acceptability. **METHODS.** Questionnaires were completed by 182 non-affected relatives (aged 18-86) of people with PDB. Questions included measures of illness representations, representations about attending for screening and taking treatment, intentions, and demographics. **RESULTS.** Taking a genetic test: Acceptability was high (mean intention: 5.9 on a 1-7 scale). From multiple regression analyses, variance in intention scores explained by the CS-SRM and the TpB was, respectively, 26.7% and 42.9%. Significant predictors were Emotion (from CS-SRM), Attitude, Subjective Norm and Perceived Behavioural Control (from TpB). Taking preventive treatment: Acceptability was high (mean intention: 6.0). Variance in intention scores explained by the CS-SRM and the TpB was, respectively, 5.4% and 26.5%. Significant predictors were Emotion, Attitude and Perceived Behavioural Control. **DISCUSSION.**

This theory-based approach established that acceptability of two potential services for relatives of people with PDB is high, and identified specific cognitions that predict likely uptake. Although caution is needed in interpreting these findings, it appears that representations about the behaviours were more powerful predictors of acceptability than representations about the illness.

OS33-6

**IMPACT ON UPTAKE OF INFORMED CHOICE INVITATIONS FOR DIABETES SCREENING: A RANDOMISED CONTROLLED TRIAL**

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**Background**

Individual choices about attendance for screening should be informed by knowledge of the likelihood of personal harms as well as benefits of attendance. Concerns have been raised that invitations to screening which aim to increase this knowledge might reduce uptake and hence the public health benefit of screening. Furthermore, if uptake is lower among the socially deprived, who may have been less informed about the limitations of screening, health inequalities would increase.

Two hypotheses were tested:

- I. Uptake of screening for diabetes is lower following an invitation designed to facilitate informed choices compared with a simple, didactic invitation
- II. An informed choice invitation reduces uptake to a greater extent in those more socially deprived.

**Method**

1272 people aged 40-69, without known diabetes but at high risk, were identified from the registers of 4 general practices in the east of England and were randomised to receive one of two invitations to attend for diabetes screening by finger-prick blood glucose testing at their practice:

1. An informed choice invitation, previously shown to increase knowledge of screening or,
  2. A simple, didactic invitation similar to those in current use.
- Attendance was recorded. An area level index of social deprivation was derived from participant postcodes.

**Results**

55% of those receiving informed choice invitations attended for screening, compared with 57% receiving simple invitations (difference: 1.6%, 95% CI: 7.3 to -4.0%,  $p = .57$ ). Uptake was lower amongst the more socially deprived (65% in the lowest tertile vs 47% in the highest tertile,  $p < .001$ ) with no interaction between social class and the type of invitation received.

**Conclusion**

Contrary to concerns, this randomised trial suggests that provision of information to facilitate an informed choice about attendance for diabetes screening does not decrease uptake overall or differentially according to social deprivation.

OS34

**Track :  
'Somatoform Disorders/Chronic Fatigue/  
Medically Unexplained Symptoms'  
'Diabetes/Metabolism/Nutrition/Obesity/  
Eating Disorders'**

*Chair (s) : Winfried Rief*

**Track 'Somatoform Disorders/Chronic Fatigue/Medically Unexplained Symptoms'**

OS34-1

**THE POSITIVE IMPACT OF CHRONIC FATIGUE SYNDROME: ASSOCIATIONS BETWEEN BENEFIT FINDING AND POSITIVE AND NEGATIVE ADJUSTMENT DOMAINS**

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This study examined benefit finding (BF) in chronic fatigue syndrome (CFS) including the dimensionality of BF, and the direct and stress-buffering effects of BF on positive and negative adjustment domains. A total of 139 people meeting CFS criteria completed a questionnaire incorporating demographics, illness measures (time since symptom onset, fatigue severity, number of CFS symptoms), number of CFS-related problems, stress appraisal, BF, subjective health, and positive (life satisfaction, positive affect, dyadic adjustment) and negative (global distress, negative affect) adjustment domains. Multiple forms of data analyses were conducted including content analyses on qualitative information about benefits and exploratory factor analyses to examine the factor structure of the Benefit Finding Scale. Further, hierarchical regression analyses were used to examine the direct and stress buffering effects of BF on positive and negative adjustment domains after controlling for the effects of relevant demographic and illness variables, number of CFS related problems, and stress appraisal variables. The dimensionality and role of BF in sustaining and promoting well being within the context of CFS is discussed.

OS34-2

**PROGNOSTIC FACTORS FOR RETURN TO WORK AFTER A BRIEF INTERVENTION**

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**Background:** Previous studies of brief intervention (BI) for low back pain (LBP) at a specialist clinic have shown significant reduction of sick leave compared to treatment as usual. Although effective, a substantial proportion of the patients do not return to work. In a randomized controlled trial we did not find that adding physical exercise had any effects. **Aim:** To investigate the prognostic factors for not returning to work in both groups, BI with or without additional exercise. **Methods:** 251 patients sicklisted 8 to 12 weeks for LBP were randomized into an intervention group (BI + exercise,  $n = 125$ ) and a control group (BI,  $n = 126$ ). Multiple logistic regression were used to identify prognostic factors for not returning to

work in the two groups, at 3 and 12 months of follow-up. Results: At 3 months of follow-up, the strongest predictors in both groups for not returning to work ( $n = 159$ ) were pain intensity while resting, the perception of constant back strain when working, negative response outcome expectancy for return to work, and having been to a physiotherapist before coming to treatment at the spine clinic. At 12 months, perceived reduced ability to walk far due to the complaints, and having been to a physiotherapist before coming to the spine clinic were the strongest predictors for not returning to work ( $n = 78$ ). Conclusion: The results indicate that patients not benefitting from BI are characterized by negative beliefs about their function, abilities, and expectations for the future. These beliefs might have been strengthened by previous treatment by physiotherapists. A more extensive cognitive behavioural treatment may be beneficial for the patients not returning to work at 3 months follow up, where negative beliefs are addressed and changed, and where the patients learn and experience to cope better with their complaints.

### OS34-3

#### **SATISFACTION OF IBS PATIENTS WITH MEDICAL CONSULTATIONS: ROLE OF PATIENTS' EXPECTATIONS**

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Besides classic outcome parameters such as survival or quality of life, patient satisfaction emerges as a key target parameter for medical interventions. This study aimed to identify factors that determine patient satisfaction of IBS patients after specialist consultation. Methods: Twenty one patients, ranging in age from 19 to 71 ( $M = 44.23$ ,  $SD, 15.18$ ), were interviewed immediately following consultation with a gastroenterologist at an outpatient clinic. A mixed method design was used: Quantitative assessments (e.g., Likert scale ratings of patient satisfaction and perceptions concerning the extent their concerns were addressed) were complemented by in-depth interview questions that focused on understanding the nature of patient expectations at consultation, and on identifying any particular unmet needs with respect to the consultation process. Results: Patients ratings of satisfaction at consultation were associated with their perceptions that their concerns were addressed ( $r = .70$ ,  $<.01$ ) whilst lower levels of satisfaction were reported by patients whom had accessed more services ( $r = -.44$ ,  $<.05$ ). Patients exiting services (i.e., no follow up appointment booked) tended to rate satisfaction marginally lower and perceived that less of their concerns had been addressed compared to patients attending their first appointment. Uncertainty and a continuance of symptoms appeared to be the main concerns of patients exiting services. Determinants of dissatisfaction appear to involve a lack of acceptance and/or understanding of an IBS diagnosis and an expectation that the consultant would continue to search for an organic cause for their symptoms. Summary and conclusions: Identifying and addressing patients concerns and understanding patient expectations at consultation appear to be key determinants of patient satisfaction with care. Addressing patients' unrealistic expectations, encouraging patients to accept their IBS diagnosis, and communicating realistic treatment goals might be an effective strategy to improve patient satisfaction and ultimately reduce health care seeking in patients.

## **Track 'Diabetes/Metabolism/Nutrition/Obesity/Eating Disorders'**

### OS34-4

#### **THE OBESOGENIC ENVIRONMENT, EXTERNAL EATING BEHAVIOR AND BODY WEIGHT.**

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The obesogenic environment is considered to be largely responsible for the obesity pandemic, as environmental cues prompting eating may overpower the limited control of food intake through homeostatic and other processes. Despite this obesogenic environment, some people maintain a healthy body weight. This variability in susceptibility to weight gain may be due in part to differences in the extent to which people respond to external cues. As a first step to test this line of thought, we assessed whether overweight/obese people indeed have higher scores for external eating than people of normal weight, using data from a representative sample of Dutch adults ( $n=1342$ ) participating in a cross-sectional study on caloric compensation strategies. We also assessed the (inter)relationships between external eating, frequency of overeating and body weight. Data on frequency of overeating and body height and weight were self-reported. The Dutch Eating Behaviour Questionnaire was used to measure emotional (Cronbach's  $\alpha = 0.96$ ), external ( $\alpha=0.85$ ) and restrained ( $\alpha=0.92$ ) eating.

T-tests comparing normal-weight (N) and overweight (O) people showed significantly higher scores for emotional (N: 2.26, O: 2.61,  $p<.001$ ) and restrained (N: 2.51, O: 2.84,  $p<.001$ ) eating and for the frequency of overeating ( $p<.001$ ) the normal-weight group, with small-to-medium effect sizes. No differences were observed for external eating (N: 2.79; O: 2.84,  $p=0.09$ ). Hierarchical regression analyses showed that emotional eating had a significant interaction effect on the relationship between overeating and overweight; overeating and overweight level was related stronger in people with higher tendencies of emotional eating. For external eating, no such interaction effect was found.

The finding that overweight people do not differ from normal-weight in their tendency to eat in response to external food cues is remarkable. The current exploratory analyses suggest that the obesogenic environment may not be as largely responsible for the obesity pandemic as is often thought.

### OS35

#### **Track : 'Physical Activity' 'Aging'**

*Chair (s) : Gregory Kolt*

## **Track 'Physical Activity'**

### OS35-1

#### **CHILDREN'S USE OF OUTDOOR SPACES FOR ACTIVE FREE-PLAY**

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Children's free-play time represents a potentially important time for children to be physically active. The purpose of this study was to examine associations between individual, social and physical environmental factors and the frequency with which children play in particular locations outside school hours and their overall physical activity levels. Parents (n=187) of 8-9 year old children completed a survey and children's physical activity was measured using accelerometers. The yard at home was the place where parents reported children played most often with 35% playing there every weekday and 63% each weekend day. Children's preferences for sedentary behaviours were negatively associated with playing in particular locations; however, this was the only individual factor that was associated in the multivariable analysis. A number of social and physical environmental factors were positively associated. For example, children who had many friends in their neighbourhood were more than 3.5 times as likely to play in their friend's / neighbour's yards (95%CI: 1.55, 8.60) and 2.5 times as likely to play in their own street (95%CI: 1.21, 5.76) compared with children who did not have many friends. Children who lived in a cul-de-sac were 4 times as likely to play in their own street (95%CI: 1.65, 9.66); and children who walked to parks regularly were 3.3 times as likely to play in their friend's / neighbour's yards (95% CI: 1.62, 6.87), 2.5 times as likely to play in their own street (95% CI: 1.14, 5.85), and almost 14 times as likely to play in the park/playground (95%CI: 6.45, 29.37). This study has important implications for urban planning and may influence children's opportunities for active free-play. The specificity of physical activity behaviour and the context in which it occurs are important considerations for the development of public health programs.

#### OS35-2

### EFFECTIVENESS OF SCHOOL TRAVEL PLANS IN CHANGING SCHOOL RELATED TRAVEL PATTERNS IN CHILDREN: MODE-SHIFT STUDY

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**Background:** Children's active travel to and from school (i.e., walking and cycling for transport) has declined substantially over the last few decades in many developed countries. The declining rates of active transport have reduced opportunities for children to be physically active. In New Zealand, the School Travel Plan (STP) program was developed by the Auckland Regional Transport Authority (ARTA), and is implemented in elementary, middle, and high schools in the Auckland region to increase school-related active transport rates, reduce school-related traffic congestion, and improve neighborhood and traffic safety. The study sought to determine the effectiveness of customized STP in changing school-related travel patterns in children by analyzing pre- and post-STP data in 41 schools. **Methods:** Thirty-three elementary schools, six middle schools, and two high schools participated in the present study. School size ranged from 130 to 1,168 students. Schools implemented the STP in 2004 (19) and 2005 (18). The post-STP sampled 14,655 children across 41 schools. Each student's name, address, year level, and class were recorded. On a set day pre-and-post STP the teacher of each classroom asked children to indicate their mode of transport to school and how they intended to return home that day. **Results:** Walking increased by 5.1% and traveling by family car decreased by 3.7%. Overall, positive modal shifts across the schools post-STP existed for walking, walking school bus, and traveling in a friend's car, with these changes

being of small to moderate magnitude (Cohen effect size 0.26-0.37). Use of family car, public transport, bicycle, non-motorized scooter, other modes, and driving alone declined post-STP. No differences existed by year of STP implementation and modal shifts. **Conclusion:** Small to moderate but meaningful changes were detected in travel mode across the 41 schools. School Travel Plans can be successful in creating mode shift changes to favour active transport.

#### OS35-3

### EFFECTS OF DIFFERENT KINDS OF ACUTE EXERCISE ON COGNITIVE PERFORMANCE COMPARED TO CONTROL

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The growing concentration deficits, increased unrest, and reduced attention in students led to the establishment of new education models, in which exercise should restore the ability to concentrate and therewith the cognitive competence. It was shown that aerobic exercise is positively correlated with cognitive abilities (Tomprowski 2003). Less is known, however, about the effect of coordinative exercise. Due to the neuronal structures responsible for motor coordination as well as cognition (Allen et al., 1997) we hypothesized that bilateral coordinative exercise (CE) would show an acute effect on the speed and accuracy of a concentration task performed directly after an exercise session. We assessed the impact of CE on concentration and attention in 123 healthy adolescent students (aged 13-16 years) using the d2-test (Brickenkamp, 2002). The measurements took place after a normal school lesson (T1), after a normal sport lesson (NSL) or a bout of coordinative exercise, respectively (T2). The tests were repeated one week later (T3). On the test days the students refrained from any exercise prior to the investigation. A control group desisted from any sport activity from T1 to T3. The main outcome measure was the concentration performance value (CPV) which is composed of the accuracy and speed of performance. Participants in all groups improved their d2 performance from pre-test (T1) to post-test (T3). The CE group, however, ameliorates the outcomes from T1 to T2 and from T2 to T3 to a higher degree than the NSL and the control group (which showed the weakest improvement). The significant group by CPV interaction and the not significant differences in the heart rates of the exercising groups might reveal that bilateral CE is most efficient in promoting concentration and attention in students. **References:** Allen et al. (1997) *Science* 275, 1940-3; Brickenkamp (2002) *Test d2*, Germany: Hogrefe; Tomprowski (2003) *Acta Psychologica* 297-324.

### Track 'Aging'

#### OS35-4

### SUCCESSFUL AGING: THE CONTRIBUTION OF EARLY LIFE AND MID-LIFE RISK FACTORS

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**Objectives:** To test whether early life factors (education, height, fathers social position) and midlife social, behavioral and psychosocial factors were associated with entering older age without disease and good functioning. **Design:** A longitudinal, British civil service-based cohort study. **Participants:** were followed for 17 years to assess successful aging. This was defined as being free of major disease and in the top tertile of physical and cognitive functioning measured in 2002-4. **Setting:** Twenty London-based Civil Service departments. **Participants:** Four thousand, one hundred and forty men and 1823 women, free of major disease at baseline in 1985-8 (mean age 44, range 35-55 years). **Measurements:** Behavioral, biological and psychosocial risk factors, physical and cognitive functioning and disease outcomes. **Results:** 548 (12.8%) men and 246 (14.6%) women were successfully aging at follow up. This was strongly predicted by midlife socioeconomic position (age adjusted OR for men highest vs. lowest 7.06, 95% CI 3.4, 14.6). Height, education (men), not smoking, diet, exercise, moderate alcohol (women) and work support (men) were related to a favorable older life after adjustment for age and socioeconomic position. **Conclusion:** Interventions to promote adult healthy behavior may attenuate harmful effects of less modifiable risk factors and reduce social inequalities.

#### OS35-5

### DOES COGNITION PREDICT MORTALITY IN MIDLIFE? RESULTS FROM THE WHITEHALL II COHORT STUDY.

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**Background:** Increases in life expectancy and the resulting increase in prevalence of dementia have focussed attention on cognition as a measure of health status. We examined the association between cognition and mortality in middle-aged adults using a composite measure of the “g” (general intelligence) factor and 5 specific cognitive measures. **Methods:** Data are drawn from the Whitehall II cohort study, 5572 men and women aged 45-68 years at cognitive assessment, employed in 20 London civil service departments. Cognitive function (memory, reasoning (fluid intelligence, AH4-I), vocabulary (Mill Hill), semantic and phonemic fluency) was assessed in 1997-1999. Mortality was traced till July 31, 2006 with a mean follow-up of 8 years. **Results:** There was no evidence of non-linearity in the association between the measures of cognition and mortality (all  $p > 0.13$ ). In age and sex adjusted analysis, a decrease in one standard-deviation in memory (Hazard Ratio (HR), 1.19; 95% Confidence Interval (CI), 1.02-1.39) and in AH4-I (HR, 1.16; 95% CI, 1.01-1.35) was found to be associated with higher mortality. The association with “g” factor (HR, 1.16; 95% CI, 0.99-1.34), phonemic (HR, 1.15; 95% CI, 0.98-1.34) and semantic fluency (HR, 1.10; 95% CI, 0.95-1.28) did not reach significance at  $p < 0.05$  and no association was found with the Mill Hill (HR, 1.01; 95% CI, 0.87-1.17). Out of education, health behaviours and health measures, it was health behaviours that explained the greater part of the association between cognition and mortality, ranging from 21% for memory to 70% for semantic fluency. All the covariates taken together explained only 26% of the association with memory and between 33-90% for the other cognitive measures. **Conclusion:** This study highlights the

importance of memory for mortality and suggests that “g” type composite measure of cognition might not be enough to understand the associations between cognition and health.

#### OS36

### Track : ‘Illness/Illness Affect/Illness Behavior’

*Chair (s) : Paul Norman*

### Track ‘Illness/Illness Affect/Illness Behavior’

#### OS36-1

### DIMENSIONS OF ABNORMAL ILLNESS BEHAVIOUR DERIVED FROM THE ILLNESS BEHAVIOUR QUESTIONNAIRE

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**Objectives:** To explore the factor structure of the Illness Behaviour Questionnaire (IBQ), the generalisability of the derived dimensions to both general community members and four chronic illness groups, and the construct validity of the new IBQ dimensions.

**Methods:** A self-report questionnaire containing a series of health-related scales, including the IBQ, was administered to 675 participants, comprising 344 from the general community, 80 with a diagnosis of asthma, 95 with diabetes, 79 with chronic pain and 77 with chronic fatigue syndrome. An index of illness severity was calculated for all chronic illness participants. Four hundred and eighty three participants (71.6%) provided retest information at three months.

**Results:** Three distinct IBQ dimensions were derived from an exploratory factor analysis of baseline responses for the whole sample: Affirmation of Somatic Disease, Concern for Health and General Affective State. The pattern of responses for all scales across the five samples, and the intercorrelations among the new scales and the original seven primary IBQ factors, were largely in accord with expectation. The three scales also shared predictable empirical overlap with similar health-related indices, and adequate test-retest reliability.

**Discussion:** The present investigation attempted to address long-standing criticisms of the IBQ by using systematic statistical principles to facilitate the identification of meaningful and psychometrically sound IBQ dimensions. The derived factor structure offers a more parsimonious account of the underlying dimensions that characterise maladaptive illness responses, with the availability of a more concise yet informative index of abnormal illness behaviour having obvious practical utility for researchers and clinicians alike. Moreover, valuable insight is provided into the extent to which the profile of IBQ responses differs according to type of illness and for general community members without a current illness.

OS36-2

**ILLNESS PERCEPTIONS IN PATIENTS WITH FIBROMYALGIA AND THEIR RELATIONSHIPS TO QUALITY OF LIFE AND CATASTROPHIZING**

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**Objective:** In the last decade cognitions and illness perceptions have been identified as important in the treatment of patients with pain. The present study explored illness perceptions in patients with fibromyalgia, the psychometric properties of the IPQ-R and the relationships with quality of life and catastrophizing. The self-regulation model by Leventhal (SRM) was used as a theoretical framework. **Methods:** Illness perceptions were assessed with the Illness Perception Questionnaire-Revised, for fibromyalgia (IPQ-R-FM). A domain with specific causal attributions related to fibromyalgia was added to the IPQ-R. Interclass correlation, test-retest reliability and interrelationships of the IPQ-R-FM dimensions and attribution scales were examined. The causal domain in which patients describe the most important perceived causes for their fibromyalgia was analyzed. Relationships between illness perceptions and quality of life and catastrophizing were examined. **Results:** 51 Outpatients filled out the questionnaires twice with a 3-weeks interval. The interclass correlation, test-retest reliability and interrelationships of the IPQ-R-FM dimensions and attribution were found to be adequate. Patients considered their FM to be chronic and to have serious consequences. They perceived little personal control and did not expect medical treatment to be effective. Patients attributed the causes of their FM most frequently to an external somatic cause such as rheumatism or overused tendomuscular junctions. High scores on illness identity, consequences, emotional representations, psychological attributions, and fibromyalgia specific attributions were related to a worse quality of life. Catastrophizing was negatively related to illness coherence and positively to the timeline cyclical and emotional representation dimensions of the IPQ-R-FM. **Conclusion:** The IPQ-R-FM is a useful tool to assess illness perceptions in patients with fibromyalgia. Patients perception of the cause of fibromyalgia differs from that of physicians. The findings of this study may have clinical implications for the use of illness perceptions in the diagnosis and management of patients with fibromyalgia.

OS36-3

**SELF REGULATION PROCESSES IN THE CONTROL OF TYPE 2 DIABETES.**

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For the majority of diabetic patients, self-management plays a

crucial role in successful control of type 2 diabetes (T2DM). Standard care involves a complex regimen of medication and/or insulin, plus lifestyle changes, including increases in activity level, self-monitoring of blood glucose (SMBG) and dietary changes. For many patients with T2DM, self-management is particularly difficult due to the chaotic nature of glucose regulation, and the extra time involved for self-management (up to 14 additional hours a week). The chaotic nature of the disease is illustrated by measuring glucose levels at home, which often do not readily demonstrate a clear relation to behaviors such as exercise or eating, and can therefore be ambiguous unless properly timed. Thus many individuals with T2DM rely on somatic symptoms as indicators of disease control, rather than continuing with SMBG, which is uncomfortable and seemingly unreliable. Patients reliance on the Common Sense View of T2DM often overrides professional advice regarding T2DM self-management. The authors will present data showing that self-management skills and glycemic control were significantly improved in T2DM by utilizing an in-home reminder and feedback system that teaches patients to modify their common sense illness model by appropriately utilizing objective blood sugar measures to verify the effectiveness of their actions. The system is designed to overcome erroneous beliefs generated by the Common Sense View of T2DM by providing repeated reminders and advice in the home, where decisions about diet and physical activity are made daily, rather than at a doctors office a few times a year. Moreover, the system provides feedback about trends in glycemic control (as well as individual values) which may make participants less likely to focus on one-time behaviors and more likely to focus on overall attention to self management.

OS36-4

**THE THEORY OF COGNITIVE ADAPTATION AND PSYCHOLOGICAL ADJUSTMENT TO TYPE 2 DIABETES: INTERACTIONS WITH DISEASE STATUS**

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The present study assessed the extent to which components of the theory of cognitive adaptation (TCA) (i.e., meaning, control, self-enhancement) are associated with psychological adjustment in type 2 diabetes. In addition, the moderating effect of disease status on relations between the TCA and adjustment was also assessed. Patients (N = 81) completed situated measures of the TCA (i.e., illness coherence, benefits, primary control, secondary control, treatment control and self-esteem) along with measures of anxiety and depression. The TCA explained 27% of the variance in anxiety and 36% of the variance in depression. Self-esteem was as a significant predictor of both anxiety and depression and illness coherence was a significant predictor of depression. Disease status moderated a number of TCA-adjustment relations such that the TCA variables (i.e., secondary control, treatment control and self-esteem) were associated with better adjustment when glycaemic control was moderate or good, but not when it was poor. The present study adds to recent literature suggesting boundary conditions on the adaptive nature of positive cognitions. The implications of the findings for the clinical management of type 2 diabetes are discussed.



OS36-5

**ARE PEOPLE'S ILLNESS PERCEPTIONS RELATED TO THEIR AFFECTED RELATIVES' EXPERIENCE OF AN ILLNESS? A STUDY USING THE CS-SRM AND THE ICF MODEL OF HEALTH OUTCOMES**

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**BACKGROUND.** Individuals' cognitive representations of their illnesses are formed by several factors, including their own experience and interpretation of symptoms. People unaffected by the illness also form illness representations. This study explored whether people's experience of symptoms was associated with their unaffected relatives' illness representations, for Paget's disease of the bone (PDB). The experience of PDB varies widely. It can disrupt normal bone architecture, causing pain, deformity, and osteoarthritis, associated with loss of mobility and reduced quality of life. We investigated links between illness representations of unaffected relatives and their affected relatives' experience, measured in two ways: the Illness Representations Framework (from Leventhal's Common-Sense Self-Regulation Model; CS-SRM) and the International Classification of Functioning, Disability and Health (ICF) model, which classifies health outcomes as Impairment (I), Activity Limitation (A) or Participation Restriction (P). **METHODS.** Questionnaires were completed by 119 linked pairs: people with PDB (aged 50-86) and their non-affected relatives (aged 18-86). Questions included symptom checklists (extended for PDB following interviews with probands), the Brief Illness Perceptions Questionnaire; and the SF36, with items classified as I, A or P. **RESULTS.** Summary scores within the following CS-SRM domains were significantly correlated between probands and relatives: Identity, Consequence, Control(patient), Control(treatment), Emotion ( $0.24 < p < 0.47$ ). Correlations for Timeline and Coherence approached zero. Probands' scores for I, A and P were significantly correlated with relatives' scores for Consequences ( $ps = -0.23, -0.37, -0.31$ , respectively), but not for Identity. **DISCUSSION.** It appears that, for PDB, illness perceptions of unaffected relatives are influenced by their relatives' experience of the illness. Furthermore, probands' reported levels of I, A and P were related to their relatives' perceptions of consequences of the illness. As there is a familial aspect to the aetiology of PDB, these perceptions are likely to influence relatives' interpretation of their own symptoms and their help-seeking behaviour, if they are affected by PDB in the future.

OS37

**Track :  
'Cardiovascular & Pulmonary Disorders'  
'Work Related Health'**

*Chair (s) : Helen Lindner*

**Track 'Cardiovascular & Pulmonary Disorders'**

OS37-1

**EFFICACY OF SMOKING CESSATION INTERVENTIONS IN CORONARY HEART DISEASE PATIENTS: A SYSTEMATIC REVIEW AND META-ANALYSIS**

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**Background:** Quitting smoking improves prognosis after a cardiac event, but many patients continue to smoke, and improved cessation aids are urgently required. Efficacy of psychosocial smoking interventions varied between studies and earlier review did not confirm any effectiveness. **Objectives:** To assess the effectiveness of psychosocial interventions such as behavioural therapeutic intervention, telephone support, self-help interventions in helping people with coronary heart disease (CHD) to quit smoking. **Methods:** Seven electronic databases were searched. Results were supplemented by cross-checking references, and hand searches in selected journals and systematic reviews ( $N=1287$ ). Randomised controlled studies (RCTs) in patients with CHD with a minimum of 6 months follow-up were selected ( $N=16$ ). Abstinence rates were computed according to an intention to treat analysis if possible, or if not on follow-up results only. **Main results:** Interventions consist of behavioural therapeutic approaches, telephone support and self-help material and were either focused on smoking cessation alone or addressed several risk factors. Overall there was a positive effect of interventions on abstinence after 6 to 12 months (Odds ratio (OR) = 1.66, 95% confidence interval (CI) 1.25-2.22), but substantial heterogeneity between trials. Studies with validated assessment of smoking status at follow-up had lower efficacy (OR = 1.44, 0.99-2.11) than non-validated trials (OR = 1.92, 1.26-2.93). The Odds ratios for different strategies were similar (OR = 1.69, for behavioural therapies; OR = 1.58 for telephone support; OR = 1.48 for self-help). However treatment intensity was associated with study outcome. More intense interventions showed increased quit rates (OR = 1.98, CI 1.49-2.65) whereas brief interventions did not appear effective (OR = 0.92, CI 0.70-1.22). **Conclusions:** Psychosocial smoking cessation interventions are effective in promoting abstinence at one year, provided they are of sufficient duration. Further studies, with longer follow-up, should compare different psychosocial intervention strategies to identify the specific ingredients of a successful treatment.

OS37-2

**OUTSIDE THE LABOUR MARKET OR DEAD--THE EFFECTS OF SOCIOECONOMIC POSITION AFTER A FIRST STROKE. A STUDY BASED ON ALL PERSONS IN SWEDEN 40-59 YEARS HAVING THEIR FIRST STROKE 1996-2000**

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**Background:** There is strong evidence for socioeconomic differences in the incidence of stroke. There is however less research done on socioeconomic differences in the adverse effects of stroke. Our research question is: Is there a correlation between the socioeconomic position a person had prior to a first stroke and the adverse effects mortality and no-return to the labour market? **Methods:** Stroke patients are identified from the Swedish national register of in-patient care, other information from a population based register from Statistics Sweden. Altogether 10,181 persons 40-59 years having their first stroke 1996-2000 are included if they had an income from work the year prior to the stroke. Data are analysed with multinomial logistic regression analysis controlling for age, age-square, sex, stroke type, and days of in-patient care, and days-square. The follow-up period is the year of discharge from hospital after a stroke, and the following four calendar years. **Results:** There is strong correlation between both education and income and the risk of dying without being discharged from hospital. There are differences between stroke types. The death risk is also higher among women than men. Once being discharged from hospital we found no significant differences in mortality depending on level of education. Until the second calendar years after discharge there is still an effect from income whereas persons with low income have a higher mortality risk. Both income and education are correlated to return to work until the second year after discharge. There are no significant correlations found for neither mortality risk nor no-return to work year three and four after discharge depending on income or education. **Conclusion:** Socioeconomic factors play a role both for no-return to work and mortality risk after a stroke. Income is, however, a stronger predictor for both mortality and no-return to the labour market.

**Track ‘Work Related Health’**

OS37-3

**DOES SICKNESS PRESENTEEISM HAVE AN IMPACT ON FUTURE HEALTH?**

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**Background:** To go to work when ill, so called sickness

presenteeism, may affect future health. However, scientific knowledge on this issue is meager. The primary aim of this study was to investigate whether sickness presenteeism have an impact on future general health. A secondary aim was to evaluate the potential effect of sickness presenteeism separately among employees with less good health, and individuals with good health, at baseline. **Methods:** Two data materials with different basic characteristics were used and follow-ups were carried out 18-months and 3-years after the baseline measurement. Material 1 comprised 6901 subjects from the public sector including occupations within caring and educational sectors, whereas material 2 consisted of 2862 employees within the private sector mainly including blue collar jobs. Besides for the explanatory variable sickness presenteeism, several potential confounders were considered reflecting the individuals health status, lifestyle, background factors and work environment. The outcome variable was self-reported good/excellent, versus fair/poor, health. **Results:** Sickness presenteeism at baseline was consistently found to heighten the risk of future fair/poor health even when adjusting for essential confounders which were, health status, sick-listing the year for the baseline measurement and vitality. In material 1, presenteeism seemed to have a larger impact on health among employees having good/excellent health at baseline, compared to those with fair/poor health, whereas no such differences could be detected in material 2. **Conclusions:** Presenteeism appears to be an independent risk factor for future fair/poor health. More research is needed on the suggested negative health effect of presenteeism where different health conditions or diagnoses are specified and using other types of health outcomes.

**Track ‘Cardiovascular & Pulmonary Disorders’**

OS37-4

**ATTENDANCE AT A CARDIAC REHABILITATION PROGRAM: THE IMPACT OF THE FEEL GOOD WORKBOOK PROGRAM.**

**Lindner H D**

*Australian Psychological Society*

Attendance to cardiac rehabilitation programs has been shown to improve health-outcomes for individuals diagnosed with cardiovascular disease (CVD). However, it has been reported that only a minority of CVD-patients attend cardiac rehabilitation programs. The present study aimed to investigate the effectiveness of an intervention to enhance attendance behaviour, administered as a self-directed workbook-based intervention, called the The Feel Good Workbook program, compared to normal medical care only. The intervention was focused on cognitive, emotional, and behavioural components outlined in self-management models, such as the self-regulatory model of health behaviours. Fifty-four cardiovascular disease patients were recruited during a period of hospitalisation for a major cardiac event, such as myocardial infarction, bypass surgery or the insertion of a stent. The participants completed a questionnaire package at baseline (within two weeks post-hospitalisation) and at 2-months hospitalisation, which contained demographic and health status items, the Cardiac Depression Scale, the Illness Perception Questionnaire-Revised, and the Health Assertiveness Scale. The participants who were randomly allocated to the experimental group were sent the Feel Good Workbook at the baseline assessment time, and received a follow-up telephone call one week later to explain the

workbook structure and to answer any questions about the workbook program. Attendance at a cardiac rehabilitation program was assessed at 6-months post-hospitalisation for a cardiac event. The study found that the 27 CVD patients, who received the intervention, were significantly more likely to report long term-attendance to a cardiac rehabilitation program than a matched standard care only group of 27 patients. Additionally, the intervention group showed significant improvement in psychological functioning at 2-months post-hospitalisation for a cardiac event. This study highlighted the benefits of an early self-management enhancement intervention.

#### OS37-5

### **IMPACT OF SELF-MANAGEMENT TRAINING ON HIGH-RISK PATIENTS WITH HEART FAILURE: RESULTS FROM THE HEART FAILURE ADHERENCE AND RETENTION TRIAL (HART)**

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Heart failure (HF) is becoming a major public health problem given its increasing prevalence, prolonged morbidity, repeat hospitalizations, and high costs. Drug therapies and lifestyle changes can slow progression, but non-adherence to these therapies is high, ranging from 30-80%. HART, one of the largest behavioral trials in HF ever conducted, studied 902 patients with mild to moderate systolic or diastolic HF. Patients were randomized to receive self-management skills training plus HF education or HF education alone in 18 sessions spread out over 1 year. The major finding from this trial, reported previously, was that the self-management training plus education was not superior to education alone in preventing death or HF hospitalizations. However, analysis of treatment efficacy in high-risk subgroups based upon functional capacity, income, and adherence level at baseline, was a pre-specified secondary aim. The purpose of this paper is to present data on treatment efficacy in these important subgroups. In logistic regression, predictors were the interaction between treatment arm and: functional capacity (lowest tertile vs. other on the 6-Minute Walk); income (<\$50,000/yr vs. other); and adherence (<80% of prescribed pills taken vs. other using electronic pill caps). Other covariates in the models were the main effects of the interactions and sociodemographic and medical risk factors. Results revealed significant interactions for functional status and income ( $p<0.05$ ) but not for adherence. Patients with poor functional capacity and lower income had a lower event rate if they received self-management training relative to counterparts in the education control. Subgroup analyses such as these are suggestive; not conclusive. These results suggest that health education, the current standard in clinical practice in HF, may be necessary and sufficient for low-risk patients, and necessary but not sufficient for patients at higher risk.

#### OS38

### **Track : 'Childhood & Adolescence' 'Health Systems, Policy and Economics'**

*Chair (s) : Edith Chen*

### **Track 'Childhood & Adolescence'**

#### OS38-1

### **RISK TAKING BEHAVIORS AND SEXUAL KNOWLEDGE AMONG VERTICALLY-HIV-INFECTED AND HIV-NEGATIVE TEENS IN NORTHERN THAILAND**

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**Background:** While more vertically-HIV-infected children in Thailand have now reached adolescence due to increased survival from antiviral therapy, their risk taking behaviors remain unknown.

**Methods:** Between May and October 2007, we conducted a quantitative survey using a confidential, structured, self-administered questionnaire among vertically-HIV-infected teens and HIV-negative controls aged > 13 years old to describe risk taking behaviors, including alcohol, cigarette, and drug use, and sexual behavior and knowledge.

**Results:** Thirty-eight vertically-HIV-infected Thai adolescents (52.6% female, median age 14.7 years) at Chiang Mai University Hospital and 165 age-matched Thai controls from a local school (53.9% female; median age 15.4 years) participated. Compared to cases, a significantly greater proportion of controls reported having ever used alcohol (63.0% vs. 23.7%,  $p<0.001$ ) and cigarettes (28.5% vs. 5.3%,  $p=0.001$ ), but not drugs. Any pre-sexual activity, defined as kissing, exposing body parts to a partner, or engaging in sexual contact other than oral, anal, or vaginal intercourse was reported more frequently among controls than cases (41.8% vs. 18.4%,  $p=0.007$ ). Sexual intercourse was reported almost 6 times more frequently among controls (15.2% vs. 2.6%,  $p=0.05$ ). More than half of sexually active controls (62.5%) never used condoms in the prior 3 months when having sex. Among all teens, most correctly answered that condom use can prevent HIV transmission (71.4%), STI transmission (77.3%), and pregnancy (70.4%). Almost all (96.1%) knew that HIV could be transmitted sexually. However, only 20.2% and 7.9% knew that herpes simplex and hepatitis B, respectively, could be transmitted sexually.

**Conclusions:** Risk taking behaviors may be significantly lower among vertically-HIV-infected Thai adolescents compared to non-infected counterparts. Condom use was inconsistent, and knowledge of sexually transmitted infections other than HIV was low, suggesting that improved school or community-based sex education programs are needed.

OS38-2

**IMPACT OF THE RE-MISSION VIDEOGAME ON CANCER TREATMENT ADHERENCE IN ADOLESCENTS: CNS MECHANISMS OF ACTION.**

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The Re-Mission videogame was developed as a rationally-targeted behavioral intervention to improve health outcomes in adolescents and young adults (AYA) undergoing treatment for cancer. In a randomized controlled trial involving 374 AYA cancer patients at 34 medical centers in the US, Canada, and Australia, patients randomized to receive Re-Mission (vs. a control commercial videogame) showed 70% faster acquisition of cancer-related knowledge ( $p = .035$ ), a 3-fold greater rate of increase in self-efficacy ( $p = .011$ ), 16% greater adherence to prescribed TMP/SMX antibiotic regimens ( $p = .012$ , measured by MEMS caps), and 41% higher blood levels of oral chemotherapy ( $p = .002$ , measured by HPLC for the 6-methylmercaptopurine metabolite) over a 3-month follow-up. To identify psychological mechanisms of action, a subsequent fMRI study monitored functional neural activity in 53 young adults playing Re-Mission (10 x 60 sec. bouts of game play separated by no-play periods varying randomly from 20-40 sec.). Analysis of T2\*-weighted images identified significant activation of reward-related regions (nucleus accumbens and mesial prefrontal cortex) at game-play onset, and activation of conflict-related regions (anterior insula, anterior cingulate) at game-play offset (all  $p < .001$ ). Continuous game-play activated regions implicated in visuospatial processing (visual cortex), motor control (motor cortex), arousal (thalamus), and memory (hippocampus) (all  $p < .001$ ). Game-play was also associated with relative decreases in prefrontal cortical activation ( $p < .01$ ). The interactivity of game-play critically contributed to these effects, which were not evident when participants were passively exposed to the same auditory and visual information. Ongoing studies seek to determine which specific aspects of CNS response during game-play are related to subsequent behavioral changes outside the laboratory. These results show that a rationally-engineered digital game intervention can positively impact health-related behavior in AYA cancer patients, and suggest that emotional and motivational responses during game-play may constitute key mechanisms of its impact.

OS38-3

**PARENTAL SYMPTOMS AND MEDICINE USE AMONG CHILDREN AND ADOLESCENTS: PARENT REPORTED DATA FROM THE FIVE NORDIC COUNTRIES.**

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**Objective:** To examine the association between parents self-reported headache and symptom load and medicine use for headache among children and adolescents. **Methods:** The study population included a random sample of 2-17-year-olds and their parents in Denmark, Finland, Iceland, Norway and Sweden. Data collection by means of self-administered questionnaires among parents, response rate 67.6%,  $n=10\ 317$ , approximately 2000 from each country. The determinants

fathers' and mothers' headache were measured by the degree of headache symptoms in the past two weeks. Fathers' and mothers' symptom load were constructed as indexes of eight symptoms in the past two weeks. The outcome variable, children and adolescents' use of medicine for headache, was measured by over the counter medicine taken by the child in the past four weeks. The multivariate analyses were stratified by sex and adjusted for country, age of the child, headache of the child, and respondent of the questionnaire. **Results:** Both mothers' and fathers' headache and symptom load were associated medicine use for headache among girls, but only mothers' headache and symptom load were associated with medicine use among boys. **Discussion:** Medicine use among children and adolescents are influenced by other factors than their symptoms. This study showed that parents' symptoms were associated with their children's medicine use even when controlled for their symptoms. Parental influence must be included when planning public health strategies on rational medicine use among children and adolescents.

OS38-4

**DOES SCHOOL MATTER FOR 11-YEAR OLDS' FRUIT AND VEGETABLE INTAKE? A MULTILEVEL STUDY OF COMPOSITIONAL AND CONTEXTUAL EFFECTS**

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Adolescents eat too little fruit and vegetables. We analysed the importance of school for 11-year-olds' daily intake measured by food frequency- and 24-hour recall questionnaires. We used matched student-parent-school questionnaire data ( $N=1,410$ ) from a random sample of 59 Danish schools. Logistic multilevel regression analyses were conducted for fruit and vegetables separately: 1) without explanatory variables, to decompose the between-school and within-school variance, 2) with individual level variables (socio-economic position, parental intake etc) to examine if the between-school variance was attributable to different compositions of schools and 3) with individual and school level variables (school availability of fruit/vegetables and unhealthy food) to examine the effect of context. Further, we stratified the analyses by gender and home availability (high/low) to examine the importance of school availability in specific subgroups. School level effects were quantified by intra class correlations (ICC) and Median Odds Ratios (MOR). Most of the total variance in students' intake occurred at the individual level (93-98%). There were larger between-school variations in vegetable intake (ICC=6%, MOR=1.55,  $p<0.01$ ) than in fruit intake (ICC=2%, MOR=1.27, non significant). These variations were mainly due to differences in student compositions between schools (compositional effect). Fruit and vegetable consumption clustered within schools to a larger degree for boys than girls. The between-school variance did not differ by home availability. For boys and students from high availability homes going to schools with access to fruit/vegetables and unhealthy food or contrarily with no food available were associated with higher intake of fruit and/or vegetables than going to schools with only fruit/vegetables available. The small school level effects on 11-year-olds' fruit and vegetable intake suggest that parental involvement is crucial for the

success of school level interventions targeting eating habits in this age group.

OS38-5

**WHY DID SOFT DRINK CONSUMPTION DECREASE BUT SCREEN TIME NOT? MEDIATING MECHANISMS IN A SCHOOL-BASED OBESITY PREVENTION PROGRAM**

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**Objectives:** This paper aims to identify the mediating mechanisms of a school-based obesity prevention program (DOiT). **Methods:** The DOiT-program was implemented in Dutch prevocational secondary schools and evaluated using a controlled, cluster-randomised trial (September 2003 to May 2004). We examined mediators of effects regarding (1) consumption of sugar containing beverages (SCB); (2) consumption of high caloric snacks; (3) screen-viewing behaviour; and (4) active commuting to school. To improve these behaviours the DOiT-program tried to influence the following potentially mediating variables: attitude, subjective norm, perceived behavioural control, and habit-strength. **Results:** Both in boys (n=418) and girls (n=436) the DOiT-intervention reduced SCB consumption. The intervention did not affect the other examined behaviours. In girls, no intervention effect on hypothetical mediators was found nor evidence of any mediating mechanisms. Boys in intervention schools improved their attitude towards decreasing SCB consumption, while this behaviour became less of a habit. Indeed, attitude and habit strength were significant mediators of the DOiT-intervention effect on SCB consumption among boys. **Conclusions:** Our findings imply that interventions aimed at EBRB-change should be developed gender-specific. Future studies aimed at reducing SCB consumption among boys should target attitude and habit strength as mediating mechanisms. Our study did not resolve the mediating mechanisms in girls.

**Track ‘Health Systems, Policy and Economics’**

OS38-6

**MULTI-STATE MODELS IN LONG-TERM FOLLOW-UP STUDIES FOR SICK-LEAVE DATA IN BEHAVIOURAL MEDICINE**

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Follow-up studies of treatment effects in long-term sick-leave have several inherent problems. There are often several possible outcomes; e.g. return to work, disability pension, sickness leave, and partial recoveries. Additionally, the outcomes may appear repeatedly over time. Standard analysis

tools, like the Kaplan-Meier method to find success probabilities and the standard Cox-proportional hazards regression, will not apply for such data. In this presentation we apply data from two studies, first a randomised study including 457 patients with long term low back pain, allocated to either a brief intervention or standard treatment within the primary health care system. We measured the outcomes in a 3 state-model: sick-listed, returned to work, or disability pension. The other data source was follow-up data for 581 patients from a rehabilitation clinic followed for a maximum of 4 years with 6 different outcomes. We use extended tools to calculate transition probability matrixes, based on product integrals in non-homogenous markov processes. Furthermore, we applied regression methods to study risk factors to shift between the different states. In the randomised study there was an effect of the intervention to leave the state sick-listed and shift to returned to work (RR=1.27, 95% CI: [1.09, 1.47]), while the transition probabilities showed that approximately 50 days of sick leave were saved for each individual even if the intervention and control group were not different at the end of the follow-up (at 3 years). For the follow-up data we found that approximately 20 % of the patients had returned to work, 25 % were on sick leave, while approximately 5 % received disability pension, at 4 years. Complex follow-up data can relatively easily be set up as multi-state models. This gives several advantages, including that additional information is achieved, compared to simpler analyses.

OS39

**Track :  
‘Measurement and Methods’  
‘Traditional, Integrative & Complementary  
Medicine’**

*Chair (s) : Arja Aro*

**Track ‘Measurement and Methods’**

OS39-1

**PSYCHOLOGICAL DISTRESS AND REASSURANCE FROM PHYSICIANS MAY AFFECT REPORTING SATISFACTORY RELIEF IN PATIENTS WITH IRRITABLE BOWEL SYNDROME.**

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**Background:** It has been thought that physician-patient relationships may influence treatment outcome. Satisfactory Relief (SR), which is assessed by a binary (yes/no) question, is used as a global outcome measure for clinical trials for irritable bowel syndrome (IBS). The Aim was to determine which factors contribute to reports of SR in patients with IBS. **Methods:** Sixty patients (56% females; mean age 45 years) who had a medical diagnosis of IBS or other functional bowel disorder were recruited from health care providers in Sendai, Japan. At baseline the Irritable Bowel Severity Scale (IBSS)

was used to assess symptom severity. Degree of reassurance from physicians (0-100) and the Brief Symptom Inventory (BSI-18) scales for psychological distress were also assessed. At the 6-month treatment with standard medical care, the IBSS and BSI-18 were reassessed. A responder was defined as a patient who reported that for the last 7 days, they had experienced "satisfactory relief" or had "not had bowel symptoms". Results: Responder rate for SR was 42%. Proportion reporting SR was lowest in patients reporting severe symptoms at baseline (mild 55%; moderate 42%; severe 25%), but the magnitude of symptom improvement was the greatest in severe patients (mild  $-31 \pm 17$ ; moderate  $71 \pm 21$ ; severe  $117 \pm 24$ ). Patients who felt a lower assurance (less than 50) at baseline showed a lower responder rate for SR compared with those who did not (22 vs 53%,  $p < 0.05$ ). Higher somatization and depression scores at baseline were also significantly associated with a lower SR responder rate ( $p < 0.01$ ). Conclusions: SR was more strongly influenced by baseline symptom severity and psychological status than by amount of bowel symptom improvement. A sense of reassurance was also associated with reporting SR in IBS patients. These findings indicate that physicians should take into account psychological symptoms and concerns about serious diseases to manage IBS symptoms.

#### OS39-2

### EXPLORING ACTICAL ACCELEROMETERS AS AN OBJECTIVE MEASURE OF PHYSICAL ACTIVITY IN PEOPLE WITH STROKE AND MULTIPLE SCLEROSIS (MS).

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Accelerometers are increasingly accepted as an objective measure of physical activity in healthy individuals. However, research investigating their psychometric properties for people with chronic neurological conditions is limited. These two studies explored the test-retest reliability and validity of Actical omnidirectional accelerometers in people with stroke and MS. Thirty-three participants with stroke and thirty-one with MS (ambulatory with or without aids) were purposefully selected to reflect diversity in time since stroke or MS diagnosis, impairment level, age and gender. Participants attended two testing sessions, seven days apart, where they completed series of functional activities at various intensity levels (reading newspaper, vacuuming, chair stands, stair climb, hanging washing, making tea and six-minute-walk-test). Participants wore a heart-rate monitor and accelerometer throughout both sessions and completed the Borg rating-of-perceived-exertion (RPE) after each activity. Reliability was poor for sedentary and free-living activities in both stroke and MS participants, with low intraclass correlation coefficients (ICCs: 0.01-0.35 and 0.01-0.38 respectively). ICCs were better for standardised activities or those requiring purposeful movements (e.g. stair climb) in both groups. A revised testing protocol in people with MS yielded higher reliability (0.54-0.76 (stroke); 0.75-0.90 (MS)). However, Bland-Altman 95% limits of agreement were wide for all activities, ranging from  $\pm 9$  to  $\pm 1772$  for stroke and  $\pm 16$  to  $\pm 1330$  for MS. Validity results were mixed. Whilst activity counts for both groups were significantly related to distance covered in six-minute-walk-test ( $p = 0.006$  (stroke);  $p < 0.001$  (MS)) and to number of chair stands ( $p = 0.001$  (stroke);  $p < 0.001$  (MS)), neither could

accurately predict percentage heart-rate-reserve (HRR) or Borg RPE. Our findings suggest that whilst Actical accelerometers may be an appropriate measure of walking-based activities, they have poor reliability and are weak at predicting perceived effort (Borg RPE) and physiological activity intensity (HRR) for people with stroke and MS during a number of functional activities.

#### OS39-3

### JOINT FACTOR ANALYSIS OF THE SCALES OF POSITIVE BELIEFS ABOUT DEPRESSIVE RUMINATION

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Depressive rumination causes onset and maintenance of depression and major depression (Lyubomirski & Tkach, 2004). Recently, it has been hypothesized that positive beliefs about depressive rumination motivates individuals to select rumination as a coping strategy (Wells & Matthews, 1994). Hasegawa et al. (2007) developed the Positive Beliefs about Depressive Rumination Questionnaire (PBDRQ), and revealed that the factors of disadvantages of giving up ruminating in the scale were positively correlated with depressive rumination, but that the factors of advantages of ruminating were not in Japanese population. However, in European population, it was revealed that scores on the Positive Beliefs about Rumination Scale (PBRS; Papageorgiou & Wells, 2001), which assessed advantages of ruminating, were positively correlated with depressive rumination. These results indicated that the factors of advantages of ruminating in the PBDRQ and the PBRS tapped discriminative positive beliefs about depressive rumination. Therefore, we tested this hypothesis by means of a joint factor analysis. One hundred and fifty-nine undergraduate students completed the PBDRQ and the Japanese version of PBRS (J-PBRS; Takano & Tanno, in preparation). A principal components analysis with Oblimin rotation was conducted on the items of the PBDRQ and the J-PBRS. Three factors were yielded: the first factor consisted of items of advantages of ruminating in the PBDRQ, the second one consisted of the J-PBRS items, and the third one consisted of items of disadvantages of giving up ruminating in the PBDRQ. This result supported our hypothesis. The items of the PBRS were collected from clinical depressed patients in European countries. Therefore, not the beliefs about advantages of ruminating of healthy individuals but those of the highly depressed ones motivated them to ruminate. Future studies need to specify the contents of positive beliefs about depressive rumination of highly depressed and ruminative individuals or clinical depressed patients in Japan.

#### OS39-4

### INVESTIGATION FOR ABNORMAL UTERINE BLEEDING: THE ROLE OF INDIVIDUAL FACTORS IN PATIENT EXPERIENCE OF AND SATISFACTION WITH CLINIC ATTENDANCE

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Introduction: Abnormal uterine bleeding (AUB) is a potential sign of endometrial cancer, requiring prompt clinical

investigation, particularly in post-menopausal women. This presentation will examine the relationship of individual personality and “health style” factors, and presenting symptoms, to reported experience of outpatient clinic attendance for AUB.

**Design:** RCT of outpatient methods of endometrial evaluation. Participants (referrals to Royal Infirmary Edinburgh) were stratified into three risk groups: low, moderate, high (postmenopausal)  $n = 157, 326, 200$  respectively.

**Questionnaires:** At recruitment- General Health Questionnaire (GHQ); personality inventory (NEO); a “health style” questionnaire (including sensitivity to pain, tendency to worry about health). After evaluation- report on the clinic visit. 10-month and 2-year follow-up - review questionnaires.

**Results:** The vast majority of women were glad they had their investigation (94%), and reassured (87%), but only 64% found the clinic visit “worthwhile”, with a quarter reporting their problem “not cured”. Self-stated sensitivity to pain was strongly predictive of finding the investigation markedly unpleasant. Reported experience of biopsy was also associated with GHQ scores (somatic and depression sub-scales), and NEO neuroticism scale score. The risk groups differed in baseline factors, with lower risk women having worse self-reported health, and stating more sensitivity to pain and greater tendency to worry about health. More of them stated they would have liked more investigation, and this was strongly associated with self-stated “worry”. At 10 month follow-up they had markedly worse ratings for health now, with only 40% rating their symptoms “much improved”.

**Conclusions:** The difference between risk groups in base-line individual factors suggests these have played a part in the “journey” to gynaecology clinic. Furthermore, these individual factors are associated with inequalities in experience of clinic care. Consideration will be given as to whether these factors could be taken into account in clinic care of patients referred with AUB.

## Track ‘Traditional, Integrative & Complementary Medicine’

OS39-5

### STRESS REDUCTION IN SHAVASAN (CORPS POSTURE) DURING GASTROINTESTINAL ENDOSCOPY.

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Gastrointestinal endoscopy can become such a routine to the doctors and nurses concerned that patients natural anxieties may there by be increased. Shavasan an ancient yogic posture of relaxation to de-stress probably is the best known relaxation exercise practiced for centuries in India. Aim: To study effects of relaxation in Shavasan in patients undergoing upper Gastrointestinal endoscopy. Method Study was conducted on 63 consecutive patients between the age group of 16 to 86 years. Patients were randomly assigned to two groups regardless of sex, age and underlying disease. One group of 31 patients was made to relax in shavasan after explaining the technique. The other group of 32 patients was made to wait as usual before each procedure. No patients in any group was administered any sedation or local anesthetic spray. Blood pressure, heart and respiratory rate was recorded at the beginning and end of the procedure. Perception of procedure

using a five point scale was assessed. Results: Paired T test was used to analyze and compare the data between two groups. There was statistically significant difference in two parameters i.e heart and respiratory rate. In experimental group patients reporting moderate and severe discomfort decreased and could under go procedure if required. Conclusion: This preliminary study reveals the effect of relaxation in Shavasana Posture. Though repeated practice is required to attain quick de stress in stressful states, we feel that even one single practice can help in reducing stress and anxiety before upper GI procedure. We also suggest that this could be applied to other medical situations as well and could be used for any other stressful situations which tend to generate undue psychological stress and anxiety.

OS39-6

### THE BASIC RESEARCH OF THERMAL THERAPY ON DYSMENORRHEA

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**Objective:** This study proposes a possible guideline for thermal therapy as a behavioral therapy for women suffering from dysmenorrhea by exploring the relationship between dysmenorrhea and temperature profile of abdominal acupoints based on the commonly used meridian and acupoints for dysmenorrhea in traditional Korean Oriental Medicine. **Method:** The study was carried out in three stages: first, 50 dysmenorrhea patients and 50 healthy women were examined for the existence of dysmenorrhea symptoms and the temperature profiles of upper and lower abdomen to investigate the relevance of symptoms and abdominal temperature using DITI (Digital Infrared Thermal Imaging); second, 49 dysmenorrhea patients and 54 healthy women were examined using DITI for temperature profiles of right and left abdominal regions and compared with the results in stage 1; third, based on the data from stages 1 and 2, 95 dysmenorrhea patients were examined for severity of dysmenorrhea using the Verbal Rating Scale and the Multidimensional Verble Rating Scale and were taken DITI images of lower abdominal acupoints CV4 and CV3 to discover the relationship between abdominal temperature profile and dysmenorrhea severity. **Result:** First, the dysmenorrhea group not only absolutely but also relatively showed significantly lower temperature in lower abdominal region ( $p < 0.05$ ). Second, both relative and absolute temperature values did not show significant difference ( $p < 0.05$ ). Third, CV4 and CV3 of the Conception Vessel showed significant relevance between dysmenorrhea severity and abdominal temperature ( $p < 0.05$ ). **Conclusion:** In women suffering from dysmenorrhea, the lower abdominal region showed lowered temperature. Especially, CV4 and CV3 of the Conception Vessel, acupoints traditionally introduced as effective for dysmenorrhea, displayed increased coldness proportionate to dysmenorrhea severity. Therefore, lower abdominal thermal therapy centered around CV4 and CV3 could be applied as an example of effective behavioral therapy on dysmenorrhea. **Key Words:** Dysmenorrhea, Behavioral therapy, Thermal therapy, Korean Oriental Medicine, Acupoint, Digital Infrared Thermal Imaging

OS40

**Track :  
'Psychophysiological Disorders & Sleep'  
'Illness/Illness Affect/Illness Behavior',  
'Genetics/Environmental Interactions'**

*Chair (s) : Holger Ursin*

**Track 'Psychophysiological Disorders & Sleep'**

OS40-1

**GENDER DIFFERENCES IN BRAIN FUNCTION AT BEHAVIORAL RULE CHANGES**

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Background: Cognitive flexibility is important to adapt the environmental change and choose the behavior. In most neuroimaging studies of cognitive flexibility, gender has been a rather neglected factor. Therefore, we hypothesized that there is a gender difference in the brain processing of flexible cognition. Methods: Forty right-handed subjects (20 male, 20 female) aged 18 to 28 were enrolled in the study. Wisconsin Card Sorting Test (WCST) was loaded to the subjects. The total correct, perseverative errors, and categories completed were analyzed. During set shifting task of WCST, event-related functional magnetic resonance imaging (fMRI) was performed to determine the specific location and pattern of activation in the brain. Results: There were no significant differences in the WCST measures between males and females. Males one-sample analysis yielded significant activation in several areas including the visual cortex and the precuneus. Females one-sample analysis yielded significant activation in several areas including the prefrontal cortex (PFC) (BA8, 9, 10), supramarginal gyrus, superior parietal lobule and the inferior parietal lobule. Males had significantly greater mean activation in the premotor cortex (BA6) and superior parietal lobule than females. Females had significantly greater mean activation in the orbitofrontal cortex (BA11, 47) and medial PFC (BA9, 10) than males. Conclusions: These findings support the hypothesis that there is a gender difference in neural processing during the set shifting of the paradigm. However, no difference in task performance per se between the gender suggests that the complementary processing may follow the evaluation of the set shift.

OS40-2

**EFFECT OF HYPNOTIC SUGGESTION AND HISTAMINE H<sub>1</sub> ANTAGONIST ON VISCERAL STIMULATION-INDUCED CHANGES IN CARDIOVASCULAR FUNCTION IN HUMANS**

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Background; Patients with irritable bowel syndrome (IBS) show visceral hypersensitivity and imbalance in the autonomic nervous system (ANS). Our previous study clarified that histamine H<sub>1</sub> antagonist reduced analgesic effects of hypnotic suggestion in healthy subjects. However, effects of H<sub>1</sub> antagonist and hypnotic suggestion on visceral stimulation-induced changes in cardiac ANS are largely unknown. We tested our hypothesis hypnotic suggestions and histamine H<sub>1</sub> antagonist differentially change cardiac ANS responses between controls and IBS subjects. Methods; Twenty four men (12 healthy controls and 12 IBS subjects) were enrolled in this study. An electrode catheter was inserted to the rectum. Electrocardiogram and mean arterial pressure (MAP) were recorded during electrical stimulation of the rectum. Hypnosis consisted of hyperalgesia, analgesia and neutral suggestions, and stimulation (0mA or 30mA) followed them. All subjects were studied for 2 days, in which either histamine H<sub>1</sub> antagonist (d-chlorpheniramine) or saline (placebo) was intravenously injected with randomized order. Results; In healthy subjects, resting heart rate (HR) with d-chlorpheniramine was significantly reduced than that with placebo ( $p < 0.016$ ), but resting high frequency (HF) component was not. In IBS subjects, resting HF component with d-chlorpheniramine was significantly increased than that with placebo ( $p < 0.032$ ), but resting HR was not. A significant main effect of drug was observed on HF, LF/HF ratio and HR. Drugdiagnosis interaction was observed on MAP ( $p < 0.024$ ). MAP in IBS subjects increased by d-chlorpheniramine but not in controls. No significant effect of hypnotic suggestions was observed. Conclusions; These findings partially supported our hypothesis. Histamine H<sub>1</sub> antagonist is likely to inhibit cardiac sympathetic function and this response seems to be weak in IBS individuals.

OS40-3

**IRRITABLE BOWEL SYNDROME-LIKE FEATURES INDUCED BY MATERNAL SEPARATION IS ASSOCIATED WITH 5-HT<sub>2A/2C</sub> RECEPTOR IN MALE RAT**

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Background: Childhood exposure to emotional trauma, is recognized as a risk factor for the development of irritable bowel syndrome (IBS) in adulthood. However, the mechanisms are largely unknown. We hypothesized that IBS-like features are induced by maternal separation (MS) and those features are attenuated by pretreatment with 5-HT<sub>2A/2C</sub> stimulation. Methods: The neonatal male and female Wistar rat pups received a subcutaneous injection of either saline or 5-HT<sub>2A/2C</sub> agonist DOI (0.5mg/kg) every day, and the injection was given 15 min before MS manipulation for 180 min daily during 2-14 postnatal days. After growing, rats of both genders were exposed to the elevated plus maze (EPM) to measure



anxiety-like behavior and colonic motor function. The visceromotor response was evaluated only in male rats by electromyogram of the abdominal muscle in response to phasic colorectal distention (CRD). On the next day, tonic CRD was loaded to measure hormone for both genders. Results: In males, MS rats spent significantly more time ( $60.6 \pm 6.1\%$ ) in the closed arms than controls ( $43.4 \pm 5.3\%$ ,  $p < 0.05$ ). MS rats showed significantly more fecal pellet output ( $3.3 \pm 0.8$ ) during the EPM than controls ( $1.0 \pm 0.6$ ,  $p < 0.05$ ). MS rats expressed significantly more visceromotor response to phasic CRD than controls ( $p = 0.001$ ). Administration of DOI significantly reduced anxiety ( $40.9 \pm 2.7\%$ ,  $p < 0.05$ ) and fecal pellet output ( $1.2 \pm 0.5$ ,  $p < 0.05$ ) in DOI+MS rats compared with MS rats. The significant difference in visceromotor response between controls and MS rats was also abolished by DOI. No difference was observed in females. Conclusions: Our results support the hypotheses that maternally separated rats show IBS-like features, and that administration 5-HT<sub>2A/2C</sub> receptor agonist reverses these changes in male rats. A salient role of 5-HT<sub>2A/2C</sub> pathway in the development of pathophysiology mimicking IBS that seems to be gender specific.

#### OS40-4

### THE ROLE OF COGNITIVE RESTRUCTURING DYSFUNCTIONAL BELIEFS ABOUT SLEEP IN INSOMNIA TREATMENT

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Insomnia is a common and serious problem. While a good evidence base exists for modern CBT treatments for insomnia, that for the importance of the cognitive restructuring of dysfunctional beliefs about sleep is weak. Although there is some evidence for the reductions in dysfunctional beliefs about sleep in CBT programs, this does not allow the conclusion that such reductions are caused by the cognitive restructuring, as such changes could be a consequence of improvements in sleep. This paper addresses whether dysfunctional cognitions, assessed by the Dysfunctional Beliefs and Attitudes about Sleep scale (DBAS: Morin, 1993), are modified in CBT for insomnia and whether reductions in these beliefs are associated with treatment outcome. Data were collected from 69 individuals meeting criteria for insomnia undergoing a CBT-based sleep program. Improvements were found on all sleep parameters (total sleep time, sleep onset latency, wake after sleep onset, sleep efficiency and global scores on the Pittsburgh Sleep Quality Index) with effect sizes ranging from 0.6 to 1.0. Significant reductions were also found in DBAS scores with an effect size of 0.7. However, there was little evidence of relationships between the changes in sleep parameters and changes in DBAS scores, with the only significant, but weak, relationships found for changes in WASO ( $r = .26$ ) and global PSQI scores ( $r = .25$ ). These findings support the efficacy of CBT-based approaches to insomnia treatment and show that dysfunctional beliefs about sleep decrease following CBT for insomnia. However, they do not provide support for the importance of the modification of dysfunctional beliefs about sleep in sleep improvements with a maximum of 7% of variance in sleep improvement on any parameter associated with variance in DBAS score reduction. The findings suggest that the current emphasis on reduction in dysfunctional thoughts about sleep in intervention programs may be misguided.

## Track 'Illness/Illness Affect/Illness Behavior'

#### OS40-5

### DISSATISFACTION WITH INFORMATION ABOUT MEDICINES IN THREE CHRONIC ILLNESS GROUPS: IMPLICATIONS FOR INFORMED CHOICE

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**Background:** In order to make informed decisions about medication patients require adequate information. The amount and type of information required will vary across individuals. This research explored levels of satisfaction with information received about medicine in three chronic illness groups (bipolar disorder, HIV, renal disease) in the UK.

**Method:** Patients were recruited through eight UK haemodialysis centres, the Bipolar Organisation and an HIV outpatient unit. Participants completed the Satisfaction with Information about Medicines Scale (SIMS). This 17-item validated questionnaire asks patients to rate their satisfaction with information they have received about the action and usage of their medication (e.g. what it is for, how long it takes to work) and the potential problems associated with their medication (e.g. whether it has side effects, whether it interferes with other medication). One-way ANOVA was used to compare satisfaction across illness groups.

**Results:** 559 participants completed the SIMS (223 bipolar, 115 HIV, 221 renal). High levels of dissatisfaction with information about medicines were reported, particularly in relation to practical problems associated with the medication. Patients prescribed medication for renal disease and bipolar disorder were significantly less satisfied with the information they had received than those prescribed medication for HIV ( $p < .001$ ). Participants were particularly dissatisfied with the information they had received about whether the medication would affect their sex life (74% renal sample, 70% bipolar sample and 57% HIV sample dissatisfied), the risk of experiencing side-effects (70% renal sample, 64% bipolar sample and 38% HIV sample dissatisfied) and whether the medication would interfere with other medicines (66% renal sample, 56% bipolar sample and 39% HIV sample dissatisfied).

**Conclusions:** Satisfaction with information about medicines is low, particularly in relation to possible drug side-effects. Health practitioners need to elicit individuals' information requirements and tailor information to meet their needs, in order to facilitate informed treatment choice.

## Track 'Genetics/Environmental Interactions'

#### OS40-6

### THE INFLUENCE OF PSYCHOSOCIAL STRESS ON THE CIRCADIAN EXPRESSION OF CLOCK GENES

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The Circadian Clock is an endogenous zeitgeber-system which strongly influences behavioral, biochemical and physiological

circadian processes. It is controlled by the suprachiasmatic nucleus (SCN) of the hypothalamus, which coordinates the timing of transcriptional and translational feedback loops involving several clock genes. Therefore the SCN acts as central pacemaker in mammals. The neurons of the SCN oscillate self-sustainingly and synchronize the equally oscillative expression of clock genes in the peripheral cells. Amongst other daily zeitgebers, light acts as the main zeitgeber for the SCN and thus interconnects the outside world with the pacemaker. The synchronization seems to be effected by neuronal and/ or hormonal signalling. Because of difficulties in monitoring the oscillation of the SCN in humans, there have been few studies with human subjects. But since many psychological/ psychiatric disturbances are associated with disruptions of circadian rhythm (e.g. major depression) a more detailed knowledge about coherences of environmental cues and gene expression would be essential. Hence we carried out a pilot study with 9 healthy young men in order to measure the daily expression of the clock genes *Per2*, *Bmal1* and *Dbp* and to investigate their coherence with the morningness or eveningness of the subjects. Currently we are conducting a follow-up study to pursue, whether psychosocial stress is capable of influencing gene expression, especially in the field of circadian rhythm. Therefore we analyze gene expression of the above mentioned clock genes as well as the genes coding for ACTH and IL-6 in thirty healthy men before, during and after a psychosocial stress test as well as in a control situation at the same time of the day. First data will be presented at the conference. To determine the influence of psychosocial cues on gene expression would shed new light on the old discussion about the interaction of nature and nurture.

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