69th ANNUAL SCIENTIFIC MEETING
MARCH 9 - 12, 2011

“Biobehavioral Processes and Health:
Understanding Mechanisms, Implementing Interventions”

Meeting Abstracts

San Antonio Marriott Rivercenter
San Antonio, Texas USA
Wednesday, March 9
12:30-4:30  Half Day Preconference Workshops: Lab to Market 2011; Using the Right Tool for the Job; and Ideas to Interventions
5:00-8:30  Opening Session/Citation Poster Session (p. A15-A22) and Reception

Thursday, March 10
7:00-8:00  Breakfast Roundtable
8:00-8:55  Plenary Session: Information Technology in Health Care: The Next Ten Years
9:00-10:15  Paper Session: Cardiovascular Disease Risk (p. A106-A107)
Symposium 1170: Population Level Integration of Psychosocial and Biological Processes (p. A2-A3)
Symposium 1030: Correlates and Buffers of Telomere Shortening (p. A3-A4)
Paper Session: Post-Traumatic Stress Disorder (p. A107-A108)
10:30-11:25  Invited Talk: Sleep in Psychosomatic Medicine: Theory, Data and Translational Promise
Paper Session: Type D Personality and Cardiac Disease (p. A108-A109)
Symposium 1845: Depressed Mood and Suicidal Ideation in African American Women… (p. A4-A5)
Paper Session: Placebos (p. A109)
11:30-12:45  Lunch on your own/Roundtable Lunches/Committee Meetings
12:45-2:00  Paper Session: Acute Stress and PNI (p. A109-A111)
Paper Session: Somatic versus Cognitive Depressive Symptoms and Cardiac Health Risks (p. A111-A112)
Paper Session: Mindfulness, Meditation, and Health (p. A112-A113)
2:15-3:30  Invited Symposium: Reducing Risk of CHD: Targeting Stress, Depression, and Type D Personality
Paper Session: Psychoneuroendocrinology (p. A113-A114)
Paper Session: Gender Differences and Health (p. A114-A115)
Symposium 1130: Motivational Interviewing: The Evidence and the Promise (p. A7-A8)
3:45-5:00  Plenary Session: Tough Lessons Learned from Cardiovascular Trials: Implications for Psychosomatic Medicine
5:00-6:15  Poster Session 1 (p. A23-A51)
6:30/7:45/7:45  Mentor & Mentee Reception/ Past Leaders Dinner/Student Dinner

Friday, March 11
7:00-8:00  Breakfast Roundtable and Committee Meeting
8:00-8:55  Plenary Session: Neuro-Behavioral Pathways Linking Mindfulness and Physical Health
9:00-9:55  Plenary Session: Stress Management as a Probe for Illuminating Stress-Related Biobehavioral Processes
10:15-11:30  Invited Symposium: Metabolic Syndrome and Health Disparities
Paper Session: Social Cardiophysiology (p. A115-A117)
Invited Symposium: Current Directions in Stress Research: Andy Baum’s Legacy
11:30-12:45  Lunch on your own/Roundtable Lunches/Committee Meetings
1:00-2:15  Symposium 1203: Biological Embedding of Childhood Experiences and Physical Health During the Life Course(p. A9-A10)
Paper Session: Social Processes and Cardiovascular Health (p. A117-A118)
Paper Session: Biopsychosocial Influences on Cancer (p. A118-A119)
Paper Session: Biobehavioral Interventions (p. A119-A120)
2:30-3:45  Invited Symposium: Advances in Integrative Medicine: Relevance to Psychosomatic Medicine
Symposium 1208: The Impact of Emotional Distress on Physical Functioning… (p. A11-A12)
Paper Session: Effects of Depression Treatments (p. A120-A121)
Paper Session: Biopsychosocial Links Between Appetite, Eating, and Obesity (p. A121-A123)
4:00-5:15  Plenary Session: Psychological Mechanisms in Interventions for Individuals Living with Chronic Disease…
5:15-6:30  Poster Session 2 (p. A52-A82)
6:30-8:00  Special Interest Gatherings

Saturday, March 12
7:00-8:00  Committee Meetings
8:00-8:55  APS Business Meeting
9:00-9:55  Invited Talk: PROMIS®: Improved Patient Reported Outcomes for Clinical Research
Paper Session: Psycho-oncology (p. A123-A124)
Paper Session: Immune Function and Depression (p. A124)
Paper Session: Depression, Anxiety and Cardiopulmonary Disease (p. A124-A125)
10:15-11:30  Awards Talk Series I: Patricia R. Barchas and Paul D. MacLean Award Presentations
1:30-12:45  Lunch on your own/Roundtable Lunches/Committee Meeting
12:45-2:00  Awards Talk Series II: Herbert E. Weiner and Alvin P. Shapiro Award Presentations
2:15-3:30  Invited Symposium: Ideas to Interventions…
Paper Session: Sleep and Cardiovascular Health (p. A125-A127)
Paper Session: The Influences of Early Life Experiences and SES on Health (p. A127-A128)
Paper Session: Acute Stress Psychophysiology (p. A128-A129)
3:45-5:00  Invited Talk: Project Heart Beat!... Symposium 1253: Sleep and Health in Psychosomatic Medicine… (p. A12-A13)
Symposium 1075: Interventions to Enhance Quality of Life & Health in Women… (p. A13-A14)
Paper Session: Pain (p. A129-A130)
5:00- 6:15  Poster Session 3 (p. A83-A105)
7:00  Dinner and Entertainment
The aim of this study was to test whether individual differences in anger/low anger-control would exacerbate detrimental effects of low educational attainment, perceived major (P<.001) and daily (P<.001) life events as predictors of multi-system dysfunction (allostatic load). The presentations in this symposium exemplify the breadth of measures available in MIDUS for detailed examination of interactions between psychosocial and biological processes. The first paper focuses on socioeconomic and age gradients in inflammatory proteins and their modulation by trait anger. The second paper examines the interactive associations of trait anger and anxiety changes in perceived stress during a laboratory-based cognitive challenge as predictors of vagal recovery from stress. The third presentation examines associations between lifetime and daily perceived discrimination and both subjective and objective assessments of sleep. The final paper focuses on positive life events as predictors of multi-system dysfunction (allostatic load). Collectively, these papers exemplify the breadth of measures available in MIDUS for detailed examination of interactions between psychosocial and biological processes at the population level.

**Individual Abstract Number: 1233**

**ANGER, EDUCATIONAL STATUS, AND INFLAMMATION: INVESTIGATING A MODERATION MODEL**

Jennifer A. Morozuck, MS, Carol D. Ryff, PhD, Psychology, University of Wisconsin, Madison, WI, Teresa E. Seeman, PhD, Institute on Aging, University of Wisconsin-Madison, WI, Olga V. Crowley, Ph.D., Psychiatry, Division of Behavioral Medicine, Columbia University Medical Center, New York, NY.

The aim of this study was to test whether individual differences in anger experience and expression moderated the link between educational status and inflammatory processes, assessed by C-reactive protein (CRP), interleukin-6 (IL-6), and fibrinogen. The prediction was that high anger/expression and expression moderated the link between educational attainment and inflammatory markers. Gender differences were analyzed, and age was a moderator educational gradients in inflammatory markers. For those individuals who had higher levels of trait anxiety or anger, greater reductions in perceived stress were associated with faster vagal recovery. In contrast, for those individuals who had lower levels of trait anxiety or trait anger, changes in perceived stress had little impact on vagal recovery. Therefore, the change in perceived stress moderates the relationship of trait anxiety and anger to vagal recovery after cognitive challenge, and this moderating effect is not specific to a particular type of trait affect.

**Individual Abstract Number: 1594**

**PERCEIVED DISCRIMINATION PREDICTS POORER SELF-REPORTED AND OBJECTIVELY ASSESSED SLEEP**

Elliot M. Friedman, PhD, Institute on Aging, Carol D. Ryff, PhD, Institute on Aging and Department of Psychology, University of Wisconsin-Madison, Madison, WI

Adaptive sleep is critical for health and well-being, and there is growing interest in the determinants of both adequate and inadequate sleep at the population level. Perceived discrimination is a potent social stressor that is associated with poor mental and physical health, but to date the extent to which perceived discrimination predicts poorer sleep is relatively unexamined. Here we examine links between perceived discrimination and both subjective and objective assessments of sleep. Method Data are from the Biomarker Sample (N = 1,255) from the second wave of data collection for the Survey of Midlife in the United States (MIDUS). Perceptions of major lifetime (e.g. not being hired) and ongoing daily discrimination (e.g. being harassed) for any reason (i.e. race, age, gender) were assessed using self-administered questionnaires or in-home interviews. Self-reported sleep quality was assessed using the Pittsburgh Sleep Quality Index. A sub-sample of participants (n = 440) wore actigraphy watches for seven consecutive days, and weekly averages of total sleep time, latency to fall asleep, and sleep efficiency were calculated. Results Results for anger expression and expression appear to be most salient for individuals with lower educational attainment.
discrimination predicted poorer sleep subjective sleep quality, and both associations remained statistically significant after adjustment for the potential confounding influences of health status and depressive symptoms. Analyses involving sleep activity showed that greater perceived major discrimination predicted reduced total sleep time (P<.01). Greater perceived daily discrimination was significantly associated with poorer sleep efficiency (P<.01) and marginally associated with reduced total sleep time (P=.08) and greater latency to fall asleep (P=.07). These results show that perceived discrimination predicts poorer sleep assessed both subjectively and objectively, and they highlight perceived discrimination as a novel determinant of sleep at the population level.

Individual Abstract Number: 1407

LIVING THE GOOD LIFE: FREQUENCY OF POSITIVE LIFE EXPERIENCES AND MULTI-SYSTEM PHYSIOLOGICAL ILL-BEING
Tara L. Grusenwald, PhD, Medicine/Geriatrics, University of California, Los Angeles, CA

A significant volume of literature exists on the association between negative life experiences and poor physiological well-being. Very little attention, however, has been devoted to the physiological correlates of positive life experiences. The present study examines whether multi-system index of physiological ill-being varied by the frequency of positive life experiences. Methods: Participants (n = 1,031, 46% male, mean age = 58) were from the Biomarker Substudy of the Study of Midlife in the Us. Positive life experience frequency was assessed as the average frequency (1 - never, 2 - 1-6 times per week, 3 - 7+ times per week) of 50 positive life experiences (social, relationship, leisure, pleasure, intellectual, physical, etc.). Multi-system physiological ill-being was assessed as the sum of 7 biological subsystem risk indices (cardiovascular, metabolic-glucose, metabolic-lipids, inflammatory, sympathetic nervous system, parasympathetic nervous system, hypothalamic-pituitary-adrenal). Subsystem risk indices scores ranged from 0 to 1 reflecting the percent of subsystem biomarker indicators for which participant values fell into high-risk quartiles; these were summed to produce a multi-system risk score (possible range 0-7). Results: The mean positive experience frequency score was 2.3 (SD = .28), indicating average frequency across all experience types was weekly but less than daily. Multi-system physiological ill-being scores ranged from 0 to 5.4 (M = 1.7, SD = 1.1). Greater frequency of positive experiences predicted lower multi-system physiological ill-being (B = -.25, p = .025) in models controlling for age, gender, education level, and an index of major and minor health conditions. Examination of subdomains of positive experiences derived from factor analyses indicated that greater frequency of loving and intimate contact and positive physical experiences (sleeping well, being pain free) were most predictive of lower physiological ill-being. Results suggest that those that experience more of the good life also experience better physiological well-being.

Symposium 1030

CORRELATES AND BUFFERS OF TELOMERE SHORTENING: IMPLICATIONS FOR INTERVENTIONS
A. Janet Tomiyama, Ph.D., Psychology, University of California, San Francisco & Berkeley, San Francisco, CA, Eli Puterman, Ph.D., Center for Health and Community, University of California, San Francisco, CA, Auye O'Donovan, Ph.D., Post-Traumatic Stress Disorders, San Francisco Veteran's Affairs Medical Center, San Francisco, CA, Jue Lin, Ph.D., Biochemistry and Biophysics, University of California, San Francisco, San Francisco, CA, Eli Puterman, Ph.D, Center for Health and Community, Alanie Lazaro, B.A., Psychiatry, University of California, San Francisco, San Francisco, CA, Jessica K. Chan, B.A., Medicine, Chicago College of Osteopathic Medicine Midwestern U, Downers Grove, IL, Elizabeth Blackburn, Ph.D., Biochemistry and Biophysics, University of California, San Francisco, San Francisco, CA, Elissa S. Epel, Ph.D, Psychiatry, University of California, San Francisco, San Francisco, CA, Nan-ping Weng, MD, Laboratory of Immunology, National Institute of Aging, Baltimore, MD, William B. Malarkey, MD, Division of Endocrinology, Diabetes, and Metabolism, IBMR, Ohio State University, Columbus, OH, David Q. Beversdorf, MD, Psychological Sciences, University of Missouri, Thompson Center, Columbia, MO, Ronald Glaser, Ph.D.,

Individual Abstract Number: 1294

GREATER CORTISOL RESPONSE TO ACUTE STRESS IS ASSOCIATED WITH SHORTER TELOMERE LENGTH

Chronic perceived stress is associated with accelerated cellular aging as indexed by shorter telomere length. However, how chronic psychological stress affects telomere length has not been determined. We investigated whether, as allostatic load theory would predict, repeated and frequent exposures to acute stress and its physiological mediators over time lead to impaired telomere maintenance. Cortisol is an end product of the stress-responsive hypothalamic-pituitary-adrenal axis, and therefore in this study we test whether greater cortisol responses to an acute stressor might be associated with shorter telomere length. Sixty-four women aged 51 to 79 (M = 62, SD = 6.46) completed the study. To control for potential confounding of menopausal status and cortisol reactivity, all participants were post-menopausal. Participants were exposed to the Trier Social Stress Test, providing saliva samples throughout, and total cortisol output was estimated via the area-under-the-curve formula. Peripheral blood mononuclear cells were isolated from a fasting blood draw and assayed for telomere length. As hypothesized, greater cortisol responses to the stressor were associated with shorter telomeres (r = .35, p < .05), controlling for age and body mass index. These findings are in accord with in vivo studies demonstrating that the application of cortisol to lymphocytes decreases activity levels of telomerase, the enzyme that protects telomeres from shortening. Alternatively, cortisol reactivity to stress may be an index of daily vulnerability to stress rather than a direct mediator. In sum, acute stress responses appear to be related to telomere length, with greater cortisol output associated with greater cellular aging.

Individual Abstract Number: 1293

CHILDHOOD ADVERSITY HEIGHTENS THE IMPACT OF LATER-LIFE CAREGIVING STRESS ON TELOMERE LENGTH AND INFLAMMATION
Janice K. Kiecolt-Glaser, Jaimey G., Psychology and Psychiatry, IBMR, Ohio State University, Columbus, OH, Jean-Philippe Gouin, Ph.D., Clinical Psychology, Rush Medical Center, Chicago, IL, Nan-ping Weng, MD, Laboratory of Immunology, National Institute of Aging, Baltimore, MD, William B. Malarkey, MD, Division of Endocrinology, Diabetes, and Metabolism, IBMR, Ohio State University, Columbus, OH, David Q. Beversdorf, MD, Psychological Sciences, University of Missouri, Thompson Center, Columbia, MO, Ronald Glaser, Ph.D.,
Molecular Virology, Immunology and Medical Genetics, IBMR, Ohio State University, Columbus, OH

Prior research on the physical health consequences of childhood abuse and other adversities has been based on data from young or middle-aged adults. This study addressed the question of whether childhood abuse and other adversities have lasting, detectable consequences for inflammation and cell aging late in life, and whether the effects are large enough to be discernible beyond that of a major chronic stressor, dementia family caregiving. In our volunteer community sample of 132 healthy older adults (mean age = 69.70, SD=10.14), including 58 dementia family caregivers and 74 noncaregivers, blood samples were analyzed for serum cytokines interleukin 6 (IL-6) and tumor necrosis factor-alpha (TNF-alpha), and telomere length, a measure of cell aging. Depressive symptoms were assessed by the Center for Epidemiological Studies Depression Scale (CES-D). After controlling for age, caregiving status, gender, body mass index, exercise, and sleep, childhood adversity was associated with both heightened IL-6 and shorter telomeres; the telomere difference between individuals reporting no adversities and those reporting multiple adversities could translate into a 7-15 year difference in lifespan. Childhood abuse was associated with heightened IL-6 and TNF-alpha levels, and, for TNF-alpha, this relationship was magnified in caregivers compared to controls. Moreover, childhood abuse and caregiving status were significantly and independently associated with higher levels of depressive symptoms on the CES-D. Other studies have provided solid evidence that childhood abuse and other adversities can impact adults' mental and physical health, but most of the evidence has come from studies with young or middle-aged adults. Our data confirm the prior findings and extend them by showing that adverse childhood events are related to continued vulnerability among older adults, enhancing the impact of chronic stressors. Childhood adversities cast a very long shadow.

Individual Abstract Number: 1292

LEISURE TIME PHYSICAL ACTIVITY BUFFERS ASSOCIATIONS BETWEEN CHILDHOOD ABUSE AND ADULT LIFEHOOD STRESS WITH LEUKOCYTE TELOMERE LENGTH

Eli Puterman, Ph.D., Center for Health and Community, University of California, San Francisco, San Francisco, California, George Slavich, University of California, Los Angeles, CA, Ph.D., Biochemistry and Biophysics, Jeffrey Kraus, AB, School of Medicine, University of California, San Francisco, San Francisco, CA, Alanie Lazaro, B.A., Wanda Truong, B.A., Psychiatry, University of California, San Francisco, San Francisco, California, Joshua Cheon, Ph.D., Biochemistry and Biophysics, University of California, San Francisco, San Francisco, CA, Nancy Adler, PhD, Department of Psychiatry, University of California, San Francisco, CA, Elizabeth Blackburn, PhD, Biochemistry and Biophysics, Elissa Epel, PhD, Department of Psychiatry, University of California, San Francisco, San Francisco, CA, Birc Bastit, PhD, Childhood adversity and adulthood stressors are associated with shortened telomeres. Both childhood adversity and adulthood stressful events predict shorter telomeres. Increasing research highlights the role that shortened telomeres likely biological pathway may be through immune cell aging, indexed by short telomeres. Increasing research highlights the role that shortened telomeres play in the pathogenesis of CVD and CVD-related mortality. Childhood adversity and adulthood stressors are associated with short telomeres in adulthood, but recent findings show that exercise may offer protection from adverse effects of stressful life events. We recently demonstrated that physical activity to non-invasively evaluate fetal neuro-behavioral development. The second paper will discuss research findings of a culturally informed therapeutic intervention with African American women who have attempted suicide. The primary focus of the three paper symposium will be to provide a contemporary look at research and intervention with pregnant and non-pregnant African American women of reproductive age. This work should help inform the professional community about how bio-behavioral processes are impacted by psychological health in young African American women, some of whom are pregnant. We shall discuss mechanisms that contribute to various psychological profiles and emotional adjustment and how novel therapeutic strategies may impact outcome.

Individual Abstract Number: 1849

STRESS, ANXIETY AND MOOD IN PREGNANT WOMEN

Joy Beckwith, M.A., M.PH., Huaiyu Zhang, M.S., M.A., Sophia Green, M.A., Brittany Robinson, B.S., Denise Raynor, M.D., Eugene Emory, Ph.D., Psychology, Emory University, Atlanta, GA, and others. Physiological stress and anxiety are known to affect the course and outcome of human pregnancy. Bio-behavioral profiles of pregnant women reveal normal increases in catecholamines and steroids at term approaches. In three separate studies stress and coping style profiles distinguished pregnant women, were correlated with hormonal stress response or predicted infant outcome. In Study1, pregnant women who did not report any symptoms of perceived stress or stressful life events were much less likely (p<.001) than those who reported depression on the Beck Depression Inventory. Moreover, However, perceived stress did not distinguish women without depression from those with clinical depression on the SCID. In Study 2, perceived stress during the 3rd trimester and at birth were higher for African American women than for Hispanic Women. Specifically African American women had higher depression scores at birth (p<.05). At four weeks postpartum African American women scored higher on the Beck Depression Inventory than Hispanic women (p<.05). Notably also, in a match sample of African American and Hispanic women, there was a tendency for all women to have higher cortisol values prior to fetal monitoring during the 3rd trimester compared to the 2nd trimester (p<.02). Correlations revealed that cortisol values were positively related to depression scores during the 3rd trimester (p<.05) and to Beck Depression Inventory scores (p<.01). Beck Anxiety Inventory scores (p<.05) and perceived stress scores (p<.05) at 4 weeks postpartum. In study 3 fetal gender and maternal cortisol across pregnancy were interactive (p<.01). Fluctuating maternal stress across the second and third trimester predicted lower birth weight for girls (p<.01). Additional analysis revealed that women with high stress had male offspring with significantly lower birth weight (p<.02). These studies reveal interaction between maternal perceived stress, stress hormone levels and infant birth weight.
Individual Abstract Number: 1846

BEHAVIORAL PERINTOLOGY
Eugene Emory, Ph.D., Sophia Green, M.A., Huaiyu Zhang, M.S., M.A., Brittany Robinson, B.S., Denise Raynor, M.D., Psychology, Emory University, Atlanta, GA

Bio-behavioral Research with the human fetus has evolved over the past half century to include sophisticated behavioral and psychophysiological measures that allow investigators to literally see inside the womb and monitor fetal reactions to stress and other stimuli. This paper will discuss three contemporary measures of fetal responsiveness, intrapartum fetal heart rate (FHR) fetal movement (FM) and fetal cerebral blood flow velocity (FcbfV). The first study evaluated FHR patterns to maternal contractions during the late second and third stage of labor. Findings reveal that quantitative analysis of those patterns into accelerations (increase in fetal perfusion with contractions) and decelerations (decrease in perfusion with contractions) predict different neonatal profiles along the dimensions of attention, self-regulation and reflex integrity. The second study reveals that fetal movement (FM) can reliably predict aspects of newborn behavior and is related to neural integrity. Our fetal movement results show a ringdown effect for different types of fetal movement across gestation indicating that isolation and acceptance. During the post-treatment follow-up, the intervention orchestrated behavioral patterns characteristic of the mature and healthy newborn. The third study provides developmental data on cerebral blood flow from 20 weeks gestation to term. Surprisingly left hemisphere flow is significantly higher from 20-23 weeks, (t(31) = 2.388, p = .019.) and Part I (Mean: 1.04 vs. 2.07, t (87) = 2.388, p = .019). The findings also reveal that the right middle cerebral artery of the human fetus has an average weekly flow velocity (0.5 cm/sec faster than the left side (p<.002). In a sub-sample of these subjects it was found that maternal vocalization is dissociated between the two fetal cerebral hemispheres such that blood flow increased in the left hemisphere and decreases in the right hemisphere when the fetus listens to the mother talk or hum. These studies provide evidence of the utility of fetal surveillance for bio-behavioral research across domains that include cardiovascular, behavioral, and cerebral responses. The implications of this work for health will be discussed.

Individual Abstract Number: 1851

MEDIATING MECHANISMS OF A CULTURALLY SENSITIVE INTERVENTION ON AFRICAN AMERICAN WOMEN WITH DEPRESSION AND SUICIDAL IDEATIONS
Huaiyu Zhang, M.S., M.A., Eugene Emory, Ph.D., Psychology, Nadine Kaslow, Department of Psychiatry and Behavioral Sciences, Emory University, Atlanta, GA

This study explored the processes of a culturally informed intervention, the Grady Nia Project, on depressed and suicidal African American women. Particularly, the intervention examined whether or not coping styles mediated the effects of the treatment on depressive symptoms and suicidal ideation. In this controlled clinical trial, 131 women were completers. Additionally, a total of 89 women participated in post-intervention assessment. No pre-treatment differences were reported between the treatment group and the control group (treatment as usual, TAU) regarding depressive symptoms, suicidal ideation, or coping styles, except that the control group had better skills in venting emotions, and problem solving. The intervention group scored lower on the Beck Depression Inventory-II (BDI-II; Mean: 22.8 vs. 29.5, t (87) = 2.388, p = .019.) and Part I (Mean: 1.04 vs. 2.07, t (87) = 2.388, p = .019.) Part II (Mean: 4.22 vs. 8.14, t (87) = 3.469, p = .001), and total scores (Mean: 5.29 vs. 10.45, t (87) = 3.363, p = .001) on the Beck Scale for Suicidal Ideations (BSS) than the control group. Additionally, the intervention group endorsed higher scores on adaptive coping skills (active coping, emotional support, instrumental support, positive reframing, humor, and religion) and lower scores on maladaptive coping skills (behavioral disengagement and self-blaming). Moreover, these two maladaptive coping skills were negatively correlated with depressive symptoms and suicidal ideation. Furthermore, the effects of treatment on BDI-II and BSS Part I diminished after controlling for behavioral disengagement (for BDI-II: F (1, 89) = 2.874, p > .05; for BSS Part I: F (1, 89) = 4.893, p > .030). The findings support that two coping styles (behavioral disengagement and self-blaming) were mediators between treatment and outcome variables.

Symposium 1426

RACE-RELATED HEALTH DISPARITIES: PARADOXICAL FINDINGS IN LATINO HEALTH
Linda C. Gallo, Ph.D., Psychology, San Diego State University, San Diego, CA, John M. Ruiz, Ph.D., Psychology, University of North Texas, Denton, Texas, Addison J. Ornstein, M.S., JDP in Clinical Psychology, San Diego State University/University of California, San Diego, CA, Rebecca Ross, Ph.D., Psychiatry and Behavioral Sciences, Johns Hopkins University School of Medicine, Baltimore, MD, Li Anne M. Tomfohr, MS, SDSU/UCSD Joint Doctoral Program Clinical Psychology, La Jolla, CA, Karen A. Matthews, Ph.D., Psychology, Psychiatry, Epidemiology, University of Pittsburgh Medical Center, Pittsburgh, PA

Emerging evidence suggests Hispanics may live longer than non-Hispanic Whites despite their lower socioeconomic status (SES) and greater physical health risk profile. Such findings challenge traditional health views of minority populations but can also be explained by several basic tenets of psychosocial health including the role of SES as a generalizable risk factor. The objective of this symposium is to examine Hispanic/Latino health outcomes and explore mechanisms of risk and resilience. The first presentation will report on a meta-analysis of the prospective literature on race/ethnicity and mortality to address the validity of the mortality paradox. The second presentation will report on the results of a population-based study examining whether or not disparities in mortality are explained by acculturation and subjective sleep quality in a sample of non-Hispanic Whites (N=1703) and Hispanics of Mexican descent (N=1448). The third presentation will describe associations among SES, psychosocial risk and resilient pathways, and the metabolic syndrome in middle-aged Mexican-American (N=306) women from San Diego County. The fourth presentation reports on the mediating role of neighborhood social cohesion on the relationship between neighborhood socio-demographic contexts and self-rated health and well-being of Latino and non-Latino residents in Arizona. Implications of the presented studies in respect to the current state of Hispanic health and health disparities research and future directions will be discussed.

Individual Abstract Number: 1428

THE HISPANIC MORTALITY PARADOX: RESOLVING DISCREPENCIES THROUGH A QUANTITATIVE ANALYSIS OF THE PROSPECTIVE LITERATURE
John M. Ruiz, Ph.D., Psychology, University of North Texas, Denton, Texas, Patrick R. Steffen, Ph.D., Psychology, Timothy B. Smith, Ph.D., Counseling Psychology and Special Education, Brigham Young University, Provo, Utah

Emerging evidence suggests that Hispanics may live longer than non-Hispanic whites - a potential epidemiological paradox given the lower SES status and greater physical health risk profile of the former relative to the later. These findings are largely based on vital statistics data leading to concerns regarding the reliability of documented mortality and the accuracy of race and ethnicity reporting on death certificates. One solution to these issues is to examine prospective cohort studies where race and ethnicity are assessed at study entry and participants are followed longitudinally. This associated prospective literature has added a wealth of data for and against a Hispanic mortality advantage but failed to clarify the overall relationship. Hence, the current aim was to resolve the discrepancies through a quantitative analysis of the prospective literature. All studies published through June 1st,2010 were retrieved from MEDLINE PubMed, electronic databases searches. Three search term categories were used: (1) Hispanic (Hispanic, Latino, Mexican, Puerto Rican, Cuban); (2) Mortality (mortality, death, longevity, survival, lifespan); (3) Design (prospective, longitudinal). Fifty nine studies (4,619,836 participants) met criteria and were analyzed. Across the 59 studies, the random effects weighted average size was OR = 0.82 (p<0.001, 95%CI=0.74 to 0.90), corresponding to an 18% reduction in mortality risk among Hispanics compared to all others. The effect was stronger among older populations.
and varied as a function of pre-existing health. Hispanic populations with cancer and life-threatening diseases did not experience lower rates of comparative mortality, whereas those with normal functioning (OR<0.69, p<0.001;95%CI=0.58 to 0.83), cardiovascular disease (OR=0.75, p<0.001;95%CI=0.61 to 0.91), and non-terminal conditions (OR=0.75, p<0.001;95%CI=0.50 to 0.94) did. Given the prospective nature of the studies, these data provide strong evidence of a Hispanic mortality advantage.

Individual Abstract Number: 1603

ETHNIC DIFFERENCES BETWEEN NON-HISPANIC WHITES AND HISPANICS OF MEXICAN DESCENT: THE ROLE OF ACCULTURATION ON SUBJECTIVE SLEEP QUALITY

Lianne M. Tomfohr, MS, SDSU/UCSD Joint Doctoral Program Clinical Psychology, La Jolla, CA, Joel E.Dimsdale, MD, Psychiatry, University of California San Diego, La Jolla, CA, Lawrence Palinkas, PhD, Sociology, University of Southern California, Los Angeles, CA, Jose S. Loredo, MD, Medicine, University of California San Diego, 201A, San Diego

Purpose: Acculturation among Mexican Americans (MA) living in the United States is associated with a range of negative health outcomes; yet there has been limited investigation into the potential link between acculturation and subjective sleep quality (SQ). This study investigated the relationship between acculturation and subjective SQ in a sample of MA from the San Diego area. The subjective SQ of MA classified by level of acculturation (high vs low) and a sample non-Hispanic Whites (NHW) was also compared. Methods: 3151 (1448 MA, 1703 NHW) adult (≥ 18 years old) women and men were recruited by random digit dialing and interviewed using telephone screenings. Pittsburgh Sleep Quality Index (PSQI) Global Score was used to assess subjective SQ. The Short Acculturation Scale for Hispanics (SASH) was used to assess acculturation in MA participants. Information about age, gender, body mass index (BMI), current socioeconomic status (SES), and daily smoking (Y/N) was collected and included as covariates in subsequent models. Results: Hierarchical regression analysis indicated that increasing acculturation was associated with worse subjective SQ (B = 0.81, p < 0.05). Univariate ANOVA revealed significant differences in subjective SQ between non-Hispanic Whites [PSQI = 6.84 (0.11)] and high [PSQI = 6.75 (0.15)] and low [PSQI = 6.16 (0.18)] acculturated MA [Fr(6, 3079) = 4.74, p < 0.01]. Post-hoc testing revealed that subjective SQ did not significantly differ between NHW and highly acculturated MA (p > 0.05). In contrast, less acculturated MA reported significantly better subjective SQ than NHW and highly acculturated MA (p < 0.01). Conclusion: Results suggest that increasing acculturation is associated with worse subjective SQ in MA. These findings persisted after demographic and SES variables were controlled for. Acculturation is an important factor to consider when studying the sleep of MA.

Individual Abstract Number: 1443

SOCIOECONOMIC STATUS AND CARDIOMETABOLIC RISK IN MIDDLE-AGED MEXICAN-AMERICAN WOMEN

Addie L. Fortmann, M.S., JDP in Clinical Psychology, Linda C. Gallo, Ph.D., JDP Clinical Psychology, Karla Espinosa de los Monteros, M.S., Smriti Shivpuri, M.S., JDP in Clinical Psychology, SDSU/UCSD, San Diego, CA, Paul J. Mills, Ph.D., Psychiatry, University of California, San Diego, CA, La Jolla, CA, Joel E. Dimsdale, MD, Psychiatry, University of California San Diego, La Jolla, CA, Lawrence Palinkas, PhD, Sociology, University of Southern California, Los Angeles, CA, Jose S. Loredo, MD, Medicine, University of California San Diego, 201A, San Diego, CA, Robert T. Schoenborn, Ph.D., Psychology, University of Pittsburgh School of Medicine, Pittsburgh, PA

The ‘metabolic syndrome’ (MetSyn) may represent an intermediate stage of cardiometabolic risk that links low socioeconomic status (SES) with cardiovascular disease and type 2 diabetes. The current study examined psychosocial risk (i.e., depression, anxiety, hopelessness, hostility, loneliness) and resiliency factors (i.e., social support, life engagement, self-esteem, optimism) as possible mechanisms underlying the association between SES (i.e., education and income) and MetSyn risk in 306 Mexican-American women (Mean age 49.79 years, SD=6.58; 75% born in Mexico). Participants completed a series of demographic and psychosocial measures in their preferred language and underwent a physical assessment including a fasting blood draw. Analyses were conducted for the entire sample, and separately for more (n=125) and less US-acculturated participants (n=181), as defined by language usage. A three-factor MetSyn measurement model was supported across all samples (MetSyn1: systolic and diastolic blood pressure; MetSyn2: triglycerides and high-density lipoprotein cholesterol; MetSyn3: blood glucose and waist circumference); SES and psychosocial risk/resilience were each represented by a single latent variable. In the overall sample, structural equation modeling revealed a significant direct path from lower SES to greater psychosocial risk/less resilience (R2=.12, p<.05), which in turn predicted MetSyn3 (R2=.04, p<.05). The indirect path from SES to MetSyn3 via psychosocial risk/resources was significant (95% CI=-.01 to -.11), and the addition of direct paths from SES to the MetSyn latent factors did not improve model fit. Sensitivity analyses revealed differences in the structural model across acculturation groups, such that the role of psychosocial risk/resilience was more salient in the more-acculturated group. The observed link between SES and psychosocial risk/resilience was consistent across groups. However, findings suggest that research is needed to further delineate potential ethnic and gender variance in mechanisms explaining SES-health associations.

Individual Abstract Number: 1595

NEIGHBORHOOD ETHNIC COMPOSITION, SOCIAL COHESION, AND LATINO/WHITE DIFFERENCES IN HEALTH AND WELL-BEING

Rebeca Rios, Ph.D., Psychiatry and Behavioral Sciences, Johns Hopkins University School of Medicine, Baltimore, MD, Alex J. Zautra, Ph.D., Mary C. Davis, Ph.D., Psychology, Arizona State University, Tempe, AZ

The role of neighborhood contexts in understanding ethnic health differences is essential. There is evidence for neighborhood social cohesion (NSC) as a protective health factor arising from informal ties among neighbors. In Latino communities, cultural norms fostering social cohesion may be particularly protective, and increasing ethnic diversity may deplete NSC. This study investigated the mediating role of NSC on the association between neighborhood socio-demographic contexts (neighborhood socioeconomic status (SES) and ethnic composition (percent Latino) and the self-rated health (SRH) and well-being (WB) of residents. Hypotheses were 1) Latinos would report greater levels of SRH and equal or higher levels of WB than non-Latinos, 2) NSC would be a protective factor on SRH and WB, 3) lower neighborhood SES and higher ethnic minority presence would predict lower NSC, and 4) NSC would partially mediate the influence of neighborhood contexts on SRH and WB. 3,098 participants of the Arizona Health Survey (AHS) were selected using a list-assisted random-digit dialing approach. Individual-level variables were derived from AHS. The sample was 86% White, 13% Latino, 63% female, and the mean age was 56 years. A weighting procedure balanced the sample according to socio-demographic dimensions. Geo-coded addresses were assigned to one of 597 census tracts. Neighborhood-level measures were derived from the 2000 Census. Multilevel mediation analysis in Mplus was used. Results indicated that Latinos had significantly lower SRH (p<0.05) and higher WB (p<0.05). NSC had significant effects on SRH (p<0.001) and WB (p<0.001). Greater Latino presence was negatively associated with NSC (p<0.001), but a curvilinear trend (p<0.001) indicated that the slope flattened in neighborhoods with greater proportions of Latinos. The total effects of percent Latino were partially mediated by NSC (on SRH, p<0.05; on WB, p<0.05). The study found support for NSC as an important factor in understanding how neighborhood contexts shape Latino/White differences in health, and may help explain Latino resilience in well-being.
MOTIVATIONAL INTERVIEWING: THE EVIDENCE AND THE PROMISE

Steven Cole, MD, Psychiatry, Stony Brook University Medical Center, Stony Brook, NY, Fiona McMaster, MPH, Health Behavior and Health Education, University of Michigan, Ann Arbor, MI

The purpose of this presentation is to review the research on the use of Motivational Interviewing (MI) to the evolving healthcare system of the future. Methods: The review was accomplished by searches of the medical literature, discussions with experts, and systematic examination of reference lists in research articles. A short video will demonstrate the promise of MI for a integrated health care system of the future.

Individual Abstract Number: 1136

MOTIVATIONAL INTERVIEWING (MI): DEFINITIONS, DEMONSTRATIONS, EVIDENCE, PROMISE

Steven Cole, MD, Psychiatry, Stony Brook University Medical Center, Stony Brook, NY

The purpose of this presentation is to provide participants with a basic understanding and demonstration of the key elements and research supporting the relevance of Motivational Interviewing (MI) to the evolving healthcare system of the future. Methods: The review was accomplished by searches of the medical literature, discussions with experts, and systematic examination of reference lists in research articles. A short video will demonstrate the promise of MI for an integrated health care system of the future.

Individual Abstract Number: 1134

MOTIVATIONAL INTERVIEWING FOR DRUG ABUSE: RESEARCH AND PROMISE

Clive J. Tobutt, MSc, Addictions, Institute of Psychiatry, King's College London, London, London Borough of Southwark, GREAT BRITIAN

The purpose of this presentation is to review the research on the use of Motivational Interviewing (MI) and brief MI in primary care for the treatment of drug abuse and discuss the relevance of MI for systematic implementation across healthcare systems. The review was accomplished by searches of the medical literature, discussions with experts, and systematic examination of reference lists in research articles. Previous reviews and meta-analyses were also included. A review of prevention of drug use in young people in non-school settings identified 17 controlled trials and 9 cluster trials with 253 clusters with 1,230 participants. Most studies showed some positive benefit but they will require further evaluation before any firm conclusions can be reported. The most favourable are from those studies of cannabis use. Brief MI has been found to be effective in other health-related behaviors, but no follow-up training or supervision. A major finding was that there were no profound differences between clinicians experiences in Singapore compared to experiences in the US. Clinicians, in general, reported using MI in the months following training. They generally accepted that MI could be useful in their settings, and many gave concrete examples of positive outcomes observed in their patients. All participants cited institutional support as being key to maintaining and developing their MI skills, with several clinicians reporting feeling isolated as lone MI practitioners within their organizations.
workplace. They diverged over whether they used MI in different languages and with different ethnic groups. Conclusion: Clinicians in Singapore and the US find MI a useful tool in counseling patients, but need peer and institutional support to be able to maintain their skills.

Symposium 1364

BIOPROBEHAVIORAL PROCESSES IN ASTHMA: UNDERSTANDING MECHANISMS, IMPLEMENTING INTERVENTIONS

Simon L. Bacon, PhD, Montreal Behavioural Medicine Centre, Exercise Sci, Concordia University, Montreal, Quebec, Canada, Kim L. Lavoie, PhD, Montreal Behavioural Medicine Centre, Psychology, UQAM, Montreal, Quebec, Canada, Thomas Ritz, PhD, Psychology, Southern Methodist University, Dallas, TX, Simon L. Bacon, PhD, Montreal Behavioural Medicine Centre / Exercise Sci., Concordia University, Montreal, QC, Canada

Psychological and behavioral factors have been associated with the development and progression of asthma. However, our understanding of the mechanisms by which this occurs and the potential benefits of appropriate interventions is limited. The current symposium covers cutting edge research on the potential physiological mechanisms linking stress to asthma and novel psychological and behavioral interventions. The session includes studies utilising diverse populations (children, occupational asthma, tertiary care patients, community sample) and designs.

Individual Abstract Number: 1612

STRESS-INDUCED CHANGES IN ASTHMATIC AIRWAY INFLAMMATION: FINDINGS WITH AN EXPERIMENTAL PARADIGM OF ACUTE LABORATORY STRESS

Thomas Ritz, PhD, Ana F. Trueba, BS, Psychology, Southern Methodist University, Dallas, TX, Richard J. Auchs, MD, Internal Medicine, UT Southwestern Medical Center, Dallas, TX, Pia D. Vogel, PhD, Biochemistry, Southern Methodist University, Dallas, TX

A number of studies have suggested that psychosocial stress can lead to asthma exacerbations. One pathway of such influences could involve direct effects of stress on relevant physiological pathways. Inflammatory processes in the airways are central to the pathophysiology of asthma and have therefore commanded particular attention. However, research has rarely explored the effects of acute bouts of stress on airway inflammatory markers. We therefore studied effects of a laboratory paradigm of acute psychosocial stress, the Trier Social Stress Test, on airway inflammation measured by the fraction of exhaled nitric oxide (FeNO). Two studies were completed involving a total of 37 patients with asthma and 41 healthy participants. We found significant increases in FeNO in both studies during the first 45 min following acute stress induction. Increases were observed in both groups but tended to be stronger in patients with asthma. In addition, a first study suggested that FeNO increases were smaller in those patients who had higher basal salivary cortisol levels or stronger cortisol responses to stress. These findings indicate that stress-induced inflammatory changes in acute stress are likely of a complex nature and include immune responses beyond the allergic early-phase response. As a next step, we analyzed patterns of salivary protein expression using sodium dodecyl sulfate (SDS) acrylamide gel electrophoresis, a technique that separates proteins according their molecular weight. This allows the identification of candidate proteins that are specifically changed by the stress protocol, which can subsequently be identified by mass spectroscopy. Preliminary findings indicated significant changes in a substantial number of salivary proteins, with most of them exhibiting increase in levels induced by stress. We are currently examining the association of these proteins with other physiological markers of stress and atopy.

Individual Abstract Number: 1374

THE ASSOCIATION BETWEEN ANXIETY SENSITIVITY (AS) AND INFLAMMATORY RESPONSES TO SPECIFIC INHALATION CHALLENGE (SIC) IN PATIENTS UNDER INVESTIGATION FOR OCCUPATIONAL ASThma (OA)

Alexandre Morzio, BSc (c), Montreal Behavioural Medicine Centre, Exercise Sci, Concordia University, Montreal, Quebec, Canada, Kim L. Lavoie, PhD, Montreal Behavioural Medicine Centre, Psychology, UQAM, Montreal, Quebec, Canada, Maryann Joseph, MA, Montreal Behavioural Medicine Centre, Psychology, McGill University, Montreal, Quebec, Canada, Simon L. Bacon, PhD, Montreal Behavioural Medicine Centre, Exercise Sci, Concordia University, Montreal, Quebec, Canada

Background: OA is the leading cause of adult onset asthma and is associated with significant economic and social cost. To be diagnosed with OA, patients undergo a SIC test to determine inflammatory and bronchial responses to the antigen suspected of causing their symptoms. Negative affective states (e.g., anxiety) have been shown to influence inflammatory responses to allergens in asthmatics. No studies have studied the impact of anxiety on inflammatory responses to SIC among patients under investigation for OA. Methods: 90 patients under investigation for OA underwent SIC tests at Hôpital du Sacré-Coeur. Sputum samples were collected pre-post SIC to assess inflammatory markers. All participants completed a sociodemographic interview and a battery of psychological tests including the Anxiety Sensitivity Index (ASI). Final OA status was determined by a panel of physicians. Results: 31 participants were diagnosed with OA, 27 with work-aggravated asthma, and 32 had no diagnosis. General linear model analyses revealed a main effect of ASI score on lymphocyte responses (p=0.004, p<0.007) and a diagnosis × ASI interaction (p=0.004, p<0.039), adjusting for baseline lymphocyte levels, showing that only patients with OA had a significant lymphocyte relationship (p=0.008, p<0.015). There were no main or interaction effects of ASI on total cell count, neutrophils, eosinophils, or macrophages. Conclusions: Patients with OA and higher levels of AS had lower lymphocyte reactivity in response to SICs. Though the mechanism is unclear, it is possible that anxious patients, due to higher symptom reporting at the onset of exposure, receive less antigen exposure than non-anxious patients, leading to lower inflammatory resp

Individual Abstract Number: 1715

PHYSICAL ACTIVITY, BODY MASS INDEX, EXERCISE, AND ASTHMA

Simon L. Bacon, PhD, Montreal Behavioural Medicine Centre / Exercise Sci., Concordia University, Montreal, QC, Canada, Alicia Wright, MSc, Montreal Behavioural Medicine Centre, Hôpital du Sacré-Coeur de Montreal, Montreal, QC, Canada, Kim L. Lavoie, PhD, Montreal Behavioural Medicine Centre, Psychology, UQAM, Hôpital du Sacré-Coeur de Montreal, Montreal, QC, Canada

Certain behaviors have been shown to be important for the management of asthma. Furthermore, factors such as being sedentary and overweight are associated with a greater prevalence of having severe asthma. The exact role of exercise and body weight on asthma control (i.e., symptomatology) is poorly understood. The results of 3 studies assessing the influence of physical activity, exercise, and BMI are presented. Methods: Study 1 consisted of 591 adult patients with physician confirmed asthma who provided detailed information on their asthma control using the Juniper asthma control questionnaire (ACQ), and the leisure time physical activity recall questionnaire. Study 2 included 673 adult patients with physician confirmed asthma who provided information on the factors that triggered their asthma, including exercise, and their height and weight, which was used to calculate their BMI. Finally, study 3 assessed the effects of a pilot 12 week exercise intervention on ACQ scores in 4 patients with poor asthma control. Results: Study 1 found that physical activity was negatively associated with ACQ (²=0.02 (0.03 - 0.004), p=0.006) and those doing optimal levels of physical activity were 4 times more likely to have good control. Study 2 found that, compared to normal weight patients, those who were overweight [OR (95%CI) = 1.95 (1.302-9.4)] or obese [OR (95%CI) = 2.34 (1.443.82)] were at greater risk of reporting exercise as a trigger of asthma. Study 3 found that asthma control was clinically and statistically improved following the exercise intervention [Change = -1.75 (0.69), F= 25.94, p=0.015]. Conclusion: Both increased BMI and a decreased level of physical activity were involved in the process of improving asthma control in patients.
FEASIBILITY OF A STRESS MANAGEMENT INTERVENTION FOR 7-12 YEAR OLDS WITH ASTHMA: THE RAINBOW TRIALS

Anna L. Marsland, PhD, Kristin Long, MS, Psychology, University of Pittsburgh, Pittsburgh, PA, Sheldon Cohen, Ph.D., Psychology, Carnegie Mellon University, Pittsburgh, PA, David Skoner, MD, Pediatrics, Drexel University College of Medicine, Pittsburgh, PA, Linda Ewing, Ph.D., Psychiatry, University of Pittsburgh Medical Center, Pittsburgh, PA, Deborah Gentile, MD, Pediatrics, Drexel University College of Medicine, Pittsburgh, PA

Introduction: Daily adherence to inhaled corticosteroid (ICS) regimens in poorly controlled, non-adherent adult asthmatics was recruited from the HSCM. Poorly controlled (ACQ score ≥ 1.50) non-adherent (filled < 80% in past year) clients were randomly assigned to MI (n=10) or usual care (HSCM). Poorly controlled and non-adherent asthmatics were recruited from the urban university. Trial 2 (n=7) was school-based and recruited from an African American charter school. Pre- and post-intervention stress, mood, and lung function data were collected. The intervention was rated as highly acceptable by all participating families. Feasibility was much stronger for the school-based than the university-based recruitment mechanism. Initial efficacy data suggest significant pre- to post-intervention improvements in lung function, perceived stress, and depressed mood across both trials (p < .05). In sum, our initial data supports the feasibility of offering asthma-related stress management training in a school setting and suggests that larger scale efficacy trials are warranted.

THE EFFICACY OF MOTIVATIONAL INTERVIEWING ON ASTHMA MEDICATION ADHERENCE IN NON-ADHERENT, POORLY CONTROLLED ASTHMATICS: PRELIMINARY RESULTS OF THE ASTHMA CONTROL TRIAL (ACT)

Kim L. Lavoie, PhD, Montreal Behavioural Medicine Centre, Psychology, Pt, UQAM, Hôpital du Sacré-Coeur, Montreal, Quebec, Canada, C. Lemiere, MD, Pneumology, Hôpital du Sacré-Coeur, Montreal, Quebec, Canada, M. Lefebvre, MD, Pneumology, Hôpital du Sacré-Coeur, Montreal, Quebec, Canada, L. Blais, PhD, Pneumology, Hôpital du Sacré-Coeur, Montreal, Quebec, Canada, M. Beauchesne, PhD, Pneumology, Hôpital du Sacré-Coeur, Montreal, Quebec, Canada, G. Moullec, Pneumology, Hôpital du Sacré-Coeur, Montreal, Quebec, Canada, T. Campbell, PhD, Psychology, U Calgary, Calgary, Alberta, Canada, R. Bacon, PhD, Montreal Behavioural Medicine Centre, Exercise Science, Concordia, Hôpital du Sacré-Coeur, Montreal, Quebec, Canada

Background: Daily adherence to inhaled corticosteroid (ICS) regimens is one of the most important behavioral factors linked to achieving optimal asthma control. Motivational interviewing (MI) is a client-centred communication technique that focuses on enhancing intrinsic motivation to change by exploring and resolving ambivalence. MI supports the bi-directional relationship between stress and asthma exacerbations in children, suggesting that interventions that reduce stress may improve both psychosocial quality of life and disease course. We have developed and piloted a 6 session, skills-based stress management and coping intervention for 7-12 year olds with asthma. Results of 2 separate feasibility trials will be presented: Trial 1 (n=11) was recruited from the community and attended intervention sessions at an urban university. Trial 2 (n=7) was school-based and recruited from an African American charter school. Pre- and post-intervention stress, mood, and lung function data were collected. The intervention was rated as highly acceptable by all participating families. Feasibility was much stronger for the school-based than the university-based recruitment mechanism. Initial efficacy data suggest significant pre- to post-intervention improvements in lung function, perceived stress, and depressed mood across both trials (p < .05). In sum, our initial data supports the feasibility of offering asthma-related stress management training in a school setting and suggests that larger scale efficacy trials are warranted.

Individual Abstract Number: 1368

EARLY LIFE STRESS AND CARDIOMETABOLIC HEALTH LATER IN LIFE

Katri A. Räikkönen, PhD, Institute of Behavioral Sciences, University of Helsinki, Helsinki, Finland, Anna Alastalo, MA, National Institute of Health and Welfare, National Institute of Health and Welfare, Helsinki, Helsinki, Finland, Anna-Katriina Pesonen, PhD, Kati Heinonen, PhD, Psychology, University of Helsinki, Helsinki, Finland, Finland, Johan G. Eriksson, MD, National Institute of Health and Welfare, National Institute of Health and Welfare, Helsinki, Helsinki, Finland

Background: Exposure to severe early life stress (ELS) may alter the function of physiological stress-regulatory systems, and increase the risk of cardiovascular diseases (CVD) and type 2 diabetes (T2DM) later in life. Methods: Of the 13345 participants of the Helsinki Birth Cohort Study born between 1934 and 1974 (n=1781), 15% (244) were evacuated during World War II at an average age of 4.8 (SD = 2.4) years, for an average duration of 1.7 (SD = 1.6) years. The data on evacuations were derived from the Finnish National Archives. Morbidity and mortality from CVD and T2DM were obtained from the Finnish Hospital Discharge (HDR) and Central Death Registers (CDR) between years 1969 and 2004. A subsample (n = 2003, 15.2% evacuated) underwent clinical testing and Central Death Registers (CDR) between years 1969 and 2004. A subsample (n = 2003, 15.2% evacuated) underwent clinical testing and Central Death Registers (CDR) between years 1969 and 2004.

Symposium 1203

BIOLICAL EMBEDDING OF CHILDHOOD EXPERIENCES AND PHYSICAL HEALTH DURING THE LIFE COURSE

Karen Matthews, Ph.D., Psychiatry, University of Pittsburgh, Pittsburgh, PA, Layla Banhachemi, Ph.D., Psychiatry, University of Pittsburgh, Pittsburgh, PA, Kari A. Räikkönen, PhD, Institute of Behavioral Sciences, University of Helsinki, Helsinki, Helsinki, Finland, Thaddeus W. Pace, PhD, Psychiatry & Behavioral Sciences, Emory University School of Medicine, Atlanta, GA, Andrea Danese, M.D., Ph.D., Department of Child & Adolescent Psychiatry, King's College, London, United Kingdom

Early life experiences may have enduring signatures that can influence physical health later in adulthood. Biological mechanisms converting psychosocial risk exposure into life-long disease vulnerabilities are a topic of intense investigation, with the potential for prevention and treatment. The objective of this symposium is to review new empirical data testing associations among early life experiences, novel mechanistic processes, and disease susceptibility. The first paper reports the results of a large-scale natural experiment -- early life separation from parents due to evacuation on war zone evacuations -- in health in the elderly and the potential influence of inflammatory markers. The second paper uses an in vitro experimental approach to ask whether the association between early life adversity and inflammation in adulthood may be due to impaired glucocorticoid signaling. The third paper examines the relationship between reported childhood physical abuse and IMRI-measures of important stress-related limbic forebrain and hypothalamic regions during acute psychological stress in adults. The fourth paper asks if short, fragmented sleep measured in an ambulatory setting is related to adverse levels of metabolic factors in adolescents from low to middle income families. Collectively, the symposium provides promising leads of novel pathways using diverse methodological approaches and studying different age groups with the common goal of understanding the long term sequelae of early life adversity. The discussant will highlight important directions for future research on novel biomarkers in light of the presentations and his own epidemiological research on early life adversity and later inflammatory processes.

Individual Abstract Number: 1362

EARLY LIFE STRESS AND CARDIOMETABOLIC HEALTH LATER IN LIFE

Katri A. Räikkönen, PhD, Institute of Behavioral Sciences, University of Helsinki, Helsinki, Helsinki, Finland, Anna Alastalo, MA, National Institute of Health and Welfare, National Institute of Health and Welfare, Helsinki, Helsinki, Finland, Anna-Katriina Pesonen, PhD, Kati Heinonen, PhD, Psychology, University of Helsinki, Helsinki, Helsinki, Finland, Finland, Johan G. Eriksson, MD, National Institute of Health and Welfare, National Institute of Health and Welfare, Helsinki, Helsinki, Finland

Background: Exposure to severe early life stress (ELS) may alter the function of physiological stress-regulatory systems, and increase the risk of cardiovascular diseases (CVD) and type 2 diabetes (T2DM) later in life. Methods: Of the 13345 participants of the Helsinki Birth Cohort Study born between 1934 and 1974 (n=1781), 15% (244) were evacuated during World War II at an average age of 4.8 (SD = 2.4) years, for an average duration of 1.7 (SD = 1.6) years. The data on evacuations were derived from the Finnish National Archives. Morbidity and mortality from CVD and T2DM were obtained from the Finnish Hospital Discharge (HDR) and Central Death Registers (CDR) between years 1969 and 2004. A subsample (n = 2003, 15.2% evacuated) underwent clinical testing and Central Death Registers (CDR) between years 2001-2004 (Mean age = 63 years), and inflammatory change scores on the ACQ are also in the expected direction indicating higher changes in the MI (M change = -12) versus UC (M change = -3) group (lower scores indicate better asthma control). Conclusion: Although preliminary, results suggest that a brief MI intervention that targets asthma medication (ICS) adherence can be efficacious for improving adherence behavior in poorly controlled, non-adherent asthmatic.
markers (Interleukin-6, Tumor Necrosis Factor-alpha and high-sensitivity C-Reactive Protein) were determined from blood samples. Results: We have previously shown in the clinical subsample, that morbidity from CVD and T2DM was higher among the former war evacuees. The current study confirmed the higher CVD morbidity of the former war evacuees using a much bigger sample and data on morbidity derived from the HDR (Hazard ratio = 1.3, 95% confidence interval, 1.0 to 1.6, P = 0.02). However, our findings showed no increased risk of mortality from cardiometabolic causes. We found no differences between those who were and who were not evacuated in childhood in the inflammatory markers. These effects were not explained by age at testing or socioeconomic circumstances in childhood or adulthood, nor were they modulated by other adversities, such as low socioeconomic status, in childhood. Conclusion: This study is among the few prospective studies that shows that ELS predicts cardiometabolic morbidity later in life. The mechanisms explaining these associations remain to be uncovered.

Individual Abstract Number: 1445

HISTORY OF CHILDHOOD TRAUMA IS ASSOCIATED WITH GLUCOCORTICOID SENSITIVITY IN ADULTHOOD

Trevor W.Price, Ph.D, Christine M. Heim, Ph.D, Psychiatry & Behavioral Sciences, Emory University School of Medicine, Atlanta, GA, Charles B. Nemeroff, MD, PhD, Psychiatry & Behavioral Sciences, Miller School of Medicine, University of Miami, Miami, FL, Andrew H. Miller, MD, Psychiatry & Behavioral Sciences, Emory University School of Medicine, Atlanta, GA

Purpose: Childhood trauma is a potent risk factor for developing a variety of mental and physical disorders across the lifespan. Previous studies have suggested that childhood adverse experience results in a state of increased inflammation later in life. We hypothesized that impaired glucocorticoid signaling may contribute to increased inflammation after childhood trauma. Method: We recruited 38 adult subjects (13 men, 25 women; aged 19-45 years) with and without reported histories of moderate-severe childhood trauma and/or major depression. Exposure to childhood trauma was assessed using the Childhood Trauma Questionnaire (CTQ). Glucocorticoid sensitivity was measured using an in vitro procedure in which whole blood was incubated with lipopolysaccharide (100 ng/ml) and increasing concentrations of dexamethasone (10-5 to 10-9M). Suprernatant levels of interleukin (IL)-6 were then assessed by ELISA (R&D Systems). Results: We found that severity of childhood trauma was associated with decreased sensitivity to dexamethasone, as indicated by the amount of dexamethasone needed to suppress lipopolysaccharide-induced IL-6 production by 50 percent (IC50). Correlations between IC50 and CTQ Scores: Emotional Abuse r=0.406, p=0.013; Physical Abuse r=0.406, r=0.013, Emotional Neglect r=0.357, p<0.03, Physical Neglect r=.380, p=0.02, CTQ Total Score r=0.358, p=0.029. IC50 was not associated with sexual abuse or depression; there were no gender differences. Associations between CTQ scores and IC50 were not accounted for by differences in leukocyte subsets between persons with and without childhood trauma histories. Conclusion: Relative glucocorticoid resistance might plausibly contribute to increased inflammation which could contribute to the various mental and physical health risks associated with childhood trauma. Funded by NIH grants MH59222 and R03MH079870

Individual Abstract Number: 1297

CHILDHOOD PHYSICAL ABUSE CORRELATES WITH ADULTHOOD STRESSOR-EVOKED ACTIVITY IN LIMBIC FOREBRAIN AND HYPOthalAMIC REGIONS

Layla Banihashemi, Ph.D., Lei K. Sheu, Ph.D., Peter J. Gianaros, Ph.D., Psychiatry, University of Pittsburgh, Pittsburgh, PA

Early life trauma impacts the later function of physiological systems that mediate acute stress responses. For instance, childhood abuse is associated with altered neuroendocrine and autonomic stress responses later in life. Evidence from rat studies suggests an important stress-related circuit in human brain, encompassing the subgenual anterior cingulate cortex (sgACC), bed nucleus of the stria terminals (BNST), and hypothalamus (HYP), all of which are neuroendocrine and autonomic control structures. While evidence supports a relationship between childhood trauma and altered physiological stress reactivity, the relationship between childhood trauma and activity within stress-related circuits remains unclear. Here, we examined the associations between self-reports of childhood physical abuse (a proxy for early life trauma) and stressor-evoked brain activity in the sgACC-BNST-HYP circuit. Ninety-five adults (30-50 yrs, 50 women) performed a standardized multi-source interference task during fMRI with simultaneous blood pressure and heart rate (HR) monitoring. We assessed changes in brain activation and cardiovascular measures between incongruent (stress-inducing) and congruent task conditions. Subjects also completed the Childhood Trauma Questionnaire, providing a measure of childhood physical abuse. Data analyses included multiple regressions controlling for age, gender, social desirability, childhood socioeconomic position (maximum parental education), and for cardiovascular reactivity analyses, baseline systolic blood pressure (SBP) or HR. Physical abuse correlated positively with stressor-evoked changes in SBP (B=0.86, p=0.03) and HR (B=0.83, p=0.02). Physical abuse also correlated negatively with unbiased, a priori extractions of fMRI BOLD signal change values within the sgACC, BNST, and HYP (B: -0.04 to -0.09, p: 0.01 to 0.05). These novel findings suggest that adults reporting an early history of physical abuse exhibit altered stressor-evoked activity within limbic forebrain and hypothalamic areas, which may contribute to altered cardiovascular function.

Individual Abstract Number: 1205

ADOLESCENT SLEEP, METABOLIC FACTORS, AND SOCIOECONOMIC STATUS

Karen Matthews, Ph.D, Department of Psychiatry, Jane F. Owens, Dr.P.H., Martica Hall, PhD, Psychiatry, University of Pittsburgh, Pittsburgh, PA

Purpose: Short sleep duration and elevated fragmentation may accelerate risk for cardiovascular disease in adulthood. Sleep deprivation studies show that shortened sleep leads to acute elevations in glucose, insulin, and inflammation. Here we report the associations between sleep duration and fragmentation with fasting glucose, insulin, HOMA index, and C-reactive protein (CRP) among black and white adolescents of low to middle socioeconomic status (SES). Methods: 176 high school students (56% black) participated in a week-long assessment of sleep using actigraphy and diary; had a fasting blood draw and anthropometric measures; and completed questionnaires on line. Their parents/guardians were interviewed regarding the family SES. Group differences were assessed by 2 (Race) by 2 (Gender) ANOVA; linear regression analyses adjusted for race, gender, and age. Results: During the week, blacks slept less as assessed by actigraphy (5.8 vs. 6.2 hours, p = .005) and had more fragmented sleep than did whites (30.8 vs. 26.5, p = .003); in contrast, blacks tended to report feeling more rested in their diary(4.0 vs. 3.6, p = .06). Lower family income was associated with more fragmented sleep both during the week and weekend, ps <.05. Shorter weekday sleep duration was associated with insulin and HOMA levels, ps < .01, whereas more fragmented sleep was associated with higher glucose levels during the week, p = .04, and weekend, p = .002. CRP residualized for body mass index tended to be associated with more fragmentation on the weekend, p = .07. Tests for interactions with race and gender showed only one significant effect: the association between weekend fragmentation and glucose was stronger in males than in females. Summary: Blacks and adolescents from lower income households had shorter and more fragmented sleep. Shorter sleep duration and more fragmented sleep were correlated with higher glucose, insulin, and HOMA levels. The role of poor sleep in the development of cardiovascular disease may begin in adolescence and even earlier in the life course. Supported by HL25767.
THE IMPACT OF EMOTIONAL DISTRESS ON PHYSICAL FUNCTIONING, ARRTHYRHYTHMIA ONSET, AND CLINICAL OUTCOMES IN PATIENTS WITH ATRIAL FIBRILLATION

Nina Kapper, PhD, Medical Psychology, Tilburg University, Tilburg, The Netherlands; Rachel Lampert, MD, Cardiology, Yale University School of Medicine, New Haven, CT, Christoph Herrmann-Lingen, MD, PhD, Psychosomatic Medicine and Psychotherapy, Universitätsgesellschaft Göttingen, Göttingen, Niedersachsen, Germany, Jane Irvine, D.Phil., Psychology, York University, Toronto, ON, Canada, Krista C. Van den Broek, PhD, CoRPS - Department of Medical Psychology and Neuropsyschology, Tilburg University, Tilburg, North-Brabant, The Netherlands, David S. Krantz, PhD, Medical & Clinical Psychology, Uniformed Services University, Bethesda, MD.

Emotional distress is highly prevalent in patients with atrial fibrillation (AF), a cardiac arrhythmia linked with poor quality of life and cardiovascular complications. However, little is known about its impact on biomedical aspects of AF. The 4 integrated presentations provide novel information that helps disentangle the interrelations between emotional distress and biomedical factors involved in AF progression. The first presentation examines AF patients undergoing radiofrequency ablation (RFA), showing that anxiety before RFA is predictive of AF symptoms 6 months post-RFA, but not of AF recurrence. The second presentation in persistent AF patients receiving electrical cardioversion (ECV) to terminate the AF rhythm, examines the change in AF symptoms before and after ECV. Findings show depressive symptoms before ECV to predict the course of reported AF symptoms. No differences in symptoms are detectable between patients in sinus rhythm (SR) at 4 weeks post-ECV vs. patients who reverted back to AF rhythm. The third presentation compares paroxysmal (par)AF (transient episodes with spontaneous termination of AF, and frequently reoccurring) with permanent (perm)AF (always present AF) patients and SR controls, showing that permAF patients have the poorest physical health. However, parAF patients have more elevated distress levels and physical disability, independent of neuroendocrine activation and cardiac function, potentially resulting from the recurrent nature of ParAF. The symposium is concluded by a study examining changes in atrial electrophysiology in response to mental stress, showing that in comparison to healthy controls AF patients (currently in SR) showed more heterogeneity of atrial conduction in response to stress. These autonomic changes may serve as an AF trigger. In sum, levels of emotional distress and physical functioning differ between patients with various clinical manifestations of AF. Emotional distress also independently predicts AF symptoms after interventions that terminate AF. Finally, emotional stress may trigger new-onset AF episodes by affecting atrial conduction. These findings testify to the clinical relevance of emotional distress in AF patients and the need for investigation of biobehavioral pathways involved in adverse AF outcomes, as well as targeted psychosocial interventions.

Individual Abstract Number: 1226

DOES ANXIETY AND DEPRESSION PREDICT ATRIAL FIBRILLATION RECURRENCE AFTER ABLATION THERAPY?

Jane Irvine, D.Phil., Psychology, York University, Toronto, ON, Canada, Yaariv Khaykin, M.D., Annette Nath, B.Sc.N, Heart Rhythm Program, Southlake Regional Health Centre, Newmarket, ON, Canada, Lephaonh Ong, Ph.D., Psychology, OrionHealth - Vancouver Pain Clinic, Vancouver, BC, Canada, Ana Bilanovic, M.A., Sabine Johnson, M.Sc., Psychology, York University, Toronto, ON, Canada, Brian Baker, M.D., Psychiatry, Toronto Western Hospital, Toronto, ON, Canada.

Psychological factors are associated with incidence of atrial fibrillation (AF) in healthy cohort studies. This study seeks to extend these observations in AF patients undergoing radiofrequency ablation (RFA), a putative curative treatment for AF. AIMS: to determine if pre-RFA (T1) anxiety and depression predict AF recurrence, and severity of AF symptoms at 6-months follow-up (T2). METHODS: A convenience sample of 122 patients were recruited (77% male), 115 (94.3%) completed follow-up. Outcome at T2 included AF recurrence documented by more than 30 seconds of AF on ECG or Holter monitoring, and severity of AF symptoms measured by the Canadian Cardiovascular Society Severity of Atrial Fibrillation clinician administered scale. T1 predictors included cardiac (left atrial size, AF type, time since AF diagnosed, severity of AF symptoms), demographic (age, gender), and psychological variables (anxiety and depression measured by the Hospital Anxiety and Depression Scale). RESULTS: 56.1% experienced AF recurrence over follow-up. At T1, 46.3% and 17.1% exhibited at least mildly elevated anxiety and depression scores, respectively. At the univariate level and in the multivariate model, the only significant association with AF recurrence was time since AF diagnosed, mean of 7.7 years in the AF non-recurred patients Vs. 5.7 years in the AF non-recurred patients (t(111) = 2.23, p = .028 and odds ratio = 1.09 (95% confidence interval [CJI]), 1.00 1.99, p = .045, respectively). After controlling for T1 severity of AF symptoms, two predictor variables were significantly associated with T2 severity of AF symptoms: AF recurrence over the 6-months (Standardized Beta = 0.35, 95% CI, 0.18 0.54, p < .001) and T1 HADS anxiety (Standardized Beta = 0.19, 95% CI, 0.01 0.05, p = .043). CONCLUSION: Whereas psychological symptoms were not predictive of AF recurrence, anxiety symptoms were predictive of residual AF symptoms 6-months following RFA. The association between anxiety and severity of residual AF symptoms suggests that patients level of anxiety might exert a prolonged influence on their experience of AF symptoms.
NEUROENDOCRINE ACTIVATION, DISABILITY AND DISTRESS IN PATIENTS WITH PAROXYSMAL VERSUS PERMANENT ATRIAL FIBRILLATION OR SINUS RHYTHM

Christoph Herrmann-Lingen, MD, PhD, Psychosomatic Medicine and Psychotherapy, Universitätssmedizin Göttingen, Göttingen, Niedersachsen, Germany, Frank Edelmann, MD, PhD, Cardiology and Pneumology, University of Göttingen, Göttingen, Niedersachsen, Germany, Raoul Stahenberg, MD, Department of Cardiology and Pneumology, University of Göttingen, Göttingen, Niedersachsen, Germany, Lutz Binder, Department of Clinical Chemistry, Martin Scherer, MD, Department of General Practice, University of Göttingen, Göttingen, Niedersachsen, Germany, Burkert Pieske, MD, PhD, Department of Cardiology, University of Graz, Graz, -, Austria, Rolf Wachter, Department of Cardiology and Pneumology, University of Göttingen, Göttingen, Niedersachsen, Germany

Quality of life (QoL) is reduced in pts with atrial fibrillation (AF). We studied physiological and psychological differences between pts. with paroxysmal (parAF) and persistent or permanent AF (perAF). In a study of 1430 pts (50.5% men; 67±8 y.) with cardiovascular risk factors, 41 had a history of parAF and 45 had perAF, while the remaining 1344 pts had no history of AF and were in current sinus rhythm (SR). Ejection fraction (EF), bio- and neuroendocrine peptide (NT-proBNP), mid-regional pro-adrenomedullin (MR-proADM), C-reactive protein (hsCRP) and psychological scales were measured and compared across the 3 groups. PerAF pts had lowest EF (53%), with no difference between parAF (61%) and SR (60%). HsCRP showed no differences across groups. PerAF pts had highest neuroendocrine activation but their symptom load and QoL were similar to those of pts with SR. In contrast, parAF pts had higher anxiety and lowest physical functioning despite normal EF (see table). In multivariate regression controlling for age, sex, EF and biomarkers, perAF remained a significant predictor of distress and disability. After one year, parAF pts still showed higher symptom burden and lower physical function than the remaining pts. Hence, even with good EF and only moderate neuroendocrine activation, parAF pts show elevated levels of distress and disability which tend to persist over time. This effect is independent of physical markers and may result from experiencing recurrent AF episodes. Psychosocial interventions may be warranted in these patients

<table>
<thead>
<tr>
<th></th>
<th>SR</th>
<th>ParAF</th>
<th>PerAF</th>
<th>significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>NT-proBNP (ng/l)</td>
<td>175</td>
<td>1238</td>
<td>1238</td>
<td>perAF &gt; parAF &gt; SR</td>
</tr>
<tr>
<td>MR-proADM (nmol/l)</td>
<td>61</td>
<td>.66</td>
<td>.80</td>
<td>perAF &gt; parAF &gt; SR</td>
</tr>
<tr>
<td>Anxiety (HADS)</td>
<td>5.1</td>
<td>6.3</td>
<td>3.5</td>
<td>perAF &lt; parAF, SR</td>
</tr>
<tr>
<td>Phys. Function (SF-36)</td>
<td>73</td>
<td>59</td>
<td>68</td>
<td>parAF &lt; perAF, SR</td>
</tr>
</tbody>
</table>

Symposium 1253

SLEEP AND HEALTH IN PSYCHOSOMATIC MEDICINE: UNDERSTANDING CAUSAL MECHANISMS, IMPLEMENTING INTERVENTIONS

Martica Hall, PhD, Psychiatry, Psychology, Wendy M. Troxel, PhD, Psychiatry and Psychology, University of Pittsburgh, Pittsburgh, PA, Aric A. Prather, PhD, Center for Health and Community, University of California, San Francisco, San Francisco, CA, Michael R. Irwin, M.D., Psychiatry, Cousins Center for Psychoneuroimmunology, UCLA Semel, Los Angeles, CA, Daniel J. Taylor, PhD, Psychology, University of North Texas, Denton, Texas

Accumulating evidence suggests that sleep is essential to health and functioning. Yet, careful examination of this literature shows that many of these studies are based on cross-sectional and/or observational data. The presentations and discussion in this symposium are focused on two critical questions: (1) Is sleep prospectively associated with clinically-significant health outcomes? and (2) Do interventions that improve sleep offer physiological benefits to health and functioning? The first presentation will describe the extent to which self-reported and polysomnographic (PSG) indices of insomnia at baseline predict treatment outcomes in adults with major depressive disorder. The second presentation is focused on the impact of diary- and actigraphy-assessed sleep on antibody response to hepatitis B vaccination. The third presentation will describe the impact of cognitive-behavioral therapy for sleep quality on indices of cellular inflammation in older adults with insomnia. Taken as a whole, these studies suggest that sleep may be causally linked to broad indices of health and functioning, including mental and physical health. Data from the third presentation additionally suggest that interventions that improve sleep may importantly benefit health. The discussant, who is a founding member of the Society of Behavioral Sleep Medicine, will focus on the translational implications of these studies with an emphasis on behavioral interventions. In addition to improving sleep and its consequences to health and functioning, these behavioral interventions may be used to elucidate mechanisms that underlie the sleep-health relationship.

Individual Abstract Number: 1219

IMPACT OF PSYCHOLOGICAL STRESS ON ATRIAL PHYSIOLOGY IN PATIENTS WITH ATRIAL FIBRILLATION AND CONTROLS

Rachel Lampert, MD, Matthew Burg, PhD, Cardiology, Cynthia Brandt, MD, Anesthesiology/Medical Informatics, Yale University School of Medicine, New Haven, CT, Larry Jamner, PhD, Psychology and Social Behavior, University of California, Irvine, Irvine, California, Theresa Donovan, BS, Robert Soufer, MD, Cardiology, Yale University School of Medicine, New Haven, CT

Background: Anger and other strong emotion can trigger atrial fibrillation, (AF) but the pathophysiological mechanisms remain unknown. We hypothesized that autonomic changes may promote heterogeneity of atrial conduction. Methods: Patients with a history of AF (in sinus rhythm at enrollment; N=98, 35% female, mean age 59), and controls (N=26, 54% female, mean age 51 years) underwent a laboratory mental stress protocol including mental arithmetic and anger recall. Signal-average P-wave was recorded and catecholamines and BNP measured at all stages. Changes between baseline and maximum stress state (as defined by systolic blood pressure change) were compared between groups. Results: Catecholamine levels were higher at baseline in controls but increased similarly with stress in both groups. BNP increase was greater in AF group. Filtered P wave duration was longer at baseline in AF patients than controls, but decreased in both groups with stress (table). Root mean square voltage of the last 40msec (RMS 40) was lower at baseline in AF patients. With stress, RMS 40 increased in AF patients but decreased in controls (table). In AF patients, change in RMS 40 was inversely correlated with change in filtered P wave duration (p<0.02). Conclusion: In AF patients, stress decreases total P-wave duration but increases late potentials. Changes in autonomic activity may predispose to AF by accentuating heterogeneity of atrial conduction.
INSOMNIA WITH OBJECTIVE SLEEP DISTURBANCES PREDICTS POOR DEPRESSION TREATMENT OUTCOME
Wendy M. Troxel, PhD, Psychiatry and Psychology, Michael Thase, M.D., David J. Kupfer, MD, Charles F. Reynolds, MD, Ellen Frank, PhD, Daniel J. Buysse, MD, Psychiatry, University of Pittsburgh, Pittsburgh, PA

Insomnia and polysomnographic (PSG) sleep disturbances predict poorer treatment outcomes in patients with major depressive disorder (MDD). However, prior research has utilized individual clinical trials with relatively small sample sizes and has generally been restricted to single treatment modalities and/or focused exclusively on insomnia symptoms or PSG measures, but not both. The present study examines the degree to which insomnia symptoms, PSG sleep disturbances, or their combination, predicts non-stabilization following pharmacotherapy and/or psychotherapy treatment in a large sample of patients with MDD. Participants were 711 patients with MDD (75% female, mean age = 43.5 years) drawn from six clinical trials involving pharmacologic and/or psychotherapy treatment. Stabilization status, defined as a score of < 8 on the Hamilton Rating Scale for Depression (HRSD) over two consecutive months, served as the primary outcome. Insomnia symptoms were derived from 3 sleep disturbance items on the HRSD. PSG-assessed short sleep duration (defined as total sleep time < 5.5 hours), prolonged sleep latency (SL > 30 minutes), and reduced sleep efficiency (SE < 80%) were derived from in-laboratory sleep studies. Logistic regression models predicted the odds of non-stabilization according to insomnia or each of the PSG-assessed sleep disturbances, or both, after adjusting for age, sex, treatment modality (pharmacotherapy versus non-pharmacotherapy), age of onset of depression and baseline depressive symptom severity. Prolonged SL and reduced SE were associated with a 2 to 5-fold increased risk of non-stabilization after treatment. Insomnia with prolonged sleep latency or reduced sleep efficiency was also associated with significantly increased risk (p's<.05). Individuals with insomnia (OR=1.65; CI: 1.1, 2.5) or short sleep durations (OR=3.6; CI: 1.7, 7.6), but not both, were at increased risk of non-stabilization. These findings suggest that objectively measured prolonged sleep latency and reduced sleep efficiency, independently, or in conjunction with insomnia are risk factors for poor depression treatment outcome.

SLEEP DURATION AND ANTIBODY RESPONSE TO HEPATITIS B VACCINATION
Arie A. Prather, PhD, Center for Health and Community, University of California, San Francisco, San Francisco, CA, Martica Hall, PhD, Psychiatry, Psychology, Clinical and Translational S, University of Pittsburgh School of Medicine, Pittsburgh, PA, Jacqueline M. Fury, BS, Diana C. Ross, RN, BSN, Psychology, Anna L. Marsland, PhD, RN, Psychology and Nursing, University of Pittsburgh, Pittsburgh, PA

Growing cross-sectional and experimental evidence implicates the immune system as a mechanism linking poor sleep and susceptibility to infectious disease. Until recently, however, much of the work examining immune correlates of sleep employed in vitro measures of immunity of monocytes and T cells, which may not be representative of whole body immune responses. Furthermore, little is known about the impact of sleep on long-term immune responses. This study examined the impact of sleep duration on immune responses to the hepatitis B vaccination series. In addition, a subset of participants (n=104) wore an actigraph on the 3 days prior and 3 days following each of the 3 hepatitis B injections. In addition, a subset of participants (n=104) wore an actigraph on the day of, and 3 days following) at each of the 3 hepatitis B injections. Differences in sleep duration were associated with differences in antibody levels and cellular immune responses to the hepatitis B vaccination series. These findings suggest that sleep duration is a significant factor in determining immune responses to hepatitis B vaccination.

TREATMENT OF SLEEP DISTURBANCE CONFERS BENEFIT ON INFLAMMATORY OUTCOMES IN OLDER ADULTS WITH INSOMNIA
Michael R. Irwin, MD, Perry Nicassio, PhD, Sarosh Motivala, PhD, Richard Olmstead, PhD, Elizabeth Breen, PhD, Psychiatry, Cousins Center for Psychoneuroimmunology, UCLA Semel, Los Angeles, CA

Purpose: Inflammation is implicated in the risk for depression, cardiovascular disease, diabetes mellitus, and mortality in older adults. Sleep loss and sleep disturbance lead to daytime increases in production and circulating levels of inflammatory cytokines, due in part to activation of cellular inflammatory signaling pathways (e.g., NF-κB). Given the impact of sleep disturbance on activation of inflammatory mechanisms, this study evaluated whether improvements in sleep disturbance, as indexed by a remission of clinical sleep impairment, are associated with decreases of cellular markers of inflammation. Methods: In adults older than 55 years of age (N=75) with chronic insomnia, 50 were randomized to cognitive-behavioral therapy for sleep quality (CBT-SQ) and 25 were assigned to an active educational control condition, sleep seminar (SS). The two groups were similar in age (64.4 years vs 66.4 years; P=0.2). All subjects randomized completed the 16-weeks post-intervention assessment. Cellular inflammation was indexed by production of proinflammatory cytokines, primarily tumor necrosis following ligation of the Toll-like receptor 4 (TLR4) with lipopolysaccharide (LPS), with assessment pre- and post-intervention. The association between cellular inflammation and remission of clinical sleep impairments was evaluated in the two treatment groups stratified by clinical sleep impairment remission status (i.e., Pittsburgh Sleep Quality Index scores <5 vs > 5) at post-intervention. Results: Analyses covarying for baseline levels showed a significant effect for remission status (F(1,40)=5.4, p=0.02) and a significant treatment condition by remission status interaction (F(1,40)=5.2, P=0.03), in which remission of sleep disturbance among older adults randomized to CBT-SQ was associated with a marked decreases in cellular inflammation. Conclusions: These data demonstrate that a behavioral intervention that specifically targets sleep complaints of older adults decreases cellular inflammation, and that this benefit is associated with improvement in sleep quality and remission of clinical sleep impairment.

INTERRUPTIONS TO ENHANCE QUALITY OF LIFE AND HEALTH IN WOMEN DIAGNOSED WITH BREAST CANCER: MAIN EFFECTS, MECHANISMS, AND MODERATORS
Annette L. Stanton, Ph.D., Psychology and Psychiatry/Biobehavioral Sciences, University of California, Los Angeles, Los Angeles, CA, Michael H. Antoni, Ph.D., Psychology, University of Miami, Coral Gables, Florida, Julienne E. Bower, Ph.D., Psychology/Psychiatry, Annette L. Stanton, Ph.D., Psychology and Psychiatry/Biobehavioral Sciences, University of California, Los Angeles, Los Angeles, CA, Paige A. Green McDonald, PhD, MPH, Basic and Biobehavioral Research Branch, National Cancer Institute, Bethesda, MD

Over the past four decades, the number of people living with a history of cancer in the United States has increased nearly four-fold, rising from 3 million in 1971 to 11.7 million in 2007. More than 2.5 million American women are living with a history of breast cancer. Large, prospective studies convincingly demonstrate that the experience of cancer produces marked psychological and physical impact. Meta-analyses also document the efficacy of psychosocial interventions to address sequelae of the cancer experience. The observation that meta-analyses yield heterogeneous effect sizes across intervention trials indicates that significant moderators of intervention effects exist and that some interventions carry robust positive effects, whereas others produce null findings. Moreover, research is needed to identify the mechanisms underlying positive effects. Research to specify both the mechanisms for and the findings provide preliminary evidence that variation in sleep duration, measured in the natural environment, is associated with a clinically relevant immune response previously observed only under laboratory conditions. Furthermore, this contributes to the emerging literature identifying sleep as an important contributor to infectious disease risk.
moderators of interventions will contribute to identification of optimal methods for promoting the health and well-being of individuals diagnosed with cancer. The primary goal of the proposed symposium is to bring together three researchers experienced in conducting randomized, controlled intervention trials for breast cancer survivors in order to highlight new findings from their recent trials, with a focus on main effects of the interventions on primary outcomes, moderators of these effects, and associated mechanisms. Trials of cognitive behavioral stress management, yoga, and the development of personal webpages to communicate with the social network and chronicle the breast cancer experience will be described. Relevant moderators and mechanisms include cancer treatment characteristics, psychosocial parameters, and biological factors. The Chief of the Basic and Biobehavioral Research Branch of the National Cancer Institute will offer a discussion of the findings and directions for research.

**Individual Abstract Number: 1716**

**PROJECT CONNECT ONLINE: TRIAL OF A WEB-BASED PROGRAM TO CHRONICLE THE BREAST CANCER EXPERIENCE AND FACILITATE SOCIAL NETWORK COMMUNICATION**

Annette L. Stanton, Ph.D., Psychology and Psychiatry/Biobehavioral Sciences, Education, Thompson, M., Psychology, University of California, Los Angeles, Los Angeles, CA

Most commonly, breast cancer is not experienced in isolation, but rather by the woman within a nexus of loved ones and friends. Supportive relationships serve as buffers for the stresses accompanying breast cancer. Moreover, evidence suggests that expressing cancer-related emotions can promote psychological and physical health in breast cancer patients. However, communication with the social network and adaptive expression of feelings can pose challenges both for the person who confronts breast cancer and for supportive others. Project Connect Online is a preliminary randomized, controlled trial of an intervention for women with breast cancer to design personal web pages in order to chronicle their experience and communicate with their social network. Women (N = 88) diagnosed with breast cancer (any stage, any point since diagnosis) were assigned randomly to participate in a 3-hour workshop for hands-on creation of personal web pages, as well as a follow-up call to facilitate web page use, or to a standard care control. Assessed prior to randomization and 1 month and 6 months following the intervention, dependent variables included depressive symptoms (Center for Epidemiologic Studies-Depression scale), cancer-related intrusive thoughts (Impact of Event Scale-Intrusion), and selected subscales of the Posttraumatic Growth Inventory, a measure of perceived cancer-related benefits. Relative to control participants, women randomized to the intervention evidenced significant improvement at 6 months in depressive symptoms, F(1,70) = 4.02, p = .049, cancer-related intrusive thoughts, F(1,71) = 6.01, p = .017, and life appreciation, F(1,72) = 5.13, p = .027. Treatment status significantly moderated the intervention effects, such that women currently undergoing active treatment benefited from the intervention than did women who had completed treatment. Findings support the promise of an intervention to facilitate the ability of women diagnosed with breast cancer to chronicle their experience and communicate with their social network.

**Individual Abstract Number: 1705**

**RANDOMIZED CONTROLLED TRIAL OF IYENGAR YOGA FOR CANCER-RELATED FATIGUE: RESULTS OF A TARGETED INTERVENTION FOR FATIGUED BREAST CANCER SURVIVORS**

Julienne E. Bowar, Ph.D., Psychology and Psychiatry/Biobehavioral Sciences, Deborah Garett, M.P.H., Cousins Center for PNI, Patricia L. Gates, MD, Medicine/Public Health, Beth Seinthiel, B.A., Pediatric Pain Program, Michael Irwin, M.D., Richard Olmstead, Ph.D., Cousins Center for PNI, Gail A. Greendale, M.D., Medicine/Geriatrics, University of California, Los Angeles, Los Angeles, CA

Fatigue is one of the most common and distressing side effects of cancer treatment and may persist for years after treatment completion. Although psychosocial and activity-based interventions have shown beneficial effects on cancer-related fatigue, few studies have targeted fatigue survivors or included active control treatments. Yoga has demonstrated beneficial effects on fatigue in non-cancer populations and may be a promising treatment for cancer-related fatigue. The aims of this study were to determine the feasibility and efficacy of an Iyengar yoga intervention for breast cancer survivors with severe, persistent fatigue, and to investigate neuroimmune mechanisms for intervention effects. Women who completed treatment for early-stage breast cancer at least 6 months previously, endorsed significant fatigue (as indicated by SF-36 vitality score < or = 50), and had no confounding medical conditions were randomly assigned to 12 weeks of yoga (n = 16) or 12 weeks of health education (n = 14). The yoga intervention emphasized poses that are believed to alleviate fatigue and improve energy, predominantly passive backbends and inversions. Participants completed questionnaires to assess fatigue and other symptoms and provided blood and saliva samples at baseline, immediately post-treatment, and 3 months after treatment completion. Using the Fatigue Symptom Inventory as the primary outcome, there were significant reductions in fatigue severity among women in the yoga group compared to health education controls (F(2,52) = 3.85, p = .028). There were also significant improvements in vigor, assessed by the Multidimensional Fatigue Symptom Inventory (F(2, 52) = 6.54, p = .003). By the 3-month follow-up, yoga participants had gained 24 points on the SF-36 vitality scale (vs. a 7 point gain in the health education group), indicating a clinically significant change. Results for inflammatory markers and diurnal cortisol will be presented. Overall, findings support the efficacy of this targeted intervention for post-treatment fatigue in breast cancer survivors.

**Individual Abstract Number: 1119**

**COGNITIVE BEHAVIORAL STRESS MANAGEMENT AND CONVERGING BIOBEHAVIORAL PROCESSES IN WOMEN UNDER TREATMENT FOR BREAST CANCER**

Michael H. Antoni, Ph.D., Psychology, University of Miami, Coral Gables, Florida; Bonnie B. Blomberg, Ph.D., Microbiology/Immunology, Suzanne Lechner, Ph.D., Psychiatry, University of Miami School of Medicine, Miami, Florida; Charles S. Carver, Ph.D., Psychology, University of Miami, Coral Gables, Florida; Susan lutgendorf, Ph.D., Psychology, University of Iowa, Iowa City, IA; Steven W. Cole, Ph.D., Medicine, UCLA, Los Angeles, California

Patients undergoing breast cancer (BCa) diagnosis, surgery and adjuvant therapy may reveal differences in psychological adaptation that are related to alterations in health-relevant neuroendocrine and immunologic indicators. We initially identified cognitive, behavioral and interpersona predictors of psychological adaptation to the stress of BCa treatment. We then tailored a cognitive behavioral stress management (CBSM) intervention to modify these processes during active treatment in order to: (a) improve psychological adaptation as women moved through treatment, and (b) examine whether these changes were paralleled by neuroimmune changes. The manualized 10-week CBSM intervention provided training in relaxation, cognitive restructuring, coping effectiveness, and interpersonal skills in a supportive group. Women with BCa were recruited up to 8 weeks after surgery just before beginning adjuvant therapy for Stage I - III BCa, and were assigned to group-based CBSM or a psychoeducational control group. As previously shown, CBSM improved psychological adaptation (reduced anxiety, depression and social disruption; increased positive affect, positive states of mind and benefit finding) and neuroimmune parameters (PM serum cortisol, lymphocyte proliferative response, and Th1/Th2 cytokine production) at 6 - 12 month follow-up vs. controls. CBSM-specific (relaxation confidence) and non-CBSM-specific (emotional expression) changes mediated psychological adaptation effects. Increases in psychological adaptation during CBSM were, in turn, proportional to decreases in cortisol and increases in cellular-immune system parameters. We present tests of cell-signaling pathways that may elucidate how these neuroimmune changes came about. Yoga interventions that facilitate psychological adaptation during active treatment for BCa may be accompanied by changes in biobehavioral processes that have implications for better recovery from adjuvant therapy, and possibly longer-term quality of life and health outcomes in BCa survivors.
HIGHER ACCULTURATION, STRESS, AND ELEVATED INFLAMMATORY MARKERS CONTRIBUTE TO POOR OUTCOMES IN PREGNANT LATINAS
Mary E. Cousans-Read, PhD, Psychology and Health and Behavioral Science, The University of Colorado Denver, Denver, Colorado, USA, Marci Lobel, PhD, Social and Health Psychology, Stony Brook University, Stony Brook, New York, Chandra Brandt, Stephanie Cole, M.A., Marianne Kreither, Psychology, The University of Colorado Denver, Denver, Colorado

There is growing evidence that prenatal stress can increase the risk of pregnancy and birth complications, and stress-related changes in endocrine and inflammatory mediators may contribute to these effects. Our laboratory is focused on quantifying how stress and social support affect pregnancy outcome and the degree to which neural-immune interactions may be involved in these effects. The present study sought to demonstrate linkages between biomarkers of stress and inflammation and pregnancy outcome, with special emphasis on how maternal acculturation is involved in these relationships. Two hundred fifty Latine women were recruited during their first trimester of pregnancy and followed until delivery. Early and late in pregnancy, women completed a series of psychosocial assessments and provided a blood sample. Assessments included measures of acculturation, pregnancy-specific distress and support, overall stress, major life events, and self-efficacy. Serum levels of TNF-a, IL-6, IL-10, CRP, CRH, NE, E, and Estriol were measured via ELISA at each timepoint. Data on complications, delivery, and infant outcome were obtained through chart extraction. Elevated proinflammatory markers were related to lower social support, higher stress, and higher pregnancy-specific distress across pregnancy, as well as to lower 1-minute Apgar scores, lower gestational age at birth, and increased occurrence of pregnancy and birth complications. These relationships were exacerbated by acculturation, as more acculturated women had higher levels of stress, distress, and major life events, and lower levels of social support, especially later in pregnancy. Together, these studies provide some of the first data showing that stress and psychosocial factors including acculturation are related to increases in stress and inflammation-related biomarkers, and that these increases, in turn, are associated with increased likelihood of pregnancy complications and poor birth outcome.

SOCIAL STATUS MODULATES NEURAL ACTIVITY IN THE MENTALIZING NETWORK
Keely A. Maccateal, M.A., Psychology, UCLA, Los Angeles, CA, Emily Falk, Ph.D., Communication Studies, Institute for Social Research, University of Michigan, Ann Arbor, MI, Sylvia A. Morelli, M.A., Psychology, UCLA, Los Angeles, CA, Jennifer H. Pfeifer, Ph.D., Psychology, University of Oregon, Eugene, OR, Baldwin M. Way, Ph.D., Psychology, The Ohio State University, Columbus, OH, Matthew D. Lieberman, Ph.D., Psychology, Mirella Dapretto, Ph.D., Psychiatry and Biobehavioral Sciences, Naomi I. Eisenberger, Ph.D., Psychology, UCLA, Los Angeles, CA

Research suggests that social status may influence an individual's tendency to think about the minds of others (mentalize) or to take their perspective. Individuals who are low in social status are more engaged in mentalizing--including the dorsomedial and medial prefrontal cortex, precuneus, posterior superior temporal sulcus, and temporo-parietal junction (p < .001). In Study 2, we sought to replicate this effect in a younger sample, using a less circumscribed task and an objective measure of social status--SES. Twenty-seven adolescents were scanned while viewing emotional facial expressions; participants' parents also completed measures of SES. Again, results revealed a negative correlation between social status and neural activity in mentalizing regions (dMPFC, precuneus), and the amygdala (p < .001). Together, these studies suggest that, across developmental periods, during distinct tasks, and using varied measures of social status, individuals who are lower in status show greater activity in brain regions involved in understanding the minds of others. These results shed light on the psychological correlates of being low status, which may have implications for mental and physical health.

FASTER VAGAL RECOVERY AFTER COGNITIVE CHALLENGE ATTENUATES AGE-RELATED DEFICITS IN EXECUTIVE FUNCTION
Olga V. Crowley, PhD, Paula S. McKinley, PhD, Division of Behavioral Medicine, Psychiatry, Columbia University Medical Center, New York, NY, Matthew M. Burg, PhD, Center for Behavioral Cardiovascular Health, Columbia University School of Medicine, New York, NY, David Kimhy, PhD, Psychiatry, Columbia University Medical Center, New York, NY, Joseph E. Schwartz, PhD, Center for Behavioral Cardiovascular Health, Columbia University School of Medicine, New York, NY, Yihong Zhao, PhD, Division of Behavioral Medicine, Psychiatry, Columbia University Medical Center, New York, NY, Carol D. Ryff, PhD, Psychology, University of Wisconsin, Madison, Madison, WI, Patricia A. Tov, PhD, Margie E. Lachman, PhD, Psychology, Brandeis University, Waltham, Massachusetts, Maxine Weinstein, PhD, Center for Population and Health, Georgetown University, Washington, DC, Teresa E. Seeman, PhD, Geriatrics, UCLA David Geffen School of Medicine, Los Angeles, CA, Richard P. Sloan, PhD, Division of Behavioral Medicine, Psychiatry, Columbia University Medical Center, New York, NY

Purpose of study: to investigate whether vagal recovery from cognitive challenge moderates the association between age and executive function. Subject sample and statement of methods: The study sample consisted of 719 participants from the Midlife in the United States Study (MIDUS II) aged 35–86. Cardiac vagal control was measured using high frequency RR-interval variability; vagal recovery from cognitive challenge (mental arithmetic and Stroop) was evaluated using area under the curve technique (AUC; greater AUC reflects faster recovery). Executive function was assessed using the Stop & Go Switch task (1) median response latency for the switch trials, and (2) averaged response latency for the switch and non-switch trials (smaller response latency reflects better executive function). We tested a model that included vagal recovery x age interaction as predictors of executive function (controlling for the relevant covariates). In this model, vagal recovery x age interaction represented the moderating effect of vagal recovery on the age to executive function relationship. Results: Vagal recovery significantly moderated age to executive function relationship as measured by median response latency for the switch trials (Beta = -.517, p < .001) and by averaged response latency for the switch and non-switch trials (Beta = -.612, p = .003). To understand the nature of this interaction, we examined the intercepts and slopes for values of vagal recovery (the minimum, maximum, and the 25th, 50th and 75th percentile values). This examination revealed that although older individuals had greater response latency than their younger counterparts, these age deficits in executive function decreased with increasing speed of vagal recovery. These results suggest that vagal recovery moderates the well-known relationship of age to executive function: as people grow older, their executive function tends to decline but the decline is attenuated by more rapid vagal recovery from psychological challenge.
ASSOCIATIONS AMONG DAILY STRESSORS, NEGATIVE AFFECT, AND SALIVARY CORTISOL: FINDINGS FROM THE NATIONAL STUDY OF DAILY EXPERIENCES
Robert S. Sawa, Ph.D., Survey Research Center, University of Michigan, Ann Arbor, MI, David M. Almeida, Ph.D., Human Development and Family Studies, Pennsylvania State University, University Park, PA, Kelly E. Cicch, Ph.D., Human Development and Family Studies, Kent State University, Kent, OH
PURPOSE: While much research has focused on linking stressful experiences to emotional and biological reactions in laboratory settings, there is an emerging interest in extending these examinations to large-scale surveys. Such approaches allow researchers to sample a broader range of individuals and populations, as well as improve ecological validity by assessing individual’s real-world experiences and how they are related to emotional and biological outcomes. The current study examined day-to-day associations among naturally occurring daily stressors, negative affect (NA), and salivary cortisol in a national sample of adults from the second wave of the National Study of Daily Experiences (NSDE). METHOD: A sample of 1,645 adults (Age= 57, Range=33-84; 44% male) completed telephone interviews detailing their experiences and emotions on eight consecutive evenings. Participants also provided saliva samples upon waking, 30 minutes post-stressor, before bed and on four days resulting in 6,580 days of interview/cortisol data. RESULTS: Preliminary analyses revealed three main findings. First, 51% of the variability in cortisol AUC reflected individual differences, while 49% reflected within-person variability across days. Second, within-person associations revealed that cortisol AUC was significantly higher on days participants reported experiencing stressors compared to stressor-free days (p<.01). This was true, particularly for arguments (p=.04) and overloads at home (p=.02), but not avoided arguments, overload at work or network stressors (n.s.), suggesting that not all naturally-occurring daily stressors alter cortisol output. Finally, on days when participants reported their NA to be higher than usual, they exhibited a significantly higher AUC (p<.01), and this partially reduced the effect of daily stressors. CONCLUSION: Some, but not all, naturally occurring daily stressors appear to increase cortisol output, and stressor-related increases in negative affect may, in part, drive such reactivity.

CARDIAC VAGAL CONTROL AS A PROSPECTIVE PREDICTOR OF ANXIETY IN WOMEN DIAGNOSED WITH BREAST CANCER
Anya V. Kogan, B.A., John J.B. Allen, Ph.D., Rösan O'Donnell, B.A., Amanda E. Broody, M.A., Psychology, Karen L. Weils, M.D., Psychiatry and Family Medicine, University of Arizona, Tucson, AZ
PURPOSE: The present study examined whether cardiac vagal control prospectively predicts a trajectory of change in anxiety over the year following breast cancer diagnosis. According to Polyvagal theory (Porges, 1995), cardiac vagal control measured by respiratory sinus arrhythmia (RSA) indexes individual differences in the ability to regulate emotions and respond to environmental demands. Across the literature, low cardiac vagal control has been associated with state and trait anxiety as well as anxiety spectrum disorders. METHOD: The sample included 39 women (Mean age = 53.5, SD = 9.6) diagnosed with stage 0, 1, II, or III breast cancer (Mean time since diagnosis = 4.5 mos, SD = 4 mos; min = 0.5 mos, max = 16 mos), all of whom were free of medications that could affect cardiac function or anxiety. At an oncology clinic visit, two 5-minute resting electrocardiographic segments were recorded; RSA values averaged across segments were used in the analysis. Participants also completed the Taylor Manifest Anxiety Scale both at the initial visit and approximately every three months for a 1-year period. RESULTS: Because there was a significant association between RSA and age, RSA values were residualized on age. After accounting for baseline anxiety, RSA was a significant predictor of anxiety a year later, F(2, 36) = 29.831, p = .000, and accounted for an additional 8% of the variance explained by the model (R2 = .080, p = .009). Additionally, RSA was a significant predictor of slope of change in anxiety measured at multiple occasions, F(1, 37) = 7.007, p = .012; R2 = .159, such that lower RSA at baseline may place individuals at risk for increased anxiety and higher RSA at baseline may buffer against higher anxiety. During the follow-up period, results are consistent with the hypothesis that cardiac vagal control facilitates the modulation of anxiety in women coping with significant stressors of breast cancer diagnosis and treatment.

BIOBEHAVIORAL FACTORS AND TELOMERE LENGTH IN CERVICAL CANCER SURVIVORS
Kelly A. Biegler, Ph.D., Medicine; Lari Wenzel, Ph.D., Medicine; Population of Health & Disease Prevention, Kathy Osam, PhD., Medicine, Susie Hisel, Ph.D., Health Policy Research Institute, Edward Nelson, M.D., Medicine; Molecular Biology & Biochemistry, University of California, Irvine, Irvine, CA
Introduction: Cervical cancer survivors have profound and sustained disruption of quality of life (QOL), driving a chronic stress response. Chronic stress has been associated with neuroendocrine changes and a decreased Th1 immune status, potentially limiting effective anti-tumor and anti-viral responses. Recent studies have also shown an association between chronic stress and accelerated telomere shortening in peripheral blood cells in several cross-sectional studies of chronically stressed non-cancer populations. Telomeres are structures that cap the end of chromosomes; telomere loss diminishes their functional capacity and is associated malignant transformation. In a completed randomized trial, we demonstrated that a psychosocial telephone counseling (PTC) intervention significantly improved QOL in cervical cancer survivors, thereby reducing chronic stress, which was also associated with a shift toward a Th1 immune stance. The present study examined the longitudinal associations between telomere length, immune profile and QOL in this cohort. Methods: Archived peripheral blood mononuclear cell (PBMC) specimens collected from 15 patients were analyzed. QOL data and biospecimens were collected at baseline and four months post-PTC. Telomere length of T cell (CD4 and CD8), B cell (CD19) and monocyte (CD14) cellular subsets were examined using the Flow-FISH assay. Results: Longitudinal shifts toward a Th1 immune profile were associated with increased telomere length in CD4 (r=0.810; p=0.027) and CD8 (r=0.705; p=0.075) cellular subsets; however, no significant associations were observed between a more pronounced Th1 stance and CD8 for CD19 subsets. Correlations between QOL and increased telomere length in CD4 and CD8 subsets were in the same direction, although not significant. Conclusions: The increase in telomere length, specific to CD4 and CD8 T cells, is consistent with a shift toward a Th1 immunologic stance. This pilot study is the first evaluation of longitudinal changes in telomere length associated with immune profile and QOL as an index of chronic stress, and has provocative implications for the association between the psychoneuroimmune axis, telomere dynamics, and survivorship outcomes.

EFFECTS OF A TRAINING SESSION ON THERAPEUTIC ALLIANCE TAILORED FOR GENERAL PRACTITIONERS ON GLYCAEMIC CONTROL IN TYPE 2 DIABETIC PATIENTS
Silla M. Consoli, PhD, Cedric Lemogne, PhD, CL-Psychiatry, European Georges Pompidou Hospital, Paris, Ile de France, France, Philippe Passa, PhD, Diabetology, St Louis Hospital, Paris, Ile de France, France, Marc Ferriere, Cardiology, Hospital Arnaud de Villeneuve, Montpellier, Herault, France, Martine Tramoni, MD, Diabetology, Laboratories Servier, Neuilly sur Seine, Ile de France, France
The construct of therapeutic alliance (TA) has important applications in the field of care provider-patient relationship. TA encompasses mutual trust and listening, negotiation and agreement on therapeutic goals and the means for achieving them. TA was found negatively correlated with glycaemic control after 1 year of follow-up in patients with type 1 diabetes. Our study was aimed at examining the efficacy of a training session on TA dedicated to General Practitioners (GPs) on glycaemic control of their type 2 diabetic patients after 6 months of follow up. Methods: two groups of GPs practicing in two close French areas were randomized. Intervention group was provided with a twice half a day training session on Prochaska’s and Di Clemente’s transtheoretical model of change, TA and the principles of motivational interview, whereas control group participated in a general discussion on therapeutic compliance and its consequences on health, without any advice for improving patient-doctor relationship. GPs of each group respectively included 67 type 2 diabetic patients (aged 61.2 ± 8.6 years; 37 men) and
68 patients (aged 60.2 ± 9.9 years; 29 men). All the patients filled out twice the patient version of the Helping Alliance Questionnaire (HAQ), whereas the GPs of intervention group filled out the physician version of HAQ. Results: after controlling for baseline glycosylated haemoglobin (HbA1c) and Body Mass Index (BMI), which differed between the two groups, glycaemic control improvement (HbA1c % decrease) from baseline visit to 6 month follow up was 0.43 ± 0.14 for intervention group, compared with 0.02 ± 0.14 change for control group (p = 0.04). In a hierarchical linear regression analysis 6 month HbA1c was both predicted by baseline HbA1c (p = 0.001) and baseline patient HAQ (p = 0.036) in intervention group. Conclusion: findings suggest a positive effect of a training session on TA, tailored for GPs, for improving glycaemic control in their type 2 diabetic patients. Long term effects of such minimal intervention need to be confirmed.

8) Abstract 1748

POSITIVE AFFECT IS RELATED TO OBJECTIVE AND SELF-REPORTED EXERCISE BEHAVIOR: THE IMPORTANCE OF AMBULATORY AND PERSONALITY MEASURES

Lauren M. Smith, M.A., John Ruiz, PhD, Courtney C. Prather, B.A., Erin E. Fagan, MA, dissertation, The University of North Texas, Denton, TX, Heidt A. Hamann, PhD, Psychiatry, UT-Southwestern, Dallas, TX

Research supports a link between trait positive affect (PA) and health benefits including greater longevity and lower all-cause mortality. Exercise is also associated with positive outcomes including lower blood pressure, lower cardiovascular risk, and mortality benefits. However, there is little data examining a potential relationship between PA and higher exercise frequency. We examined this potential in a sample of 276 undergraduates (155 women) who completed measures of PA and exercise as part of a larger self-report survey. Positive and negative affect (PA, NA) were assessed with the 10-item subscales from the Positive And Negative Affect Scale Expanded (PANAS-X: Watson & Clark, 1994). Self-reported cardiovascular and resistance exercise frequency was measured on a scale of 1 (never), 2 (1-2 times/wk), or 3 (3 or more times/wk). A hierarchical linear regression model with the first 2 blocks was significant, accounting for 12% of the variance. With respect to objectively measured exercise, a model with the first 2 blocks was significant, accounting for 12% of the variance. Specifically, sex (β = -0.23, p<.005) and higher PA (β = -0.20, p=.02) were significant predictors of greater exercise frequency over the 9 month analysis period. However, the interaction was non-significant. In children with higher PA scores were associated with greater self-reported frequency of cardiovascular exercise (F = .24, p<.005) but not exercise frequency (β = .09, p=.05) exercise frequency. These findings suggest that individuals higher in PA, independent of the levels of exercise frequency, are more likely to engage in some types of cardiovascular exercise. Future research should investigate this relationship as a resilience pathway.

9) Abstract 1028

NEURAL CHARACTERISTICS OF COGNITIVE CONTROL OF NEGATIVE EMOTION IN SUBJECTS WITH IRRITABLE BOWEL SYNDROME

Atsushi Sekiguchi, Motoaki Sugitani, Department of Functional Brain Imaging, IDAC, Tohoku University, Sendai, Japan, Joe Morishita, Department of Behavioral Medicine, Tohoku University Graduate School of Medicine, Sendai, Japan, Tatsuo Katozaki, Smart Ageing International Research Center, IDMC, Tohoku University, Sendai, Japan, Emiko Aizawa, Shin Fukuda, Department of Behavioral Medicine, Tohoku University Graduate School of Medicine, Sendai, Japan, Ryuta Kawashima, Smart Ageing International Research Center, IDAC, Tohoku University, Sendai, Japan

Irritable bowel syndrome (IBS) is one of the typical psychosomatic diseases, whose psychological pathogenesis is thought to be stress vulnerability. We assume that stress vulnerability is represented by a dysfunction in the cognitive control of negative emotion. Previous imaging studies examining the cognitive control of emotion demonstrated that the lateral and medial prefrontal cortices (PFC) are associated with voluntary and automatic cognitive control, respectively (Phillips 2008). In the present study, we tested our hypothesis that compared with healthy controls (HC), IBS subjects have differential neural characteristics associated with the processing of voluntary and automatic cognitive control of negative emotion. Thirty people with IBSs and twenty nine HCs participated. Written informed consent was obtained from each subject. The subjects performed an emotion regulation task during fMRI scanning. In this task, each subject viewed negative pictures and neutral pictures derived from IAPS (Lang 1993), and was required to suppress and maintain the negative emotions evoked by the negative pictures. To detect differential activations among the two groups, we performed an analysis of variance to find the main effect of the two groups. Greater activation in HC rather than in subjects with IBS in the right lateral PFC and the left insula, and greater activation in subjects with IBS rather than HC in the right amygdala and right thalamus were observed in both the suppression and maintenance conditions, indicating a dysfunction of the voluntary cognitive control of negative emotion in IBS. We found greater activation in subjects with IBS rather than HC in the medial PFC during the maintenance conditions only, suggesting that an automatic cognitive control of negative emotion is dominant in people with IBS. These findings support our hypothesis that compared with HCs, people with IBS have differential neural characteristics associated with the voluntary and automatic cognitive control of negative emotion.

10) Abstract 1198

MODULATING INFLUENCES OF ET-1 LYS198ASN GENOTYPE AND CHRONIC STRESS UPON STRESS REDUCTION PROGRAMS IN REDUCING AMBULATORY BLOOD PRESSURE (BP) AMONG AFRICAN AMERICAN (AA) ADOLESCENTS

Mathew J. Gregoski, PhD, Nursing, Medical University of South Carolina, Charleston, SC, Vernon A. Barnes, PhD, Martha S. Tingen, PhD, Yanbin Dong, MD/PhD, Haidong Zhu, MD/PhD, Pediatrics, Medical College of Georgia, Augusta, GA, Frank A. Treichler, PhD, Nursing & Psychiatry, Medical University of South Carolina, Charleston, SC

Personalized medicine, the aspirational model of future healthcare, will include prevention programs tailored based upon an individual’s underlying genetic and environmental factors. Vasocostrictive mediated BP reactivity to stress is a pathway of hypertension and CVD development, especially among AAs. Many AAs report discrimination as a type of chronic stress exposure. Purpose: To examine impact of a stress activated vasocostrictive BP control gene, endothelin-1 gene polymorphism(ET-1 LYS198ASN), and chronic stress upon efficacy of two stress reduction programs on AA 9th graders' 24hr systolic and diastolic ambulatory BP levels(SBP,DBP). Participants were randomized to: breathing awareness meditation(BAM; n=46), Botvin LifeSkills®(LST; n=60), or health education control(HEC; n=57), delivered in a classroom setting for 3 months. Pre-intervention Everyday Discrimination Scale (EDS) median scores were used to classify subjects as low/high in chronic stress, 24-hr SBP/DBP were collected pre and post intervention. 2(ET-1 genotype) by 3(treatment group) by 2(either group) ANCOVAs were conducted using change scores(Δ) covarying pre-intervention values. Three-way interactions were significant for 24hr daytime and nighttime SBP and DBP (all p<.05). Post hoc evaluations yielded a consistent pattern of results. All three interventions reduced SBP/DBP among low EDS carriers of the ET-1 genotype(MA for 24hr SBP/DBP across subgroups=-2.7/-1.9mmHg). Among high EDS noncarriers, only BAM showed reductions(e.g., 24hr SBP/DBP=4.9/-3.3 vs. MA of other subgroups =1.2/+1.4 mmHg). Among ET-1 genotype carriers, only low EDS BAM subgroup showed reductions(e.g., 24hr SBP/DBP=3.1/-4.2 vs. MA of other subgroups =1.6/+0.7mmHg). In summary, if individuals had one or both risk enhancers, only BAM was effective in reducing BP. If these results are replicated, incorporating gene/environment factors in tailored behavioral interventions will play a significant role in personalized medicine programs aimed at preventing CVD.
11) Abstract 1159
HEART RATE AND COMPLETED SUICIDE: EVIDENCE FROM THE IPC COHORT STUDY
Cédric Lemogne, MD, PhD, Faculté de médecine, Université Paris Descartes, Paris, France; Frédérique THOMAS, PhD, IPCC Center, Paris, France, Silla M. CONSOLI, MD, PhD, C-L Psychiatry, European Georges Pompidou Hospital, Paris, France, Bertrand JEGO, M.D., Bruno PANNIER, MD, IPCC Center, Paris, France, Nicolas DANCHIN, MD, PhD, Cardiology, European Georges Pompidou Hospital, Paris, France

Purpose of Study: Many suicide-related features such as affective disorders, impulsivity, or hostility have been associated with an aberrant regulation of heart rate (HR) and blood pressure (BP). Moreover, the neural bases of HR and BP regulation are similar to those of emotion regulation. The present study examined whether high resting HR or BP would be associated with an increased risk of suicide. Subject sample and statement of methods: Resting HR and BP were measured among 204,600 men [Mean age = 44.5 years, standard deviation (SD) = 12.1 years] and 119,110 women (Mean age = 45.0 years, SD = 14.0 years), together with depressive mood and perceived stress. Age, marital, working and socio-economical status, physical activity, alcohol intake and current medications were self-reported. Body mass index (BMI) was calculated. Vital status and causes of death were obtained using the French National Institute of Statistics and Economic Studies and the French national Cause-Of-Death Registry, respectively. Summary of Results: During a mean follow-up of 9.1 years (SD = 4.1), 133 participants (106 men) completed suicide. Resting HR, but not BP, was positively associated with suicide (p<0.001) together with depressive mood (p<0.001), perceived stress (p=0.005), low BMI (p=0.020), being a current smoker (p=0.001), and taking a psychotropic medication (p=0.001). Adjusting for these covariates, resting HR still independently predicted suicide [Hazard ratio and 95% confidence interval for each additional unit = 1.017 (1.003-1.031)]. Conclusion: A plausible explanation of these results is that resting HR and suicide risk may share some biological determinants, such as genetic factors or neural bases. These results may inform further attempts to understand how suicide is mediated at a brain level.

12) Abstract 1637
PAIN-RELATED INSULIN ACTIVITY PREDICTS CLINICAL COURSE OF MAJOR DEPRESSION: A FOLLOW-UP FMRI STUDY
Scott C. Matthews, M.D., Irina A. Strigo, Ph.D., Alan N. Simmons, Ph.D., Psychiatry, UCSD, San Diego, CA, Ryan M. O’Connell, B.S., Psychiatry, Veterans Medical Research Foundation, San Diego, CA

Cross-sectional data indicate that major depressive disorder (MDD) is common (i.e., 12-month prevalence rates are 5.3% and 13.2% for men and women, respectively), recurrent (i.e., MDD individuals experience a mean of 4.7 lifetime episodes), and disabling. However, little is known about the mechanism of MDD symptom evolution and disability over time. The purpose of this study was to use functional magnetic resonance imaging (fMRI) together with a validated thermal heat pain task to investigate whether fMRI can be used to predict clinical course of MDD. Twelve individuals who were experiencing varying levels of current depressive symptoms performed a pain processing task during fMRI twice, once at baseline and approximately 1 year of naturalistic follow-up. Current and past DSM-IV axis-I disorders were determined using the structured clinical interview for DSM-IV, and current depressive symptom severity was assessed using the Beck Depression Inventory 2. At the follow-up evaluation, which occurred approximately 1 year after the baseline assessment, 6 of 12 subjects had remitted from MDD (i.e., they had at least a 50% reduction in their baseline BDI-2 scores and they no longer met criteria for current MDD) and 6 of 12 subjects did not remit and continued to meet criteria for current MDD. The remitters and the non-remitters were not significantly different in age, gender or education. BDI-2 scores were not significantly different between the remitters and the non-remitters at the initial assessment. However, pain-related activation within right anterior insula at baseline was significantly greater in the remitters relative to the non-remitters. Although preliminary, these results may be a further step in understanding the neural correlates of pain over time. If replicated in larger samples, these findings may have important implications for early intervention and treatment of individuals with MDD.

13) Abstract 1277
HISTORY OF DEPRESSIVE EPISODES AS A RISK FACTOR FOR ILLNESS SEVERITY IN EARLY INFLAMMATORY ARTHRITIS
Karl J. Looper, MD, Psychiatry, McGill University, Montreal, Quebec, Canada, Sally S. Mustafa, PhD, Pharmacology, The University of Lahore, Lahore, Punjab, Pakistan, Phyllis Zelkowitz, EdD, Psychiatry, Margaret Parden, PhD, Nursing, Murray Baron, MD, Rheumatology, McGill University, Montreal, Quebec, Canada, Sally S. Mustafa, PhD, Pharmacology, The University of Lahore, Islamabad, Pakistan

Purpose: Psychosocial research in arthritis consistently demonstrates a relationship between depression and disease characteristics such as severity of illness and physical disability. In this study, we examine how a history of clinical depression influences disease outcome measures in patients with early inflammatory arthritis (EIA) in the absence of current depression. Sample and Methods: Patients in the early phase (more than 6 wks, less than 1 year duration) of inflammatory arthritis were recruited from a larger EIA registry, which recorded sociodemographic data, current depressive symptoms as measured using the Center for Epidemiologic Studies - Depression Mood Scale (CES-D), physical functioning as measured by the Stanford Health Assessment Questionnaire-Disability Index (HAQ), disease activity using patient self-report and physician ratings of global assessment, and the Disease Activity Score in 28 joints (DAS28). Current and past history of major depression was assessed by the Structured Clinical Interview for DSM-4 disorders. Results: Eighty-one patients (64.2% female, mean age 54.2 years) without current major depression were divided into 2 groups: 28 with, and 53 without a past history of depression. There were no significant differences between the two groups in age, sex or CES-D scores. Compared to patients with no past history of major depression, those with a history of past depressive episodes had higher self-ratings of disease activity (p = 0.015), were had a higher physician global assessment of disease severity (p = 0.004) and the DAS28 (0.026) and poorer physical functioning assessed by the HAQ (p = 0.009). Linear regression showed that the presence of past depressive episode predicted HAQ after controlling for sex and the current level of depressive symptoms (adjusted R2 = 0.096, F (df 3,55) = 3.057, p = 0.036). Conclusion: This study suggests that a past history of major depression represents a risk factor for disease severity in EIA. This may reflect an enduring physiological effect of depression that influences subsequent inflammatory arthritis, or an underlying shared process between these two disease entities.

14) Abstract 1735
SUBLIMINAL PRIMING RESISTANCE TO PAIN
Abraham M. Rutchick, Ph.D., Aron Jacobson, B.A., Psychology, California State University, Northridge, Northridge, CA

Guided imagery, in which patients envision relaxing experiences, can be effective in treating both acute and chronic pain. However, it requires the patient’s full attention and may not be feasible in all settings. Guided imagery, in which patients envision relaxing experiences, can be effective in treating both acute and chronic pain. However, it requires the patient’s full attention and may not be feasible in all settings. The current study tested an intervention that circumvents these limitations - specifically, a subliminal priming procedure to activate the concept of relaxation (and the physiological and affective changes that accompany the experience of relaxation based on shifts toward parasympathetic tone) and thereby decrease participants’ sensitivity to pain. Female undergraduates (N = 42), screened for contraindicating medical conditions and painkiller use, participated in an ostensibly test of sensory acuity. Participants first completed a baseline cold pressor task, continuously indicating the intensity of the pain they felt using the Faces Pain Scale. Intensity was recorded every ten seconds, as was total immersion time (pain tolerance). Participants then completed what was ostensibly a computer-based test of rapid visual categorization; unbeknownst to them, they were subliminally (20 ms) exposed to a set of relaxing images (e.g., Zen gardens, beach scenes) or control images (abstract paintings). Last, participants completed a second cold pressor task. In the second cold pressor task, participants primed with relaxing images experienced less subjective pain, as would be expected, an and 53 without a past history of depression. There were no significant differences between the two groups in age, sex or CES-D scores. Compared to patients with no past history of major depression, those with a history of past depressive episodes had higher self-ratings of disease activity (p = 0.015), were had a higher physician global assessment of disease severity (p = 0.004) and the DAS28 (0.026) and poorer physical functioning assessed by the HAQ (p = 0.009). Linear regression showed that the presence of past depressive episode predicted HAQ after controlling for sex and the current level of depressive symptoms (adjusted R2 = 0.096, F (df 3,55) = 3.057, p = 0.036). Conclusion: This study suggests that a past history of major depression represents a risk factor for disease severity in EIA. This may reflect an enduring physiological effect of depression that influences subsequent inflammatory arthritis, or an underlying shared process between these two disease entities.
whether anyone else smoked in the home. Youth completed a questionnaire assessing anxiety symptoms. They also received a blood draw and levels of eosinophil cationic protein (ECP) were measured. ECP is a mediator released in the airways by eosinophils and associated with damage to airway cells that can translate into worsened asthma. Linear regression analyses revealed that while smoking in the home and child anxiety alone did not predict ECP levels (B = -0.04, SE = 0.158, p > .50 and B = -0.383, SE = 0.817, p > .50, respectively) there was an interaction effect such that smoking in the home and child anxiety together predicted levels of ECP (B = -4.817, SE = 2.082, p < .05). Specifically, among youth whose parents reported greater smoking in the home, those who also reported greater anxiety had higher levels of ECP than youth with lower anxiety. Our study provides further evidence emphasizing the importance of jointly considering the social and physical home environment of youth with asthma when investigating the factors that are important with regard to their asthma-related outcomes.

15) Abstract 1805

MINDFULNESS-BASED STRESS REDUCTION FOR THE TREATMENT OF IRRITABLE BOWEL SYNDROME SYMPTOMS: A RANDOMIZED WAIT-LIST CONTROLLED TRIAL

Kristin A. Zernicke, M.Sc., Tavis S. Campbell, Ph.D., Department of Psychology, Philip K. Bluestein, MD, FRCPC, Department of Medicine, Tak S. Fung, Ph.D., Department of Mathematics and Statistics, Jillian A. Evans, B.Sc., Department of Psychology, Linda E. Carlson, Ph.D., Department of Oncology, University of Calgary, Calgary, AB, Canada

A randomised controlled trial was conducted to investigate the impact of a Mindfulness-Based Stress Reduction (MBSR) program on Irritable Bowel Syndrome (IBS) symptoms. MBSR is a 8-week group psychosocial intervention consisting of mindfulness meditation practice and gentle yoga that has been applied within chronically-ill populations, with the goal of reducing stress and symptoms of disease. It was hypothesized that participants attending the MBSR intervention would experience reduction in overall IBS symptoms (abdominal pain, diarrhea and constipation, flatulence, and bloating) and symptoms of stress relative to participants on the wait-list. Participants were recruited from multiple gastroenterologists' offices in the general community. Ninety-one participants with a diagnosis of IBS using the Rome III criteria were randomized to either an immediate MBSR program (n=44) or were waiting for the next available MBSR program (n=44). Participants completed IBS symptoms measures pre- and post-intervention or waiting period. For all outcome measures, linear mixed model analysis for repeated measures was conducted to determine time, group, and time x group interaction effects. Results indicated that while both groups exhibited a decrease in IBS symptom severity scores, the MBSR treatment group was significantly lower and the change was clinically meaningful with a 50 point decrease in symptom severity scores (F(2,58.81) = 3.70, p = .016). Following the intervention, the MBSR treatment group also experienced fewer overall symptoms of stress compared to the wait-list group (F(2,58.81) = 3.70, p = .031). Improvements in overall mood, quality of life and spirituality were observed for both groups over time. These results provide preliminary evidence for the feasibility and efficacy of a mindfulness intervention for the reduction of IBS symptom severity and symptoms of stress.

16) Abstract 1384

FACTORS IN THE SOCIAL AND PHYSICAL ENVIRONMENT INTERACT TO INFLUENCE YOUTH ASTHMA

Haonan M. Schreier, M.A., Nandini Maharaj, BA, Will Lee, BA, Psychology, University of British Columbia, Vancouver, British Columbia, Canada, Edith Chen, PhD, Psychology, University of British Columbia, Vancouver, BC, Canada

We investigated whether psychosocial characteristics of youth, in this case, youth anxiety, interact with physical influences on the home environment, in this case exposure to cigarette smoke, to predict asthma-relevant biological markers among youth with asthma. Previous research provides some evidence that the psychosocial environment (e.g., stress) interacts with outdoor environmental characteristics (e.g., air pollution) to affect asthma diagnosis and progression. However, it remains to be seen whether indoor physical environment conditions, as well as other psychosocial factors, such as youth mental health, also interact to influence youth asthma. In this study, 93 youth (aged 9-19, M = 13.63 ± 2.70, 72% male) and their parents participated in a study visit. Parents completed questionnaires reporting on their smoking habits and whether anyone else smoked in the home. Youth completed a questionnaire assessing anxiety symptoms. They also received a blood draw and levels of eosinophil cationic protein (ECP) were measured. ECP is a mediator released in the airways by eosinophils and associated with damage to airway cells that can translate into worsened asthma. Linear regression analyses revealed that while smoking in the home and child anxiety alone did not predict ECP levels (B = -0.04, SE = 0.158, p > .50 and B = -0.383, SE = 0.817, p > .50, respectively) there was an interaction effect such that smoking in the home and child anxiety together predicted levels of ECP (B = -4.817, SE = 2.082, p < .05). Specifically, among youth whose parents reported greater smoking in the home, those who also reported greater anxiety had higher levels of ECP than youth with lower anxiety. Our study provides further evidence emphasizing the importance of jointly considering the social and physical home environment of youth with asthma when investigating the factors that are important with regard to their asthma-related outcomes.

17) Abstract 1173

THE ASSOCIATION BETWEEN BMI, SEVERITY OF DEPRESSIVE SYMPTOMS AND THE PERCEPTION OF DYSPNEA IN ADULT ASTHMATICS

Maxine Boudreau, BA, Ariane Jacob, BA, Karine Ouellet, BA, Kim L. Langley, PhD, Simon Leclerc, PhD, MRCM/Psychology/Exercise Science, Hopital du Sacre-Coeur de Montreal/UQAM/Concordia, Montreal, Quebec, Canada

Background: Asthma and obesity are highly comorbid, and asthmatics with higher body mass index's (BMIs) have been shown to report higher rates of dyspnea (breathing discomfort or shortness of breath). Dyspnea is a cardinal feature of asthma attacks, and often triggers use of bronchodilators and other health services (i.e., physician visits). However, perceptions of dyspnea have been shown to be influenced by negative affective states such as depression; though the extent to which depression and BMI interact to influence perceptions of dyspnea in asthmatics remains unknown. Methods: A total of 801 patients with physician diagnosed asthma were recruited from the outpatient asthma clinic at Hopitale du Sacre-Coeur. Patients provided demographic and medical history information, IBS symptoms, mood, anxiety, and psychiatric symptoms (i.e., answered question on Asthma Control Questionnaire: 'During the past week, how much shortness of breath did you experience because of your asthma?' on a scale from 0-6), and completed the Beck Depression Inventory II (BDI-II). BMI was calculated from patients' self-reported height and weight. All patients underwent standard spirometry. Results: General linear model analyses adjusting for age, sex and asthma severity revealed main effects of BDI-II (B=-0.055, p=.001) score and BMI (B=-0.030, p=.002) on reports of dyspnea, such that patients with higher depressive symptomatology and higher BMIs reported more dyspnea. There was no significant interaction between BDI-II score and BMI on reports of dyspnea (B=0.001, p=.294). Conclusion: Results suggest that asthmatics with higher levels of depression, as well as patients with higher BMIs, may tend to overestimate their symptoms of dyspnea, which might lead to overuse of bronchodilators and other health care resources. Future research is needed to assess the extent to which dyspnea in depressed or overweight asthmatics are truly reflective of asthma symptomatology and not somatization or weight-induced pressure on the lungs.

18) Abstract 1405

EMPIRICALLY DERIVED COMPONENTS OF THE COOK-MEDLEY SCALE AND INFLAMMATION IN AFRICAN AMERICANS

Mana Ali, MS, Denee T. Mwendwa, PhD, Regina C. Sims, PhD, Serge Madhere, PhD, Shelcie-Anne Levy-Massey, MS, Georica Gholson, MS, Alfonso L. Campbell, PhD, Psychology, Howard University, Washington, DC, Clive O. Calender, MD, College of Medicine, Howard University Hospital, Washington, DC

Purpose: Dispositional hostility, as measured by the Cook Medley (Ho) Scale, has been associated with inflammation and cardiovascular disease (CVD) risk. There is evidence that suggests components of hostility are more useful in predicting poor cardiovascular health outcomes than a single hostility construct. The purpose of this study was to investigate the components of hostility and their association with the inflammatory markers interleukin 6 (IL-6) and C-reactive protein (CRP) in African Americans.
Affect was also independently related to mortality (HR=1.047, p<0.001), negative affect in general and depressive affect in particular, and findings suggest that it is important to identify ICD patients with negative affect remained significant (HR=1.036, p=0.011), but somatic cognitive-affective symptoms were not (HR =0.969, p=0.27). Negative symptoms of depression not (HR=1.042, p=0.311). Increased age, CRT and appropriate shocks were related to death. Conclusions: Depressive symptoms of depression not (HR=1.150, p<0.001), whereas four of five ICD traits did so by informant report (N OR=1.17, 1.47; O OR = 0.84 [0.73, 0.98]; A OR = 0.77 [0.67, 0.89]; O OR = 0.79 [0.69, 0.91]). When adjusted for correlated variation in self-reported traits, moreover, all informant-reported personality traits were associated significantly with metS (N OR = 1.37 [1.17, 1.62]; E OR = 0.81 [0.68, 0.96]; O OR = 0.84 [0.67, 0.98]; A OR = 0.81 [0.69, 0.94]; O OR = 0.76 [0.65, 0.99]). These findings suggest that dispositional attributes measured by informant can provide informative, and independent, metric in the study of personality and its relationship to cardiometabolic risk. Supported by PO1 HL040962

19) Abstract 1168

DEPRESSIVE AFFECT, POSITIVE AFFECT, AND MORTALITY IN PATIENTS WITH AN IMPLANTABLE CARDIOVERTER DEFIBRILLATOR

Krista C. Van den Broek, PhD, CoRPS - Medical Psychology and Neuropsychology, Tilburg University, Tilburg, The Nederlands. Betek, PhD, Department of Methodology and Statistics, Mirel Halbus, MSC, Department of Medical Psychology and Neuropsychology, Tilburg University, Tilburg, The Netherlands, Marco Alings, PhD, Department of Cardiology, Amphia Hospital, Breda, The Netherlands, Pepijn H. Van der Voort, MD, Department of Cardiology, Catharina Hospital, Eindhoven, The Netherlands, Johan Denollet, PhD, Department of Medical Psychology and Neuropsychology, Tilburg University, Tilburg, The Netherlands

Purpose: Little is known about the impact of emotional distress on mortality in patients with an implantable cardioverter defibrillator (ICD). Our aim is to examine the predictive value of depressive symptoms (including its components somatic symptoms and cognitive-affective symptoms) and general positive and negative affect for mortality. Methods: ICD patients (N=591, 81% male, mean age=62.7±10.1 years) completed the Beck Depression Inventory to measure depressive symptoms and the Global Mood Scale to measure negative and positive affect. Covariates consisted of demographic and clinical variables, such as LV ejection fraction, ICD indication, and CRT. Stepwise regression analyses suggested that BMI was significantly associated with higher levels of IL-6 (beta = .41, p = .000) and CRP (beta = .60, p = .000). In addition, the Suspicious Attributions component of hostility was associated with higher CRP levels (beta= .14, p = .027) after adjusting for age, gender, systolic blood pressure, BMI and self-reported diabetes status. Conclusion: The findings indicate that hostile cognitions are critical for a thorough assessment of CVD risk profiles in African Americans. Understanding hostility, as a multi-component disposition, will help to better define, assess, and intervene in reducing its impact on poor health. Future studies should aim to further delineate personality constructs within immediate and distal contexts to help account for disparate health outcomes in African Americans.

20) Abstract 1372

RELATIONSHIP OF SELF- AND INFORMANT-REPORTED PERSONALITY RATINGS TO PRESENCE OF THE METABOLIC SYNDROME

Karissa G. Miller, B.A., Psychology, University of Pittsburgh, Pittsburgh, Pennsylvania, Janine D. Flor, Ph.D., Psychology, Queens College, CUNY, Flushing, New York, Stephen B. Manuck, Ph.D., Psychology, University of Pittsburgh, Pittsburgh, Pennsylvania. Studies of the role of personality in cardiovascular disease risk commonly rely on self-reported trait measurements, which can reflect presentation biases, deficiencies of introspection, and defensive self-appraisal. Informant reports provide a complementary approach to personality assessment that mitigates some of these limitations. Here, we examine associations of self- and informant-reported traits of the 5-factor model (FFM: Neuroticism, Extraversion, Openness, Agreeableness, Conscientiousness) with presence of the metabolic syndrome (metS) in 1144 midlife volunteers (mean age: 44.5 ±6.8 yr [range: 30-54]; 54% Female; 85/15% White/African American). The NEO Personality Inventory-Revised indexed self-reported personality, and the NEO-Five Factor Inventory was administered to two informants (relatives, friends) for each participant. Traiit scores were averaged for the 88% of subjects with two completed informant ratings; otherwise, ratings from the single available informant were used. Trait measurements were then standardized (mean = 0, SD = 1) for use as predictors in logistic regressions adjusted for age, sex, and race. MetS, defined by current AHA/NHLBI criteria, was present in 23% of the sample. Self- and averaged informant ratings correlated significantly for all FFM traits (r’s = 0.45-0.66; p’s <0.0001). For self-reported traits, only A predicted metS (OR = 0.82, 95% CI: 0.71, 0.95), whereas four of five FFM traits did so by informant report (N OR=1.17, 1.47; O OR = 0.84 [0.73, 0.98]; A OR = 0.77 [0.67, 0.89]; O OR = 0.79 [0.69, 0.91]). When adjusted for correlated variation in self-reported traits, moreover, all informant-reported personality traits were associated significantly with metS (N OR = 1.37 [1.17, 1.62]; E OR = 0.81 [0.68, 0.96]; O OR = 0.84 [0.67, 0.98]; A OR = 0.81 [0.69, 0.94]; O OR = 0.76 [0.65, 0.99]). These findings suggest that dispositional attributes measured by informant can provide informative, and independent, metric in the study of personality and its relationship to cardiometabolic risk. Supported by PO1 HL040962

21) Abstract 1766

PHOBIC ANXIETY IN PATIENTS WITH AN IMPLANTED CARDIOVERTER DEFIBRILLATOR: FINDINGS FROM THE LIVING WITH AN IMPLANTABLE CARDIOVERTER DEFIBRILLATOR (LICAD) PROSPECTIVE STUDY

En-Young N. Cho, MD, Roland von Känel, MD, General Internal Medicine, University Hospital, Bern, Switzerland, Birgit Marter-Mittag, PhD, Jeroen Ronel, MD, Psychosomatic Medicine, Christolf Kolb, MD, Heart Centre, Technical University, Munich, Germany, Jens Baumert, PhD, Karl-Heinz Ludwig, MD, PhD, Epidemiology, Helmholtz Zentrum, Munich, Germany

Background: The implantable cardioverter defibrillator (ICD) is gold standard therapy to prevent life-threatening arrhythmias. Phobic anxiety has been shown to predict ventricular arrhythmia in patients with coronary heart disease but little is known about phobic anxiety in ICD patients. Therefore, we assessed phobic anxiety and its course over time in the LICAD Study prospectively. Methods: Data were derived from the Living With an Implanted Cardioverter-Defibrillator-Study, including140 ICD patients routinely attending the German Heart Center Munich outpatient clinic. We assessed phobic anxiety using the subscale from the revised Symptom checklist (SCL)-90. For baseline and follow-up assessment we defined the upper quartile of patients to have high levels of phobic anxiety, corresponding to a phobic anxiety score > 4. Results: 34 patients (24.3%) at baseline and 43 patients (30.7%) at follow-up had high phobic anxiety levels. 18 (52.9%) had maintained high phobic anxiety. Compared to patients with low levels of phobic anxiety at baseline, those with high phobic anxiety levels had experienced more ICD shocks and complained more frequently about chest pain, depression, and helplessness. At follow-up this same group had experienced more often cardiac symptoms and chest pain and showed higher levels of depression. Younger age, high levels of symptoms of phobic anxiety, and the number of non-cardiac
comorbidities at baseline emerged as significant predictors of elevated phobic anxiety at follow-up. Conclusions: Several potential modifiable correlates of phobic anxiety were identified in ICD patients. Younger ICD patients and those with elevated baseline levels of phobic anxiety and non-cardiac comorbidities are at particular risk of developing an increase in phobic anxiety over time.

22) Abstract 1590

THE INDEPENDENT ASSOCIATION OF ANXIETY DISORDERS WITH INCIDENT HEART FAILURE IN A RETROSPECTIVE COHORT OF VA PATIENTS

Lauren D. Garfield, MPH, Center for Health Outcomes Research, Saint Louis University School of Public Health, St. Louis, MO, Timothy Chruciel, MPH, Research Service, St. Louis Veterans Affairs Medical Center, St. Louis, MO, Paul J. Hauptman, Medicine, Division of Cardiology, Saint Louis University School of Medicine, St. Louis, MO, Kenneth E. Freedland,., Patrick J. Lustman,., Robert M. Carney,., Psychiatry, Washington University School of Medicine, St. Louis, MO, Richard Owen, Research & Development Service, Central Arkansas Veterans Healthcare System, Little Rock, AR, Kathleen K. Bucholz, PhD, Psychiatry, Washington University School of Medicine, St. Louis, MO, Jeffrey F. Scherrer, PhD, Research Service, St. Louis Veterans Affairs Medical Center, St. Louis, MO

Purpose: To determine if anxiety disorders (anxiety disorder not otherwise specified [NOS] generalized anxiety disorder [GAD], and posttraumatic stress disorder [PTSD]) are independent risk factors for heart failure (HF) in patients free of cardiovascular disease (CVD) at baseline, after adjusting for covariates. Subjects and Methods: Veterans Administration (VA) electronic patient records were used to identify a cohort of patients free of CVD, ages 25-80, in fiscal years 1999 and 2000 (n=354,613). Patients had to have at least one VA clinic visit in both FY1999 and 2000. The sample was 88% male, 27% depressed. Heart failure was defined as any ICD-9-CM code for HF between 2001-2006. Age-adjusted Cox proportional hazard models were computed after adjusting for sociodemographics, CVD risk factors, prescriptions for beta-blockers, aspirin, antiplatelet therapy, antidepressants, antianxiety medication, and cardiac devices. Stratified analysis was performed for anxiety disorder NOS due to a significant interaction between depression and the disorder. Results: 3.5% of patients developed incident HF. All anxiety disorders were significantly associated with incident HF in age-adjusted models. Diagnosis of incident HF was significantly associated with anxiety disorder NOS in depressed patients (HR=1.15; 95% CI: 1.05-1.25), anxiety disorder NOS in non-depressed patients (HR=1.28; 95% CI: 1.15-1.41) and patients with PTSD (HR=1.23; 95% CI: 1.16-1.31), but not with GAD, in fully adjusted models. Antidepressant pharmacotherapy was a significant predictor of incident HF in all models. Conclusion: This is one of the first analyses to show that anxiety disorders increase the risk of incident HF independent of conventional risk measures and depression comorbidity. Additional research is needed to determine if classes of antidepressant therapy pose differential risks of HF.

23) Abstract 1694

OUTRUNNING YOUR GENES - GENETIC MODERATION OF ASSOCIATION BETWEEN EXERCISE AND THE METABOLIC SYNDROME

Jay E. Champlin, B.A., University of Pittsburgh School of Medicine, Pittsburgh, PA, Indrani Halder, Ph.D., Cardiology, University of Pittsburgh Medical Center, Pittsburgh, PA, Stephen B. Manuck, Ph.D., Psychology, Robert E. Ferrell, Ph.D., Human Genetics, University of Pittsburgh, Pittsburgh, PA, Matthew F. Muldoon, M.D., MPH, Medicine, University of Pittsburgh School of Medicine, Pittsburgh, PA

Genetic variation in the peroxisome proliferator-activated receptor-alpha (PPARA) gene and levels of customary physical activity influence the development of the metabolic syndrome, and both appear to act, in part, through modulation of glucose and lipid metabolism. Here, we examined whether polymorphic variation in the PPARA gene and individual differences in exercise are associated with early development of metabolic risk, either additively or by interaction. Subjects were 922 mid-life European-American men and women (age range 30-54) living in the Pittsburgh metropolitan area and not receiving medications for hypertension, lipid disorders or diabetes. All subjects were genotyped for 2 single-nucleotide polymorphisms: an intronic tag SNP rs135542 (A>G) and the functional locus rs1800206 (C>G). Their minor allele frequencies were 27% and 6%, respectively, and the distributions of both polymorphisms were found to conform to Hardy-Weinberg Equilibrium. Participants completed the Paffenbarger Physical Activity Questionnaire. Waist circumference, resting BP, and fasting serum triglycerides, HDL-cholesterol and glucose were measured. A composite index of metabolic risk was calculated as an aggregate of the 5 risk factors and standardized to a mean of 0 and SD of 1. Linear regression, adjusted for age and gender, showed that the metabolic index was predicted by physical activity (beta =-.179, t =-6.631, p <.001) and by PPARA genotype rs135542 (beta=.078, t=2.829, p=.005) but not rs1800206. Further, the metabolic index was predicted by the interaction of physical activity and genotype rs135542 (beta=-.058, t= -2.15, p = .032). Values for the composite metabolic risk index rose with the presence of any G allele (AA =-.089, AG =.115, and GG =.118) and declined with increasing levels of exercise. In addition, the covariation of exercise with the metabolic index was greatest among the GG homozygotes (r=.41), lower among heterozygotes (r=.25) and least among AA homozygotes (r=.17). In conclusion, genetic variation in rs135542 of PPARA moderates an association of physical activity with aggregated metabolic risk.

24) Abstract 1094

PSYCHOLOGICAL DISTRESS PERCEIVED DURING MYOCARDIAL INFARCTION AS A PREDICTOR OF POOR CARDIOVASCULAR OUTCOME

Roland von Känel, MD, Roman Hari, MSc, General Internal Medicine, Jean-Paul Schmid, MD, Hugo Saner, MD, Cardiac Prevention and Rehabilitation, Stefan Begré, MD, General Internal Medicine, University Hospital, Bern, Switzerland

Background: Clinicians are aware that patients may perceive intense psychological distress during acute myocardial infarction (MI). The prognostic impact of MI-related acute distress has not previously been investigated. We hypothesized that subjective ratings of distress perceived during MI would adversely impact cardiovascular outcome. Methods: We studied 304 patients (61±11 years, 85% men) after a median of 52 days (range 12-365 days) after index MI. They rated fear of dying, helplessness, and pain all perceived during MI on a numeric scale ranging from 0 (no distress) to 10 (extreme distress). Non-fatal hospital readmissions due to cardiovascular disease (CVD) related events (i.e., recurrent MI, elective and non-elective stent implantation, bypass surgery, pacemaker implantation, cerebrovascular incidents) were assessed at follow-up. The relative CVD event risk was computed for a (clinically meaningful) 2-point increase in distress levels. Results: During a median follow-up of 32 months (range 16-45), 45 patients (14.8%) experienced a CVD-related event requiring hospital readmission. Separate models showed greater fear of dying (HR 1.25, 95% CI 1.06-1.47), helplessness (HR 1.29, 95% CI 1.09-1.52), and pain (HR 1.35, 95% CI 1.08-1.68) all predicted increased CVD risk after adjustment for time between index MI and assessment of distress, sex, number of diseased coronary vessels, and hypertension. Conclusions: Perceived distress during MI adversely impacted non-fatal cardiovascular outcome independent of other important prognostic factors.
FUNCTIONAL CONNECTIVITY BETWEEN INSULA AND VENTRAL STRIATUM JOINTLY COVARIATES WITH INSULIN RESISTANCE AND DEPRESSIVE SYMPTOMS
John P. Ryan, Ph.D., Lei K. Sheu, Ph.D., Psychiatry, Peter J. Gianaros, Ph.D., Psychiatry and Psychology, University of Pittsburgh, Pittsburgh, PA

Individuals with insulin resistance (IR) are at increased risk for developing Type 2 Diabetes, and IR tends to covary with depressive symptoms. The brain is sensitive to insulin levels in the body, but what remains unclear is how insulin sensitivity may relate to human brain function. One brain region that may be particularly sensitive to insulin is the ventral striatum (VS), which is critical for reward processing and may play a role in the expression of depressive symptoms. Accordingly, we examined the functional connectivity (time-dependent correlation in neural activity) between the VS and a region of the brain involved in gustatory sensory mapping and eating behavior, the insula. Participants (N=72, 35 men, aged 30-49 yrs) completed a resting functional MRI protocol in addition to a fasting blood draw. We hypothesized that IR, which is associated with higher fasting levels of blood sugar and insulin, would be marked by heightened connectivity between the VS and insula. Seed-based connectivity analyses demonstrated a more positive connectivity between the left VS (x,y,z=-9,9,-8) and the left insula extending into the operculum. This relationship remained after controlling for HDL, LDL, triglycerides, age, sex, and body mass index. Moreover, extracted VS-insula connectivity values significantly correlated with depressive symptoms on the Beck Depression Inventory (r = .33, p < .01). Finally, a Monte Carlo mediation test revealed that VS-insula connectivity indirectly mediated the relationship between IR and depressive symptoms (CI of indirect effect > 0). Individual differences in IR associate with stronger connectivity between brain areas involved in reward and eating behaviors, and this connectivity may help explain the relationship between metabolic dysfunction and depressive symptomatology.
26) Abstract 1184

THE NUMBER OF PIECES A PORTION IS DIVIDED INTO IMPACTS PERCEIVED CONSUMPTION

Melissa J. Zielinski, Psychology, The College of New Jersey, Ewing, NJ, Charlene Blades, MS, Psychology, City College of CUNY, New York, New York, Jenna L. Scisco, MS, Psychology, Adam W. Hoover, Ph.D., Electrical and Computer Engineering, Eric R. Muth, Ph.D., Psychology, Clemson University, Clemson, South Carolina

Estimating the volume of food or drink consumed is affected by visual perception and illusions. The height of a container and the size of a bowl or plate can lead to overestimation or underestimation of the amount of food or drink displayed (for a summary, see van Ittersum & Wansink, 2007). These estimation errors can lead to more or less satisfaction with the food or drink that is consumed. For example, a previous study indicated that increasing the height of a drinking glass led to overestimation of the amount of liquid present and a decrease in post-consumption satisfaction (Raghunir & Krishna, 1999). The purpose of the present study was to investigate the effect of manipulating the number of pieces a portion was divided into on (1) post-consumption satisfaction and social factors in a population-based sample of older blacks and whites. Participants were 4,315 adults (62% black, 38% white; mean age = 20.4 years, 17 women). Participants completed an experimenter-developed 32-item questionnaire to assess satisfaction and perceptions of the amount of food consumed. Satisfaction did not differ between the 9-piece (M = 98.95, SE = 1.51) and 16-piece conditions (M = 100.28, SE = 1.76, p > .05). The estimated number of grams consumed was significantly higher in the 16-piece condition (M = 241.36g, SE = 43.61g) than the 9-piece condition (M = 199.82g, SE = 37.42g, p < .05). Therefore, when portion size is held constant and the number of food pieces is manipulated, the higher number of pieces is perceived as containing more food. This finding has direct implications for eating behavior and obesity interventions. Dividing fixed portions into more pieces may be a way for individuals aiming to lose weight to decrease food intake, given that these individuals will perceive that they have consumed more food.

27) Abstract 1110

UNPACKING THE PSYCHOSOCIAL CONTEXT: INTERRELATED PATHWAYS

Kimberly M. Henderson, BA, Cara J. Clark, Sc.D, Medicine, University of Minnesota, Medical School, Minneapolis, MN, Melanie M. Wall, PhD, Biocybernetics-Biostatistics, Columbia University, Mailman School of Public Health, New York, NY, Denis A. Evans, MD, Carlos F. Mendes de Leon, PhD, Internal Medicine, Rush University, Rush Medical Center, Chicago, IL, Susan A. Everson-Rose, PhD, Medicine, University of Minnesota, Medical School, Minneapolis, MN

Socioeconomic status (SES), personality, and psychosocial functioning contribute significantly to disease etiology, but less is known about their complex interplay. We examined a model of interrelationships among neuroticism, extraversion, and dependent factors, including lifetime SES (i.e., childhood and adult SES), hostility, neuroticism, and extraversion, and dependent factors, including SR, NE, and PS. The SEM assumed each independent factor had a direct effect on each dependent factor and that both PS and SR directly affected NE with an additional direct effect from PS to SR. The SEM (CFA fit [CFI = .96, TLI = .95; RMSEA = .055]) fit the data well and indicated significant associations in all pathways (p < .001).

With perceptions of racism, we found several significant pathways, including neuroticism to NE (beta = .61), SR to NE (beta = .42), PS to NE (beta = .42), neuroticism to PS (beta = .42), SES to SR (beta = .28), and extraversion to SR (beta = .27). Several indirect pathways also emerged as significant (p < .001); most notably, with regards to NE. 64% of the association between extraversion and NE was indirectly accounted for by SR. Also, 58% of the total effect of SES on NE was via SR. Neuroticism and hostility were indirectly related to NE via the PS pathway. The SEM explained 79.2% of the variance for NE. 22.1% for PS and 29.1% for SR. These findings indicate that lifetime SES and personality predict psychosocial functioning and that SR and PS particularly shape the relationships leading to NE. (Supported by NIH/DHHS grants HL84209, AG11101, and ES10902.)

28) Abstract 1773

RACISM AND COPING: FROM MECHANISMS TO INTERVENTION

Elizabeth Bronoldo, PhD, Melissa Pencille, BS, Madeline Libretti, BS, Psychology, St John's University, Queens, New York

One of the pathways through which racism may exert effects on health is through its effects on negative mood and depressive symptoms. In several of our prior studies, we have consistently demonstrated that lifetime exposure to racism is associated with higher levels of daily negative mood, as assessed with electronic diaries. The effects of racism have been most consistent for daily levels of anger, and the effects persist even after controlling for personality variables (i.e., hostility, anxiety, defensiveness). However, to date no coping strategies have been shown to consistently buffer the effects of racism on negative mood. We examined the effects of three cognitive coping interventions (i.e., ethnic identity intensification, cognitive processing, and values clarification) on acute response to race-related stress as well as daily mood. Interventions were contrasted with a distraction control condition. We present preliminary data on the first 38 participants (all self-identified as Black, mean age = 20.4 years, 17 women). Participants completed the Perceived Ethnic Discrimination Questionnaire - Community Version (PEDQ-CV). The laboratory protocol included in order: a math task, a race-related maltreatment recall task, a cognitive intervention (or control) condition, and another math task. Tasks were separated by 5 minute rest periods. Electronic diary data on mood and social interactions were collected following each task and every 20 minutes for the remainder of the day. At the end of the rest period following the intervention (or control) task, the intervention group tended to feel less angry (mean = 3.13) than the control group (mean = 15.79; F(1,35) = 3.83, p = .058) and were significantly less sad (mean intervention = 15.09; F(1,35) = 5.55, p < .03), controlling for the level of anger evoked during the recall task. Lifetime exposure to perceived racism was associated with higher levels of daily anger (r = .42, p < .01) and sadness (r = .34, p < .05). Additional analyses examine the buffering effects of intervention on daily moods.

29) Abstract 1093

CRYING WITHOUT TEARS: EMOTION PROCESSING AND REGULATION IN PATIENTS WITH PRIMARY SJÖGREN’S SYNDROME

Ninke Van Leeuwen, MSc, Ercole R. Bossema, PhD, Department of Clinical and Health Psychology, Utrecht University, Utrecht, The Netherlands, Henriët Van Middendorp, PhD, Aike A. Kraize, PhD, Department of Rheumatology and Clinical Immunology, University Medical Center Utrecht, Utrecht, The Netherlands, Johannes W. J. Bijlsma, PhD, Department of Rheumatology and Clinical Immunology, University Medical Center Utrecht, Utrecht, The Netherlands, Rinie Geenen, PhD, Department of Clinical and Health Psychology, Utrecht University, Utrecht, The Netherlands, Rinie Geenen, PhD, Department of Clinical and Health Psychology, Utrecht University, Utrecht, The Netherlands

The purpose of study: The chronic autoimmune disease Sjögren’s syndrome is characterized by dryness of the eyes. As a consequence, patients have to rely on other ways than crying to deal with emotions. This study examined differences in emotion processing and regulation between people with and without Sjögren’s syndrome and correlations of emotion processing and regulation with mental wellbeing. Subject sample and statement of methods: In 300 patients with primary Sjögren’s syndrome and 100 age-and-gender-matched people from the
general population (mean age 56.8 years, 93% female), emotion processing (affect intensity and alexithymia), emotion regulation (cognitive reappraisal, suppression and expression of emotions), and mental wellbeing were assessed with the Berkeley Expression Questionnaire, Toronto Alexithymia Scale-20, Emotion Regulation Questionnaire, and RAND SF-36. Summary of results: Criteria for clinical alexithymia applied to 22% of the patients and 12% of the control participants (χ2 = 4.78, p = .03). In particular, patients had more difficulty identifying feelings than controls (t = 4.21, p < .001). Higher affect intensity and higher alexithymia (i.e. identifying and describing feelings) were correlated with worse mental wellbeing in both groups (r ≥ .32, p < .001). Higher emotion suppression was correlated with worse mental wellbeing only in patients with Sjögren’s syndrome (r = -0.13, p = .03).

Conclusion: A relatively large number of patients with Sjögren’s syndrome is alexithymic. Processing emotions intensely or deficiently, and regulating them by suppression, are associated with worse mental wellbeing. Clinical experimental research needs to examine whether and which psychological interventions can be helpful for selected patients with Sjögren’s syndrome who have emotion processing problems. This study is financially supported by the Dutch Arthritis Association.

30) Abstract 1779
MATERNAL EDUCATION PREDICTS SLEEP EFFICIENCY IN COLLEGE STUDENTS IN A GENDER-SPECIFIC MANNER
Stephen J. Gray, Daniel Harris, BA, Kristen Nichols, Julius Johnson, Nicolas Rohleder, PhD, Jutta M. Wolf, PhD, Psychology, Brandeis University, Waltham, Massachusetts
Purpose of study: Maternal education has been reliably shown that socioeconomic status (SES) is positively related to health measures, including sleep. College-aged adults are anecdotally known for their poor sleeping habits. Given the high performance demands of university life, understanding the effects of SES on sleep becomes relevant. Hence, the aim of the current study was to investigate whether parent SES predicts sleep parameters in college students. 45 undergraduates (15 male, 30 female, age: 20.7±1.4) were monitored for one night over six nights and software used to compute averages and standard deviations in sleep efficiency, sleep duration, onset latency, and time spend awake after sleep-onset (WASO). SES was assessed by mother's highest education level and categorized as high school versus college or higher. Students slept an average of 6.9±1 hours with large variations both between and within students. Higher sleep efficiency was associated with higher maternal education; however, this was only true for females, while the opposite was true for males (SES-by-gender: F=5.02, p=0.031). This interaction flipped for variation in sleep efficiency across a week, such that less variation was associated with higher maternal education in females and lower maternal education in males (F=6.54, p=0.014). The same interactions were found for WASO (average: F=4.15, p=0.048; SD: F=4.69, p=0.036), but not for sleep duration or sleep onset latency (F<1, p>0.14, F=0.14, p=0.71, respectively). Our results confirm the large degree of variability in college students sleeping habits. Despite this variability, SES was positively associated with higher and more stable sleep efficiency and less time awake after sleep-onset. However, this was true only for females. It can be speculated that for males, having a mother with higher education leads to increased pressure to succeed as opposed to the positive effects for females of having a role model. Overall, these findings support the link formerly found between parent education and adult health and extend it to college students, even though they no longer live with their parents.

31) Abstract 1223
LOWER SUBJECTIVE SOCIAL STATUS AND HIGHER PLASMA INTERLEUKIN-6 IN FEMALE COMPARED TO MALE COLLEGE STUDENTS
June A. He, Jutta M. Wolf, PhD, Rachel H. Elman, Leah Rohsman, Jason Wong, Nicolas Rohleder, PhD, Psychology, Brandeis University, Waltham, MA
Purpose of study: Lower subjective social status (SSS) is associated with a variety of negative health outcomes and appears to capture and predict the effects of one’s health or more comprehensive measures of socioeconomic status (SES) alone. Higher SSS is generally correlated with better health. However, whether or not this holds true within a young population of relatively high SES persons is yet to be determined. The aim of the present study was to investigate whether SSS was associated with indicators of health in college students. Sample and Methods: 56 healthy students (33 women and 23 men; mean age 19.5 years; SD 1.33; mean BMI 23.5 kg/m2; SD 3.84) provided self-reports of subjective social status, depressive symptoms, chronic stress and vital exhaustion. A fasting venous blood sample was obtained to measure plasma IL-6 and further indicators of physical health were assessed.

Results: Relative to the community, female students rated themselves significantly lower on subjective social status compared to male students (f: 6.1±1.7; m: 7.6±1.1; r=3.84; p < 0.001). SSS was also significantly related to depressive symptoms and vital exhaustion (r=3.4; p=0.01; r=3.2; p=0.02, resp.). Moreover, female students had significantly higher plasma concentrations of IL-6 than males (t=2.41; p=0.02); however, IL-6 was not correlated with SSS (r=0.06; n.s.).

Conclusions: These data show that within a group of high SES college students, there are still patent gender differences in SSS, which might explain some of the disparities present in psychological and physiological health. The significantly lower self-rating of female students in association with markers of worse health suggests that they are at higher risk for negative health outcomes. Furthermore, the health risks associated with relatively low SSS seem to present even within a restricted range of relatively high SES populations.

32) Abstract 1087
PHYSIOLOGICAL RESPONSES TO STRESSOR RECALL: THE MODERATING ROLES OF SOCIAL-EVALUATIVE THREAT AND INDIVIDUAL DIFFERENCES IN RUMINATION
Peggy M. Zoccola, PhD, Psychology, Ohio University, Athens, OH, Sally S. Dickerson, PhD, Suman Lam, MA, Psychology & Social Behavior, University of California, Irvine, Irvine, CA
Previous work has shown that acute stressors with social-evaluative threat (SET) elicit both rumination and cortisol reactivity (Dickerson et al, 2008; Zoccola et al, 2008). The current study tested whether physiological responses to mental recall of a past stressor are influenced by SET and individual differences in rumination. Participants were randomly assigned to complete a laboratory speech stressor either in an evaluative (SET; n=86) or non-evaluative context (Non-SET; n=58), and then returned several days later to complete a guided mental recall task about the stressor. Trait rumination was assessed during the baseline period of visit one and state rumination was assessed 10-minutes post-stressor. Salivary cortisol and systolic and diastolic blood pressure (BP) readings were collected throughout the second visit to assess physiological responses to the recall task. In response to mental recall, the SET condition was expected to elicit both greater cortisol and BP, compared to the Non-SET condition. In addition, it was hypothesized that greater rumination would be associated with greater physiological responses to the recall task. Analyses revealed that state rumination predicted greater cortisol and BP pre-recall (B’s > 0.19, p’s < 0.05), and cortisol levels remained more elevated throughout the recall visit as state rumination scores increased, F(1,510) = 15.74, p < 0.0001. There were no cortisol or BP increases from baseline to recall task, on average. Post-recall, however, BP levels did increase, and increases were greatest in the SET condition for those with higher state rumination scores, consistent with expectations, systolic BP: F(1,667) = 5.58, p < 0.05; diastolic BP: F(1,664) = 4.58, p < 0.05. In sum, results suggest that recalling SET stressors, particularly for those with a tendency to ruminate, may lead to increased physiological activation. Findings highlight the importance of stressor characteristics and individual differences in rumination for understanding the relationship between rumination, recall, and prolonged physiological activation.
34) Abstract 1839

CARDIOVASCULAR RESPONSES TO STRESS ARE DIMINISHED DURING NICOTINE WITHDRAWAL IN CHRONIC SMOKERS

Motohiro Nakajima, PhD, Mustafa al’Absi, PhD, Elizabeth Ford, Behavioral Sciences, University of Minnesota Medical School, Duluth, MN, Sharon Allen, MD/PhD, Family Medicine & Community Health, University of Minnesota Medical School, Minneapolis, MN, Lorent Wittmers, MD/PhD, Physiology & Pharmacology, University of Minnesota Medical School Duluth, MN

Accumulated evidence suggests that chronic smoking is related to alterations in cardiovascular responses to stress response. However, these are inconsistent due to lack of systematic control of abstinence effects and withdrawal and absence of a non-smoking control group. Forty-five smokers and 16 nonsmokers completed two laboratory sessions that took place approximately two weeks apart. Smokers smoked ad libitum before the first session but were asked to be abstinent for 48 hours prior to the second session. Smoking status was confirmed biochemically. In each session, cardiovascular measures (systolic and diastolic BP; heart rate) were monitored during baseline, rest, stress tasks (public speaking, mental arithmetic), and recovery. We found Session x Time interactions in systolic and diastolic BP and heart rate (p<.05) reflecting larger responses to stress and steeper recoveries in session 1 than in session 2 (p<.05). A Group x Time interaction was found in systolic BP (p<.05) due to attenuated recover in smokers relevant to nonsmokers. There was a trend of a Group x Session interaction in heart rate (p=.06) indicating larger reduction in heart rate during the second session in smokers than in nonsmokers (p>.05). These findings suggest that attenuation in cardiovascular responses to stress during smoking abstinence may be not only due to habituation to the tasks but also to neurophysiological changes due to nicotine withdrawal. The results have implications in terms of identifying abstinence-related alterations in cardiovascular system as possible markers of withdrawal intensity and risk for smoking relapse.

35) Abstract 1835

SEX DIFFERENCES IN PREDICTORS OF SMOKING RELAPSE: NEGATIVE MOOD, PERCEIVED STRESS, AND MOTIVES FOR SMOKING

Motohiro Nakajima, PhD, Mustafa al’Absi, PhD, Behavioral Sciences, University of Minnesota Medical School, Duluth, MN

The purpose of the current study was to examine sex differences in the extent to which trait negative mood, perceived stress, and smoking motives predicted smoking relapse over 12-month follow-up period. Thirty-three female (mean ± SD: 34.9 ± 2.5) and 38 male (mean ± SD: 37.1 ± 2.3) smokers were asked to complete forms on smoking history, negative mood (i.e., depression, anxiety, and anger), stress, and smoking motives and set a quit date. After their quit date, participants attended 4 weekly follow-up sessions and were contacted by phone at 3, 6, 9, and 12 months. Female smokers were more likely to use cigarette smoking to manage mood than men. Also, depressive mood, anxiety, anger, and perceived stress predicted time to relapse in women whereas motivation to reduce craving predicted relapse in men. Findings on negative mood remained significant after smoking variables were statistically controlled. The results confirm that women and men use cigarette smoking for different reasons and provide evidence of sex-specific predictors of smoking relapse. Also, the findings suggest that different treatment approaches may be effective in female and male smokers.

36) Abstract 1600

LIVING OUR SOCIAL LIVES ONLINE: VIRTUAL OSTRACISM

Kelly B. Filipkowski, PhD, Psychology, Misericordia University, Dallas, PA, Joshua M. Smyth, PhD, Psychology, Syracuse University, Syracuse, NY

PURPOSE: Prior work suggests being ostracized by others produces negative emotional, psychological, and physical responses. With social interactions increasingly being conducted in virtual ways (e.g., email, texts, etc.), it is important to understand the effects of virtual ostracism and how they compare to "real-life" ostracism. METHOD: 77 participants (54 female; M age=19) completed surveys regarding mood, self-esteem, and interpersonal outcomes, and were informed they would interact with strangers and complete an impression formation task. All participants were assigned to interact with study confederates either in-person or online (i.e., chat room). In all cases, participants were included in conversation for approximately 1 minute and were subsequently ostracized by the other 2 confederates for 4 minutes. Following exclusion, participants completed most pre-interaction measures. RESULTS: Ostracism in both conditions (in-person and online) was perceived by participants and resulted in similar reports of low levels of inclusion and control, and high levels of exclusion (ps > .22). Ostracism in both conditions produced decreases in positive and negative affect (PA: p < .01; NA: p = .01), but had no main effect on self-esteem (SE: p > .13). Ostracism method appeared to moderate SE effects; chat room participants indicated an increase in SE following ostracism, whereas in-person participants reported a slight decrease in SE (interaction p < .02). Women reported lower PA than did men following ostracism (p < .01); however, men and women were similarly affected by online and in-person ostracism. CONCLUSION: These data demonstrate that online and in-person ostracism may be experienced in largely similar ways. This suggests online social experiences, such as cyber-bullying or (de)friending on Facebook, may meaningfully impact individuals. Yet, this also has positive implications for clinical practice; utilizing technology to remotely deliver social support strategies in real-time may be an effective means to improve a variety of psychological and physical conditions.
through psychological and interpersonal pathways. Marriage is a central relationship in many adults' lives, and the quality of this relationship also influences health. Differences between spouses in SSS could also have important health consequences, as another aspect of relative standing in important social contexts. Whereas SSS refers to perceptions of relative standing, dominance refers to specific social behavior involving expressions of interpersonal control or power. Importantly, interacting with a dominant person has also been shown to evoke stress in laboratory settings, and exposure to dominant others may be particularly stressful for those in low-status positions. The present study of 300 married couples examined differences in spouses' reports of SSS (i.e., relative status) and partner dominance as predictors of depression and self-rated health (SRH). For both husbands and wives, multiple regression analyses revealed an interaction between relative status and partner dominance in predicting depression even after controlling age and income (B = - .15 and .15 respectively, both p < .05) such that lower relative SSS was associated with greater depression if the spouse was rated as dominant and controlling, but with less depression if the spouse was rated as low in control and dominance. The same interaction was seen when predicting SRH for wives but not husbands (B = .17, p < .05). Spouse differences in SSS in the local community were more closely related to outcomes for women, whereas spouse differences in SSS in the broader US population were more important for men. Hence, differences in SSS within married couples are related to health-relevant outcomes, such that perceptions of low status and exposure to controlling spouse behavior may be particularly unhealthy.

38) Abstract 1629

VALID AND COST-EFFECTIVE BP MEASUREMENT VIA THE TWO-METHOD MEASUREMENT DESIGN

Matthew J. Zawadzki, MS, Psychology, The Pennsylvania State University, University Park, PA, John W. Graham, PhD, William Gerin, PhD, Biobehavioral Health, The Pennsylvania State University, University Park, PA

Clinic blood pressure (CBP) measurements are subject to biases, including white-coat hypertension. Ambulatory Blood Pressure (ABP) measurement is regarded by researchers as the gold standard due to its superior prediction of target organ damage and cardiac events, but costs around five times as much as a CBP. We propose that by using the planned missing data design known as the two-method measurement (Graham et al., 2006), we can reduce the number of subjects on whom ABP measurements are taken, but retain validity and statistical power by increasing the number of subjects overall on whom only CBP is measured. We demonstrate this using non-Monte Carlo simulations, in which both CBP and ABP were assessed and modeled as a latent BP factor to predict left ventricular mass (LVM). In simulation 1, we varied the proportion of ABPs and CBPs so as to hold total costs constant. For every 20 fewer subjects who wear an ABP, 100 more participants - who only have CBP measured - could be recruited for the same overall cost. In our simulation revealed that the increases in CBP outweighed the decreases in ABP, as indexed by improving standard error estimates (with 300 CBP+ABP, SE = .055; with 240 CBP+ABP and 360 CBP only, SE = .043; with 180 CBP+ABP and 720 CBP only, SE = .040). In simulation 2, we varied the proportions of ABPs and CBPs so as to hold the SE (and statistical power) constant. We found that with 200 subjects with CBP+ABP, and 129 additional subjects with CBP only, SE was the same as the N = 300 complete cases design, and total costs were reduced from $31,100 to $24,177; with 100 subjects with CBP+ABP, and additional 359 subjects with CBP only were needed, and costs were reduced to $21,957. In both simulations, the correlation between the BP latent variable and LVM were virtually identical in N = 300 complete cases models and in all two-method measurement models (r = .37). Conclusion: The two-method measurement design is a viable way of (1) increasing statistical power, while maintaining good construct validity and keeping study costs constant, or (2) holding statistical power constant and considerably reducing study costs.

39) Abstract 1082

A BEAN COUNTER’S GUIDE TO CORTISOL ASSAY: THE ROLE OF ASSAY PRECISION

Gerald F. Giesbrecht, PhD, Pediatrics, Misja Eliaszew, PhD, Community Health Sciences, Tavis S. Campbell, PhD, Psychology, Bonnie J. Kaplan, PhD, Pediatrics, University of Calgary, Calgary, AB, Canada

In recent decades, salivary cortisol has emerged as a core assessment tool in biobehavioral research. The precision of commercial immunoassays now displays an average error of 3-5% between duplicate tests of the same sample, and results from duplicate assays of the same sample are near perfect linear combinations (r ~ 98) of each other. Given this level of precision, the value of duplicate assays is not clear. Purpose: The aim of this analysis was to determine whether estimates of diurnal variation in salivary cortisol would be compromised by employing singlet rather than duplicate assays. It was anticipated that the magnitude of the variation in cortisol within person across time would be more substantial than the variation attributable to assay imprecision. Method: Samples were collected using Salivettes (Sarstedt, Germany) from 96 pregnant women (6 - 37 weeks gestational age). Five samples were collected per day (waking, 30 min post waking, mid AM, mid afternoon, and 8 PM) on 3 consecutive days. All samples were assayed in duplicate using a highly sensitive enzyme immunoassay (Salimetrics, PA). Results: Confirming our expectations, the average between-aliquot coefficient of variation (CV) was 3.6%, but the average within-person CV within the 5 sampling times of day over the 3 days was 25.0%. The diurnal cortisol curve was modeled using quadratic polynomial regression. The regression equations for singlet assays on days 1 and 2 yielded average R-sqs of 54.9% and 56.8%, while the R-sqs for duplicates on these days were 55.0% and 56.9%. The increase in R-sq was 0.1%. In contrast when the curve was modeled using data from 2 consecutive days and singlet assay, the R-sq improved to 60.4%. No further improvement was achieved from duplicate assays on data from 2 days to R-sq=60.4%, or by using the data from more than 2 days. Conclusion: Duplicate assays do not improve estimates of the diurnal pattern of cortisol production. The costs associated with duplicate assays should be redirected to assaying additional samples from each participant.

40) Abstract 1216

SLEEP LINKED TO DAYTIME IL-6 AND VEGF LEVELS IN WOMEN WITH OVARIAN CANCER

Lauren Clevenger, BA, Psychology, Koenraad DeGeest, MD, Obstetrics and Gynecology, University of Iowa, Iowa City, IA, David Bender, MD, Obstetrics and Gynecology, University of Iowa, Iowa City, Iowa, Michael Goodheart, MD, Obstetrics and Gynecology, University of Iowa, Iowa City, IA, Frank Penedo, PhD, Psychology, University of Miami, Coral Gables, FL, Desire Christensen, BS, Epidemiology, University of Iowa, Iowa City, IA, Luis Mendez, MD, Obstetrics and Gynecology, Florida International University College of Medicine, Coral Gables, FL, Anil Sood, MD, Gynecologic Oncology and Tumor Biology, University of Texas MD Anderson Cancer Center, Houston, TX, Susan Luigendorf, PhD, Psychology, Obstetrics and Gynecology, University of Iowa, Iowa City, IA

Purpose: Inflammatory processes are implicated in depression and fatigue as well as tumor growth in cancer patients. Sleep dysfunction has been associated with elevated circulating levels of the proinflammatory cytokine Interleukin-6 (IL-6) and vascular endothelial growth factor (VEGF), a pro-angiogenic cytokine. This study investigated self-reported sleep disturbance, specific components of sleep dysfunction, and IL-6 and VEGF in women with ovarian cancer. Sample and Methods: Women with a pelvic mass were recruited pre-surgically. Of those diagnosed with primary epithelial ovarian, fallopian tube, or peritoneal cancer, 191 completed surveys on sleep, depression, and quality of life. Clinical information was extracted from medical records. Blood draws (a.m.) were completed approximately two hours before surgery. Cytokine levels were available for 152 patients. Results: Mean scores of ovarian cancer patients on the Pittsburgh Sleep Index were within the dysfunctional range (M=7.45, SD=4.05). In a regression model adjusting for body mass index (B=0.03, p=.89), disease stage (B=.18, p=.057), depressive mood (B=.19, p=.11), pain (B=.09, p=.40), anxiolytic (B=.015, p=.88), hypnotic (B=.08, p=.43) and antidepressant medications (B=-.014, p=.89), global sleep score significantly predicted elevated IL-6 in peripheral blood (B=.27, p=.018), but not in ascites (B=.21, p=.24). Using the same covariates, global sleep score predicted elevated serum VEGF (B=.16, p=.002) but not ovarian ascites VEGF (B=.02, p=.99). In a multivariate model examining the role of specific sleep
components, sleep duration (B=29, p=0.002) and habitual sleep efficiency (B=22, p=0.025) were significant predictors of IL-6; subjective sleep quality (B=27, p=0.016) and daytime dysfunction (B=28, p=0.016) were significant predictors of serum VEGF. Conclusion: Over and above clinical covariates, poorer self-reported sleep is associated with elevated daytime IL-6 and serum VEGF. These findings suggest the importance of screening for sleep disturbances among ovarian cancer patients as they may be related to inflammatory processes as well as quality of life.

41) Abstract 1289

CANCER-SPECIFIC DISTRESS: NO ASSOCIATION WITH SERUM CYTOKINES IN PRE-SURGICAL BREAST CANCER PATIENTS

Whitney N. Geleser, Psychological and Brain Sciences, University of Louisville, Louisville, KY; Firdaus S. Dhabhar, PhD, Psychiatry & Behavioral Sciences, Stanford University School of Medicine, Stanford, CA; Anees B. Chagpar, MD, Oncology, Yale University, New Haven, CT; Elizabeth Lash, MS, Psychological and Brain Sciences, University of Louisville, Louisville, KY; Eric A. Dedert, PhD, Traumatic Stress and Health Laboratory, Duke University Medical Centers, Durham, NC; Meagan R. Daugh, MA, Psychological and Brain Sciences, University of Louisville, Louisville, KY; David Spiegel, MD, Psychiatry and Behavioral Sciences, Stanford University School of Medicine, Stanford, CA; Elah A. Dayyad, MD, School of Medicine, University of Louisville, Louisville, KY; Jean M. Tillie, BS, Psychiatry and Behavioral Sciences, Stanford Cancer Center; Stanford School of Medicine, University of Louisville, Louisville, KY; Sandra E. Sephton, PhD, Psychological and Brain Sciences, University of Louisville, Louisville, KY

Receiving a breast cancer diagnosis can be very stressful. We have observed that cancer-specific distress is linked with circadian disruption and fatigue in pre-surgical patients. Circadian and endocrine factors modulate immunity, but little is known about psychoneuroimmunologic effects among newly diagnosed cancer patients. We hypothesized cancer-specific distress would be related to elevated tumor-promoting cytokines and suppressed anti-tumor immunity. Newly diagnosed stage I-4 (operable) breast cancer patients (n=55) provided self-reports of cancer-specific distress (IES). Serum concentrations of potentially tumor-promoting (IL-1beta, IL-6, TNF-alpha, IL-8, IL-10, IL-6R, TGF-beta, MCP-1) and tumor-suppressive (IL-12p70, IFN-gamma) cytokines, factors associated with inflammation (CRP), angiogenesis (VEGF), adipose /metabolic regulation (adiponectin, leptin) and matrix metalloprotease-9 (MMP-9) were analyzed using quantitative electrochemiluminescent arrays (Msd, Gaithersburg, MD). Plates were imaged and data analyzed using Discovery Workbench Software (Meso Scale). Age, cancer stage, and socioeconomic status were adjusted in hierarchical linear regressions exploring relationships between cancer-specific distress and cytokine outcomes. Cancer-specific distress as measured by IES total score, avoidance, and intrusion subscales was not significantly related to any serum cytokine concentration. Distress during the pre-surgical period may not be of sufficient duration or magnitude to influence serum cytokines. Longer-term studies might uncover effects on immunity. Alternatively, more sensitive measures may be needed to detect effects (e.g., stimulated peripheral cytokines, concentrations in tumor microenvironment). Effects of adjustment and ameliorative factors (e.g., coping, support) should be explored. High variability in distress, both within (day-to-day) and between persons, may facilitate detection of relationships with stress physiology. Given these issues, results do not dampen enthusiasm for further inquiry in this population. Grant support: DCRA, Stanford Cancer Center.

42) Abstract 1588

PSYCHOLOGICAL-EXISTENTIAL WELL-BEING AND IMMUNE FUNCTION IN ADVANCED CANCER PATIENTS

Elisa Lau, B.A. Honors, Psychology, Concordia University, Montreal, QC, Canada; Bruno Gagnon, MD, Msc, Faculty of Medicine, McGill University, Royal Victoria Hospital, Montreal, Quebec, Canada; Sydney B. Miller, Ph.D., C. Psych., Department of Psychology, Concordia University, Montreal, QC, Canada

Objective: The survival and longevity of cancer patients is linked to adaptive immune response, a natural process that is weakened in patients with tumor growth and cancer cell proliferation. There is emerging evidence that psychoneuroimmunologic pathways may allow for biobehavioral changes to affect immune function. The purpose of this longitudinal study was to examine the association between psychological well-being, existential well-being, and immune function in a sample of advanced cancer patients. Methods: Participants were recruited from 3 local Montreal hospitals; those who received brain radiotherapy or had documented brain metastases were excluded. A McGill Quality of Life questionnaire and blood assessment (measuring white blood cell (WBC) and lymphocyte (LYM) count) was given to 71 advanced cancer patients at entry into the study and at 3 months. Results: Patients had a mean age of 66 years (SD = 12) and were at late phases of the cancer trajectory, including stages III (lung cancer), IV (pancreas, colorectal and breast cancer) or later. The sample consisted of 55% males and 45% females. After controlling for demographic factors (gender, education, age, and marital status) and baseline levels of WBC or LYM count, regression analysis indicated that baseline existential well-being predicted WBC count at 3 months (R2 = 0.32, B = 0.18, P < 0.05) and baseline psychological well-being predicted LYM count at 3 months (R2 = 0.33, B = 0.21, P < 0.05). Conversely, baseline immune function did not predict 3 month existential or psychological well-being, suggesting that the relation is unidirectional. Conclusion: Levels of psychological and existential well-being at baseline were positively associated with changes in WBC and LYM count in the sample of advanced cancer patients. Understanding the relation between psychology and physiological outcomes has potential clinical implications for effective cancer-related interventions at the conversative, treative, and palliative level. Further research is necessary to clarify these biobehavioral changes and the potential mechanisms of interaction (e.g. stress pathways) between psychological factors and disease outcome.

43) Abstract 1246

MARITAL BIOGRAPHY AND AFFECTION PREDICT TRAJECTORIES OF PHYSICAL WELL-BEING AFTER BREAST CANCER

Karen L. Wellis, M.D., Psychiatry and Family Medicine, Melissa A. Curran, Ph.D., Family Studies and Human Development, University of Arizona, Tucson, AZ; Valerie J. Young, Ph.D., Communication, Hanover College, Hanover, Indiana; Samuel J. Simmens, Ph.D., Dept. of Epidemiology and Biostatistics, The George Washington University, Washington, DC

PURPOSE OF THE STUDY: Physical well-being is the most commonly studied quality of life indicator in clinical cancer research. Physical well-being after breast cancer is enhanced by interpersonal support. Specifying which aspects of support predict physical well-being most strongly can guide more efficient interventions. Marital biography characterized by continuous first marriage is known to protect against long-term chronic disease but has not been studied in breast cancer. METHODS: Breast cancer patients in romantic relationships were enrolled within 3 months of initial diagnosis and assessed every 3 months for 2 years with the Functional Assessment of Cancer Therapy: Physical Well-Being (FACT-PWB). Marital biography measured whether women were (1) in first marriage (continuously married); (2) remarried; or (3) cohabiting. Self-report measures of interpersonal support included 1) Marital Affection, 2) Perceived Social Support and 3) Social Relations Inventory. The Groll Index of 18 diseases quantified comorbidity. A mixed model in SAS was used to predict FACT 2-year trajectories from interpersonal variables and comorbidity, after accounting for demographics, cancer severity and treatment. RESULTS: Marital Biography: First marriage=56%, Remarried=28%, and Cohabiting=16%. Mean total score of baseline well-being decreased with treatment and recovered thereafter (p = 0.001).
In a multivariable model, FACT-PWB was predicted by fewer comorbid diseases (p<.001), first marriage (vs. cohabiting or remarriage) (p=0.02; avg 2 points higher) and marital affection (p=0.001). Other intercorrelated measures correlated with marital affection but not FACT-PWB.

CONCLUSIONS: This is the first report of a clinically meaningful (Cella 2002) advantage in physical well-being for breast cancer patients in their first marriage, as compared to remarriage or cohabitation. Results suggest interventions to increase affection may be most effective for improving physical well-being. Marital biography deserves further study as a risk indicator for targeting preventive interventions.

44) Abstract 1618

SOCIAL SUPPORT, TREATMENT-SPECIFIC OPTIMISM AND THE TRAJECTORY OF QUALITY OF LIFE IN METASTATIC RENAL CELL CANCER PATIENTS

Kathrin Milbury, Ph.D., Behavioral Science, Nizar M. Tannir, MD, Genitourinary Medical Oncology, Lorenzo Cohen, Ph.D., Behavioral Science, The University of Texas MD Anderson Cancer Center, Houston, TX

Social support and optimism have been extensively studied as predictors to cancer adjustment, but the majority of research involves either cross-sectional or post treatment designs with newly diagnosed patients. The purpose of the current study was to capture the trajectory of quality of life (QOL) over the course of a phase II clinical trial of low vs intermediate dose interferon treatment in patients with metastatic renal cell cancer. Thus, not only was our sample at a higher risk of experiencing a decline in QOL compared to previous samples, we also used a design that could adequately capture a decline. We hypothesized that treatment-specific optimism (TSO) and social support would buffer against declines in QOL. At baseline, 114 participants (79% male; 80% White; 73% married) completed measures of TSO, social support, and QOL (FACT-G). Participants also completed QOL measures at weeks 2, 4, and 8 of the trial. Controlling for prognostic risk factors, growth curve analyses revealed a significant time x treatment group interaction (p <.01) so that QOL significantly decreased for patients in the intermediate dose but not low-dose group. At the same time, QOL was less severe for patients who were optimistic regarding the efficacy of their treatment (p >.05). Even though TSO did not completely counteract the decline in QOL associated with the intermediate dose, participants with high levels of TSO reported significantly better QOL over time compared to those with low levels of TSO. Social support was significantly positively associated with QOL (p >.05) only at baseline. Thus, there was no evidence for a buffering effect over time. In fact, QOL of individuals with higher levels of social support declined more rapidly compared to those with lower levels of social support at the onset of the trial (p >.01). These findings suggest that TSO may protect against the adverse effects on QOL associated with a life-threatening disease and its treatment and further longitudinal studies are necessary to gain a better understanding of psychosocial predictors of QOL.

45) Abstract 1156

MEMORY IMPAIRMENT IN MASTOCYTOYSIS: PREVALENCE, FEATURES AND RELATIONS TO DEPRESSION

Daniela S. Moura, Master, Psychology, Psychopathologie et Processus de Santé, LPFS EA 4057, Université Paris Descartes, Boulogne Billancourt, France, Marie-Olivia Chandreir, PhD, Medecine, Olivier Lortholary, PhD, Medecine, Stephane Barete, MD, Olivier Hermine, PhD, Medecine, Centre de Référence des Mastocyteses, Hôpital Necker, Paris, France, Serge Sultan, PhD, Psychology, Psychopathologie et Processus de Santé, LPFS EA 4057, Université Paris Descartes, Boulogne Billancourt, France

Objective. Mastocytosis (M) is a rare heterogeneous disease characterized by mast cells (MC) accumulation in one or several organs, broadly divided into localized versus systemic (indolent/aggressive) forms. Subjective memory complaints (SMC) related to forgetfulness and verbal information are frequent in M as well as depression. A direct pathogenic role of MC in the emergence of these disorders in M has been suggested. However, studies describing memory impairment (MI) in M and its relations to depression are lacking. Our purpose was (1) to describe MI in M; (2) to study the relationship between MI, SMC, depression and M staging controlling age, gender, and educational level. Methods. Patients with indolent and aggressive forms of mastocytosis (n =43) were interviewed and examined in regards of memory functioning and depression using the 3rd edition of the Wechsler Clinical Memory Scale which gives scores for auditory/visual immediate/delayed memory as well as for working memory and the 17 items Hamilton depression scale. Results. Patients mean age was 43 (SD=12.6) and 44% had master or PhD degrees. SMC concerned 81% of patients. MI was present in 52% of patients (moderate (33%); important to severe (19%)). Severe MI consisted essentially in deficits in auditory memory (AM). Moderate impairments concerned working memory (WM) (41%) followed by delayed AM (26%) and immediate AM (15%). Impairment of visual memory was present in only 8 patients and was usually moderate. In binary logistic regression, MI was not predicted by depression (scores $\leq 12$) (OR=.596; p=.486) or M staging (OR=.000; p=.967). Furthermore, SMC was not related to depression in our population ($r=-.032; p=.856$). Depression scores did not predict scores in WM ($R^2=.001; p=.839$) or AM delayed ($R^2=.026; p=.317$) and immediate ($R^2=.026; p=.322$). Taken together, these results show that SMC and MI in mastocytosis are frequent. MI concerns particularly the verbal and attention memory aspects and may be severe. Moreover, depression does not seem related to MI in mastocytosis, thus suggesting that these impairments may constitute primary neuropsychological symptoms of the illness.

46) Abstract 1275

RELATIONSHIP OF DEPRESSION AND CONSUMPTION OF MACRONUTRIENTS IN DIABETIC AND NON-DIABETIC INDIVIDUALS

Kate G. Edwards, B.A., Charles A. Guarneraccia, PhD, Psychology, University of North Texas, Denton, TX

Previous research has indicated an increased preference for carbohydrates when individuals experience depression (Fernstrom, Krowinski, & Kupfer, 2003). Little information is available on the consumption of fats except that depressed individuals tend to consume carbohydrates that are in high fat foods (Wurtman & Wurtman, 1995) and omega 3 fatty acids may have a negative relationship with depression (Tanskanen et al., 2001). There is not yet a comparative examination of this relationship for individuals with and without a chronic illness such as Diabetes Mellitus. The purpose of this study was to examine the relationship of depression and consumption of macronutrients in diabetic individuals and matched non-diabetic controls. The 2005-2006 National Health and Nutrition Examination Survey (NHANES) was utilized to obtain a sample of diabetic (n=451) and matched non-diabetic controls (n=451). The 24-hour Diet Recall was used to obtain information about the daily consumption of the macronutrients, protein, total fat, monounsaturated fat, and carbohydrates. The Depression Screener was used for a continuous depression score in these samples. A relationship was not observed between depression and macronutrients in either the overall sample or the non-diabetic group. However, in the diabetic group, there was a negative relationship between percentage of calories from monounsaturated fats and depression, r=-.12, p<.01, and a positive relationship between percentage of calories consumed from carbohydrates and depression, r=.-.12, p=..05. These results indicate differences in increased consumption of carbohydrates and decreased consumption of monounsaturated fats with depression in diabetic individuals. This is important given the increased prevalence depression in diabetic individuals and the importance of maintaining a balanced diet to manage diabetes. Especially given that hyperglycemia is associated with overconsumption of carbohydrates.
MACRONUTRIENTS CONSUMED BY DIABETIC INDIVIDUALS RELATIVE TO RECOMMENDED DAILY INTAKE

Kate G. Edwards, B.A., Charles A. Guarnaccia, PhD, Psychology, University of North Texas, Denton, TX

NHANES 2005-2006 data was utilized to assess percentage of macronutrients consumed by 451 diabetic individuals and matched non-diabetics. Although there were no differences between groups in frequency of fruits, vegetables, and whole grains consumed, there were differences in amount of calories from macronutrients and fiber consumed. Diabetics consumed more calories from total fats, monounsaturated fats, and proteins as well as a greater amount of fiber per 1000 calories consumed. Diabetes also consumed fewer calories from carbohydrates than non-diabetics. As shown in this table of disparity from recommended diabetic daily intake, about half of diabetics consumed recommended fats and carbohydrates calories and a little over two-thirds consumed the recommended amount of protein calories. This is encouraging because diet is a critical component of diabetes care, especially limiting proteins because of increased risk of kidney damage. The majority who were outside of recommended consumption were above for consumption of fats and proteins, and below for carbohydrates. The larger number of diabetics not within the recommended amount of calories from carbohydrates and fats is of concern because of related obesity health problems. Although the majority were within the recommended range of protein consumption, 18% of the diabetic individuals above the recommended range is also a concern because greater risk of renal disease.

<table>
<thead>
<tr>
<th>Macronutrient (Recom-</th>
<th>% Within</th>
<th>% Below</th>
<th>% Above</th>
</tr>
</thead>
<tbody>
<tr>
<td>mended%)</td>
<td>Range</td>
<td>Range</td>
<td>Range</td>
</tr>
<tr>
<td>Carbs (45-60%)</td>
<td>51.3% (n=210)</td>
<td>41.9% (n=172)</td>
<td>44.9% (n=184)</td>
</tr>
<tr>
<td>Total Fat (25-35%)</td>
<td>45.6% (n=187)</td>
<td>9.5% (n=39)</td>
<td>44.9% (n=184)</td>
</tr>
<tr>
<td>Protein (10-20%)</td>
<td>79.5% (n=526)</td>
<td>2.4% (n=10)</td>
<td>18.1% (n=74)</td>
</tr>
</tbody>
</table>

48) Abstract 1200

PROACTIVE REHABILITATION AND TELEPHONE INTERVENTION IN TYPE 2 DIABETES (PARTID TRIAL): BACKGROUND AND RATIONALE

Oskar Mittag, ScD, Andrea Doebler, Department of Quality Management and Social Medicine, University Medical Center of Freiburg, Freiburg, Germany, Hartmut Pollmann, MD, Niederrhein Clinic, Bad Neuenahr-Ahrweiler, Germany, Heiner Raspe, PhD, MD, Institute of Social Medicine, University of Luebeck, Luebeck, Germany. The prevalence of type 2 diabetes is rising worldwide. Diabetes greatly increases the risk of cardiovascular disease, nephropathy, retinopathy, and lower extremity amputations. Disease burden is high in terms of premature mortality, disability, and economic loss. There are multiple modifiable risk factors for complications in patients with type 2 diabetes, including hyperglycemia, hypertension, tobacco smoking, and sedentary lifestyle. Depression is also associated with adverse diabetes outcomes. Targeted interventions addressing multiple risk factors have shown to reduce the risk of late complications in diabetes (e. g. Gaede et al., 2008). In line with these results PARTID includes two treatments: (1) a three week multifactorial and multidisciplinary treatment in a rehab clinic specializing in diabetes care, and (2) an additional active 12 month follow-up by telephone, carried out by a nurse or other non-physician adhering to an evidence-based treatment protocol and working under the supervision of a physician and a psychologist. The manual for the telephone intervention was computerized and follows an algorithm allowing for targeted interventions. The telephone counselling is based on motivational interviewing and problem solving approaches, and addresses somatic as well as behavioural and psychological problems. Patients were recruited from the Disease Management Program (DMP) of a large health insurance company. A survey mailed to 5,500 patients aged 18 to 54 years assessed clinical status, comorbid conditions, modifiable risk factors, limitations of daily activities, and rehab need (see abstract # 1330). Specific treatment approaches for conditions and problems were determined in advance. Patients who needed three or more interventions were then randomized to the intervention (rehab clinic) or usual care group (DMP). Patients of the intervention group will be randomized once more into the telephone intervention group or usual care following rehab treatment. We aimed for a total of 750 patients. Main endpoints are HbA1c and global coronary risk; further outcomes include depression, health related quality of life, and complications associated with diabetes.

49) Abstract 1377

ALEXITHYMIA, EMOTIONAL INTELLIGENCE, AND EMOTIONAL AWARENESS ASSESSED BY MULTIPLE METHODS: RELATIONSHIPS WITH HEALTH

Alaa M. Hijazi, M.A., Jennifer N. Curty, B.A, Psychology, Wayne State University, Detroit, MI, Alison Rudcliff, Ph.D, Boise State University, Boise, ID, Britta Gustavson, M.A., Mark A. Lumley, Ph.D, Psychology, Wayne State University, Detroit, MI

Emotional ability constructs - alexithymia, emotional intelligence, and emotional awareness - can be assessed with non-self-report methods, but the relationships of these measures to health have been little researched. The study examined alexithymia, emotional intelligence (Vogel-Turk Emotion Scale; TES), and emotional awareness (Vogel-Turk Emotion Scale; TES) and self-reported emotional intelligence and self-reported alexithymia (Observer Alexithymia Scale; OAS), interviewer-rated alexithymia (modified Beth Israel Questionnaire; BIIQ), self-reported emotional intelligence (Trait Meta-Mood Scale; TMMS), performance-based emotional intelligence (Wayne-Salovey Emotional Intelligence Test), and language-based emotional awareness (Levels of Emotional Awareness Scale; LEAS). Self-rated health, physical symptoms, health care use and behaviors, and depression were also assessed. Partial correlations related emotional abilities to health measures, controlling for gender and reading ability. All 3 alexithymia measures were significantly related to poorer self-rated health. The TAS-20 (particularly difficulty identifying feelings) correlated with school/work absence, physical symptoms, and depression; the OAS was associated with more medication days, physical symptoms, and depression. Emotional intelligence generally showed the opposite pattern. Higher TMMS scores correlated with better self-rated health, fewer medication days, less school/work absence, and less physical symptoms and depression. MSEIT correlated with less physical symptoms and depression, but also with more medication use and school/work absence. Unexpectedly, greater LEAS was associated with more physical symptoms. We conclude that various methods of assessing alexithymia generally have concurrent validity with respect to poor health. Performance measures of emotional intelligence and awareness are complex, however, and can correlate with poor health because of increased introspection, and illness or health problems might increase one’s emotional abilities.

50) Abstract 1339

ATTITUDES TOWARD SEEKING MEDICAL HELP: ETHNIC DIVERSITY

Terry A. DiLorenzo, PhD, Psychology, Yeshiva University, New York, NY, Edward H. Fischer, PhD, Ellen A. Dornelas, PhD, Preventive Cardiology, Hartford Hospital, Hartford, CT

Willingness to seek medical care is a crucial factor in help seeking models. However, the extent to which attitudinal differences account for health care disparities in ethnic groups is unknown. To our knowledge, no well-tested comprehensive measure of attitudes has been published. We developed a comprehensive attitude measure and used it to examine ethnic differences in a community sample. Fifty attitude items were tested on 134 college students. Based on factor analyses and item/total correlations, the measure was reduced to 35 items with excellent factorial and congruent validity. The prime attitude element, pro-action subscale, consists of 12 internally consistent (alpha = .83) items. In another college sample (N = 34), it showed high test-retest stability (.91) and was correlated with medical contacts at simultaneous (r=.52, p=<.01) and later (mean 18 weeks) time points (r=.55, p=.01), affirming predictive validity. The attitude scale and medical crisis and health
insurance questionnaires were sent to a random sample of 1500 residents of the Hartford area. 380 (25.3%) surveys were returned. Ethnicity (20% African-American, 68% white, 2% other), history of life-threatening medical condition, adequacy of insurance, and age were related to pro-action attitudes in ANOVAs. African-Americans held the more positive attitudes than Whites or Latinos (F = 15.4, 1/321, p = .000). A binary logistic analysis showed ethnicity (African-American vs. White and Hispanic) was linked to dichotomized pro-action scores, while controlling for other predictors. The ratio of more to less positive pro-action attitudes was 1.92 for African-Americans, .95 for whites and .73 for Latinos. This pattern held across age, sex, education, medical crisis, and insurance groups. Results indicate that attitudes toward medical care are a potential barrier to help seeking for people under age 60 with inadequate insurance and no history of medical crisis. Attitudes may present more of a barrier for white and Hispanic individuals than for African-Americans. Findings highlight the importance of considering attitudes in health promotion interventions.

51) Abstract 1385

EFFECTS OF WRITTEN EMOTIONAL DISCLOSURE INTERVENTIONS IN CAREGivers: MODERATING ROLE OF alexithymia

Daryl B. O'Connor, PhD, Institute of Psychological Sciences, University of Leeds, Leeds, West Yorkshire, UK; Laura Ashley, PhD, Psychosocial Oncology, St James's Institute of Oncology, Leeds, West Yorkshire, UK; Fiona Jones, PhD, Psychology, University of Bedfordshire, Luton, UK

Purpose of study: Informal caregivers are people who, without payment, provide care for relatives or friends who, due to disability or illness, could not otherwise manage the basic activities of daily living. Caregivers have been found to experience high levels of depression and anxiety. This study explored the efficacy of two writing interventions aimed at reducing psychological distress in informal caregivers and examined moderating effects of alexithymia. Subject sample and statement of methods: Caregivers (N = 150) were randomly assigned to: 1) write about the stress related to being a caregiver, 2) write about positive aspects of life experienced or 3) write about neither specific topic for 5 days on 3 days at home. Depression and anxiety symptoms were assessed at baseline, 2 weeks, 2 months and 6 months post-intervention. Summary of results: Analysis of variance for a mixed design revealed no effects of writing condition on the follow-up measures. However, among caregivers with lower scores on alexithymia, those who wrote about positive experiences reported less anxiety and/or depression at 2 weeks (p = .01), 2 months (p = .04) and 6 months (p = .02) follow-up. Moreover, in the control condition, less anxiety was reported by caregivers with lower scores on alexithymia at 2 weeks (p = .02) and 6 months (p = .02). Conclusions: No effects of stress disclosure were observed, therefore, writing about caregiver stress should not be encouraged in this vulnerable group. Positive emotional disclosure holds promise as a brief, therapeutic tool to reduce psychological morbidity in caregivers low in alexithymia.

52) Abstract 1151

SPEAKING OF FOOD AND HEALTH: THE INTERPLAY OF SOCIAL AND INDIVIDUAL FACTORS DETERMINES DIETARY QUALITY

James A. Skenes, M.A., Elaine Blank, B.S., Psychology, Shannon A. Corkery, B.S., Emily A. Butler, Ph.D., Family Studies and Human Development, University of Arizona, Tucson, AZ

Purpose of Study. The purpose of this study is to identify factors contributing to dietary quality. The results of existing studies on individual factors such as health beliefs and social factors such as partner influence are mixed, suggesting that these predictors may interact to determine dietary quality. We propose that to accurately predict one's diet, we need to consider the interplay of individual and social factors in a dyadic context. Methods. Sixty-four committed heterosexual couples (mean age = 27.8, SD = 12.2) completed baseline measures of health importance (HI) and daily diaries for 7 days assessing relative quality and amount of food eaten by the participants and helpfulness of health-related comments made by their partners. A multilevel dyadic model was used to test whether partner health-related comments were associated with daily variations in eating and whether the degree of this association was moderated by (a) the average HI reported by the couple and (b) the difference in HI reported by the partners. More positive partner comments were associated with eating healthier quality food for women, F (1, 435) = 4.58, p < .05, and eating less for men, F (1, 443) = 4.2, p < .05. Men, but not women, in couples with a high average HI ate significantly less when they reported more positive partner comments and significantly more when they reported more negative partner comments, F (1, 443) = 11.11, p < .001. Women who reported a higher HI than their partner also ate marginally less, F (1, 443) = 3.51, p = .062. Women, but not men, who reported a higher HI than their partners showed a marginally lower association between partner comments and dietary quality than those who reported a lower HI than their partners, F (1, 435) = 3.41, p = .066. The interaction between partner influence and health beliefs in a dyadic context accounts for significant daily variance in eating. By identifying the factors contributing to one's diet, we may clarify the mechanisms underlying dietary practices and inform the development of obesity interventions.

53) Abstract 1844

EXECUTIVE ATTENTION MODERATES THE ASSOCIATION BETWEEN TRAIT WORRY AND SLEEP DISRUPTION

Lindsay M. Vaux, B.S., Paula G. Williams, PhD, Matthew Cribbet, MS, Holly K. Rau, MS, Heather Gunn, MS, Psychology, University of Utah, Salt Lake City, Utah

Prior research suggests that cognitive functioning may moderate the effects of trait worry. Specifically, when accompanied by better cognitive functioning, propensity to worry may be associated with adaptive behavior and better self-regulation. The current study aimed to examine the extent to which executive attention moderates the association between trait worry and sleep disruption (the number of nighttime awakenings). 94 healthy young adults (47% F and M age = 22.54) completed the Penn State Worry Questionnaire, a well-validated self-report measure of propensity to worry. EA was assessed using the Attention Network Task (ANT), a computerized, reaction-time flanker task. Participants completed a self-report measure about prior sleep, which included number of nighttime awakenings. Worry and EA were not significantly associated, r = .00, ns. There was a significant EA x Worry interaction on the number of nighttime awakenings, B = -.208 p = .052. Under conditions of poorer EA (1 SD below the mean in reaction time) trait worry was positively associated with the number of nighttime awakenings. Under conditions of better EA (1 SD above the mean in reaction time) trait worry was not significantly related to nighttime awakenings. These findings suggest that for individuals prone to worry, better executive functioning abilities may serve as a protective factor against negative outcomes, such as disrupted sleep, whereas poorer executive functioning may be associated with worse self-regulation that, in turn, affects restorative sleep.

54) Abstract 1444

CORTISOL STRESS REACTIVITY: PROGRAMMING BY ADVERSE LIFE EVENTS IN WOMEN AND NOT IN MEN

Kristen H. Sorocco, Ph.D., DWR Department of Geriatric Medicine, Noha H. Farag, MD/Ph.D., Epidemiology and Biostatistics, University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma, Andrea S. Vincent, Ph.D., Center for the Study of Human Operator Performance, University of Oklahoma, Norman, Oklahoma, William R. Lovullo, Ph.D., Behavioral Sciences Laboratories, OKC Veterans Affairs Medical Center, Oklahoma City, Oklahoma

The primary determinants of individual differences in cortisol responses to psychological stress are still not well known. Exposure to early stressful life events has been shown to have a long-term impact on affective response and biological mechanisms. The purpose of this study was to examine the impact of gender, lifetime adversity, and related psychological characteristics on cortisol stress reactivity in young adults 18-30 years. The sample included 179 women and 128 men who underwent a laboratory stressor compared to a control procedure. On the stress day, participants performed continuous simulated public speaking and mental arithmetic tasks for 45 minutes. On the control day, they sat and rested for the same period of time. Men and women did not differ in diurnal cortisol secretion patterns or in affective responses to the stressors. When examining individual differences in cortisol response to
stress for the whole sample, only gender ($b = .25, p < .0001$), lifetime adversity ($b = -.12, p < .03$), and dis inhibited temperament ($b = -.13, p < .03$) accounted for a significant portion of the variance in cortisol reactivity among men. Among women, adversity remained the primary contributor to cortisol reactivity with an additional significant contribution by temperament, together accounting for 7.8% of the variance in cortisol stress response. Both adversity and temperament among women accounted for diminished cortisol reactivity ($R^2 = .06, F = 10.2, p < .0001$). Compared to men, women appear to have psychological characteristics and stress axes that are more readily reprogrammed by negative life events.

55) Abstract 1308

WHEN IS PHYSICAL ACTIVITY MOST PROTECTIVE OF EXECUTIVE FUNCTIONING IN OLDER ADULTS?
Daniel R. Evans, M.S., Suzanne C. Segerstrom, Ph.D., Psychology, University of Kentucky, Lexington, KY

Executive functioning, which includes cognitive flexibility, attentional control, and working memory, appears particularly important for successful aging, as it may decline more rapidly than other cognitive functions with advancing age and increasing depressive symptoms. Physical activity interventions improve both depressive symptoms and executive functioning, though few studies have examined the relationship between physical activity, depressive symptoms, and executive functioning among non-clinical samples of older adults using longitudinal designs. The present study measured self-reported physical activity volume (minutes per day X exertion level), depression symptoms (Geriatric Depression Scale), and executive functioning (Trail Making Test) in a sample of community dwelling older adults (N = 150; mean age = 75) seen at semiannual waves (M = 5.76 waves). Using multilevel modeling to examine between- and within-subjects variance, results supported previous findings that executive functioning is negatively related to age (gamma = -1.48, SE = 0.35, t(102) = -4.21, p < .0001) but positively related to higher self-reported volumes of physical activity (gamma = 0.42, SE = 0.19, t(102) = 2.14, p < .05). Within individuals, higher levels of depression symptoms at a particular wave predicted worse executive functioning at that wave (gamma = -0.87, SE = 0.36, t(929) = -2.44, p < .05). However, depression symptoms and physical activity volume interacted such that higher volumes of physical activity provided more protection of executive functioning for those whose depressive symptoms were higher at a particular wave (gamma = 0.03, SE = 0.01, t(929) = 5.29, p < .001). These results suggest that higher volumes of physical activity among older adults, relative to their own averages, exert a larger effect on executive functioning during periods of relatively higher levels of depressive symptoms, providing the greatest protection when executive functions are most vulnerable to impairment.

56) Abstract 1358

THE INFLUENCE OF PSYCHOSOCIAL STRESS ON THE PHAGOCYTIC ACTIVITY OF HUMAN MACROPHAGES ASSESSED BY A NOVEL METHOD
Ulrike Kuebler, M.Sc., Clinical Psychology and Psychotherapy, University of Zurich, Zurich, Switzerland, Mibo Sakai, Nanotechnology Group, ETH Zurich, Zurich, Switzerland, Petra H. Wirtz, Clinical Psychology and Psychotherapy, University of Zurich, Zurich, Switzerland, Andreas Stegger, Professor, Nanotechnology Group, ETH Zurich, Zurich, Switzerland, Ulrike Ehlert, Professor, Clinical Psychology and Psychotherapy, University of Zurich, Zurich, Switzerland

Psychosocial stress induces changes in circulating leukocytes, but its effect on leukocytes in peripheral tissues is unclear. Tissue macrophages play a crucial role in recognition and phagocytosis of pathogens. The study investigates the effect of psychosocial stress on the phagocytic activity of human macrophages. First, we established a new method to assess phagocytic activity of human macrophages ex vivo. The method is based on the fact that macrophage phagocytosis initiates the activation of nicotinamide adenine dinucleotide phosphate-oxidase (NADPH-oxidase), a transmembrane enzyme transporting electrons across the macrophages plasma membrane, to produce pathogen-killing superoxide anions. In detail, we isolated primary blood nuclear cells (PBMC) which were seeded on an electrode (anode) and chemically stimulated to differentiate into macrophages. Macrophages attached on the electrodes were transferred to a two-compartment fuel cell and phagocytosis was activated with phorbol 12-myristate 13-acetate. The electrons transferred through the NADPH-oxidase in the activated macrophages were captured at the electrode for power generation in the fuel cell. Phagocytic activity is indicated by the the current observed in the fuel cell. Moreover, we quantified activity of NADPH-oxidase by measuring superoxide anion production to correlate current generation with NADPH-oxidase activity. Second, we are currently investigating the effect of psychosocial stress on phagocytic activity of macrophages in 25 healthy male volunteers. All subjects undergo a standardized laboratory stressor ("Trier Social Stress Test"). Blood samples for assessment of macrophage phagocytic activity are taken 1 min before, and 1, 10, and 60 min after stress induction. The study is ongoing and results will be presented at the conference.

57) Abstract 1269

ENGAGING IN MEANING MAKING DURING EXPRESSIVE WRITING: WHEN MEANING IS BENEFICIAL
Adriel Boals, Ph.D., Psychology, University of North Texas, Denton, TX
Over 150 studies and three meta-analyses have shown that expressive writing produces health benefits in a range of patient samples. However, the mechanisms by which expressive writing produces such benefits is largely unclear. In the current paper we examined whether the extent to which participants engage in the meaning making process during the expressive writing intervention predicts beneficial outcomes. The study was a re-analysis of a previously published data set. A total of 139 participants nominated a negative event and completed three sessions of expressive writing. All essays were rated by independent coders for the extent to which the writer was in engaged in the meaning making process. We also included the Impact of Events Scale (IES) to measure distress levels associated with the event. To examine whether changes in meaning making ratings across the three essays predicted change in IES scores, a multiple regression analysis was conducted. Posttest IES scores were predicted by change in meaning making ratings, pretest IES scores, and the interaction term. All three predictor variables were significant. Pretest IES scores was a significant predictor, t(1, 135) = 6.51, p < .001, b = -.48, as was change in meaning making, t(1, 135) = 2.61, p < .01, b = .34. Surprisingly, the interaction term was also significant, t(1, 135) = 3.22, p < .01, b = -.42. The correlation between change in meaning making ratings and change in IES scores for the high pretest IES group indicated as meaning making ratings increased, IES scores decreased, r(65) = -.28, p < .05. However, for the low pretest IES group, as change in meaning making ratings increased, change in IES scores also increased, r(72) = .30, p < .05. Thus the results revealed that the relationship between meaning making and beneficial outcomes depended on initial distress levels of the event. Engaging in meaning making about high stress events was associated with better outcomes. In stark contrast, engaging in meaning making for low stress events was related to worse outcomes. This study suggests that interventions for patients struggling to cope with highly stressful events should include meaning making components to promote better outcomes.

58) Abstract 1313

SELF REGULATION AND LIVER FUNCTION: EXPANDING AN ECOCLOGICAL MODEL
Tory A. Eisenlohr-Moul, M.S., Mark Fillmore, Ph.D., Suzanne C. Segerstrom, Ph.D., Psychology, University of Kentucky, Lexington, KY
Self-regulation refers to the organization of behavior in the service of long-term goals. Under conditions of high self-regulatory effort, peripheral organ systems (e.g., cardiovascular, immune) have been found to slow, potentially in order to rearrange energetic priorities in favor of the brain. The present study sought to expand this ecological model by exploring the possibility that liver function may also change in the presence of high self-regulatory effort. Specifically, we hypothesized that alcohol metabolism would slow in the presence of such demands. We hypothesized that indicators of robust trait self-regulatory reserve (heart rate variability (HRV) and trait self-control) would
attenuate the effect of self-regulatory effort on rate of alcohol metabolism. Twelve healthy males aged 21-25 completed two conditions in counterbalanced order. During each session, the participant received 0.33 ml/kg of absolute alcohol to achieve a target peak blood alcohol concentration (BAC) of 0.03 g%. Following alcohol administration, participants performed a series of tasks (self-regulatory tasks in the high self-regulation condition and identical tasks without a self-regulatory component in the low self-regulation condition). During this time, BAC was measured at 20 minute intervals in order to measure rate of metabolism. Resting HR was measured for 10 minutes and trait self-control was measured using the Self-Control Scale. In multi-level models with time nested within condition within person, the main effect of condition on rate of alcohol metabolism was not significant (g=.007, SE=.04, t(90)=-.21, p=.83). However, as predicted, trait self control moderated the effect of condition on alcohol metabolism (g=-.29, SE=.10, t(79)=3.30, p=.003) such that those higher in trait self-control metabolized alcohol at similar rates across conditions, whereas those lower in trait self-control experienced a slowing of alcohol metabolism in the high self-regulation condition compared to the low self-regulation condition. These results provide support for the hypothesis that liver function may indeed be altered by self-regulatory effort. In addition to suggesting the liver as a target organ for psychophysiological research, these data provide further support for slowing of peripheral hepatic demand.  

59) Abstract 1687  
EVENING CHRONOTYPE IS ASSOCIATED WITH POOR SLEEP QUALITY AND MENTAL HEALTH STATUS IN YOUNG ADULTS  
Stephen Martinkovitch, Nicole Piccirillo, Aubrey Murano, Sarah Conklin, PhD, Neuroscience and Psychology, Allegheny College, Meadville, PA  
Circadian rhythm associated with preference for sleep-wake temporal organization is known as chronotype. Individuals who prefer early morning activity are morning types (M-Types), while individuals who prefer later day or nocturnal activity are evening types (E-Types). In junior high students (age 12 to 15 yrs), who have regulated academic schedules, evening preference is associated with longer sleep latency, shortened sleep duration, and episodes of daytime sleepiness. Other work has linked poor sleep quality with characteristics of poor physical health such as obesity, mood disorders, memory impairments, and poor immune system functioning. The purpose of the current study was to examine the relationship between chronotype, nocturnal sleep quality, health and mood in college students with flexible academic schedules. It was hypothesized that E-Types would report poorer sleep quality, mood and physical health. Participants (N=134, M age=19.58, 69.4% female) completed the Pittsburgh Sleep Quality Index (PSQI), the Beck Depression Inventory (BDI) and the Symptom Check List 90 (SCL-90). Chronotypes were identified with scores from the Horne-Ostberg Morningness Evenningness Questionnaire (HO; E-Type N=39, M-Type N=9, Neither N=84 ). One-way ANOVA demonstrated that E-Types scored significantly higher than both M types and Neither types on the PSQI Global score (p=0.001), PSQI Sleep Quality subscale (p=0.004), and PSQI Sleep Latency subscale (p=0.000). Interestingly, E-Types also scored higher on the SCL-90 paranoid ideation score (p=0.037), and the BDI (p=0.143) although this difference was not significant. In our sample of generally healthy young adults with flexible academic schedules, our finding suggest that evening chronotype, acting as a proxy for widespread cultural normality among young adults, is associated with poorer nocturnal sleep quality and poorer mental health status.  

60) Abstract 1189  
PREVALENCE OF FUNCTIONAL SOMATIC SYNDROMES IN AN APPARENTLY HEALTHY POPULATION  
Susanne Fischer, M.Sc., Jens Gaab, PhD, Ulrike Ehlert, PhD, Urs M. Nater, PhD, Psychology, University of Zurich, Zurich, Switzerland  
Background and aim: Functional somatic syndromes (FSS) are defined by a constellation of symptoms for which no medical explanation can be identified. Previous epidemiological studies in students were accounting for only one FSS or merely assessing medically unexplained conditions on a symptom level. The objective of our study was to estimate prevalence rates for 15 FSS in a sample of Swiss students. Methods: A total of 3054 apparently healthy students from various Swiss universities were recruited. To assess prevalence rates, we developed and administered an electronic screening questionnaire encompassing 71 items on various bodily symptoms. An additional 150 questions based on international research diagnostic criteria were presented in case of fulfilling a specific combination of complaints characteristic for one of the syndromes. Subjects meeting the minimum of symptoms required for a diagnosis were subsequently directed to a list of items addressing differential diagnoses. Furthermore, information on comorbid psychiatric conditions was obtained using the Patient Health Questionnaire. Results: Among the participants, 2241 (73.4%) were women and 813 (26.6%) were men. Mean age was 25.87 (SD=1.81). Two hundred and ninety students (9.5%) were diagnosed with at least one FSS. One hundred and twelve (3.7%) had premenstrual syndrome, 57 (1.9%) functional dyspepsia, 40 (1.3%) hyperventilation syndrome, 39 (1.3%) irritable bowel syndrome, 34 (1.1%) premenstrual dysphoric disorder, 26 (0.9%) tension-type headache, 19 (0.6%) temporomandibular disorders, 14 (0.5%) functional chest pain, 11 (0.4%) chronic fatigue, 10 (0.3%) whiplash associated disorders, 6 (0.2%) fibromyalgia, 5 (0.2%) CSF, 2 (0.1%) globus, 2 (0.1%) chronic low back pain, 2 (0.1%) fibromyalgia, one(< 0.1%) chronic fatigue syndrome and one (<0.1%) multiple chemical sensitivity. Compared with subjects without any FSS, participants with at least one FSS reported more somatoform disorders, major depressive disorder, panic disorder or other anxiety disorders (all p < 0.01). Conclusion: Our findings indicate that FSS are relatively prevalent in a sample of apparently healthy young individuals. Psychiatric comorbidity seems to be high. Future studies should include longitudinal designs examining mechanisms of FSS manifestation.  

61) Abstract 1068  
SLEEP DISTURBANCES IN MID-LIFE CAREGIVERS  
Samantha J. Leathers, B.S., Mary Amanda Dev, Ph.D., David J. Kugler, M.D., Martica Hall, Ph.D., Psychiatry, University of Pittsburgh School of Medicine, Pittsburgh, PA  
PURPOSE: Caregiving can be stressful and is associated with increased morbidity. Despite a strong link between caregiving and adverse health outcomes, less is known about its effects on sleep, a critical component of health and functioning. The extant literature on sleep in caregiving is based almost solely on older-adult dementia-patient caregivers, whose sleep and health risks may differ markedly from younger caregivers. Our sample of mid-life caregivers to organ transplant recipients provides a broader understanding of the effects of caregiving on sleep. METHODS: Cross-sectional indices of sleep and stress were assessed in 26 middle-aged familial transplant caregivers and 15 age- and sex-matched non-caregivers. The Pittsburgh Sleep Quality Index was used to assess subjective sleep quality and 3 nights of laboratory-based polysomnography (PSG) were used to quantify indices of sleep duration, fragmentation, depth, and sleep disordered breathing. Self-reported and physiological measures of stress were assessed in conjunction with sleep. RESULTS: Significant group effects were observed for subjective sleep quality and PSG-assessed wakefulness after sleep onset (WASO). Average subjective sleep quality complaints in caregivers were double those in controls (F(4,35)=10.22, p<0.001). In addition, caregivers spent an average of 60 minutes awake after sleep onset compared to 39 minutes of WASO in controls (F(4,34)=4.30, p=.05). When including psychophysiological symptoms of stress in regression models, the effect of group was no longer significant. Beyond the effect of group, symptoms of stress explained 27.9% of the variance in subjective sleep quality (p=.001) and 21.2% of the variance in WASO (p=.023). CONCLUSIONS: Similar to older caregivers, mid-life caregivers experience significant sleep disturbances, and these
disturbances are strongly associated with symptoms of chronic stressors. More research is needed to determine whether caregiver stress causally impacts sleep and whether stress management interventions improve caregiver-related sleep and reduce their adverse effects on health and functioning.

62) Abstract 1002

CITALOPRAM INDUCED SUBACUTE CUTANEOUS LUPUS ERYTHEMATOSUS
Susanne Röhrs, PhD, Rupert Conrad, MD, Psychosomatic Medicine and Psychotherapy, University of Bonn, Bonn, Germany
Citalopram belongs to the class of selective serotonin reuptake inhibitors (SSRI). A selective inhibition of the 5-HT-reabsorption multiplies the serotonergic neurotransmission without influencing the anticholinergic or histaminergic neurotransmission respectively. The main indication for Citalopram is depression, however it is also prescribed for anxiety disorders. We report the case of a 71-year-old female patient, who was admitted to hospital because of an acute skin disorder. Six months before admission the patient had started to take citalopram in a dosage of 10 mg a day because of depressive symptomatology. Three days after intake of the antidepressant she noticed a discrete erythematous eruption, which could not be well explained at the time. As her depression got worse she doubled the dosage of citalopram to 20 mg a day. Three days later the patient developed an acute exacerbation of a disseminated erythema, partly confluening plaques with blisters all over her body, which histologically was classified as subacute cutaneous lupus erythematosus (SCLE). The skin condition was associated with fever and malaise. After having stopped intake of the antidepressant dermatologic symptoms and general condition significantly improved. Potential pathophysiological mechanisms underlying the exacerbation of SCLE after administration of citalopram are discussed. Particularly a citalopram induced photosensitivity with consecutively increased apoptosis and necrosis of the keratinocytes combined with a genetic predisposition to a reduced clearance of apoptotic cell fragments may contribute to the exacerbation of the SCLE. To the best of our knowledge this is the first report of a SSRI. Although adverse cutaneous effects of SSRIs are rare, clinical awareness of these side effects is important to be able to react quickly, switch medication and avoid somatic complications.

63) Abstract 1609

PSYCHOSOCIAL MECHANISMS OF MINDFULNESS-BASED STRESS REDUCTION: THE ROLE OF PERSEVERATIVE COGNITION
Jeffrey Greeson, PhD, Psychiatry & Behavioral Sciences, Duke University Medical Center, Durham, NC
Objective: Previous studies on Mindfulness Based Stress Reduction (MBSR) have shown inconsistent results in ameliorating stress disturbance, a prevalent transdiagnostic risk factor for mental and medical disorders. This study aimed to test the hypothesis that changes in perseverative cognition partially explain the relationship between enhanced mindfulness and improved sleep quality following MBSR. Methods: Structural equation modeling (SEM) was used to conduct a series of mediation analyses on patient-reported MBSR outcomes. Subjects were 322 participants (age 20-77; 74% women; 95% white) enrolled in an 8-week MBSR program offered at an academic health center. Mindfulness was measured by the Cognitive and Affective Mindfulness Scale-Revised (CAMS-R). Perseverative cognition was measured by three conceptually related scales: the brooding factor of the Ruminative Responses Scale, the reflection factor of the Ruminative Responses Scale, and the unwanted intrusive thoughts factor of the Ruminative Responses Scale. An initial conceptual model was tested. Results: Decreased brooding partially mediated the relationship between enhanced mindfulness and improved sleep quality (indirect effect: beta = -.05, p=.026). In contrast, neither reflection nor intrusive thoughts met statistical criteria for mediation. The direct path linking increased mindfulness with improved sleep quality remained statistically significant in an alternative model (CFI >.95, RMSEA<.09, SRMR<.06) and controlled for 7 covariates, including age, gender, education, income, occupational status, expectancy, and prior meditation experience. Conclusions: Mindfulness-related changes in perseverative cognition, namely reduced brooding in response to sad mood, may be one psychosocial mechanism that partly explains sleep quality outcomes following MBSR.

64) Abstract 1366

THE EFFECTS OF INSTANT MESSAGE EMOTIONAL DISCLOSURE ON HEALTH: MODERATING EFFECTS OF BIG 5 PERSONALITY TRAITS
Deborah A. Valentinco, B.S., Psychology, Wayne State University, Detroit, Michigan, Jonathan A. Beyer, Ph.D., Mental Health Service, VA Ann Arbor Healthcare System, Ann Arbor, Michigan, Lindsay M. Oberleitner, M.A., Jennifer N. Carty, B.A., Mark A. Lamley, Ph.D., Psychology, Wayne State University, Detroit, Michigan
Written emotional disclosure (WED) about stress produces small health benefits. Unknown, however, are the effects of receiving immediate feedback while writing, and who responds best to disclosure interventions. This randomized trial of internet-based writing compared immediate stress message (IM) disclosure to both standard disclosure and control writing, and examined how baseline Big 5 personality traits moderated IM effects. We randomly assigned 122 young adults (73% European American, 30% African American, 15%.Middle-Eastern) who reported an unresolved stressful experience into 1 of 3 conditions, which engaged in 3, 30-min laboratory sessions over 1 week: IM with a therapist, standard (no feedback) disclosure, and future plans control writing. At baseline and 6-week follow-up, we assessed stress, physical and psychological symptoms, and post-traumatic growth. ANCOVAs revealed that IM had positive outcomes (somatization, symptoms, upper respiratory infections, hyperarousal) compared to standard disclosure or control, which were equivalent. Significant (p < .05) interactions in moderated regressions clarified which participants had the poorest outcomes of IM. Lower agreeableness predicted more avoidance and upper respiratory infections in IM than in standard disclosure, and more depression than in controls. High conscientiousness predicted more phobic anxiety and hyperarousal in IM compared to both groups. High openness predicted more physical symptoms and less growth in IM than standard disclosure. We conclude that IM disclosure is less effective than both standard, private disclosure and writing about future plans, perhaps because writing for and in response to someone interferes with emotional processing and creating a narrative. People with high openness and conscientiousness might find IM constraining, hampering a preference for self-directedness, whereas low agreeable people might experience challenge in relation to the IM therapist. Novel methods of disclosure need to be tested and not assumed to be effective, and matching method of disclosure to individual differences may be valuable.

65) Abstract 1622

FACTOR STRUCTURE OF THE BECK DEPRESSION INVENTORY - SECOND EDITION (BDI-II) IN PATIENTS WITH HEPATITIS C
Alexander L. Patterson, PsyD, Bret Fuller, PhD, David W. Indest, PsyD, Benjamin J. Morasco, PhD, Department of Psychology, Portland VA Medical Center, Portland, Oregon
Background: Hepatitis C virus (HCV) infects about 1.3% of the US population. Chronic HCV increases the risk for major depressive disorder. The BDI-II is a common instrument used to screen for depressive symptoms, but its validity may be compromised because the somatic symptoms of depression on the BDI-II are also common symptoms of HCV infection. Methods: The BDI-II was given to 671 HCV-positive individuals. The data were split randomly into two samples. Exploratory factor analysis (EFA) with Maximum Likelihood extraction and a Promax rotation was used with the first sample (n = 341). Confirmatory factor analysis (CFA) was used with the second sample (n = 330). Results: Subjects were 97.7% male, M age = 52.8 yrs, 62.9% had an MDD diagnosis in the 12 months prior to assessment, and 42.3% endorsed significant symptoms of depression on the BDI-II. Two factors were present in the EFA: eleven items retained in factor 1, and seven in factor 2. In the CFA the fit functions were improved by including four covariances (X2=235.54, df=130, CFI=0.966). The
highest loading items on factor 1 (Cognitive-Affective) were worthlessness, self-criticalness, and guilty feelings. The highest loading items on factor 2 (Somatic) were concentration difficulty, tiredness or fatigue, and changes in appetite. The mean item score on factor 2 (M=1.01) was significantly higher than on factor 1 (M=0.61, p<0.01). Subjects with an MDD diagnosis scored significantly higher than subjects without an MDD diagnosis on the BDI-II total score (M=30.14 vs. M=12.07, p<0.001), factor 1 item score (M=.81 vs. M=.27, p<0.001), and factor 2 item score (M=1.20 vs. M=.68, p<0.001). Subjects with a cirrhosis diagnosis scored significantly higher than subjects without a cirrhosis diagnosis on the BDI-II total score (M=18.26 vs. M=15.66, p=.04), and Factor 2 item score (M=.68 vs. M=.59, p=.02), despite not being more likely to have an MDD diagnosis. The Cognitive-Affective factor may be a more valid measure of depression than both the Somatic factor and BDI-II total score in patients with HCV, particularly those with more advanced liver disease.

66) Abstract 1730

FORGIVENESS OF SELF, HETEROSEXIST HARASSMENT, REJECTION, AND DISCRIMINATION, EXPERIENCES IN CLOSE RELATIONSHIPS: CORRELATES OF FATIGUE/EFFECTS IN LGB AND GAY MEN.

Jordan B. Willingham, B.A. in progress, Psychology, Chwee-Lye Chng, Ph.D. Health Promotion, Department of Kinesiology, University of North Texas, Denton, TX, Mandy Logan, B.A., Psychology, University of North Texas, Denton, TX, Mark Vosvick, Ph.D. Psychology, Psychology, University of North Texas, Denton, TX

Fatigue is crucial to public health concerns as it is negatively associated with quality of life (QOL; Stewart et al., 1998). In non-light populations anxious mood and fatigue are linked to a decreased satisfaction in relationships (Shrout, 2006). Heterosexist-harassment is associated with decreases in QOL in lesbians and gay men (Chimata & Jason, 2006). Stress and fatigue are linked to the inability to forgive oneself (Kus, 1988). Research also suggests significant differences in stress responses between genders (Taylor, 2000). A diverse convenience sample of 49 gay men and 49 lesbians (62% European-American, 14% Latino/a, 11% African-American, and 13% Other ethnicity) recruited from the Dallas-Fort Worth metroplex provided our data. The samples average age was 33.7 years (SD=12.64), ranging from 18-66 years. Participants completed the Short Form 36 health surveys (SF-36; t=-.90 Ware et al., 1993) vitality subscale measuring energy/fatigue (V=0.82; Scott et al., 1999), Heterosexist Harassment, Rejection, and Discrimination Scale (HHRRDS; t=-.90; Szymanski, 2006), Experiences in Close Relationships (ECR-A; Fraley, 2000) anxiety subscale (t=-.92-.94; Wei et al., 2007) and the Heartland Forgiveness Scales (HFS; Thompson et al., 2005) forgiveness of self subscale (FOS; t=-.78; Hertenstein & Wrobel, 2007). We hypothesized a significant difference between lesbians and gay men in predictors of energy/fatigue. HHRRDS, ECR and HFS in gay men predicted 56% of the variance in energy/fatigue (adj. R²=.26, F (8, 41) = 2.97, p<.05). Although forgiveness of self was a significant predictor for both gay men (t=-.90, t=2.87, p<.01) and lesbians (t=.46, t=3.27, p<.01), the HHRRDS (t=1.63, t=.79, p<.01) and ECR-A (t=.60, t=1.05, p=.01) were only significant predictors in gay men. Clinicians can be attentive of the different coping styles in gay men and lesbians and be responsive to affects of HHRRD by applying forgiveness and relational skills to treatment. Clinicians can become aware of psychosocial symptoms related to anxiety, stress, and depression in gay men. Future research should further explore variation in psychological responses in gay men and lesbians.

67) Abstract 1398

FRUSTRATING STRESS AGGRAVATES DYSPESIA SYMPTOM AND GASTRIC FUNCTION IN MALE VOLUNTEERS

Hiroshi Kaneko, MD, PhD, Masahiro Matsuanga, PhD, Neurology (Psychosomatic Medicine), Fujita Health University, Nagoya, Aichi, Japan, Akira Iida, MD, PhD, Yasushi Funaki, MD, PhD, Masashi Yoneda, MD, PhD, Ksans Kasugai, MD, PhD, Gastroenterology, Aichi Medical University, Nagakute, Aichi, Japan

It has been reported that experimentally induced anxiety decreases gastric accommodation and results in satiety, fullness, and bloating after drinking. This phenomna look like the postprandial distress syndrome in functional dyspepsia (FD). We examined effects of acute stress, which is different from anxiety, influences the gastric function as well as dyspeptic symptom(s). In this study, we measured changes in feeling, dyspepia, gastric function by slow nutrient drink test, and autonomic nervous activity. Twelve male volunteers were recruited. They were ordered to drink the liquid meal at a rate of 15 mL /min continuously. They were exposed to visual and auditory stresses and ECG recording for heart rate variability (HRV) during drinking. They assessed perceived stress and dyspepsia every 5 minutes. When it became impossible for them to drink, they stopped drinking. In the stress condition, rating scores of stress, unpleasantness, and irritation increased and that of relaxation decreased. Anxiety levels were not change in both conditions. Further, the amount of maximum drink decreased (p < 0.05) and the epigastric pain was enhanced. In addition, HRV high-frequency (HF) component tended to increase in the stress condition. The score of stress was negatively correlated with the amount of maximum drink (r = -0.7). It was also positively correlated with the epigastralgia severity (r = 0.5) and change in HF (r = 0.5). These results indicated that visual and auditory stresses used in this study may be frustrating stress accompanied by a decrease in gastric volume, which is among characteristics of FD in drinking test and epigastralgia. which are characterized as functional dyspepsia (epigastric pain syndrome: EPS). These results may suggest that the gastric responses and dyspeptic symptom(s) are different depending on the kinds of the stress.

68) Abstract 1714

MOOD AND SYMPTOM RESPONSE TO A LABORATORY STRESS IN PATIENTS DIAGNOSED WITH INFLAMMATORY BOWEL DISEASE AND IRRITABLE BOWEL SYNDROME

Leighann Litcher-Kelly, PhD, Psychiatry and Behavioral Science, Genna Hymowitz, MA, Psychology, Stony Brook University, Stony Brook, NY

Inflammatory Bowel Disease (IBD) and Irritable Bowel Syndrome (IBS) have similar symptoms, but IBD is characterized by GI inflammation and is considered an organic illness, while IBS is considered a functional disorder. However, many argue that psychosocial and physiological factors play a role in the progression of both, calling into question the validity of this classification. Thus, the purpose of the current pilot study is to compare mood and GI symptoms in patients with IBD and IBS after exposure to a laboratory stressor. Six patients diagnosed with IBS and 7 patients diagnosed with IBD reported baseline stress levels over the previous 2 weeks. At 24- and 48-hours post-stressor (Trier Social Stress Test; TSST), levels of well-being, abdominal pain, loose/liquid stools, stress, happiness and sadness were assessed. We hypothesize that individuals with IBD are more reactive to the laboratory stressor at 24 hours post exposure compared to individuals with IBD (i.e. report higher post-TSST stress, worse mood, and more GI symptoms). We expect the groups to report similar levels of stress, mood and GI symptoms at 48 hours post-TSST, showing a similar recovery. Surprisingly, no significant differences in baseline depression symptoms or stress were found between the groups. No significant differences in abdominal pain, well-being, stress, happiness and sadness were found between the groups at 24- and 48-hours post-TSST. The only difference was for loose/liquid stools. The IBS group reported an increase in number of loose/liquid stools at 24-hours compared to baseline, which decreased to baseline levels at 48-hours. This differed from the IBD group which had no change from baseline to 24- and a small increase between 24- and 48-hours. These findings do not fully support the dichotomy of organic vs. functional GI illnesses. Eliminating the emphasis of this distinction has implications for both assessment and treatment of GI symptoms, and may move the area of GI research toward the adoption of a biopsychosocial approach to patient care.
A recent meta-analysis provides strong support for a relationship between spirituality and quality of life (Sawatzky, Ratner & Chiu, 2005). However, little research examines this relationship in lesbians, gay men and bisexuals. Unique factors associated with the experience of spirituality for many in LGB communities include stigma, stress and anger (Meyer, 2005). We hypothesized that spirituality, stigma, anger and stress account for a significant proportion of the variance in quality of life, as measured by emotional wellbeing. Our convenience sample (N=154) was primarily European American (60.4%) with a mean age of 31.9 years (SD=12.62). A one-way ANOVA indicated a significant difference in emotional well-being between gay men, lesbians and bisexuals (F(2, 150)=3.8,p=.024). Using the Bonferroni correction, a significant difference in emotional well-being was found between gay men (M=73.1, SD=17.1) and bisexuals (M=63.26, SD=19.72), p<.017. Correlational analyses suggested significant negative relationships between emotional well-being and stigma (p<.01), stress (p<.001), inward expression of anger (p<.001), and African American ethnic identity (p<.01) and significant positive relationships for belief and practice of spirituality (p<.05), outward control of anger (p<.001), Hispanic ethnic identity (p<.05) and gay sexual orientation (p<.05). A hierarchical multiple regression analysis revealed that our model accounted for 56.3% of the variance in emotional well-being (F(11, 139)=16.25, p<.001), with inward expression of anger (B=-.20, t=2.76, p<.01), outward control of anger (B=1.67, t=2.48, p<.05), perceived stress (B=-.56, t=2.73, p<.001) and Hispanic identity (B=.12, t=2.01, p<.05) as significant predictors. Our model suggests that low levels of stress, low inward expression of anger, high outward control of anger and Hispanic ethnic identity are associated with high emotional wellbeing. An anger management and stress reduction component in interventions targeting wellbeing may be efficacious in LGB populations; particularly, for bisexual clients.

70) Abstract 1830

DAILY PHYSICAL ACTIVITY IS ASSOCIATED WITH NOCTURNAL BLOOD PRESSURE DIPPING: THE PITTSBURGH HEALTHY HEART PROJECT

Jeanette M. Garcia, MS, Thomas W. Kamarck, PhD, Psychology, University of Pittsburgh, Pittsburgh, PA

Studies have shown that reduced nocturnal blood pressure (BP) dipping, the drop in BP from daytime to nighttime, is associated with increased risk of cardiovascular morbidity and mortality. The mechanisms contributing to nocturnal BP dipping, however, remain unclear. Daytime physical activity (PA) has been suggested as one possible correlate of nocturnal BP dipping, though only a few studies have examined this topic. We examined this question here. The current sample consists of 134 participants (72% males, 91% Caucasian, ages 50-70) from the Pittsburgh Healthy Heart Project (PHHP), all those with complete data on relevant measures at the 6-year follow up. Ambulatory blood pressure (ABP) was assessed over 3 days and 2 nights at 45 minute intervals. Subjects completed electronic diary (ED) assessments in conjunction with each ABP throughout the waking day. Daytime BP was defined as the mean of all ABP assessments that accompanied an ED interview over the 3 days, and nighttime BP was defined as the mean of all ABP measures between sleep onset and awakening, as assessed by wrist actigraphy across the 2 nights. Duration of follow-up was defined as daytime minus ABP. Daytime EE was assessed using a waist accelerometer measuring PA energy expenditure (EE) in one minute epochs during the day. EE was averaged over 15 minute intervals prior to each daytime BP assessment, and then averaged across the 3 days of assessment. Regression analysis showed that EE was significantly associated with nocturnal BP dipping (F(1, 132)=7.58, p=.006), while controlling for age, sex, race, and education status. EE was associated with nighttime BP (F(1, 132)=9.4, p=.03) nor nocturnal BP (F(1, 132)=1.93, p=.16). Daytime PA was associated with a greater dip in overnight BP, which cannot be explained by higher levels of daytime BP. Such effects may contribute to the salutary effects of PA. Future studies should examine the physiological mechanisms by which PA may contribute to nocturnal BP dipping. Supported by HL56346.

71) Abstract 1306

EDUCATIONAL ATTAINMENT IS POSITIVELY ASSOCIATED WITH TELOMERE LENGTH, A MARKER OF CELLULAR AGE

Judith E. Carroll, Ph.D., Cousins Center for Psychoneuroimmunology, University of California Los Angeles, Los Angeles, CA, Anna L. Marsland, Ph.D., R.N., Psychology, Robert E. Ferrell, Ph.D., Human Genetics, Stephen B. Manuck, Ph.D., Psychology, University of Pittsburgh, Pittsburgh, PA

A large body of literature supports a graded inverse relationship between socioeconomic position (SEP) and cardiovascular and age-related disease risk. Recent evidence suggests that telomere length may be an indicator of biological aging prior to disease onset and predict future morbidity and mortality. Parallel to these findings, others have reported a positive association between SEP and telomere length in female samples, denoting one pathway through which SEP could contribute to disease risk. Here, we sought to examine whether this association was also present in a sample of 157 Caucasian untreated hypertensive men (ages ranging from 40-70 years) from the University of Pittsburgh Reactivity and Cardiovascular Risk Trial (REACT). REACT is a study of cardiovascular reactivity and correlates of preclinical atherosclerotic disease conducted in the mid-1990’s. Our analyses revealed a significant positive association of years of education with telomere length that was independent of age, adiposity, history of arthritis, blood pressure, and smoking status (B=.18, p<.05). In contrast, we found no significant association between income and telomere length. Similar to others, our findings suggest that lower educational attainment may heighten disease risk, in part, through accelerated cellular aging. Although this may be a consequence of poor health behaviors and environmental exposures throughout life, SEP may also be operating through repeated and prolonged exposures to socio-environmental adversities and accompanying neuroendocrine, autonomic, and other biological perturbations. An associated attrition of telomeres may be a marker of premature cellular aging, providing one pathway through which social inequalities confer risk for early morbidity and mortality. Supported by PO1 HL040962 (SBM) and the American Psychological Foundation Visionary Fund Grant 2008(JEC).

72) Abstract 1855

ADHERENCE TO DEVICE-GUIDED BREATHING IN AN RCT

Lynn P. Clemow, Ph.D., Medicine, Columbia University, New York, NY, Betsy Ganwisch, Ph.D., Intercare Ltd., Nave Ilan, Israel, Beattis B. Hamm, MD,Ph.D., Family Medicine, UMDNJ - Robert Wood Johnson Medical School, New Brunswick, NJ

The use of device-guided breathing as a stress-reduction method is an increasing area of study for blood pressure (BP) reduction. This approach, as some devices gather process data on their use, offers a window into the extent to which this practice actually takes place and what factors affect outcomes. We present data for one cohort of a larger group of subjects (n=56) participating in a randomized clinical trial, in the device-guided treatment arm (using the RESPeRate® device) for whom we had scored downloaded device data and ambulatory BP monitoring data for pre and post-treatment. We also tested psychosocial variables as predictors of adherence or BP. Adherence was reasonably good over 8 weeks, with participants completing an average of 70% of prescribed daily home practice sessions and very low use (<20 sessions) was rare (n=5). Interestingly, the number of practice sessions was not correlated with change in systolic (r=.05) or diastolic (r=.07) BP. However, two other indices of adherence to device use were significantly correlated with mean change in BP: mean decrease in respiration rate (RR) from first to last reading for each session (r=.51, p<.04 and r=.55, p<.02 for SBP and DBP respectively) and the degree of respiration rate (RR) from first to last reading for each session (r=.51, p<.04 and r=.55, p<.02 for SBP and DBP respectively) and the degree of baseline response (RR) from first to last reading for each session (r=.45, p=.045) and DBP (r=.39, p=.05). Baseline psychosocial variables did not correlate significantly with changes in BP over 8 weeks of practice. Interestingly, one group of variables (depressive and angry rumination scales) did correlate negatively (r=-.49 - -.60) with one index of successful device use, the degree of change in BP.

A-35
was unrelated to changes in BP, but successful use (that is actually following the device guidance and reducing respiration rate) is strongly related to reductions in BP. A tendency to ruminate may interfere with successful use of these devices.

73) Abstract 1141

DOES ATTACHMENT INSECURITY CONTRIBUTE TO SOMATIC SYMPTOMS BY INCREASING THE FREQUENCY OF STRESSFUL LIFE EVENTS?

Robert G. Manonder, MD, William J. Lancee, PhD, Jonathan J. Hunter, MD, Psychiatry, Mount Sinai Hospital, University of Toronto, Toronto, Ontario, Canada

Purpose: Patterns of adult attachment are related to responses to stressful life events and to somatic symptoms, but previous research has not identified if or how attachment insecurity contributes the relationship between life events and symptoms. We tested three possible competing models: Attachment insecurity moderates the life event-symptom relationship; attachment insecurity and life events contribute independently to symptoms; life events mediate the relationship between attachment insecurity and symptoms. Subject Sample and Methods: Data from a cross-sectional survey of 157 healthcare workers, in which attachment insecurity (Experiences in Close Relationships-Revised, ECR-R), life events (over 6 months) and number of somatic symptoms (over 4 weeks) were analyzed using the methods of Baron and Kenny. Results: Attachment anxiety and attachment avoidance were strongly correlated (\( \rho = 0.71, p < 0.001 \)) and so attachment insecurity was measured on a single dimension comprising all 36 ECR-R items (alpha = 0.97). Somatic symptoms were significantly correlated with both attachment insecurity (\( \rho = 0.25, p = 0.002 \)) and life events (\( \rho = 0.37, p < 0.001 \)). Increasing attachment insecurity was significantly associated with reporting more life events (\( \rho = 0.37, p < 0.001 \)). The relationship between life events and somatic symptoms did not differ among those with greater or lesser attachment insecurity (top two quintiles of attachment insecurity: \( \rho = 0.33, \) bottom three quintiles: \( \rho = 0.34 \)). In regression analysis, the contribution of attachment insecurity to explaining variance in somatic symptoms (\( R^2 = 0.26, p = 0.000 \) for the base model, \( R^2 = 0.07 \)) became non-significant (beta 0.14, p = 0.09) after adding life events (\( R^2 = 0.31, p < 0.001 \)) to the regression equation (\( R^2 = 0.15 \)).

Conclusion: The results were consistent with attachment insecurity contributing to somatic symptoms by increasing the frequency of life events (which thus function as a mediator) and inconsistent with models of attachment insecurity as a moderator or as an independent risk factor for somatic symptoms.

74) Abstract 1007

IMPACT OF MIND-BODY TRAINING ON EXERCISE AND BLOOD PRESSURE IN YOUTH

Vernon A. Barnes, PhD, Pediatrics, Maribeth H. Johnson, MS, Biostatistics, Venkataramana Pradeep Shenbagarajan, MBBS MPH, Pediatrics, Medical College of Georgia, Augusta, GA

BACKGROUND. Adolescents with elevated body mass index (BMI) are at increased risk for future development of obesity-related diseases as adults. The application of stress reduction programs such as mind-body training (MBT), especially for youth, are few. This study developed and pilot tested MBT, (breathing awareness meditation, alternate nostril breathing, yoga stretching and postures) for the high school setting. The objective was to determine the impact of MBT on exercise habits and blood pressure (BP) among a population of overweight adolescents. METHODS: Forty adolescents (21 Female/19 Male; 34 Black/6 White, mean age 16.1±1.7 yrs) with BMI for age >95th percentile by gender, (BMI: \( >98 \) for girls; \( >97 \) for boys) from high school health/physical education classes were assigned to 10 weekly 1-hour sessions of MBT at school (n=20), or evaluation only control (n=20) conditions. Participants were evaluated at pre- and 3 months post-test, and at 3 months follow up. Ambulatory BP measurements were obtained over 24 hour periods in the natural setting using SpaceLabs 90207 BP monitors. A lifestyle behavior survey assessed exercise habits and physical activity. RESULTS: Self-reported MBT home practice averaged 29 min/day; range=10-60 min/day; mean=4.1 times per week; range 1-14 times between groups at baseline did not reach statistical significance. A significant group by time interaction was observed for 24-hr systolic BP such that the MBT group decreased from 118±9.7 to 114±9.8 mmHg, compared to an increase (115±9.6 to 119±7.5 mm Hg) in the control group across the 6-month study (p<0.05). 24-hr diastolic BP decreased in the MBT group from 66±1.6 to 64±1.6 mm Hg while the controls increased from 65.0±4.2 to 66.0±7.5 mm Hg across the 6-month study (p<0.07). The MBT group increased in days/week with >20 min of hard aerobic exercise from 2.2±0.9 at baseline to 2.9±1.6 at 3 months, compared to a decrease in the control group (3.1±2.2 to 2.1±1.7) across the 6-month study (p<0.04).

CONCLUSION: The findings were observed over a relatively short intervention period and suggest beneficial impact of MBT upon BP and exercise in overweight adolescents. Replication and verification in a larger group with a longer follow-up is warranted.

75) Abstract 1380

PERCEIVED STRESS, SELF-BLAME, AND RESILIENCE: CORRELATES OF DEPRESSION IN THE LGB COMMUNITY

Cassie Jensen, Mark Vosvick, PhD, Kyle Deaton, BA, Psychology, University of North Texas, Denton, Texas

Resilience refers to a phenomena resulting, in most cases, from the operation of basic human adaptational systems. Members of the lesbian, gay, bisexual, and transgender (LGBT) community are often the targets of prejudice, including antigay violence and discrimination (Herek & Garnets, 2007). A growing body of research suggests a relationship between these stressors and adverse behavioral (e.g. HIV risk behaviors, substance use and misuse) and mental health outcomes within the LGBT community (Diaz et al., 2001; Hatzenbuehler et al., 2008; Meyer & Dean, 1998). Our study examined the association between perceived stress (PSS; Perceived Stress Scale; Cohen, Kamarck, & Mermelstein, 1983; \( r = 0.87 \)), resilience (RS; Connor-Davidson Resilience Scale; Connor & Davidson, 2003; \( r = 0.92 \)), self-blame (SB; Brief Cope Scale; Carver, 1997; \( r = 0.78 \)) and depression (Center for Epidemiological Scale for Depression; Radloff, 1977; \( r = 0.90 \)) among adults who identified as LGBT. We hypothesized that LGBT adults who report lower levels of PSS and SB, as well as higher levels of RS will also report less depression. We used a cross-sectional, correlational design to explore the relationship between PSS, RS, SB, and depression in 152 LGBT adults (61.8% European American, 13.2% Hispanic; female 51%, mean age 32.3, SD=12.74). We used a linear regression analysis to test our model and found it explained 51% of the variance in depression (adj. \( R^2 = 0.51, F(7,144)=23.62, p<0.001 \)). Participants who reported less PSS (\( r = 0.52, t = 6.69, p<0.001 \)), higher levels of RS (\( r = 0.21, t = 2.92, p<0.01 \)), and lower levels of SB (\( r = 0.27, t = 0.05 \)) also reported lower levels of depression. Our study identified correlates of depression in LGBT people. Our findings on PSS, RS, SB, and depression suggest that future research should develop and test interventions that target self-blame and stress while developing resiliency skills for LGBT individuals to reduce depression. Clinicians may want to assess for stress and self-blame when working with LGBT clients and provide coaching around resiliency.

76) Abstract 1059

POTENTIAL ROLE OF BDNF IN THE OMEGA-3 FATTY ACID SUPPLEMENTATION TO PREVENT POSTTRAUMATIC DISTRESS

Yutaka Matsuoka, MD, PhD, Daisuke Nishi, MD, PhD, Psychiatry, National Disaster Medical Center, Tokyo, Japan, Naohiro Yonemoto, MPH, Epidemiology and Biostatistics, National Center of Neurology and Psychiatry, Tokyo, Japan, Kei Hamazaki, MD, PhD, Public Health, University of Toyama, Toyama, Japan, Kenta Matsunuma, PhD, Adult Mental Health, National Center of Neurology and Psychiatry, Tokyo, Japan, Tomohito Hamazaki, MD, PhD, Clinical Science, Institute of Natural Medicine, University of Toyama, Toyama, Japan, Kenji Hashimoto, Clinical Neuroscience, Chiba University, Chiba, Japan

Purpose of study: We found that roughly one in every four patients developed some forms of postrumative stress disorder (PTSD; full PTSD, 8%; partial PTSD, 16%) at one month after the motor vehicle accident in Japan [Matsuoka et al, Crit Care Med, 2008]. Wakawita and his colleagues reported that dietary docosahexaenoic acid (DHA) promoted the maturation of neurons and hippocampal neurogenesis in adult rats [Kawawita et al, Neuroscience, 2006]. Preclinical studies suggest that dietary omega-3 fatty acids affected brain-derived...
neurotrophic factor (BDNF). Kitamura and his colleagues showed that hippocampal neurogenesis contributed to the clearance of fear memory in mouse [Kitamura et al, J Clin Psychopharmacol, 2010]. Based on these plausible animal studies, we hypothesized that promoting adult neurogenesis by omega-3 fatty acids from fish might facilitate clearance of fear memory. We conducted a pilot trial and reported that omega-3 fatty acids supplementation significantly reduced PTSD symptoms in accident-injured patients consecutively admitted to an intensive care unit [Matsuoka et al, J Clin Psychopharmacol, 2010]. Subject sample and statement of methods: In a secondary analysis of this trial, we evaluated whether BDNF levels were elevated by omega-3 fatty acid supplementation after trauma and whether changes in BDNF were associated with prevention of posttraumatic distress such as PTSD and depression. Fifteen consecutive patients received 1,470 mg DHA and 147 mg eicosapentaenoic acid daily for 12 weeks. PTSD and depression was assessed at 4 and 12 week follow-up. We measured serum BDNF levels in the emergency room, and at 4 and 12 week follow-up. Summary of results: The serum BDNF levels were significantly increased after omega-3 fatty acid supplementation (52.36 [SD = 16.69] vs. 79.83 [SD = 13.79], p = 0.001) and these changes were found to be associated with reduced posttraumatic distress on follow-up. These findings support the putative mechanism that omega-3 fatty acid supplementation was associated with an increase in serum BDNF and that increase might attenuate posttraumatic distress.

77) Abstract 1319

SEROTONIN DEFICIENCY AND STRESS: NEGATIVE CORRELATIONS BETWEEN URINARY 5-HIAA EXCRETION RATE AND SCORES ON STANDARDIZED MEASURES OF ANXIETY, DEPRESSION, AGGRESSION, AND IMPULSIVENESS

Kenneth G. Walton, PhD, Center for Natural Medicine and Prevention, Maharishi University Research Institute, Fairfield, Iowa

Objective: To examine relationships between urinary excretion of the serotonin metabolite 5-hydroxyindoleacetic acid (5-HIAA) and scores on questionnaire measures of anxiety, depression, aggression, and impulsiveness in a cohort of healthy, adult men and women volunteers representing a range of stress levels. Methods: Study 1 (n = 54) and study 2 (n = 58) determined the correlations between 5-HIAA excretion rate and scores on standardized self-report measures (Profile of Mood States, State-Trait Anxiety Inventory, and Personality Research Form-E). Study 3 examined the effect on 5-HIAA excretion of increasing time spent practicing the Transcendental Meditation technique. Analysis of urinary 5-HIAA was performed using a GC/MS-verified spectrophotometric method. All subjects refrained from consuming serotonin-containing foods for 12 hours prior to and during the 24-hour collection period. Results: In women, 5-HIAA excretion rate correlated negatively with scores on trait anxiety (r = -0.48, p = 0.002) and depression (r = -0.47, p = 0.006). In men, 5-HIAA excretion correlated negatively with scores on aggression (r = -0.43, p = 0.01) and impulsivity (r = -0.26, p = 0.1). In study 1, long-term (mean of 8.5 years) practitioners of the Transcendental Meditation technique showed a 53% higher rate of 5-HIAA excretion during sleep than age-matched controls not practicing any technique (means +/- SEM, 125.0 +/- 9 microliters/h vs. 81.7 +/- 9 microliters/h, respectively, p = 0.001), and scored significantly lower on the Tension-Anxiety (7.4 +/- 2 vs. 11.6 +/- 2, p = 0.05), Depression-Dejection (5.6 +/- 1 vs. 10.1 +/- 2, p = 0.01), and Anger-Hostility (6.5 +/- 1 vs. 11.9 +/- 2, p = 0.01) subscales of the POMS, yet correlations between 5-HIAA and test scores in the meditation and control groups were similar. Study 2, a validation of the meditation session technique, showed that morning on two consecutive days caused an increase of 5-HIAA excretion rate during sleep on those days compared to days without the extra session (t = 3.42, p = 0.02). Conclusions: When serotonin-containing foods are excluded from the diet, urinary 5-HIAA excretion rate over periods of hours correlates with various mood and personality measures. Level of chronic stress may be a determining factor in this relationship.

78) Abstract 1314

PREDICTORS OF STRESS AND HEALTH IN URBAN FIREFIGHTERS

Laurie E. Steffen, B.A., Erin M. Tooley, M.S., J. Alexis Ortiz, M.S., Jennifer F. Bernard, M.S., Bruce W. Smith, Ph.D., Psychology, University of New Mexico, Albuquerque, NM

This study examined predictors of stress and health in urban firefighters. Research supports the use of demand-control and effort-reward models to explain work-related stress. Social support from supervisors and co-workers may also be important in reducing work-related stress. This study assessed work-related job demand, control, effort, and reward as well as support from supervisors and co-workers in 124 urban firefighters. The sample was 93% male and 37% non-Hispanic Caucasian with a Mean age of 33 years old. Dependent variables included measures of posttraumatic stress, depression, physical symptoms, posttraumatic growth, and alcohol problems. Control variables included years of firefighting experience, the number of response calls in the previous month, and the number critical incidents experienced. Multiple hierarchical regressions were conducted predicting each dependent variable with the control variables entered on the first step and the work-related variables entered on the second step. Job effort (B = .23, p < .05) and supervisor support (B = .27, p < .05) were related to PTSD symptoms with the full model of work-related variables accounting for 22% of the variance. Job reward (B = -.28, p < .05) was related to depressive symptoms with the full model accounting for 19% of the variance. Job effort (B = -.22, p < .05) was related to fewer physical symptoms with the full model accounting for 8% of the variance. Supervisor support (B = -.34, p < .01) and co-worker support (B = .33, p < .01) were related to alcohol problems with the full model accounting for 17% of the variance. Job effort (B = -.26, p < .05) was related to posttraumatic growth with the full model accounting for 6% of the variance. Overall, the combined model of 4 work-related variables was able to account for more outcomes suggesting that it may be more useful in predicting firefighter health than the demand-control model. In addition, there were striking differences between supervisor and co-worker support in their effects on alcohol problems and the effects of job effort on PTSD and physical symptoms.

79) Abstract 1701

HEART RATE VARIABILITY, MOOD AND CRAVING INTENSITY IN ALCOHOL DEPENDENT SUBJECTS DURING EARLY ABSTINENCE IN RESIDENTIAL TREATMENT

Magdalena Romanowicz, M.D., John E. Schmidt, PhD, Kriste A. Lewis., Terry D. Schneekloth, M.D., Daniel K. Hall-Flavin, M.D., Larissa L. Loukianova, M.D., PhD, David Mrazek, M.D., Victor M. Karypak, M.D., PhD, Psychiatry and Psychology, Mayo Clinic, Rochester, MN

Introduction: Previous findings suggest that heart rate variability (HRV) is decreased in alcohol dependent subjects and in those suffering from depression and anxiety (Weise, Muller et al. 1985; Malpas, Whiteside et al. 1991; Thayer, Friedman et al. 1996; Koschke, Boettger et al. 2009). Here we present preliminary data from an ongoing study investigating associations among HRV, mood, anxiety and craving intensity in alcohol dependent subjects during residential treatment. Method: Holter monitoring (24 hours) was performed during the first (Time 1) and the fourth (Time 2) week of treatment in 12 patients consecutively admitted to a residential treatment program. Standard measures of HRV time and frequency domains were calculated. Self-report scales assessing depression (PHQ-9), anxiety (GAD-7) and craving alcohol (PACS) at the time of admission and prior to discharge were completed by all study participants. Results: Good quality 24-hour ECG recordings were obtained from 7 subjects (6 females) with mean age of 40.3, SD 15.6; mean BMI: 26.6, SD: 5.8; 5 with comorbid anxiety disorders. Subjects were excluded from analyses based on incomplete or poor quality ECG recording (n=3), newly diagnosed acute medical illness (n=1), 24-hour Holter monitoring less than 18 hours in length (n=1). No statistically significant changes in main HRV indicies (SDNN, RMSSD, LF, and HF) were found between Time 1 and Time 2. Statistically significant decrease in PHQ-9 (p=0.003) but not GAD-7 (p=0.520) was noted. Average PACS levels decreased significantly (p=0.05) but remained elevated (mean 11.5 SD 9.6). Time 1 scores on GAD-7 correlated positively with LF (nu) and negatively with HF (nu) (p<0.05). GAD-7 scores at Time 2 correlated negatively with SDNN (p<0.05). Conclusions: Our preliminary data are consistent with previously reported correlation between low HRV and elevated anxiety measures. Further research and larger sample size may allow further investigation of associations between HRV changes, depression, alcohol cravings and other phenomenological presentations of alcohol dependence.
META-AWARENESS AND STRESS REGULATION: OVERESTIMATION OF ATTENTIONAL CONTROL ABILITIES PREDICTS POORER BLOOD PRESSURE RECOVERY DURING STRESS
Holly K. Rau, MS, Paula G. Williams, PhD, Matt Cribbet, M.S., Heather Gunn, M.S., Katie Tant, B.S., Psychology, University of Utah, Salt Lake City, Utah

Attentional control is hypothesized to be associated with better self-regulation generally, and stress regulation specifically. This construct is often measured with global (i.e., trait) self-assessments. However, there is little research on the correspondence between those measures and real-time (i.e., state) assessments during stressful circumstances, and little is known about the implications of such correspondence on physiological stress responses. This study examined the relationship between stress recovery and trait versus state reports of attention. A sample of 97 students (50% male; age 18-46, M=23) completed the Social Competence Interview (Ewart et al., 2006), a well-validated laboratory stress task, while systolic blood pressure (SBP) was recorded. The Attentional Control Scale (Derryberry & Reed, 2002) was used to measure trait attentional control. Change in state attentiveness (baseline, post-stress) was assessed using the attentive item from the Positive and Negative Affect Scale (PANAS). Correlation between global and real-time assessment of attention was operationalized as standardized difference scores between state and trait attentiveness measures. Positive scores indicated relatively greater state attentiveness, negative scores indicated relatively greater trait attentiveness, and near-zero scores indicated state-trait agreement. State and trait attention were not correlated, r=.07, p>.05. Neither state nor trait attentiveness alone was associated with SBP recovery (i.e., last 3 min of SBP recovery - baseline SBP), r=-.02 and .17, respectively, p>.05. Rather, relatively greater state vs. trait assessments of attention were associated with SBP recovery (r=-.20, p=.05). Overestimation of attentional control was associated with poorer recovery, suggesting that this characteristic may be associated with poorer stress regulation. Future research should examine the extent to which overestimation of self-regulatory abilities (i.e., poor meta-awareness) is indicative of poorer executive abilities and prefrontal cortex functioning.

81) Abstract 1073
CAREGIVERS MAY INFLUENCE ADHERENCE TO ANTIHYPERTENSIVE MEDICATIONS IN COPD
Ranak B. Trivedi, PhD, Health Services, Chris L. Bryson, MD, Medicine, University of Washington, Seattle, WA, Edmunds M. Udris, MPH, HSR&D Center of Excellence, VA Puget Sound Health Care System, Seattle, WA, David H. Au, MD, Pulmonology, University of Washington, Seattle, WA

Caregivers are integral to the management of comorbid conditions associated with chronic obstructive pulmonary disease (COPD); however, their role remains understudied. This study evaluated the association between caregiver presence and adherence to antihypertensive medications among COPD patients. 294 COPD patients recruited for a clinical trial were asked who was most involved in their care. Patients were then classified into 3 groups: no caregiver, caregiver’ group, and non-spousal caregiver’ group. Antihypertensive medications among COPD patients. 294 COPD patients recruited for a clinical trial were asked who was most involved in their care. Patients were then classified into 3 groups: no caregiver, caregiver’ group, and non-spousal caregiver’ group. In the ‘no caregiver’ group, higher medication adherence was found among the ‘spousal caregiver’ group (Mean difference=.13, 95%CI=.04, .22) and the ‘non-spousal caregiver’ group (Mean difference=.12, 95%CI=.03, .22). Therefore, patients who reported having caregivers had better refill adherence than those who reported not having a caregiver. Results suggest that the presence of caregivers may play an important role in ensuring medication adherence, providing impetus to the understudied area of the role of caregivers in COPD.

82) Abstract 1751
DEPRESSION AND LONELINESS: CORRELATES OF POSITIVE STATES OF MIND IN COLLEGE STUDENTS
Danielle R. Tarver, BA in progress, Psychology, University of North Texas, Flower Mound, TX, Chwee-Lye Chng, Ph.D., Kinesiology/Health, Jordan Willingham, BA in progress, Mark Vosvick, Ph.D., Psychology, University of North Texas, Denton, TX

Depression is a serious health concern among college students, with 50% of them reporting depressive symptoms (Kadison & DiGeronimo, 2004). However, this risk for depression could be mitigated by a positive state of mind, which assesses a person’s ability to enter desirable states of mind such as staying focused, keeping relaxed, and sharing with others (Horowitz et al., 1988). This ability to enter desirable states of mind buffers a stressor to lower depressive symptoms (Fredrickson, 2004). Additionally, depressed students report fewer social contacts, consequently more susceptible to increased loneliness (McCullough et al., 1994). This loneliness, however, could be mitigated by social support which enhances positive psychological states that lead to feelings of stability and control (Gonzalez et al., 2004). We examined the relationship of depression and race on well-being states of mind in a diverse convenience sample of 287 female and 87 male students (58.8% European-American, 9.1% Latino/a, 19.3% African-American, and 12.8% Other ethnicity) recruited from a large state university in Texas. On average participants were 21 years (SD=5.01) with ages ranging from 18-56 years. Participants completed the Positive States of Mind scale (PSOM; t=-7.77, Horowitz et al., 1988), UCLA Loneliness scale (UCAL; t=-9.69, Russell et al., 1980) and Center for Epidemiological Studies of Depression scale (CES-D; t=-8.85, Radloff, 1977). We hypothesized that depression and loneliness are significantly negatively correlated with positive states of mind. We conducted a hierarchical linear regression analysis and found loneliness (t=-14.1, p<.001) and depression (t=-8.59, p<.01) predicted 31.6% of the variance in positive states of mind (adj. R²=.32, F (11, 362) =16.68, p<.001). Study findings suggest that clinicians should address symptoms of depression and loneliness to enhance mental health in college students. Researchers should further investigate other benefits to having positive states of mind in college populations.

83) Abstract 1402
RUMINATION PARTIALLY MEDIATES THE RELATIONSHIP OF RACISM TO DEPRESSIVE SYMPTOMS
Jahanara Ullah, M.A., Elizabeth Brondolo, Ph.D., William Chaplin, Ph.D., Psychology, St. John's University, Jamaica, NY

How do acute episodes of race-related maltreatment elicit chronic experiences of stress and distress? This study tests the hypothesis that the relationship of perceived racism to depression is partially mediated by rumination about race-related stressors and by social constraint, i.e., the perception that the targeted individual will not receive social support from others concerning episodes of maltreatment). Participants included 247 self-identified Black and Latino(a) adults (178 women; 131 Black; mean age = 29.6 years). They completed the Perceived Ethnic Discrimination Questionnaire-Community Version (PEDQ-CV) and the SCL-90-R depression scale. They wrote about an episode in which they were treated badly because of their race or ethnicity, and then completed modified versions of the Behavioral Anger Response Questionnaire and the Social Constraint Scale designed to assess the degree of rumination and social constraint in response to the episode they recounted. Hierarchical multiple regression analyses revealed that PEDQ-CV scores were significantly and positively associated with depressive symptoms (partial R² = .01, p < .001). Using the SAS-macro developed by Preacher and Hayes (2008), bootstrap analyses were employed to test mediation. The total effect and the direct effect of perceived racism on depressive symptoms...
84) Abstract 1669

OPTIMISM, RESILIENCE, AND COPING ON SYMPTOMS OF DEPRESSION AND SALIVARY CORTISOL STRESS RESPONSE IN A SAMPLE OF PREGNANT WOMEN
Ronald E. Freche, BA, Guido G. Urizar, Jr., Ph.D., Psychology, California State University, Long Beach, Long Beach, CA; Iona S. Yin, Ph.D., Psychology, University of California, Irvine, Irvine, CA

Optimism, resilience, and adaptive styles of coping have been found to protect against the development of depression while also leading to better health outcomes. This study examined whether optimism (Life Orientation Test Revised [LOT-R]), resilience (Resilience Scale), and coping style (Prenatal Coping Inventory [PCI] subscales: Problem Solving, Avoidance, Positive Reinterpretation, and Prayer) were associated with depressive symptoms (Center for Epidemiologic Studies Depression Scale [CES-D] and Maternal Mood Screener [MMS]) in a sample of 100 pregnant women [44% Latina, 39% African-American; mean age = 26 years (SD = 6.0); mean gestational age = 17 weeks (SD = 4.8)]. For a subsample of pregnant women (n = 40), salivary cortisol was measured in either pre-first trimester (FET) or in a laboratory stressor (Trier Social Stress Test, TSST) and collected six times (baseline and 1, 15, 30, 45, and 60 minutes-post TSST) during a laboratory visit. Pearson correlation analysis showed that higher levels of resilience were associated with more problem solving and avoidance coping, less positive reframing, and fewer depressive symptoms. Hierarchical regression analyses showed that higher levels of optimism produced fewer depressive symptoms (Maternal Mood Screener, Lifetime History of Depression: R2 = .33, p < .01) while more frequent use of positive reframing produced greater depressive symptoms (CES-D: R2 = .61, p < .01). Additionally, more frequent use of problem solving produced greater cortisol reactivity (i.e., higher cortisol levels) to the TSST (R2 = .32, p = .077) and quicker recovery (return to baseline) from the TSST (R2= .32, p = .086). Findings suggest that interventions concerned with treatment or prevention of depression should focus on increasing optimism as opposed to positive reframing coping styles. Additionally, interventions aimed at stress management or hormonal dysregulation should focus on increasing problem solving skills.

85) Abstract 1601

MINDFULNESS BASED STRESS REDUCTION (MBSR) IN THE TREATMENT OF IRAQ COMBAT-RELATED PTSD
J Douglas Bremer, MD, Psychiatry and Radiology, Nadeem Afzal, MD, Psychiatry, Emory University School of Medicine, Atlanta, GA; Viola Vaccarino, MD, PhD, Epidemiology, School of Public Health, Atlanta, GA; James Carmody, PhD, Department of Medicine, University of Massachusetts School of Medicine, Worcester, MA; Sandy DeVita, MS, Psychology, Emory University School of Medicine, Atlanta, GA

Mindfulness Based Stress Reduction (MBSR) has been shown to be efficacious in the reduction of anxiety and negative affective states. Until recently MBSR was not frequently applied to combat veterans with posttraumatic stress disorder (PTSD). The purpose of this study was to assess the effects of MBSR on PTSD in returning veterans of Operation Iraqi Freedom (OIF). Twenty-six veterans with PTSD were randomized to receive either eight weeks of once a week MBSR or a supportive group therapy control (SGTC). Nine subject finished MBSR and 8 SGCT. Subjects underwent assessment of PTSD symptoms with the Clinician Administered PTSD Scale (CAPS), as well as assessments of anxiety and depression, before and after the intervention. There were significant reductions in PTSD symptoms as measured by frequency of intrusive memories on the CAPS in the MBSR group (Pre- to post-treatment, 1.9 (1.5 SD) v 0.9 (1.4 SD) (p<0.05)) not seen in the STGC (Pre- to post-treatment, 2.2 (2.0 SD) to 1.5 (1.2 SD)). Significant improvements were also seen in clinical global improvement (CGI) scores in the MBSR compared to the SGTC group. MBSR was also safe and well tolerated in patients. These findings suggest that MBSR is an efficacious treatment for combat-related PTSD.

86) Abstract 1654

CORTISOL REACTIVITY TO ACUTE STRESS IN COMORBID DEPRESSION AND ANXIETY
Cynthia A. Unger, Kimberly Dienes, PhD, Psychology, Roosevelt University, Chicago, IL

Evidence linking stress, depression, and anxiety shows that an altered biological stress response often accompanies depression and depressed individuals often report symptoms of anxiety (Gold & Chrousos, 2002). Dysregulated cortisol secretion in response to an acute stressor has been reported in individuals with comorbid depression and anxiety (Young et al., 2000; Burke et al., 2005). Examining the cortisol response of depressed individuals with anxiety symptoms may help to determine if depression alone predicts a biological response to acute stress, or if anxiety is the exacerbating factor. It was predicted that comorbid depression and anxiety would result in greater salivary cortisol secretion, steeper slope of rise in cortisol, and slower recovery to baseline cortisol, across an acute social stress task. Participants included 57 females in two groups (currently depressed [CD; N=15] and non-depressed [ND; N=42]). Symptoms of total and social anxiety were tallied from the Structured Clinical Interview for DSM-IV (SCID). The Trier Social Stress Test (TSST) was administered, and salivary cortisol was collected at baseline and at 0, 10, 25, and 40 minutes following the TSST. Multiple regression analysis showed no main effect for number of total anxiety, or social anxiety, symptoms, or an interaction effect of anxiety symptoms with depression. Depression group was a significant predictor of total cortisol secretion (Area Under the Curve at intercept [AUCi]) (B=248.77; t=2.26; p<.05), slope of rise (B=12.01; t=2.52; p<.05), and slope of recovery (B=-9.37; t=-2.49; p<.05) in response to the TSST. The depressed group displayed higher overall salivary cortisol secretion, steeper slope of rise, and steeper slope of recovery. Depressed individuals in groups were in remission of depression at baseline but were not exacerbated by symptoms of anxiety in this study. Additionally, depressed individuals showed a steeper decline in cortisol secretion following the TSST, contrary to prediction. Depression alone may be a stronger predictor of cortisol reactivity to acute stress than comorbid depression and anxiety symptomatology.

87) Abstract 1741

PAIN-RELATED FEAR IMPACTS MOVEMENT IN THE CONTEXT OF EXPERIMENTALLY INDUCED PAIN
Zina Trost, PhD, Psychology, McGill University, Montreal, Quebec, Canada; Christopher R. France, PhD, Psychology, James S. Thomas, PhD, School of Physical Therapy, Ohio University, Athens, OH

Pain-related fear is predictive of decreased function at various stages of back pain. Following initial injury, individuals with high pain-related fear may be susceptible to the development of disability through specific alterations in motor strategy (e.g., restriction of lumbar motion) that may persist even as injury heals. Though initially protective, these changes in coordination can be harmful in the long run. This study examined the effects of MBSR on PTSD in returning veterans of Operation Iraqi Freedom (OIF). Twenty-six veterans with PTSD were randomized to receive either eight weeks of once a week MBSR or a supportive group therapy control (SGTC). Nine subject finished MBSR and 8 SGCT. Subjects underwent assessment of PTSD symptoms with the Clinician Administered PTSD Scale (CAPS), as well as assessments of anxiety and depression, before and after the intervention. There were significant reductions in PTSD symptoms as measured by frequency of intrusive memories on the CAPS in the MBSR group (Pre- to post-treatment, 1.9 (1.5 SD) v 0.9 (1.4 SD) (p<0.05)) not seen in the STGC (Pre- to post-treatment, 2.2 (2.0 SD) to 1.5 (1.2 SD)). Significant improvements were also seen in clinical global improvement (CGI) scores in the MBSR compared to the SGTC group. MBSR was also safe and well tolerated in patients. These findings suggest that MBSR is an efficacious treatment for combat-related PTSD.
DIGITAL COACHING FOR CHRONIC PAIN: EFFECTS ON PAIN SEVERITY, PSYCHOLOGICAL HEALTH, AND FUNCTIONING
Dana C. Nevedal, M.A., Psychology, Wayne State University, Detroit, MI; Steven Schwartz, Ph.D., Behavioral Science and Data Analytics, HealthMedia, Inc., Ann Arbor, Michigan; Chun Wang, M.S., Behavioral Science & Data Analytics, HealthMedia, Inc, Ann Arbor, Michigan; Lindsay Sander-Oberleitner, M.A., Psychology, Wayne State University, Detroit, MI; Eli W. Carter, B.S., Behavioral Sciences and Data Analytics, HealthMedia Inc., Ann Arbor, MI
Purpose: To examine the effects of a tailored, online chronic pain intervention on pain, activity interference, stress, quality of life, and test for predictors of program response. Participants & Method: Participants accessed the online pain management program via employer or health benefit systems. Those self-selecting the pain management program entered the study (N= 21,887) and completed baseline, 1-, 3-, and 6-month assessments. Mean participant age was 49.81 years (SD = 13.09), most were female (71.2%), and Caucasian (77.5%). Common pains include: joint (32.1%), back (31.3%), and osteoarthritis (6.9%). Pain interference reported by participants to the individual on several variables, incorporating evidence-based theories of CBT, motivational enhancement therapy, and health behavior change to address self-management, coping, adherence, social support, comorbidities, and productivity. Results: Pain intensity and unpleasantness ratings decreased at all follow-ups (p<.0001; d range: 0.45 - 0.56). Pain interference reductions were non-significant at 1 and 3 month follow-ups (p>.05), but reached significance at 6 months (p=.04, d=.09). At 1-, and 3-months significantly fewer reports of fair or poor quality of life, and fair or poor quality of health (p<.01) were found; but not at 6 months (p>.05). Stress levels decreased significantly (p<.01) at 1-month (d=0.07), but not at 3 or 6 months (p>.05). Predictors of better treatment response included: higher baseline pain intensity and interference (p<.001); absence of fibromyalgia or back pain (p<.05); being female (p=.005); and lower reports of pain-caused depression and anxiety (p<.05); lack of anesthesia treatment was marginally significant (p=.05). Conclusion: The tailored online chronic pain management program exerts significant effects on pain intensity and pain unpleasantness at 6 months post-treatment. Significant effects on quality of life, quality of health, and stress were also found at 1, and/or 3 months post-treatment, however these effects proved to be less robust over time. Pain level, pain type, gender, and pain-caused symptoms predicted treatment response.

THE SHORT-TERM IMPACT OF WEB-BASED WORKSITE HEALTH PROMOTION PROGRAMS ON EMPLOYEE PRODUCTIVITY
Dana C. Nevedal, MA, Department of Psychology, Wayne State University, Detroit, MI; Jordan Silberman, BA, University of Rochester Medical Center, Rochester, NY; Chun Wang, MS, Danielle L. Giuseffi, MPH, Richard Bedrosian, PhD, Steven M. Schwartz, PhD, HealthMedia, Inc., Ann Arbor, Michigan
Background: An increasing number of employers are utilizing the Internet to deliver health promotion programs in a scalable and cost-effective manner. Research on the cost-effectiveness of these programs has focused on direct healthcare costs; however, few studies have assessed the degree to which Web-based health promotion can yield economic benefits by improving employee productivity. Studies investigating the short-term effects of health promotion programs (defined here as effects observed within 30 days) are also rare in the health promotion literature. Purpose: To assess short-term changes in employee productivity observed after the implementation of Web-based health promotion programs. Study Sample: More than 20,000 employed adults who participated in one of four Web-based health promotion programs. These programs were designed to help manage one of the adults who participated in one of four Web-based health promotion programs. Study Sample: More than 20,000 employed adults who participated in one of four Web-based health promotion programs. The findings may provide business leaders with more complete information regarding the potential economic impact of worksite health promotion programs. The findings suggest, moreover, that productivity changes may be a leading indicator of subsequent changes in health status; productivity assessments may therefore be useful, in some cases, for predicting disease progression. Future research is needed to investigate this possibility.

CARDIOVASCULAR FUNCTIONING PRIOR TO AND SHORTLY FOLLOWING SURGERY CAN PREDICT SUBSEQUENT SYMPTOMS OF POST-TRAUMATIC STRESS
Julie K. Cremene-Smith, Ph.D., Psychology, Kent State University at Stark, M.A., Canton, OH; Thomas M. Krako, RN, Ohio University Colleges of Medicine, Rootstown, OH; Kenneth Greene, M.D., Orthopaedics, Cleveland Clinic, Cleveland, OH; Douglas L. Delahanty, Ph.D., Psychology, Kent State University, Kent, OH
Prior research suggests that cardiovascular activity is elevated among those with post-traumatic stress disorder (PTSD) and may predict the development of PTSD following a traumatic experience. However, the occurrence of most traumatic stressors is unpredictable and, therefore, has prevented researchers from examining whether altered cardiovascular functioning precedes trauma or occurs in response to the event. The present study examined the extent to which heart rate (HR) and blood pressure (BP) predicted the development of post-traumatic stress symptoms (PTSS) following a scheduled trauma: arthroplasty surgery. Participants were 110 patients (75 females) between the ages of 41 and 90 (M=69.2) undergoing unilateral total knee replacement surgery. A review of patients’ medical files allowed for the recording of routine HR and BP measurements taken by hospital staff at 3 time points: 1) pre-surgery, 30 minutes prior to surgery, 2) post-surgery, 1 hour following surgery, and 3) discharge. Patients completed the Impact of Event Scale (IES) 3 months following their surgery. Regression models controlled for relevant demographics, administration of beta-blockers proximal to surgery, as well as post-operative depression and pain. Patients’ systolic BP, prior to and shortly after surgery, predicted total IES (B=-.167, p=.063 and B=-.209, p=.026) and symptoms of avoidance 3 months later (B=-.205, p=.037 and B=-.315, p=.002). In addition, patients’ diastolic BP, shortly after surgery, predicted subsequent total IES (B=-.177, p=.045) and symptoms of avoidance (B=-.208, p=.034). Further, patients’ HR, prior to and shortly following surgery, marginally predicted intrusive thoughts 3 months later (B=.155, p=.054 and B=-.149, p=.087). In summary, lower BP and higher HR proximal to surgery predicted later PTSS. These findings will be discussed in the context of phenomena related to cardiovascular functioning and PTSD (e.g., dissociation and post-operative pain).

SOCIAL EXCLUSION AND PAIN AMONG BURN SURVIVORS
Rebecca Rios, Ph.D., Psychiatry and Behavioral Sciences, Johns Hopkins University, School of Medicine, Baltimore, MD; Shawn T. Mason, Ph.D., Warrior Resiliency Program, Brooke Army Medical Center, San Antonio, TX; Anna Lavelle, B.A., James Fauerbach, Ph.D., Psychiatry and Behavioral Sciences, Johns Hopkins University, School of Medicine, Baltimore, MD
Most burn injuries typically result in pain and threat of social exclusion due to disfigurement. Convergence between social and physical pain due to shared threat-defense mechanisms has been proposed. Hypotheses were that 1) pain outcomes and indicators of social exclusion would be correlated at multiple time points over a 2-year period, and 2) social exclusion would predict concurrent and prospective pain. 124 patients (70% male; 60% Caucasian) with severe burn injuries were assessed at discharge and 6, 12, and 24 months. The McGill Pain Questionnaire provided overall (OP), sensory (SP) and affective (AP) scores. Social
exclusion indicators were the Perceived Stress Questionnaire (PSQ), the Social Comfort Questionnaire (SCQ), and social discomfort (SD) and perceived social impact (SPI) factor scales of Satisfaction with Appearance Scale. All correlations were significant (p<.05). All social exclusion indicators significantly predicted concurrent pain (p<.05). SD at 6 months significantly predicted OP, SP and AP at 12 months (p<.05) over and above pain at 6 months. Results lend support to overlapping pain and social exclusion, and indicate that further investigation of a shared threat response is warranted.

<table>
<thead>
<tr>
<th>Time (in months)</th>
<th>Overall Pain</th>
<th>Sensory Pain</th>
<th>Affective Pain</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSQ 6</td>
<td>.46</td>
<td>.41</td>
<td>.38</td>
</tr>
<tr>
<td>SCQ 6</td>
<td>-.66</td>
<td>-.63</td>
<td>-.66</td>
</tr>
<tr>
<td>SD 6</td>
<td>.44</td>
<td>.43</td>
<td>.45</td>
</tr>
<tr>
<td>PSI 6</td>
<td>.52</td>
<td>.51</td>
<td>.51</td>
</tr>
<tr>
<td>12</td>
<td>.45</td>
<td>.47</td>
<td>.38</td>
</tr>
<tr>
<td>24</td>
<td>.49</td>
<td>.43</td>
<td>.56</td>
</tr>
<tr>
<td>12</td>
<td>.46</td>
<td>.46</td>
<td>.44</td>
</tr>
<tr>
<td>24</td>
<td>.41</td>
<td>.41</td>
<td>.33</td>
</tr>
</tbody>
</table>

92) Abstract 1876

WILL NOT BE PRESENTED

93) Abstract 1194

TRAUMA HISTORY IS RELATED TO OXYTOCIN AND MATERNAL-INFANT BONDING
Jane Leserman, PhD, Melissa Stansbury, BS, Nacire Garcia, MS, Cort Pedersen, MD, Psychiatry, University of North Carolina, Chapel Hill, NC

The neuropeptide hormone oxytocin has been implicated in the process of mother-infant bonding, primarily based on animal models. The current study will examine the interrelationships among lifetime trauma, lifetime major depression, oxytocin and postpartum maternal bonding in humans. We studied 70, mostly low-income Hispanic women, during the 35-36th week of pregnancy and at 6 weeks postpartum. Oxytocin levels were obtained from a 24-hour urine collection 6 weeks after delivery, a time when variations in oxytocin might be evidenced. Maternal-infant bonding was assessed at 6 weeks postpartum using the 25-item Postpartum Bonding Questionnaire. Lifetime trauma focused on the number of categories of past traumatic experiences (e.g., sexual/physical abuse, childhood neglect). The mean age of the sample was 27 years (SD=5.8), mean education was 10.3 years (SD=3.3) with 82.9% Hispanic. More past traumas (r=.31, p<.01) and having depression history (MINI diagnostic interview) (r=.26, p>.03) were related to lower levels of oxytocin. Baseline age, education, marital/partner status, race/ethnicity and breastfeeding were unrelated to oxytocin. More lifetime trauma (r=.36, p<.002), having past depression (r=.38, p=.001), and lower oxytocin (r=.33, p<.005) were associated with less maternal bonding. Demographic variables were unrelated to maternal bonding, however, better bonding was associated with breastfeeding (r=.33, p=.005). Because trauma and depression history were highly correlated (r=.49, p<.0001), the latter dropped out in the final regression model. Better maternal bonding was independently associated with less past trauma (STB=.31 p=.006), more oxytocin (STB=.21, p=.06), and breastfeeding (STB=.33, p=.003), explaining 29% of the variance. The effects of oxytocin on bonding were somewhat reduced by past trauma. Early experiences of lifetime trauma and past depression may affect postpartum oxytocin; ultimately trauma, oxytocin and breastfeeding may all have a role in maternal bonding. This is among the first studies in humans to examine the effects of trauma on oxytocin and maternal bonding. Supported by R01-MH077838.

94) Abstract 1023

PARENTHOOD AND HOST RESISTANCE TO THE COMMON COLD

Roaldesia S. Sneed, MPH, Sheldon Cohen, PhD, Psychology, Carnegie Mellon University, Pittsburgh, PA, William J. Doyle, PhD, Department of Otolaryngology, University of Pittsburgh, School of Medicine, Pittsburgh, PA

Previous research on the relationship between parenthood and health has yielded limited and inconsistent findings. The purpose of the current study was to determine if parenthood predicts host resistance to the common cold among healthy volunteers experimentally exposed to one of four common cold viruses. This analysis used aggregate data collected from three Pittsburgh Cold studies, a series of prospective viral challenge trials conducted from 1993-2004 among healthy volunteers. Our analyses included 795 participants (age range 18-55). Parenthood status was determined at baseline via questionnaire. Thereafter, participants were quarantined, administered nasal drops containing one of four common cold viruses, and monitored for the development of a clinical cold (infection in the presence of objective signs of illness) on the day before and for 5 days after exposure. All analyses included controls (covariates) for virus, base line immunity to the virus (specific antibody titers), season, age, sex, race/ethnicity, marital status, body mass, education, extraversion and agreeableness. Parents were less likely to develop colds than non-parents (OR=.481; 95% CI, 0.316, 0.734). There was a graded association with number of children; with those who have more children less likely to develop colds. Parenthood was associated with a decreased risk of colds for both those with at least one child living at home (OR=.46; 95% CI, 0.25-0.86), and those whose children all lived away from home (OR=.31; 95% CI, 0.140.67). The relationship between parenthood and colds was not observed in parents ages 18-23, but was pronounced among older parents. The association between parenthood and colds could not be explained by differences in health practices, personality, social resources, or psychological characteristics.

95) Abstract 1227

EFFECT OF 3-WEEK CONTINUOUS POSITIVE AIRWAY PRESSURE TREATMENT ON MOOD IN PATIENTS WITH OBSTRUCTIVE SLEEP APNEA: A RANDOMIZED PLACEBO-CONTROLLED STUDY

In-Soo Lee, Master, Psychiatry, University of California, San Diego, La Jolla, California, Wayne Bardwell, Ph. D., Sonia Ancillorsa, Ph. D., Psychiatry, University of California, San Diego, La Jolla, Ca, Jose S. Loredo, Medicine, University of California, San Diego, San Diego, Ca. Joel E. Domsdale, Psychiatry, University of California, San Diego, La Jolla, Ca

Patients with obstructive sleep apnea (OSA) commonly have mood symptoms such as depression and anxiety. However, there is inconsistency in therapeutic effect of CPAP on mood symptoms in randomized controlled trials. In this double-blind trial, we examined if a 3-week CPAP treatment compared with placebo CPAP treatment has specific therapeutic effects on mood symptoms in patients with OSA. Seventy-one newly diagnosed patients with untreated OSA had their sleep monitoring and were randomized to 3-weeks CPAP or Placebo CPAP treatment. Fifty six subjects completed the study. Mood was assessed by the Center for Epidemiologic Studies-Depression (CES-D) Scale, the Profile of Mood States (POMS), and the Brief Symptom Inventory (BSI) before and after 3 weeks of treatment. Apnea severity was assessed by apnea hypopnea index (AHI) and oxygen desaturation index (ODI). The two treatment groups (therapeutic CPAP, and placebo-CPAP) were compared using repeated measures analysis of variance (ANOVA). Both treatment groups showed severe apnea severity with mild amounts of depression and anxiety. After 21 days of treatment, AHI and ODI decreased significantly in the therapeutic CPAP group. On the other hand, there were no significant time x treatment interactions for CES-D, POMS depression, POMS tension, BSI depression, or BSI anxiety. In conclusion, 3 weeks of therapeutic CPAP did not show a specific therapeutic effect on mood symptoms in patients with OSA.

96) Abstract 1608

RACIAL DIFFERENCES IN ASTHMA SYMPTOMS INDUCED BY METHACHOLINE CHALLENGE

Joel E. Dimsdale, Psychiatry, University of California, San Diego, La Jolla, CA, Loredo, Medicine, University of California, San Diego, San Diego, CA, In-Soo Lee, Master, Psychiatry, University of California, San Diego, La Jolla, CA, Joseph S. Loredo, Medicine, University of California, San Diego, San Diego, CA.
This study sought to explore differences in word descriptors of asthma symptoms in African Americans and Caucasians. We examined the data of 44 Caucasian (11 Male, mean age 40.25) and 28 African American (12 male, mean age 39.86) patients with asthma who were recruited for participation in a breathing training study. As part of their assessment at intake, they were administered a methacholine challenge for testing airway hyperreactivity. Patients inhaled increasing doses of methacholine (Rosenthal protocol) until a 20% fall in baseline lung function (forced expiratory volume in the first second, FEV1) was reached. After each level, patients rated the intensity of their breathlessness and distress. Additionally, patients were asked to retrospectively rate the peak intensity of 20 standard descriptors of breathlessness elicited by the test. Hierarchical multiple regressions were used to determine the extent to which race predicted the intensity of symptom expression after controlling for gender, age, years of education, airway hyperreactivity (provocation concentration that leads to a 20% fall in FEV1, PC-20), asthma control (rated according to NHLBI asthma treatment guidelines), and pre-test FEV1 % predicted. While there were no significant race differences for asthma control, PC-20, change in breathlessness or distress ratings from baseline to 20% fall in FEV1, groups differed significantly in their report on their retrospective symptom intensity. African Americans reported a higher intensity for five descriptors of effort and airway obstruction, including 'feel that I am suffocating' (p=0.025), 'chest feels tight' (p=0.038), and 'breathing requires effort; (p=0.021). There is preliminary evidence that racial differences exist for the retrospective intensity ratings of breathlessness descriptors in asthma. Medical professionals who ask patients to retrospectively report asthma symptoms should be aware of such racial differences, as they may affect treatment decisions.

97) Abstract 1822

UNFAIR TREATMENT PREDICTS C-REACTIVE PROTEIN (CRP) OVER 7-YEARS: STUDY OF WOMEN'S HEALTH ACROSS THE NATION (SWAN)

Danielle L. Beatty, Ph.D., Department of Psychology, University of Maryland, Baltimore County, Baltimore, MD, Joyce T. Bromberger, Ph.D., Charlotte Brown, Ph.D., Karen A. Matthews, Ph.D., Department of Psychiatry, University of Pittsburgh, Pittsburgh, PA Objective: Chronic stress is associated with risk for cardiovascular disease (CVD) and may be related to CVD via inflammatory processes. Cross-sectional findings for one type of chronic stress, unfair treatment, and CRP, a marker of systemic inflammation are mixed. We hypothesized that unfair treatment predicts CRP prospectively and addressed the influence of body mass index (BMI) on this association. Method and Results: Participants were 2,461 middle-aged women of Caucasian, Chinese, Hispanic, Japanese, and Black ethnicity free of self-reported cardiovascular disease at baseline enrolled in SWAN, a multi-site, epidemiologic study of menopause. Perceived unfair treatment was assessed at baseline via self-report. CRP assays via blood samples were collected at baseline and at 6 annual visits across 7 years. Black and Chinese women had higher unfair treatment scores (mn = 8.5) than other ethnic groups (mn range = 2.5-6.8), p < .0001. Black (mn = 3.0) and Hispanic (mn = 2.8) women had higher CRP levels than other ethnic groups (mn range = 95-2.2), p < .0001. Unfair treatment was examined using generalized estimating equations with an exchangeable correlation structure, adjusted models (study site, age, ethnicity, education, physical activity, menopausal & smoker status, alcohol consumption, anticoagulants, heart medication, contraception use, time, waist to hip ratio, heart attack or stroke, & negative emotions), indicated that baseline unfair treatment was associated with higher CRP levels over time, B = .02, p < .001. An unfair treatment X BMI interaction term predicted CRP, p = .02; specifically, unfair treatment predicted CRP over time in non-obese women (BMI < 30), B = .01, p < .04, but not in obese women, B = .30, p = .76. Conclusions: Unfair treatment predicts higher CRP levels prospectively in non-obese women across ethnic backgrounds. Supported by NIH/HDHS grants R004061, AG12505, AG12535, AG12531, AG12539, AG12546, AG12553, AG12554, AG123495. The content of this abstract is solely the responsibility of the authors and does not necessarily represent the official views of the NIA, NINR, ORWH or the NIH.

98) Abstract 1649

DENIAL AS A POSSIBLE PREDICTOR OF REJECTION EPISODES AMONG HEART TRANSPLANT PATIENTS

Jamie L. Jackson, Ph.D., Department of Cardiac Surgery, Northwestern University, Chicago, IL, Pratik Patel, M.D., Cardiology, Rush University Medical Center, Chicago, IL, Leila Azarbad, Ph.D., Psychology, North Central College, Naperville, IL, Barbara A. Pisani, D.O., Heart Failure and Cardiac Transplant, Joyce A. Corsica, Ph.D., Behavioral Sciences, Rush University Medical Center, Chicago, IL. Psychological evaluations are performed to screen heart transplant candidates for factors associated with negative medical outcomes, such as rejection episodes. Because organ rejection can be fatal, it is critical to identify variables that can predict poor outcomes. Depressive symptoms have been shown to predict a greater number of rejection episodes, but denial (not wanting to acknowledge the situation) has not been investigated as a potential predictor, despite its association with poor medical compliance. The purpose of the current study was to further explore depressive symptoms and denial as predictors of rejection episodes occurring within 1 year of receiving a heart transplant. Twenty heart transplant patients from Rush University Medical Center (M=52.6 years, SD=11.2, 75% male, 60% African-American), who received a psychosocial evaluation before undergoing cardiac transplant were included in this study. Patients completed the BDI-2 and Brief COPE as part of the pre-transplant psychosocial evaluation. Pearson correlations were used to explore the relationship between demographic variables and the outcome measures, and linear regression was used to examine depressive symptoms and denial as predictors of rejection. Results indicated that denial was negatively correlated with age (r=-0.56, p<0.05) and positively correlated with depressive symptoms (r=0.83, p<0.001). Denial predicted the number of rejection episodes (B=0.61, p<0.05), though depressive symptoms did not. However, when depression was included as a covariate, denial no longer predicted the number of rejection episodes. Age was examined as a moderator for the relationship between denial and rejection episodes and a trend was found, such that younger patients with greater levels of denial were more likely to have rejection episodes (B=−1.92, p=0.07). Potential limitations due to small sample size are discussed. These results suggest that denial may be an important factor to assess in the psychosocial evaluation of heart transplant candidates, though further research is needed to determine the unique contribution of denial as a predictor of rejection.

99) Abstract 1327

ASSOCIATION OF ILLNESS BELIEFS WITH PRE-SURGERY DEPRESSION IN CORONARY ARTERY BYPASS GRAFT PATIENTS

Tara Kidd, PhD, Lydia Poole, MSc, Department of Epidemiology and Public Health, University College London, London, UK, Maryam Jahangiri, MD, Cardiac and Vascular Sciences, St George’s Healthcare NHS Trust, London, UK, Andrew Steptoe, DSc, Department of Epidemiology and Public Health, University College London, London, UK. Coronary artery bypass graft (CABG) is used both for the relief of symptoms and the improvement of life expectancy in patients suffering from advanced coronary artery disease (CAD). Severe clinical depression and subclinical milder depression symptoms are commonly reported in the CABG population, which in turn have been linked to diminished QOL and poor health outcomes. Several studies have shown that illness beliefs are related to poor health outcomes such as lower quality of life and higher levels of depression in cardiac populations. The aim of this study was to examine the association between illness beliefs and depression in pre-surgery CABG patients. Fifty patients (age = 67.36± 7.73) undergoing CABG surgery, at a UK hospital completed questionnaires including the Beck Depression Inventory (BDI) and the Brief Illness Perceptions Questionnaire (BIPQ) prior to surgery. Using multiple regression significant associations were reported between illness beliefs (composite score), age, gender, and ejection fraction on pre-surgery depression. The total variance explained by the model was 43.1% F(4, 45) = 0.26 p<0.001. However, only illness beliefs significantly predicted pre-surgery depression (β=0.67, p<0.001). Separate regression analyses were then conducted of the individual illness beliefs on pre-surgery
depression, adjusting for age, gender, and ejection fraction. Significant associations were found between greater depression and stronger beliefs in negative consequences ($\beta=0.53$, $p=0.001$), longer time course of the illness ($\beta=-0.36$, $p=0.011$), symptom identity ($\beta=0.43$, $p=0.001$), and stronger emotional representations ($\beta=0.56$, $p=0.001$). These findings suggest that patients who have more threatening beliefs about their illness are more likely to experience depression prior to surgery. Better understanding of the predictors of depression should help identify at-risk patients in this clinical population.

100) Abstract 1371

PSYCHOSOCIAL PREDICTORS OF CORONARY ARTERY CALCIFICATION PROGRESSION IN POSTMENOPAUSAL WOMEN

Carissa A. Low, PhD, Psychiatry, Karen A. Matthews, PhD, Psychiatry, Epidemiology, & Psychology, Lewis H. Kuller, MD, DrPH, Epidemiology, Daniel Edmundowicz, MD, Cardiovascular Institute, University of Pittsburgh, Pittsburgh, PA

Coronary artery calcification (CAC), a marker of subclinical atherosclerosis reliably predictive of coronary events, has been associated with psychosocial factors in some but not all cross-sectional analyses. Whether psychosocial factors prospectively predict CAC progression in older women has not yet been determined. Participants from the Healthy Women Study who also participated in the Pittsburgh Mind-Body Center protocol (n = 115) provided data for the current analysis. Women (M = 64 years old) completed a packet of self-report psychosocial measures prior to two electron beam tomography scans of CAC separated by an average of 3.2 years. We first conducted exploratory factor analysis to identify the structure of psychosocial variables and averaged standardized scores to create aggregate psychosocial indices. Regression models adjusted for age at questionnaire completion, body mass index, systolic blood pressure, baseline CAC, time between questionnaire completion and 1st CAC assessment, and time between CAC assessments. CAC progression was defined as log (2nd CAC + 25) - log (1st CAC + 25). Principal components analysis yielded two factors accounting for 59% of the variance: Psychological Distress (Depressive Symptoms, Perceived Stress, Cynicism, Anger-In, Negative Affect, low Positive Affect; Cronbach's alpha = .86) and Psychosocial Resources (Optimism, Purpose in Life, Mastery, Self-Esteem, and Social Support; Cronbach's alpha = .92 and all factor loadings > 0.59). The Psychological Distress index predicted significantly greater CAC progression over three years ($\beta = .26$, $p = .004$, change in R2 = .07) while the Psychosocial Resources index predicted marginally less CAC progression over time ($\beta = -.17$, $p = .06$, change in R2 = .03). When individual scales were examined, higher scores on Anger-in, Cynicism, and Perceived Stress and lower Positive Affect scores emerged as significant predictors of CAC progression. These findings highlight psychosocial risk and protective factors that may accelerate or delay the progression of subclinical atherosclerosis in older women and that represent potential targets for interventions to reduce cardiovascular risk.

101) Abstract 1776

EFFECTS OF ACUTE GLUCOSE ADMINISTRATION ON CARDIOVASCULAR REACTIVITY TO MENTAL CHALLENGE

Stephen J. Synowski, Ph.D., Cardiology, University of Maryland School of Medicine, Baltimore, MD, Willem J. Kop, Ph.D., Department of Medical Psychology and Neuropsychology, Tilburg University, Tilburg, AB, the Netherlands, Zoe S. Warwick, Ph.D., Shari S. Waldstein, Ph.D., Psychology, University of Maryland Baltimore County, Baltimore, MD

Subject Sample and Statement of Methods: Participants were 24 healthy men (mean age 20.9 ± 2.4 years) who were monitored prior to glucose administration (baseline), 30 min following glucose administration, during mental challenge tasks (Structured Speech and Anger Recall) and recovery using a double-blind randomized placebo-controlled design. Oral glucose administration involved a 1g/kg body weight solution. Impedance cardiography was used to measure pre-ejection period (PEP), heart rate (HR), stroke index (SI), cardiac index (CI), and total peripheral resistance (TPR), and blood pressure was measured via an automated system. Summary of Results: Oral glucose administration resulted in shortened PEP throughout the protocol, and transient increases in HR, CI and SBP (p pre-post x glucose-placebo interaction < 0.05), consistent with sympathetic nervous system activation. Glucose did not impact mental challenge-induced cardiovascular reactivity (p values > 0.20). However, glucose administration did prolong HR recovery following Anger Recall ($p = 0.03$). Conclusion: Oral glucose administration results in reduced pre-ejection period, transient increases in HR and CI, and prolonged recovery of HR following mental challenge tasks. These findings indicate that the associations between dietary glucose consumption and elevated CV risk factors may involve acute responses and increased cardiac demand to glucose and prolonged recovery from exogenous environmental challenges.
depressive symptoms on morbidity and mortality following major cardiac interventions.

103) Abstract 1181

DAILY STRESSORS AND INFLAMMATION AMONG FAMILY DEMENTIA CAREGIVERS
Jean-Philippe Gouin, MA, Psychology, The Ohio State University, Cleveland, IL; Ronald Glaser, PhD, Immunology, William Malarkey, MD, Endocrinology, The Ohio State University, Columbus, OH; David Beversdorf, MD, Neurology, University of Missouri, Missouri, MO; Janice Kiecolt-Glaser, PhD, Psychiatry, The Ohio State University, Columbus, OH

Acute laboratory stressors elicit transient elevations in circulating inflammatory biomarkers, while chronic stressors promote a state of low-grade inflammation. The goal of the present study was to evaluate whether the accumulation of daily hassles associated with family dementia caregiving might lead to increased systemic low-grade inflammation. This cross-sectional study included 53 family dementia caregivers and 77 noncaregiving controls (mean age = 65.13). A semi-structured interview, the Daily Inventory of Stressful Events, assessed the occurrence of daily stressors in the past 24 hours, and a blood sample provided data on C-reactive protein (CRP) and interleukin-6 (IL-6). Results showed that caregivers were more likely to experience multiple stressors in the past 24 hours than noncaregiving controls (p=0.01). The occurrence of multiple daily stressors in the past 24 hours was associated with greater IL-6 (p=0.03) and CRP (p=0.02). The daily stressors by caregiving interaction did not predict IL-6 (p=0.63) and CRP (p=0.27) levels. The increased number of stressors in the past 24 hours among caregivers partially mediated the relationship between caregiving stress and CRP levels (p=0.03). Collectively, these data suggest that naturally occurring daily stressors may promote increases in circulating markers of inflammation among both caregivers and noncaregiving controls.

104) Abstract 1166

EFFECTS OF BASELINE ANXIETY ON DEPRESSION PERSISTENCE IN A STUDY OF HOSPITALIZED CARDIAC PATIENTS
Jeff C. Huffman, MD, Psychiatry, Massachusetts General Hospital, Boston, MA; Chris Celano, MD, Carol A. Mastromauro, MSW, Psychiatry, James L. Januzi, MD, Medicine/Cardiology, MGH, Boston, MA

Purpose of study: To assess the impact of anxiety on depression persistence 6 months after a cardiac hospitalization among patients participating in a trial of depression care management in cardiac patients. Study sample and statement of methods: Data from 136 depressed patients hospitalized on inpatient cardiac units with admission diagnoses of acute coronary syndrome, congestive heart failure, or arrhythmia, and who enrolled in a randomized trial of collaborative care depression management, were analyzed. Demographic, medical, and psychiatric information at baseline of subjects was compiled, and measures of health-related quality of life, cardiac symptoms, and psychiatric symptoms, including the Hospital Anxiety and Depression Scale Anxiety Subscale (HADS-A) for anxiety were obtained at baseline and at 6-month follow-up. The association between baseline HADS-A score and depression persistence (defined as Patient Health Questionnaire-9 [PHQ-9] score at least 50% of baseline and equal to 10 or greater) at 6 months was assessed first by univariate analysis and then by multivariate logistic regression determined the independent contribution of BMI to the occurrence of mental-stress induced ischemia. Results: Mean age was 67.6 ± 9.9 years; 85.7% were men; 54.3% were hypertensive; 27.8% had diabetes. Mean BMI was 29.9 ± 4.5. Prevalence of mental stress ischemia was 36.1%. When traditional risk factors were included in a multivariate model, BMI was an independent predictor of mental stress ischemia, OR=1.10, 95% CI [1.01 -1.22] for one-point increase in BMI and OR=1.56 [1.02-2.41] for a 4.5 point increase in BMI (one standard deviation beyond the cohort BMI mean), p=0.04 for all. Conclusions: BMI is an independent risk marker for mental stress ischemia. Further research focusing on the pathophysiology underlying this risk may help shape the profile of MS1-prone individuals and might shed light on the complex effects of excess adiposity on cardiovascular health.

106) Abstract 1733

COMBINING PSYCHOSOCIAL DATA TO IMPROVE CARDIOVASCULAR DISEASE RISK FACTOR AND EVENT PREDICTION IN THE NHLBI-SPONSORED WOMEN'S ISCHEMIA SYNDROME EVALUATION (WISE) STUDY
Kerry S. Whittaker, M.S., David S. Krantz, PhD, Medical and Clinical Psychology, Uniformed Services University, Bethesda, MD, Thomas Rudegeair, PhD, VA San Diego Healthcare System, VA San Diego Healthcare System, San Diego, CA; B. Delia Johnson, PhD, Department of Epidemiology, University of Pittsburgh, Pittsburgh, PA; Andrew J. Wawrzyniak, PhD, Medical and Clinical Psychology, Uniformed Services University, Bethesda, MD, Vera Bittner, MD, University of Alabama at Birmingham, University of Alabama at Birmingham, Birmingham, Alabama, Jo-Ann Eastwood, PhD, UCLA School of Nursing, UCLA School of Nursing, Los Angeles, CA; AF Butters, MD, Department of Epidemiology, University of Pittsburgh, Pittsburgh, PA; Carol E. Cornell, PhD, Department of Health Behavior and Health Education, University of Arkansas for Medical Sciences, Little Rock, Arkansas, Carl J. Pepine, MD, Department of Medicine, Division of Cardiology, University of Florida, Gainesville, Florida, Diane A. Vido, MS, Allegheny General Hospital, Pittsburgh Pennsylvania, Allegheny General Hospital, Pittsburgh, Pennsylvania, Eileen J. Handberg, PhD, Department of Medicine, Division of Cardiology, University of Florida, Daniel F. Battey, MD, University of Florida, Gainesville, Florida, C. Noel Bairey Merz, MD, Women's Heart Center, Cedars-Sinai Heart Institute, Cedars-Sinai Heart Institute, Los Angeles, CA

Introduction: There is considerable overlap among psychosocial variables associated with cardiovascular disease (CVD) risk. The potential value of combining psychosocial variables as risk markers for understanding CVD risk is largely unknown. Methods: Women (n=493) undergoing coronary angiography for suspected ischemia enrolled in the NHLBI-sponsored Womens Ischemia Syndrome Evaluation (WISE) Study were evaluated. Using Cox Regression, the predictive value for CVD events was determined for the multivariate combination of the Beck Depression Inventory (BDI), State-Trait Anxiety Inventory (STAI), Social Network Index (SNI), and Cook-Medley hostility (Ho) scale. Principal component analysis of psychosocial measures (SNI, Ho, Panic and Autonomic Perception) was then conducted to derive
composite psychosocial risk markers. The predictive relationship of these derived risk markers for events and their association with cardiovascular outcomes were assessed. Results: When entered simultaneously into a multivariate model, the step consisting of SNI, Hostile Affect, STAI and BDI significantly predicted CVD events. Scale-wise factor analysis revealed 2 underlying factors: Negative Affectivity and Hostility. SNI did not load on either factor. Negative Affectivity was associated with higher body mass index (BMI), Hostility with metabolic syndrome, and both factors were associated with elevated blood pressure. Neither risk marker predicted CVD events. Conclusions: In women with suspected ischemia, there is shared variance among psychosocial variables identified as risk markers. A multivariate combination of psychosocial risk markers predicts CVD events; derived psychosocial factors were associated with CVD risk factors but not events. Measuring common and unique variance among psychosocial variables into risk markers may provide important information in the understanding and prediction of CVD.

107) Abstract 1785

INTERACTION OF ANXIETY DISORDERS AND INSULIN BLOOD LEVELS IN THE MUSCULAR METABOLISM OF CARDIAC OUTPATIENTS
Andre Arsenault, Doctor, Medecine Nuclear, Bernard Meloche, college, Nuclear medicine, Montreal heart Institut, MONTREAL, QC, Canada, Lynn Jolicour, college, Nuclear medicine, Montreal heart Institut, MONTREAL, QC, CAN, Kim L. Lavoie, PhD, Dept. of Psychology, University of Quebec at Montreal, MONTREAL, QC, Canada, Simon L. Bacon, PhD, Department of Exercise Science, Concordia University, MONTREAL, QC, Canada.

Background: The kinetics of tetrafosmin during forearm hyperemic reactivity (FHR), may be considered a marker of muscular mitochondrial function, and a potential biomarker of cardiovascular disease (CVD). Insulin blood levels tend to increase in the prediabetic state. Moreover anxiety disorders have been linked to CVD development and progression. However, the relation of anxiety disorders (AD) and insulin levels (BLI) in the kinetics of tetrafosmin from the peripheral myocytes depends upon the forearm muscular component. A general linear model was used to estimate the main and interaction effects of AD and IL on DS adjusting for sex, age, and medication use. Results: The DS was increased by a factor of 2.1 (F=15.1, p<0.0001) in the high insulin group and by 1.5 (F=4.7, p<0.03) in patients with AD. There was also a significant interaction between the high AD and high BLI group (F=5.2, p<0.03) in the elimination rate of tetrafosmin from the peripheral myocytes which depends upon adequate mitochondrial function. Future research in needed to replicate and explore the mechanisms of these findings in larger samples.

108) Abstract 1793

ANXIETY DISORDERS AND TRIGLYCERIDE/HDL RATIO: AN INTERACTIVE EFFECT ON MUSCULAR HYPEREMIC FLOW RESPONSE
Lynn Jolicour, college, Bernard Meloche, college, Andre Arsenault, Doctor, Nuclear medicine, Montreal heart Institut, MONTREAL, QC, Canada, Kim L. Lavoie, PhD, Dept. of Psychology, University of Quebec at Montreal, MONTREAL, QC, Canada, Simon L. Bacon, PhD, Department of Exercise Science, Concordia University, MONTREAL, QC, Canada.

Background: Anxiety disorders (AD) have been linked to cardiovascular disease (CVD) while triglyceride/HDL ratio (TG/HDL) has been recently associated with CVD development and progression. We developed a two-component kinetic model of tetrafosmin, a molecule with specific muscle affinity, to evaluate the muscular component of the forearm hyperemic reactivity (FHR). In this study, we investigated the link between AD, TG/HDL ratio and the muscle uptake of tetrafosmin. Methods: A total of 150 patients (mean age 58.2 ± 9.6 years) were recruited among patients undergoing exercise stress testing at Montreal Heart Institute (MHI). A psychiatric interview (PRIME-MD) was used to assess AD while TG/HDL was calculated from standard blood work results. A two-component kinetic model was used to evaluate tetrafosmin muscle uptake from a five minutes time activity curve (TAC) obtained using a large field-of-view gamma camera. The rate of uptake from blood to muscle (kbm) was the dependent variable and tested by general linear modeling using the TG/HDL ratio and AD as the independent variables, sex and age as covariates. Results: In patients with abnormally high TG/HDL ratio, kbm was significantly higher (F=9.0, p<0.003). AD was also associated with an increased kbm (F = 5.0, p<0.03). The interaction between TG/HDL ratio and AD was significant (F =2.5, p<0.044) where people with normal TG/HDL and AD had much higher rates of uptake. Future research is needed to replicate these findings and elucidate the mechanisms of this interaction in larger samples.

109) Abstract 1107

AN AMBIENT VERSUS STANDARD ENVIRONMENT DURING CORONARY ANGIOGRAPHY; DIFFERENTIAL EFFECTS ON MOOD AND PHYSIOLOGICAL PARAMETERS
Paula M.C. Monnersteeg, Ph.D., Medical Psychology, Tilburg University, Tilburg, Netherlands, Charlotte R. Gabriël, MD, Marc J.W.T. Scherders, MD, Department of Psychiatry, Catharina Hospital Eindhoven, Eindhoven, Netherlands

Purpose: Environmental light and sound can be used to create a comforting atmosphere for patients in various medical settings. A randomized trial examined whether a relaxing, ambient environment produced by ceiling projections, dynamic room lighting and sound conditions resulted in decreased anxiety and reduced measures of physiological arousal (cortisol, blood pressure and heart rate) during coronary angiography (CAG). Methods: 109 patients were randomly assigned to an ambient CAG room (Ambient, n=51), or a standard room (Control, n=58). In the Ambient condition patients were able to choose between four themes: abstract, under water, tropical forest, European landscape, and the projections, music and lighting were adjusted to the chosen theme. Daylight was absent in both conditions. State anxiety, salivary cortisol, blood pressure and heart rate were measured immediately before and after the procedure. The effect of intervention room was examined with a linear regression analysis; post-procedure levels were controlled for pre-procedure levels, adjusted for age, sex, and a priori group differences. Results: Patients in the Ambient condition showed a significant reduction in anxiety after the procedure (beta=-0.288, p<0.025) compared to the Control group, which remained significant after adjustment for pre-CAG anxiety (beta=0.271, p<0.016) and covariates (ns). In addition, patients in the Ambient condition reported increased comfort (Z= -4.45, p<.001). Physiological parameters showed either a decrease in heart rate and blood pressure, and heart rate or increases (cortisol) from pre to post CAG, but no effects of Ambient versus Control conditions were found. An overall change in anxiety was related to a change in heart rate (HR=0.204, p<.037), but not blood pressure (rSBP=0.128, rDBP=0.116) or cortisol (rCortisol=0.007). Conclusion: The presence of an ambient environment during a CAG procedure adds to patients well-being, but this was not reflected in physiological stress-related outcomes.

110) Abstract 1252

CARDIOVASCULAR ACTIVITIES DURING MENTAL STRESS AMONG FISH EATERS
Kenta Matsunura, PhD, Yataka Matsuoka, MD/PhD, Adult Mental Health, National Institute of Neurology and Psychiatry, Kodaira, Tokyo, Japan

Purpose of study: Human studies have shown that habitual fish consumption protects against coronary heart disease. Recent studies on cardiovascular function and hemodynamics have elucidated the mechanisms underlying this cardioprotective effect. For example, habitual fish consumption is associated with reduced resting heart rate. However, few studies have examined the effect of frequent fish consumption on acute mental stress responses. Accordingly, we
examined whether fish eaters (individuals eating baked fish more than 3-4 times/week) show less cardiovascular responses during mental stress than controls (individuals eating fish less than 1-2 times/week). Subject sample and statement of methods: Fish eaters (10 women and 2 men, M = 21.4, SD = 3.7 years, Japanese) and controls (11 women and 2 men, M = 21.9, SD = 3.1 years, Japanese) performed mental arithmetic (MA) and mirror-reacting (MT) tasks during which cardiovascular indices, including heart rate (HR), pre-ejection period (PEP), mean blood pressure (MBP), and pulse wave velocity (PWV), were measured and compared with the baseline (BS) values. Summary of results: A series of separate 2-way mixed-design ANOVAs revealed that HR, MBP, and PWV and PEP during BS and the MA and MT tasks were significantly lower and higher in the fish eaters than in the controls, respectively (HR during BS, MA, and MT, 76.7, 100.9, 85.2 bpm (controls), p = .001; MBP, 74.8, 90.4, 87.3 mmHg (fish eaters) vs. 83.7, 98.5, 94.8 mmHg (controls), p = .028; PWV, 5.0, 6.1, 5.5 m/s (fish eaters) vs. 5.8, 6.8, 6.3 m/s (controls), p = .008; PEP, 103.9, 97.4 103.4 ms (fish eaters) vs. 96.8, 87.6, 92.6 ms (controls), p = .004). No significant interactions were observed. This indicates that the protective effects of eating fish are reflected in cardiovascular activity and not responses. Considering that elevated BP, HR, and PWV are cardiovascular risk factors, these data suggest that frequent fish consumption is beneficial.

111) Abstract 1756

TYPE D PERSONALITY AND ENDOTHELIAL FUNCTION IN HEALTHY TAIWANESE

Chia-Ying Weng, Ph. D., Psychology, National Chung-Cheng University, Chia-Yi, Taiwan, Siu-Hsuan Lee, MSc, Psychology, National Chung-Cheng University, Chia-Yi, Taiwan, Tsu-Yi Lee, MSc, Psychology, Ching-Wen Hsu, Msc, Psychology., Szu-Hsuan Lee, MSc, Psychology, National Chung-Cheng University, Chia-Yi, Taiwan, Lin-Lon Chin, Internal Medicine, The Buddhist Dalin Tzu Chi General Hospital, Chia-Yi, Taiwan

Objective: The purpose of this study was to examine the association between Type D personality and endothelial function and to examine whether Type D personality is prone to have endothelial dysfunction, an important predictor of CHD onset. Methods: Participants were 39 (20 male and 19 female) healthy Taiwanese, aged 40-70 years. Type D personality was measured by the Type D personality Scale-14 Chinese version. Flow-mediated dilation (FMD) was measured by non-invasive ultrasound to image on the brachial artery. Results: FMD of Type D was significantly lower than non-Type D (F=5.69, p<.05). After controlling the variables of age, sex, cholesterol, triglyceride, fasting blood glucose, family history and smoking, the correlation coefficient of FMD and Type D is -.39, p<.05. Hierarchical multiple regression analyses revealed Type D had a significant effect (r = .35, p < .05) on FMD after controlling age and gender. Conclusion: This is the first study to use healthy people to see whether personality type D is related to endothelial function. The endothelial function of individuals with Type D personality is inferior to that of non-Type D personality. This result indicates that Type D personality may be at risk to develop CHD.

112) Abstract 1148

DEPRESSION IS RELATED TO BLUNTED CARDIOVASCULAR REACTIVITY IN YOUNG ADULTS

Ryan C. Brindle, Neuroscience Program, and Psychology Department, Allegheny College, Meadville, PA, Josh Sesek, BS, Drexel University, Philadelphia, PA, Sarah M. Conklin, PhD, Neuroscience Program, and Psychology Department, Allegheny College, Meadville, PA

Emerging research suggests that depressive symptoms are associated with blunted cardiovascular reactivity to psychological stress in young adults. The present study was hypothesized that increasing depressive symptoms correspond to decreases in cardiovascular reactions. Participants (N=30, M age = 19.5(1.14)) completed the Beck Depression Inventory (BDI; M= 7.07(7.83)) and a standard three phase serial subtraction cardiovascular reactivity task. Blood pressure and heart rate were monitored during baseline, stress, and recovery phases of the task. Linear regression was used to evaluate the relationship between BDI and cardiovascular variables. Diastolic blood pressure reactivity was negatively associated with BDI scores (B=.44, t=2.08, p=.047, R2=.134) such that higher scores were associated with blunted reactivity. Similarly, blunted recovery of systolic (B =.54, t=2.15, p=.040, R2=.142) and diastolic (B =.387, t=2.41, p=.023, R2=.171) blood pressure was associated with higher BDI scores. In this small sample of generally healthy young adults, not recruited for depressive symptoms, higher BDI scores were associated with less stress reactivity. These results accord with the current literature associating depression and blunted reactivity in older individuals and patients with cardiovascular disease.

113) Abstract 1598

SEX DIFFERENCES IN THE RELATION OF HEART RATE REACTIVITY TO COGNITIVE FUNCTION

Alyssa J. Allen, M.Ed., Megan M. Hossey psychology, University of Maryland Baltimore County, Baltimore, MD, Leslie I. Katzel, Medicine, University of Maryland, Baltimore, MD, Shari R. Waldstein, PhD. Psychology, University of Maryland Baltimore County, Baltimore, MD

Cardiovascular reactivity has shown both positive and negative relations to cognitive function. Particularly among older adults, ability to mount an adequate heart rate (HR) response may be beneficial to cognitive performance. Because of known sex differences in HR reactivity and cognitive function, the present study examined possible sex-specific associations between these variables. Participants were 155 healthy older adults (mean age=67 years; 56% men), free of major medical, neurologic, or psychiatric conditions (other than hypertension) who completed a larger study of cardiovascular risk factors, brain, and cognitive function. All completed a neurocognitive test battery including measures of attention, executive function, memory, perceptuo-motor speed, and visuospatial skill, and a stress reactivity session including anger recall, speech/role play, and mental arithmetic tasks. Changes scores (immediately preceding baseline task) were computed and the respective means were collapsed across tasks to yield a single index of HR reactivity. Multiple regression analyses were conducted separately for men and women with HR reactivity as primary predictor and each cognitive measure as outcomes. Covariates included age, education, fasting glucose, antihypertensive medications, hormone replacement therapy (women only) and state anxiety. In men, greater HR reactivity was associated with significantly better performance on Trails A (b=0.52, r2=.04, p<.01) and Digits Backward (b=0.07, r2=.05, p<.05). Among women, greater HR reactivity was related to better Grooved Pegboard performance for the dominant (b=-0.65, r2=.05, p<.05) and non-dominant (b=-0.95, r2=.08, p<.01) hands, and Visual Reproductions’ immediate recall (b=0.23, r2=0.05) Thus, women derived benefit from greater HR reactivity on tests of perceptuo-motor speed and working memory, women showed a relative advantage on tests of manual dexterity and visual memory. Although the ability to mount an adequate HR response may be beneficial to cognitive performance in older adults, the effect varies based on sex and type of function.

114) Abstract 1852

DIFFERENTIAL RACE IMPLICATIONS OF BODY SIZE ON CARDIOPROTECTIVE FACTORS

Gaston K. Kapuku, MD, PhD, Pediatrics, Medicine, Harry Davis, MS, Gregory Harshfield, PhD, Pediatrics, Georgia Health Sciences University, Augusta, Georgia

An increased body size has harmful effects on the cardiovascular system (ie, promotes inflammation and blood pressure elevation). Natriuretic Peptide Hormones (NP), are known to be cardioprotective. We hypothesized that a larger body size is associated with a lower blood level of NP, and that race moderates this relationship. To assess this, we studied a bi-racial sample of 50 youth (18 Whites, 28 Males) ages 14-18 (mean = 16.3 ± 1.1) Brain Natriuretic Peptide (BNP) and C-Reactice Protein (hsCRP) were assayed at rest and during a psychological stressor
Differences in hospital readmission intervals in a community safety-net in follow-up care as well. This study examined racial/ethnic and sex factors may contribute not only to delay in initial treatment seeking but on CRP levels in the presence of BMI. Although our results were not independently associated with CRP, together accounting for only 1% of the variance. Consequently, the interaction between coping with perceived racism and hostility interact to predict CRP levels. Sample and Methods: The participants were 207 African-American community-dwelling adults recruited from the Washington, DC metropolitan area. The mean age of participants was 45.64 (SD = 11.49) and the sample was 49% male. The sample had a mean education level of 13.81 years (SD = 2.42). Participants completed a number of psychosocial and neurocognitive measures and provided serum, urine, and anthropometric data. These measures included the Perceived Racism Scale, the Cook Medley (Ho) Scale, and ELISA assays for CRP levels. Results: Results of a hierarchical regression analysis suggested that coping with perceived racism and hostility were not independently associated with CRP, together accounting for only 1% of the variance. Emotional lability, as measured psychometrically, was found to determine the precise relationships between attentional training and cardiovascular function was monitored throughout both procedures. All participants exhibited acclimatisation to attentional training (indicated by declines in blood pressure), followed by typical cardiovascular stress responses (indicated by elevations during stress; F (1,60) = 6.62, p = 0.013). Emotional lability, as measured psychometrically, was found to determine the precise relationships between attentional training and reactivity (F (1,60) = 4.49, p = 0.038). Emotionally labile (i.e., neurotic) participants manifested higher reactivity when trained to bias attention towards negative stimuli; while emotionally stable (i.e., non-neurotic) participants manifested lower reactivity and acclimatisation to attention training. Cognitive theories propose that the tendency to selectively attend to negative environmental stimuli is a causal factor in the experience of greater anxiety during stress. Experimental studies have confirmed that people trained to attend to negative stimuli return heightened self-reported stress responses. The present study sought to test whether this effect could be observed for cardiovascular stress responses, thereby linking anxiety models to psychosomatic pathways. Individual differences in dispositional emotional lability were also considered. 64 undergraduate women (aged 17 to 32 years), underwent standardized computer-based attention training protocols as employed in experimental cognitive studies of anxiety, in order to establish a systematic bias towards or away from negative on-screen stimuli. They were then exposed to a standard laboratory stressor. Cardiovascular function was monitored throughout both procedures. All participants exhibited acclimatisation to attentional training (indicated by declines in blood pressure), followed by typical cardiovascular stress responses (indicated by elevations during stress; F (1,60) = 6.62, p = 0.013). Emotional lability, as measured psychometrically, was found to determine the precise relationships between attentional training and reactivity (F (1,60) = 4.49, p = 0.038). Emotionally labile (i.e., neurotic) participants manifested higher reactivity when trained to bias attention towards negative stimuli; while emotionally stable (i.e., non-neurotic) participants manifested the exact opposite pattern. These findings provide experimental evidence that cognitive attentional dynamics influence stress responses in ways that are contingent on individual temperaments. The findings may help explain why anxiety is associated with cardiovascular health and suggest a role for attentional bias interventions in the reduction of anxiety.

117) Abstract 1105

BIASED ATTENTION TO EMOTIONAL STIMULI AND CARDIOVASCULAR ADAPTATION TO STRESSORS: IMPLICATING ANXIETY IN DISEASE PATHWAYS?

Niamh M. Higgins, HDipPsychol, Brian M. Hughes, PhD, Centre for Research on Occupational and Life Stress, National University of Ireland, Galway, Galway, Ireland.

Cognitive theories propose that the tendency to selectively attend to negative environmental stimuli is a causal factor in the experience of greater anxiety during stress. Experimental studies have confirmed that people trained to attend to negative stimuli return heightened self-reported stress responses. The present study sought to test whether this effect could be observed for cardiovascular stress responses, thereby linking anxiety models to psychosomatic pathways. Individual differences in dispositional emotional lability were also considered. 64 undergraduate women (aged 17 to 32 years), underwent standardized computer-based attention training protocols as employed in experimental cognitive studies of anxiety, in order to establish a systematic bias towards or away from negative on-screen stimuli. They were then exposed to a standard laboratory stressor. Cardiovascular function was monitored throughout both procedures. All participants exhibited acclimatisation to attentional training (indicated by declines in blood pressure), followed by typical cardiovascular stress responses (indicated by elevations during stress; F (1,60) = 6.62, p = 0.013). Emotional lability, as measured psychometrically, was found to determine the precise relationships between attentional training and reactivity (F (1,60) = 4.49, p = 0.038). Emotionally labile (i.e., neurotic) participants manifested higher reactivity when trained to bias attention towards negative stimuli; while emotionally stable (i.e., non-neurotic) participants manifested the exact opposite pattern. These findings provide experimental evidence that cognitive attentional dynamics influence stress responses in ways that are contingent on individual temperaments. The findings may help explain why anxiety is associated with cardiovascular health and suggest a role for attentional bias interventions in the reduction of anxiety.

115) Abstract 1638

COPIING WITH PERCEIVED RACISM AND DISPOSITIONAL HOSTILITY AS INDICATORS OF CARDIOVASCULAR DISEASE RISK IN AFRICAN AMERICANS

Shellie-Anne Levy-Massey, M.S., Regina C. Sims, Ph.D., Denee T. Mvendwa, Ph.D., Mana K. Ali, M.S., Georica Gholson, M.S., Psychology, Clive O. Callender, M.D., Medicine, Alfonso L. Campbell, Ph.D., Psychology, Howard University, Washington, DC.

Purpose: Research has suggested that dispositional hostility is an enduring personality style associated with poor cardiovascular health. In addition, having to cope with perceived racism is associated with poor health outcomes. Many African Americans have experienced racial discrimination, which arguably is a unique stressor that demands a chronic vigilant state. Therefore, it is critical to determine if the perception of having to cope with racism interacts with a hostile personality style to increase CRP levels in a population already overburdened by cardiovascular disease. The first aim of the study was to assess the independent relations between hostility, coping with perceived racism, and C-reactive protein (CRP), an inflammatory marker of cardiovascular risk. The second aim was to determine if coping with perceived racism and hostility interact to predict CRP levels. Sample and Methods: The participants were 207 African-American community-dwelling adults recruited from the Washington, DC metropolitan area. The mean age of participants was 45.64 (SD = 11.49) and the sample was 49% male. The sample had a mean education level of 13.81 years (SD = 2.42). Participants completed a number of psychosocial and neurocognitive measures and provided serum, urine, and anthropometric data. These measures included the Perceived Racism Scale, the Cook Medley (Ho) Scale, and ELISA assays for CRP levels. Results: Results of a hierarchical regression analysis suggested that coping with perceived racism and hostility were not independently associated with CRP, together accounting for only 1% of the variance. Consequently, the interaction between coping with perceived racism and hostility was non-significant. After adjusting for a number of covariates, coping with perceived racism had a significant and positive association with CRP in the presence of BMI (beta = .17, p < .05). A model corrected for 48.5% of the variance. Results suggest that coping with perceived racism may have an influence on CRP levels in the presence of BMI. Although our results were not consistent with the literature, the disproportionate number of overweight and obese participants in the sample may have masked the full impact of coping with perceived racism and hostility on CRP.

116) Abstract 1723

RACIAL/ETHNIC AND SEX DIFFERENCES IN HOSPITAL READMISSION INTERVAL TIME

John M. Ruiz, PhD, Psychology, University of North Texas, Denton, Texas, Courtney C. Prather, BA, Lauren M. Smith, MS, Erin E. Kauffman, BA, Psychology, University of North Texas, Denton, TX, Noel O. Santini, MD, Adult Medicine, Parkland Health & Hospital System, Dallas, TX.

Racial/ethnic minorities face a disproportionate risk for a range of disease outcomes. These disparities may be due to differences in access, treatment-seeking behavior, and patient-provider relationships. These factors may contribute not only to delay in initial treatment seeking but in follow-up care as well. This study examined racial/ethnic and sex differences in hospital readmission intervals in a community safety-net hospital, serving a multiethnic and primarily low socioeconomic status population. Participants were 4946 inpatients (2645 males, 2301 females) admitted at least twice during 2009. The racial/ethnic distribution was 1468 non-Hispanic (NH) White, 1995 NH Black, and 1483 Hispanic adults. Racial/ethnic group, sex, and marital status were entered as fixed factors into analysis of covariance with age entered as a covariate. Women were found to have a longer all-cause interval compared to men (81.2 vs. 73.5 days), F(1,2942) = 5.21, p<.05. In addition, a marginal effect of race/ethnicity was found for all-cause intervals, F(2,4946) = 2.73, p<.10. Post hoc analyses revealed that NH Whites had a shorter interval compared to Hispanics (72.0 vs. 80.4 days), F(1,4946) = 4.39, p<.05. Racial/ethnic disparities in cardiovascular disease are among the most pronounced. The previously observed racial/ethnic differences remained for CVD patients, with NH Whites having the shortest interval between admits (62.72 days), followed by NH Blacks (92.22) and then Hispanics (94.51), F(2,513) = 3.49, p<.05. Specifically, NH White women showed the shortest interval (54.8 days) followed by NH Blacks (84.15 days) and a long delay for Hispanic women (115.2 days). Given the economic similarities within the sample, these findings may reflect cultural differences in healthcare usage. The Hispanic delay may also reflect resilience consistent with elements of the Hispanic mortality Paradox. Future research should examine these possibilities.
THE ROLE OF SOCIAL DESIRABILITY IN REPORTS OF ICD PHANTOM SHOCKS
Ana Bilanovic, MA, Psychology, York University, Toronto, Ontario, Canada; Jane Irvine, DPhil., Psychology, York University, Toronto, Ontario, Canada; Adrienne Kovacs, Ph.D., Cardiology, University Health Network, Toronto, Ontario, Canada; Joel Katz, Ph.D., Psychology, York University, Toronto, Ontario, Canada

Elevated social desirability (SD) can be indicative of impression management or, when coupled with lower reported anxiety, may suggest repressive coping. Implantable cardioverter defibrillator (ICD) recipients at times report phantom shocks (PS), defined as a report of a shock not objectively recorded. This secondary data analysis examines the role of SD in relationship to the experience of PS. METHODS: Nine PS participants (100% male) were matched on sex and age with those reporting only objective shocks (OS; n=8). Measures of SD (Socially Desirable Response Set; SDRS), general (Hospital Anxiety and Depression Scale; HADS-A) and disease-specific anxiety (Cardiac Anxiety Questionnaire; CAQ) were assessed. In line with past research, to define repressive coping median splits were used on SDRS (>20.45) and CAQ-Fear (<2.12) and the clinically significant cut-off score for HADS-A (<8.00). RESULTS: A large effect size, where the PS group displayed elevated levels compared to the OS group, was found on SDRS (M=91.1%, SD=75.6% vs. M=27.5%, SD=63.2%, respectively, eta2=.19). The PS group displayed lower levels of anxiety compared to the OS group, with a medium effect size on CAQ-Fear (M=1.76, SD=0.65 vs. M=2.22, SD=0.87, respectively, eta2=.02) and a small effect on HADS-A (M=7.89, SD=4.92 vs. M=8.13, SD=3.87, respectively, eta2=.01). Examining SDRS and CAQ-Fear, 55.6% of the PS group engaged in repressive coping vs. 12.5% of the OS group (chi2(1)=3.44, p=.064), indicating a borderline trend. Conversely, examining SDRS and HADS-A, 33.3% of the PS group engaged in repressive coping vs. 12.5% of the OS group (chi2(1)=3.15, p=.37). CONCLUSION: PS participants had increased SD and lower levels of anxiety compared to their OS counterparts. Our studydesign promotes the inferences regarding directrionality of effects. Some individuals may engage in repressive coping which manifests in a report of a PS. Alternatively some may engage in impression management as indicated by elevated SD post PS in response to being told the PS was not ‘real.’ These exploratory findings raise intriguing questions about the role of SD in PS and call for further study.

THE IMPACT OF PHYSICAL ACTIVITY ON MAJOR ADVERSE CARDIOVASCULAR EVENTS (MACE)
Amanda Rossi, MSc, PhD (c), Exercise Science, Concordia Univ/Montreal Behavioural Medicine Ctr, Montreal, Quebec, Canada; Simon L. Bacon, PhD, Psychology, UQAM/Montreal Behavioural Medicine Ctr, Montreal, Quebec, Canada; Joel Katz, Ph.D., Psychology, York University, Toronto, Ontario, Canada

Background: Being physically active has been shown to be protective against developing chronic diseases, including cardiovascular disease (CVD). Additionally, exercise has been shown to be an integral part of rehabilitation following a major adverse cardiac event (MACE). Currently, Canadian guidelines recommend 30 minutes of physical activity on most days of the week for the maintenance of health. The purpose of these analyses was to compare physical activity habits and incidence of MACE in people without a history of CVD, over a 2 year follow up period. Methods & Materials: A total of 492 participants undergoing a standard nuclear medicine exercise stress test were recruited at the Montreal Heart Institute. Participants underwent an interview and filled out questionnaires concerning their medical history, physical activity, and socioeconomic and psychological parameters. All participants were followed for 2 years through mailed questionnaires. Resting blood pressure and heart rate were also measured. Of this cohort, we considered the 291 participants (56% women; age SD= 61 (9) years) who were free of any CVD at baseline for these analyses. Results: Throughout the 2-year follow-up period, 25 participants had a MACE. Leisure time physical activity (LTPA) was shown to be, albeit not significantly, predictive of MACE (OR (95%CI) = 1.34 (0.88-1.01)). This represents a 6% decrease in risk of MACE for every increase in exercise intensity of 1 metabolic equivalent (MET). Additionally, a significant decrease in risk of approximately 70% was seen in participants who accomplished the recommended levels of physical activity (OR (95%CI) = 0.32 (0.09-1.01)). Baseline physical activity was higher in those participants who did not have a MACE compared to those who did have a cardiovascular event (average 8.86±0.87 vs. 3.11±2.69 MET-hrs/wk, respectively, p<0.05). All results were adjusted for age and sex. Conclusion: Findings support those observed in previous studies, suggesting that physical activity is beneficial for the prevention of cardiac events. It would appear from our sample that the benefits of physical activity may even be seen in elderly individuals.

EFFECTS OF A MULTIMODAL INTERVENTION FOR PRIMARY PREVENTION OF CARDIOVASCULAR DISEASE ON DEPRESSION, ANXIETY, TYPE-D PATTERN AND CARDIOVASCULAR RISK PROFILE IN EMPLOYEES OF THE FAMOUS MOTOR COMPANY - RESULTS OF THE RANDOMIZED, CONTROLLED PREFORD TRIAL
Christian Albus, MD, Psychosomatics and Psychotherapy, University of Cologne, Cologne, Germany; Birna Bjarnason-Wehrens, PhD, Cardiology and Sports Medicine, German Sport University, Cologne, Germany; Detlef Gysan, MD, AkkARe, AkkARe, Cologne, Germany; Christian Schneider, MD, Internal Medicine III, University of Cologne, Cologne, Germany; Hans-Georg Predel, MD, Cardiology and Sports Medicine, German Sport University, Cologne, Germany

Background: Depression, anxiety, the type-D pattern, and low social support are associated with earlier development and faster progression of cardiovascular disease (CVD). To date, only few psychosocial intervention studies have targeted psychosocial factors in the primary prevention of CVD. The aim of the randomized, controlled Preford trial is to study the 2 years of follow up. Psychosocial instruments included the HADS, the DS-14 and the clinically significant cut-off score for the Anxiety Questionnaire; CAQ) were assessed. In line with past research, reporting only objective shocks (OS; n=8). Measures of SD (Socially Desirable Response Set; SDRS), general (Hospital Anxiety and Depression Scale; HADS-A) and disease-specific anxiety (Cardiac Anxiety Questionnaire; CAQ) were assessed. In line with past research, to define repressive coping median splits were used on SDRS (>20.45) and CAQ-Fear (<2.12) and the clinically significant cut-off score for HADS-A (<8.00). RESULTS: A large effect size, where the PS group displayed elevated levels compared to the OS group, was found on SDRS (M=91.1%, SD=75.6% vs. M=27.5%, SD=63.2%, respectively, eta2=.19). The PS group displayed lower levels of anxiety compared to the OS group, with a medium effect size on CAQ-Fear (M=1.76, SD=0.65 vs. M=2.22, SD=0.87, respectively, eta2=.02) and a small effect on HADS-A (M=7.89, SD=4.92 vs. M=8.13, SD=3.87, respectively, eta2=.01). Examining SDRS and CAQ-Fear, 55.6% of the PS group engaged in repressive coping vs. 12.5% of the OS group (chi2(1)=3.44, p=.064), indicating a borderline trend. Conversely, examining SDRS and HADS-A, 33.3% of the PS group engaged in repressive coping vs. 12.5% of the OS group (chi2(1)=3.15, p=.37). CONCLUSION: PS participants had increased SD and lower levels of anxiety compared to their OS counterparts. Our study design promotes the inferences regarding directrionality of effects. Some individuals may engage in repressive coping which manifests in a report of a PS. Alternatively some may engage in impression management as indicated by elevated SD post PS in response to being told the PS was not ‘real.’ These exploratory findings raise intriguing questions about the role of SD in PS and call for further study.

BARECOREX FUNCTIONALITY AS A MEDIATOR OF STRESSOR-EVOKED CARDIOVASCULAR REACTIVITY
Israel C. Christie, PhD, Ikchukwu C. Onyeuenyi, BS, Peter J. Gianaras, PhD, Psychiatry, University of Pittsburgh, Pittsburgh, PA
Large cardiovascular reactions to stress are associated with increased risk for cardiovascular disease. The purpose of this report was to test, in the context of statistical mediation analyses, if stressor-evoked changes in heart rate (interbeat interval; IBI) and systolic blood pressure (SBP) can be explained by alterations in the functioning of the baroreflex, a stress-sensitive brainstem reflex arc that counteracts arterial pressure deviations through fine autonomic adjustments. Beat-to-beat blood pressure and IBI changes were monitored as 116 healthy adults (mean age = 40; 52% female) completed a protocol involving a resting baseline, multiple conditions of a cognitive multi-source interference stressor task, and a resting recovery. Two different measures were used to assess baroreflex function: 1) baroreflex sensitivity (BRS), the average ratio of IBI to SBP changes meeting standard threshold criteria; and 2) the
baroreflex effectiveness index (BEI), the percentage of SBP ramps accompanied by compensatory IBI changes. Data were analyzed using generalized estimating equations, which compared stressor and recovery conditions to baseline. Mediation was tested by the Monte Carlo method. Both BRS and BEI were significant partial mediators of SBP and IBI levels during both conditions of the stressor task (p’s < .05), but not during recovery. Simple effect size estimates (percent reduction of the direct path estimates) indicated further that the BEI had a mediation effect size roughly twice that of BRS. We believe these findings are the first quantitative illustration of baroreflex function as a mediator of cardiovascular reactivity. This mediational approach may assist not only in identifying the underlying mechanisms of stressor-evoked cardiovascular reactivity and related disease risk, but also the conditions (e.g., recovery) in which other mechanisms may be at play.

122) Abstract 1413
THE EFFECTS OF TEXT MESSAGES FROM ROMANTIC PARTNERS ON FEMALE STRESS REACTIVITY
Emily D. Hooker, High School Diploma, Sarah D. Pressman, PhD, Psychology, University of Kansas, Lawrence, Kansas
This study explores the effects of indirect social support via text message from a male romantic partner on stress reactivity in females. This research has shown that social support between partners improves health outcomes by buffering the physiological stress response. To date, however, no one has tested whether cellular telephone text messages confer the same stress-buffering benefits as in-person support. Fourteen women (mean age = 19.7, data collection continues with a target N of 60) in heterosexual, monogamous relationships completed demographic surveys and then an abridged version of the Trier Social Stress Test. Females in the support group received two scripted supportive text messages from their male romantic partners as compared to two neutral texts or no texts in the control groups. Systolic and diastolic blood pressure (SBP and DBP respectively) measurements were taken every 1.5 to 2 minutes throughout the baseline, stress, and recovery periods (total duration = 28 minutes). After statistically accounting for baseline blood pressure and age, preliminary analyses revealed marginally significant results for stress reactivity. Repeated Measures ANOVA showed that females who received supportive text messages from their partners exhibited the highest SBP during stress as compared to the other two groups (F(2,14) = 3.095, p < .1). While not significant, DBP patterns during stress also revealed the highest average increase in those receiving support (average increase = 14.6 mmHg versus no text control = 13.6 mmHg). Consequently, supportive text messages were tied to higher levels of stress reactivity. Although this data is preliminary, it is possible that text messages from a partner are exciting and therefore physiologically arousing, or that text messages are distracting which could induce greater stress due to a lack of preparation. Additional data collection will clarify these findings. Given the high prevalence of text messaging, studies such as this one are essential to understanding whether receiving messages replicate the positive effects of in-person social support or create a harmful distraction.

123) Abstract 1332
OPTIMISM, DEPRESSION, AND DEPRESSION REMISSION AFTER CABG SURGERY
Hilary A. Tindle, MD, MPH, Bea Herbeck Belnap, Dr Biol Hum, Internal Medicine, University of Pittsburgh, Pittsburgh, Pa, Patricia R. Houck, MSH, Masters of Science, Psychiatry, University of Pittsburgh Medical Center, Pittsburgh, Pa, Sat Basumalik, PhD, Biostatistics, University of Pittsburgh, Pittsburgh, Pa, Michael Scheier, PhD, Psychology, Carnegie Mellon University, Pittsburgh, Pa, Karen A. Matthews, PhD, Psychiatry, Bruce L. Rollman, MD, MPH, Internal Medicine, University of Pittsburgh, Pittsburgh, Pa. Objective: Optimism, or the expectation that good things will happen, has been associated with favorable cardiovascular disease (CVD) outcomes, including lower risk of subclinical CVD progression and of re-hospitalization following coronary artery bypass graft (CABG) surgery. Depressive symptoms are common following CABG surgery and are associated with worse clinical outcomes. Little is known about how optimism may affect treatment for depression after CABG. We examined this question using data from the Bypassing the Blues randomized controlled trial of collaborative care for post-CABG depression. Methods: Exploratory post-hoc analysis of 284 depressed post-CABG patients (2-week post-hospitalization PHQ-9 score = 10) and 146 non-depressed controls who completed the Life Orientation Test-Revised (LOT-R) to assess level of optimism. We classified those who scored in the top quartile on the LOT-R as optimists and those who scored in the bottom quartile as pessimists. Over 8 months we assessed health-related quality of life (HRQoL, SF-36), mood symptoms (Hamilton Rating Scale for Depression, HRS-D) and re-hospitalization for any reason (adjudication). We defined depression remission as a >=50% decline in HRS-D score from baseline. Results: Among all 430 post-CABG patients, 19% were classified as optimists and 30% as pessimists. At baseline, optimists were more likely than pessimists to report higher levels of education (66% vs. 47%), mental (SF-36 MCS: 55 vs. 43) and physical (SF-36 PCS: 35 vs. 32) HRQoL, and lower mean HRS-D scores (8 vs. 15) (all p < .05). Among all 284 depressed patients, optimists’ mood symptoms were more likely to remit than pessimists at 8 months (62% vs. 29%, p < .05: HR, 3.67; 95% CI 1.41-9.57). Furthermore, we observed a similar pattern among depressed subjects randomized to UC (HR 8.54 (1.80-40.59) but not among those randomized to the study intervention (HR 2.25 (0.82-6.20)). Conclusions: Optimistic post-CABG patients recover from depression at higher rates, particularly among patients receiving UC. Further research should explore the impact of optimism on long-term post-CABG outcomes.

124) Abstract 1124
THE ASSOCIATION BETWEEN DEPRESSION AND PSYCHOLOGICAL STRESS REACTIVITY IN CORONARY ARTERY DISEASE (CAD) PATIENTS
Annik Plourde, BA, Kim L. Lavoie, PhD, Psychology, UQAM, Montreal, Quebec, Canada, Chris Ring, PhD, Douglas Carroll, PhD, Sport and Exercise Science, U of Birmingham, Birmingham, UK, Simon L. Bacon, PhD, Exercise Science, Concordia U, Montreal, Quebec, Canada. Background: There is evidence that depression is associated with an increased risk for CAD. In research examining acute psychosocial stress in patients, depression has also been related to an increase in the triggering of acute coronary events. However, little is known about the association between stress reactivity and depression in CAD patients. The present study assessed the impact of depression and acute stress on cardiovascular and endothelial reactivity in CAD patients. Methods: 72 CAD patients completed an 8 minute mental stress task (PASAT). Blood pressure, heart rate, and impedance cardiography were recorded at rest and during the task. Blood samples were taken at the end of the rest and the stress task. Depression was evaluated using the DISC. Platelet factor 4 (PF4) was log transformed for the analyses. Results: In total, 21% of patients had depression. After adjusting for age, sex, smoking status, BMI, and medication, general linear model analyses revealed a significant association between depression and pre-ejection period (PEP) reactivity (F = 4.77, p = .03), such that CAD patients with M (SE) = -3.80 (4.58) reactivity versus without (M (SE) = -14.57 (2.26)) depression had a greater decrease of PEP during the stress task. The analyses also indicated a significant increase of PF4 (F = 3.49, p = .004) in depressed CAD patients (M [unlogged] (SE) = 18.6 (6.9)) compared to non depressed CAD patients (M [unlogged] (SE) = 4.6 (3.8)). Conclusions: Results suggest that depression combined with acute stress influence CAD patients’ cardiovascular reactivity and endothelial responses differently. These data provide a potential mechanistic pathway linking depression to increased CAD.

125) Abstract 1117
CHARACTERISTICS OF ANTIDEPRESSANT USE IN HEART FAILURE PATIENTS
Jessica A. Jimenez, MA, Psychiatry and Behavioral Medicine, University of California, San Diego, La Jolla, California, Barry H. Greenberg, MD, Department of Medicine, University of California, San Diego, San Diego, CA, Joel E. Dimsdale, MD, Psychiatry, University of California, San Diego, La Jolla, California, Thomas R. Rutledge, PhD, Psychiatry and Behavioral Medicine, University of California, San Diego, CA, Laura A. Powers, PhD, Psychiatry and Behavioral Medicine, University of California, San Diego, La Jolla, California.
California, Michael G. Ziegler, MD, Department of Medicine, University of California, San Diego, San Diego, California, Sozi Hong, PhD, Paul J. Mills, PhD, Psychiatry and Behavioral Medicine, University of California, San Diego, La Jolla, California

Background: Heart failure patients experience disproportionately high rates of depression compared to the general population. However, little is known about the characteristics of antidepressant use among heart failure patients in outpatient settings. The purpose of this study was to describe patterns of antidepressant use among heart failure patients currently receiving treatment for depression. Methods: We collected information on antidepressant use, Beck Depression Inventory (BDI-IA) ratings, and demographics on 72 outpatient heart failure patients who were currently taking antidepressants [M age=59 years, 71% were male, 87% were New York Heart Association (NYHA) functional class I-II]. Results: Despite antidepressant treatment, 64% of patients still had BDI scores indicating depressive symptoms: 27.8% had BDI scores 10-18 (mild-moderate symptoms), 20.8% had BDI scores 19-29 (moderate-severe) and 15.3% had scores ≥30 (severe symptoms). Fifteen percent of patients on antidepressants reported that they had no alleviation of depressive symptoms since starting their current antidepressant. As far as source of antidepressant prescriptions, 45% received prescriptions from their primary care physician. Only 55% reported that they had a dose adjustment since beginning their current antidepressant medication. Of these, 52.3% received adjustments in their prescription from their mental health provider, 43.2% from their primary care physician, and 4.5% from their cardiologist. Conclusions: While depressive symptoms are common in heart failure patients, our data suggests that these symptoms are persistent even in face of antidepressant use. Furthermore, given the high level of continuing symptoms, and the apparent lack of antidepressants adjustments, our study suggests an unmet need for more integrated care between psychiatry and cardiology in the management of depression in heart failure patients.

126) Abstract 1316
SYNERGISTIC EFFECTS OF SOCIOECONOMIC STATUS AND ACCULTURATION WITH SYMPATHETIC NERVOUS SYSTEM ACTIVITY IN MEXICAN-AMERICAN WOMEN
Jessica A. Jiménez, MA, Department of Psychiatry, University of California, San Diego, La Jolla, California, Smriti Shivpuri, MS, Karla Espinosa de los Monteros, MS, Department of Psychology, San Diego State University, San Diego, CA, Karen A. Matthews, PhD, Department of Psychiatry, University of Pittsburgh, Pittsburgh, PA, Paul J. Mills, PhD, Department of Psychiatry, University of California, San Diego, La Jolla, CA, Linda C. Gallo, PhD, Department of Psychology, San Diego State University, San Diego, CA

Lower socioeconomic status (SES) has been associated with elevated levels of stress hormones. Studies suggest that higher acculturation to US society is related to poor health outcomes. It is unknown how acculturation influences the relationship between SES and sympathetic nervous system activity. We examined the main effects of SES and acculturation, and their interactive relationship with catecholamine levels. 291 healthy, middle-aged Mexican-American women participated in this cross-sectional study. Levels of norepinephrine (NOREPI) and epinephrine (EPI) were obtained through overnight 12-hour urine collection. A SES composite score incorporated self-reported educational attainment and yearly household income. Language version of the survey (English or Spanish) was used as a proxy for SES. Multiple linear regression was used to test whether acculturation moderated the effects of SES with NOREPI and EPI after adjustment for age, medication use, body mass index (BMI), smoking status, and physical activity. The mean age of the sample was 50 yrs., 35% had <high school education, 42% earned <$25,000 and 60% completed the interview in Spanish. There were no main effects for SES or acculturation, after adjusting for covariates. However, the interaction between SES and acculturation was statistically significant for NOREPI and EPI after adjusting for covariates (B -2.282, p≤.002 vs. B -2.222 p≤.016). Higher SES was associated with increased levels of NOREPI and EPI among women with high acculturation. Higher SES was associated with decreased levels of NOREPI and EPI among women with low acculturation. The results suggest that the relationship between SES and catecholamine levels vary depending on acculturation. Our findings highlight the importance of considering the cultural environment when studying the effects of SES and health in Latino populations.

127) Abstract 1660
AN EXAMINATION OF SEX DIFFERENCES IN HEART RATE VARIABILITY DURING STRESSOR EXPOSURE IN REMITTED MAJOR DEPRESSIVE DISORDER
Sara L. Bogley, M.S.R, Valerie Manduske, Terri L. Weaver, Ph.D., Tony W. Buchanan, Ph.D., Psychology, Saint Louis University, St. Louis, Missouri

Higher heart rate variability (HRV) is associated with better cardiac and mental health. Individuals with current major depressive disorder (MDD) show reduced HRV and greater risk for cardiac morbidity. It is unclear whether this reduced HRV persists after the remission of the MDD episode. There are also pronounced sex differences both in the incidence of MDD and in heart rate variability. Men tend to show greater sympathetic cardiac control (reflected by low frequency HRV), while women tend to show more parasympathetic cardiac control (reflected by high frequency HRV). To explore the relationships among depression history, sex differences, and cardiac control, we examined HRV in response to a stressor exposure in individuals with and without a history of OF. Nineteen participants with remitted MDD (11 men and 8 women) and 26 never depressed comparison participants (16 men and 10 women) participated in the study. Heart rate and HRV were measured at rest, and while preparing, performing, and recovering from the Trier Social Stress Test (TSST). Spectral analysis of HRV was used to obtain low frequency (LF, an index of sympathetic cardiac control) and high frequency (HF, an index of parasympathetic cardiac control) components along with the ratio between the two (LF/HF). Participants with remitted MDD showed comparable heart rate and HRV to never depressed participants throughout testing (p > 0.3). Women from both groups showed higher HF (p < 0.05) and lower ratio of LF/HF (p < 0.05) compared to men. These findings are counter to previous work from individuals with current MDD and may suggest that reduced HRV coincides with the depressive episode, but may not persist beyond the end of the episode. Our results show sex differences in HRV as consistent with previous findings, which suggest greater parasympathetic cardiac control in women compared to men. This difference may serve as a protective factor and could contribute to the lower incidence of cardiovascular disease in women.

128) Abstract 1260
COMPONENTS OF THE NEUROMATRIX THEORY OF PAIN PREDICT ANGINA DURING EXERCISE STRESS TESTING: RESULTS FROM THE PIMI STUDY
Nadine S. Bekkouche, David S. Krantz, PhD, Andrew J. Wawryniak, PhD, Kerry S. Whitaker, MS, Medical and Clinical Psychology, Uniformed Services University, Bethesda, Maryland, David S. Sheps, MD, Cardiology, Emory University, Atlanta, Georgia

Background: The Neuromatrix Theory of pain (Melzack, 1999) describes 5 factors (cognitive-sensory, affective-emotional, nociception, inhibition, and CNS modulation) that modulate pain. This study assesses the interplay among these factors in the development of exercise-induced angina. Methods: Participants were 175 patients (26 women) with documented CAD and a positive bicycle exercise stress test from the PIMI study. Of these, 62 patients reported angina during testing. Patients completed the Rose Angina Questionnaire (cognitive-sensory), the Beck Depression Inventory (affective-emotional), a thermal pain threshold test (nociception), the Autonomic Perception Questionnaire (symptom perception/inhibition), and a blood test for resting beta-endorphin levels (CNS modulation). We assessed main effects and interactions among these 5 factors. Results: Logistic regression examining the 5 factors of the Neuromatrix model showed that only history of angina predicted exercise-induced angina (OR=8.53, 95% CI=4.05-18.00, p<0.001) when adjusting for age, sex, history of diabetes and hypertension. Without adjusting for covariates, depressive symptoms marginally predicted exercise-angina (OR=1.05, 95% CI=0.991-1.110, p=0.097). The 5 factors as a block predicted exercise-angina (p<0.001) adjusting for covariates, correctly classifying 77% (94%) of patients in the presence/absence of pain. In this model, consistency of angina (p<0.001, OR=9.18, 95% CI=3.98-21.26) and pain threshold

A-50
p=0.047, OR=2.98, 95% CI=1.017-8.75) were independently predictive of angina. The interaction of depressive symptoms and pain threshold was significant (OR=1.398, 95% CI=1.044-1.872, p=0.025); exercise-angina was more prevalent in individuals with lower pain thresholds and more depressive symptoms. Conclusion: Components of the Neuromatrix Theory affect angina symptoms of ischemia. History of angina, depressive symptoms, and pain threshold predict exercise-angina; these factors together are more predictive than single factors alone. These results support multiple interacting determinants of silent vs. symptomatic ischemia.

129) Abstract 1636

THE INFLUENCE OF OXYTOCIN ON INFLAMMATION AND ATHEROSCLEROSIS IN WHHL RABBITS

Angela Szeto, Ph.D, Maria A. Rossetti, B.S, Psychology, University of Miami, Coral Gables, Florida, Armando J. Mendez, Ph.D, Medicine, University of Miami, Miami, Florida, Crystal M. Noller, B.A, Neil Schneiderman, Ph.D, Phil M. McCabe, Ph.D, Psychology, University of Miami, Coral Gables, Florida

Purpose: The present study investigates the potential anti-inflammatory effects of in vivo oxytocin (OT) infusion in the Watanabe Heritable Hyperlipidemic Rabbits (WHHL). Methods: Twenty-eight 3-month-old WHHL were surgically implanted with osmotic minipumps containing OT (n = 14, infusion rate 250 ng/kg/hr) or vehicle (n = 14). Blood samples were taken at baseline, midpoint, and endpoint for lipids and C-reactive protein (CRP). After 16 weeks, animals were sacrificed and samples of adipose tissue (mesenteric, retroperitoneal, epidydymal, pericardial) were collected and analyzed for the pro-inflammatory cytokine IL-6, and the anti-inflammatory adipokine adiponectin, expression levels by Real Time-Polymerase Chain Reaction. Aortas were dissected, formalin-fixed, and stained with oil-red O for en face quantification of lesion area. Students t-tests were used to compare group means for all measures. Results: Endpoint OT levels were significantly different (p < .05) between the control (M = 11.28 pg/ml, SEM = 2.5) and treatment group (M = 132.35 pg/ml, SEM = 8.5). Plasma lipids were not altered by OT infusion. OT-treated animals displayed significantly less atherosclerosis in the thoracic aorta (p < 0.05); a finding similar to our previously published study in a mouse model of atherosclerosis. In some fat depots, there was a trend suggesting that IL-6 expression was less and adiponectin expression was increased in the OT-treatment group. Conclusions: Oxytocin infusion attenuated thoracic aortic atherosclerosis, plasma CRP, and may affect inflammatory cytokine expression in adipose tissue in the WHHL model.
Conclusions: This pilot study is the first we are aware of to identify over multiple days predictors of angry rumination and worry in the natural environment. Further investigation of these relationships in larger samples will contribute to our understanding of the health effects of perseverative cognition.

132) Abstract 1196

BEREAVEMENT IS ASSOCIATED WITH REDUCED IMMUNE FUNCTION IN OLDER ADULTS: EFFECTS ON NEUTROPHILS, POTENTIAL MECHANISMS, AND PATHWAYS TO INTERVENTION
Anna C. Phillips, PhD, Riyad S. Khanfer, MSc, School of Sport & Exercise Sciences, Janet M. Lord, PhD, Immunity and Infection, University of Birmingham, Birmingham, UK
Purpose: Bereavement is considered one of the most stressful life events and previous studies have shown that bereavement is associated with increased morbidity and mortality particularly in older adults. A few studies have explored the impact of bereavement on immunity but not in neutrophils. Neutrophils are white blood cells forming the main component of innate immunity. Disturbances in neutrophil number or function are associated with serious recurrent infection. The present study examined the effect of recent bereavement (<2 months) on neutrophil function, specifically phagocytosis of E.coli and stimulated superoxide production among older adults >65 years. It also sought to examine potential endocrine mechanisms underlying such associations. Sample and Methods: Participants were 48 (32 female) adults aged 72.7 (5.31) years old. Twenty-four were recently bereaved and 24 were the age- and sex-matched non-bereaved controls. A morning blood sample was taken within two months of bereavement to determine neutrophil function by flow cytometry, namely phagocytic ability and superoxide production upon stimulation. Concentrations of cortisol and DHEAS were also measured by ELISA. Results: There was a significant reduction of neutrophil superoxide production associated with the bereavement, when neutrophils were challenged with either E.coli (F(1,45) = 4.08, p = .05) or PMA (F(1,46) = 7.46, p = .01). There was no difference in neutrophil phagocytosis between the two groups. Further, it was found that the bereaved had a higher DHEAS: cortisol ratio compared to controls, F(1,46) = 5.17, p = .03. Given the co-existence of immunosenescence, this could help to explain previous associations between bereavement and higher morbidity and mortality in older adults. The associations with neuroendocrine hormones suggest pathways to future interventions with bereaved older adults.

133) Abstract 1403

PERCEIVED HAPPINESS LEVEL INFLUENCES EVOCATION OF POSITIVE EMOTIONS
Masahiro Matsunaga, PhD, Hiroshi Kaneko, MD, PhD, Neurology (Psychosomatic Medicine), Fujita Health University, Nagoya, Aichi, Japan, Hiroki Murakami, MS, Kaori Yamakawa, MS, Hideki Ohira, PhD, Psychology, Nagoya University, Nagoya, Aichi, Japan, Tokiko Isowa, PhD, Nursing, Mie University, Tsu, Mie, Japan, Seisuke Fukayama, PhD, Jun Shinoda, MD, PhD, Jitsuhiro Yamada, MD, PhD, Chubu Medical Center, Kizawa Memorial Hospital, Minokamo, Gifu, Japan

Happiness is a positive feeling characterized by satisfaction, joy, pleasure, or love. Perceived happiness level is probably associated with health and well-being. However, neurobiological mechanisms underlying the positive effects of happiness on psychological and physiological wellness remain obscure. In this study, we aimed to compare the brain activity and evocation of positive emotion between high-happiness group and low-happiness group when the participants looked at a favorite person. We recruited 18 healthy, right-handed men as volunteers (age range: 20-29 years). To screen individuals with higher or lower stress levels of perceived happiness, we requested them to use the Japanese version of the subjective happiness scale (JSHS). We found that upon activation of reward-related brain regions - the medial prefrontal cortex (MPFC) and striatum, containing terminals of the mesencephalic dopamine neurons- stronger positive emotions were evoked (p < 0.01) in individuals with high perceived happiness levels than in those with low perceived happiness levels, when they looked at a favorite person. Moreover, change in positive mood was positively correlated with MPFC activity (r = 0.51, p < 0.05). The findings of this...
study indicate that perceived happiness level is associated with evocation of positive emotions by means of the dopaminergic reward system - including the MPFC. High MPFC function in individuals with high-perceived happiness levels may enhance psychological and physiological wellness.

134) Abstract 1745

THE JOINT EFFECTS OF INTENTION STRENGTH, EXECUTIVE FUNCTION AND GOAL SETTING ON PHYSICAL ACTIVITY BEHAVIOR
Peter A. Hall, Ph.D., Kinesiology, Chris Zehr, B.Sc., Health Studies & Gerontology, Mark P. Zanna, Ph.D., Psychology, University of Waterloo, Waterloo, Ontario, Canada

BACKGROUND: Intention strength is strong predictor of health behavior; however some studies have shown that executive function (EF) may moderate such relationships. Specifically, those with stronger EF have higher intention-behavior correspondence over time than their weaker EF counterparts. It is unknown whether supplying simple goal-setting activities (implementation intentions; IMPs) may augment intention-behavior correspondence among those with lower EF.

METHODS: Using a 1-week prospective quasi-experimental design we examined this question. The sample comprised 158 healthy adults who were randomly assigned to one of two conditions: implementation intentions for physical activity or 2) implementation intentions for a control behavior. At baseline participants completed measures of physical activity intention strength and an EF task. Self-reported vigorous physical activity was assessed at 7-day follow-up. RESULTS: Analyses revealed significant main effect of intentions on follow-up physical activity (BINT=.469, t=5.102, p=.001), after controlling for baseline activity. This main effect was qualified by a significant 3-way interaction between intention strength, EF, and treatment condition (BINTxEXCOND =-.147, t=2.004, p=.048). The 3-way interaction remained significant after additional adjustments for socio-demographic variables (BINTxEXCOND =-.169, t=2.275, p=.025) and BMI (BINTxEXCOND =-.156, t=2.078, p=.041). Analyses of simple slopes revealed that those with low intention strength showed a significantly lower intention behavior correspondence (BINT=.398) than their high EF counterparts (BINT=.618) in the control condition (BINTxEF =.220, t=2.182, p=.034). However, the intention behavior correspondence for high EF and low EF participants was uniformly high in the experimental condition: simple slopes predicting behavior from intention did not differ from each other significantly in this group (BINTxEF =.091, t=.972, p=.336); only a significant main effect of intention on behavior was evident (BINT =.292, t=2.602, p=.012).

Intention strength among low EF participants in the experimental groups were predictive of behavior at a similar level (BINT=.556) to their high EF counterparts (BINT=.452). IMPs may enhance intention-behavior relations for those with low EF.

135) Abstract 1163

ACUTE SLEEP RESTRICTION AND ANGER ARE ASSOCIATED WITH A VASCULAR HEMODYNAMIC PROFILE
Siobhan Howard, PhD, Centre for Research on Occupational and Life Stress, Jack E. James, PhD, School of Psychology, National University of Ireland, Galway, Ireland

While epidemiological studies indicate that chronic short sleep duration contributes to the development of cardiovascular diseases, experimental studies show that sleep loss has little or no acute effect on blood pressure level. Previous work in our laboratory (James & Gregg, 2004) has suggested that a vascular hemodynamic response pattern may be implicated as part of the mechanism by which short sleep duration may contribute to increased risk of cardiovascular disease. In order to investigate the effect of acute sleep loss on hemodynamic profile, 46 normotensive female adults (mean age = 18.47 years, SD = 1.21) underwent a traditional cardiovascular reactivity protocol. As anger has previously been shown to influence physiological reactivity, the effect of anger on hemodynamic profile was also examined. Participants completed a laboratory-based stressor following acute sleep restriction, whereby they slept just 40% of their usual sleep, and again following a full night's sleep. Adherence to the sleep restriction protocol was assessed using wrist actigraphy. Anger was experimentally manipulated during the laboratory stressor. Repeated-measures ANOVA showed that acute sleep restriction had a negative effect on a range of mood variables, but did not influence blood pressure level or reactivity (all ps > .05). However, a marked vascular hemodynamic profile was elicited by acute sleep loss (t = 1.77, p = .042). In addition, while participants responded with a predominantly myocardial response profile to the laboratory task (p < .05), a mixed response profile was evident during the same task with the addition of the anger manipulation. Together, these findings indicate that a vascular hemodynamic profile might mediate the association between short sleep duration and risk of cardiovascular disease. These results provide support for interventions aimed at promoting cardiovascular health by improving sleep duration. Funded by the Health Research Board, Ireland; RP/2007/225

136) Abstract 1685

PSYCHOLOGICAL STRESS AND OXIDATIVE STRESS: A SYSTEMATIC REVIEW OF OBSERVATIONAL STUDIES AND CLINICAL TRIALS
Priya Palta, MHS, Epidemiology, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, Laura J. Samuel, MSN, Sarah L. Smith, PhD, Nursing, Johns Hopkins University School of Nursing, Baltimore, MD

Psychological stress and oxidative stress: a systematic review of observational studies and clinical trials. Socioeconomic disparities in health outcomes are persistent, and in some cases worsening. Individuals in lower socioeconomic strata experience more functional limitations, morbidity, and premature mortality. Health behaviors and lack of access to the healthcare system contribute to these disparities, but even after controlling for these factors, significant health disparities remain. Individuals of lower socioeconomic status suffer from more psychological stress compared to their higher socioeconomic status counterparts. Cellular oxidative stress is a candidate physiologic pathway that may link psychological stress and poor health outcomes. The objective of this systematic review was to gather evidence to assess whether there is an association between psychological stress and oxidative stress. Fourteen trials were included in this systematic review, including 11 observational studies (10 cross-sectional and 1 prospective), and 3 clinical trials. A variety of psychological stress measures were used in this review. Primarily these stressors were acute. Measures of psychological stress included depression, mood, anxiety, hostility, coping ability, and effort-reward imbalance. Particularly strong relationships existed between depression and both increased oxidative stress and lower total antioxidant status. Based on this systematic review, we conclude that psychological stress may be related to oxidative stress. However, small sample sizes, heterogeneous populations, diverse methods for capturing stress, and inadequate control of confounders limits the strengths of this conclusion. Larger population-based studies with data on chronic psychological stressors and potential confounders are needed. If oxidative stress is causally associated with psychological stress, disparities in psychological stress could help explain disparate health outcomes due to socioeconomic status.

137) Abstract 1383

HEART RATE VARIABILITY AND PERCEPTION OF EMOTION: PROCESSING POSITIVE FACIAL EXPRESSIONS
Dixie Hu, B.S., Gewn-hi Park, Ph.D., LaBarron Hill, M.A., DeWayne Williams,, Sean Plaskett,, Julian F. Thayer, Ph.D., Psychology, The Ohio State University, Columbus, OH

Autonomic imbalance predicts mortality, poorer cognitive performance, and is implicated in biased processing of threat-relevant emotional stimuli. Specifically, individuals with low heart rate variability (HRV) evince greater responding to fearful faces at low spatial frequency—a bandwidth corresponding to greater amygdala activation and subcortical visual pathways. In contrast, few to no studies have examined HRV in connection with happy face identification. The current study is a critical component addressing whether cardiovascular and cognitive biases
apply to all emotion or only to threat-specific cues. Participants (n = 41 healthy student volunteers; 50% female, 76% Caucasian) were instrumented for continuous heart rate monitoring during 5-minute baseline, 45-minute cognitive task, and 5-minute recovery. Vaguely mediated HRV during the 5 minute baseline was used to stratify the sample into low and high HRV groups. Stimuli were black/white photographs of 120 happy and neutral faces presented randomly at broad (BSF), high (HSF), and low spatial frequency (LSF) bandwidths. Participants identified the emotional valence of the pictures. A 2 x (3 x 2) mixed design (high, low HRV) x (BSF, HSF, LSF) x (Happy, Neutral) was employed with accuracy and reaction time as dependent variables. Across groups, reaction times were faster for happy faces than neutral (F = 42.4, p<.01) and for faces presented in BSF than for HSF or LSF (F = 4.86, p=.04; F = 6.38, p=.02), as anticipated. Notably, all two- and three-way interactions were not significant for reaction time or accuracy (all p’s> .05). Findings suggest that cognitive biases associated with low HRV are not present for positive emotional stimuli in LSF bandwidths that typically activate the amygdala. Results highlight a central role for threat-specific rather than emotion-general cues and have important implications for emotional processing and health.

138) Abstract 1072
THE EFFECT OF TRAIT RUMINATION ON HABITUATION TO REPEATED STRESS
Jillian A. Evans, B.Sc, Department of Psychology, University of Calgary, Calgary, AB, Canada, Kim L. Lavoie, Ph.D., Department de psychologie, Université du Québec à Montréal, Montréal, PQ, Canada, Simon L. Bacon, Ph.D., Department of Exercise Science, Concordia University, Montreal PQ, Canada, Raphael DeVos, Cours, Government, Canada, Department of Psychology, University of Calgary, Calgary, AB, Canada
Exaggerated and prolonged cardiovascular responses to mental stress have been implicated in the etiology of hypertension. Rumination may play a role in the maintenance or re-creation of cardiovascular responses to mental stress and prevent cardiovascular habituation upon re-exposure. The purpose of this study was to evaluate the influence of trait rumination on patterns of cardiovascular responses following repeated exposure to an emotional stressor. Cardiovascular data was collected from 72 undergraduate women during a baseline period and 5-minute emotional recall task on two separate laboratory visits. Trait rumination was assessed using the Stress Reactive Rumination Scale. Results from a series of 2 (Session 1, Session 2) x Trait Rumination Score GLM RM-ANCOVAs revealed a Stress Session x Trait Rumination interaction such that participants who displayed higher levels of trait rumination showed less systolic blood pressure (F(1,55) = 2.25, p = .014), diastolic blood pressure (F(1,55) = 2.30, p = .012), and heart rate (F(1,55) = 2.12, p = .021) habituation to the laboratory mental stress task at the second exposure relative to those who displayed lower levels of trait rumination. These findings suggest that trait rumination may contribute to sustained increases in blood pressure through an impact of habituation to mental stress.

139) Abstract 1157
THE CORTISOL AWAKENING RESPONSE (CAR) ACROSS THE FEMALE MENSTRUAL CYCLE
Maren Wolfram, Jacobs Center on Lifelong Learning, Jacobs University Bremen, Bremen, Germany, Silja Bellingrath, Department of Psychiatry and Psychotherapy, University of Muenster, Muenster, Germany, Brigitte M. Kudielka, Prof, Jacobs Center on Lifelong Learning, Jacobs University Bremen, Bremen, Germany
The cortisol awakening response (CAR) has been established as a useful marker of hypothalamus-pituitary-adrenal (HPA) axis activity and has become a standard tool for stress research in ambulatory settings. For this purpose, a final sample of 29 naturally and repeatedly measured cortisol responses to awakening as well as 30, 45, and 60 minutes later during each of the four different phases. To determine the timing of ovulation, an ambulatory chromatographic ovulation test kit was applied. A repeated measurements ANOVA resulted in a significant interaction effect sample x cycle phase (p<.04), with the highest awakening response during ovulation. While awakening cortisol levels were comparable across the four cycle phases (p=.n.s.), the net increase was significantly elevated during ovulation (p=0.05). Our data also confirmed earlier cross-sectional results reporting no differences in the CAR between the follicular and luteal phase. Finally, a concurrent assessment of mood applying the POMS (Profile of Mood States) yielded no differences across the four cycle phases (all p’s=.n.s.). In sum, the present data show that the CAR is significantly elevated during ovulation, an effect which is presumably mediated by elevated sex steroid levels during the ovulation period.

140) Abstract 1320
THE EFFORT-REWARD IMBALANCE (ERI) RATIO PREDICTS DHEA-S CHANGE IN A SEVEN-YEAR PROSPECTIVE OBSERVATIONAL STUDY IN GERMAN INDUSTRIAL WORKERS
Michael C. Gaedinger, Dipl. Psych., Adrian Loerbroks, PhD, Raphael Herry, Dipl. Soz., Public Health, University of Heidelberg, Mannheim Medical Faculty, Mannheim, Germany, Jürgen Freyburger, Professor, Psychology, Ohio State University, Columbus, Ohio, Joachim E. Fischer, Professor, Public Health, University of Heidelberg, Mannheim Medical Faculty, Mannheim, Germany
Purpose: To assess longitudinal associations between the ERI ratio, overcommitment and DHEA-S, an anabolic stress hormone with cortisol-antagonistic effects. Subjects were 247 employees (89.1% males, 38.30 +/- 10.48 years at baseline) from all occupational levels of a German airplane manufacturing plant. Methods: The validated effort-reward imbalance questionnaire served to measure the ERI ratio and overcommitment. Serum DHEA-S levels were obtained in 2000 and 2007. A Sequential multiple regression model predicting DHEA-S change from 2000 to 2007, which was controlled for age, gender, negative affectivity and vital exhaustion was computed. Apart from significant interactions with incomplete questionnaire data at baseline or incomplete DHEA-S data at both time points, subjects with DHEA-S levels below the detection thresholds were excluded. Results: The baseline ERI ratio predicted the DHEA-S change between the years 2000 and 2007 (r-level = 0.041). The direction of the beta-value (= 0.154) indicated a less steep DHEA-S decline in individuals with a high ERI ratio (=high efforts combined with low rewards). No significant association between overcommitment and DHEA-S change was observed (p-level: 0.77). Conclusion: This study is the first to demonstrate a longitudinal association between the ERI ratio and DHEA-S levels. The finding that an adverse ratio between work-related efforts and received gratifications predicts a less steep DHEA-S decline may reflect previous research findings indicating increased DHEA-S secretion in stressful situations to counteract the potentially health-adverse effects of cortisol.

141) Abstract 1096
RIGHT FRONTAL FUNCTIONING IMPACTS TEMPERAMENT SENSITIVITY DIFFERENCES AND EXERCISE
Michael M. Knepp, PhD, Psychology, University of Mount Union, Alliance, Ohio, Jared A. Rowland, PhD, Research and Education, Hefner VA Medical Center, Salisbury, North Carolina, Ryochi J. Noguchi, M.S., Sheri L. Towe, M.S., Christopher S. Innel, M.S., Chad L. Stephens, M.S., David W. Harrison, PhD, Psychology, Virginia Tech, Blacksburg, Virginia
Impaired functioning of the right frontal cortex has been indicated in difficulties that individuals experience in impulsivity (Horn et al., 2003), emotion regulation (Damasio & Van Hoeson, 1983), and autonomic activity (Damasio et al., 1990). Research has shown that college students experience some of these difficulties, and the presence of these difficulties has been linked to poor academic performance (Fischer, M. et al., 1990; Grekin & Sher, 2006). Participants were 186 undergraduates who took questionnaires on temperament, anxiety/worry, exercise, and emotion regulation and completed an in-lab right frontal task (Ruff Figural Fluency Test; RFFT). Temperament and sensitivity values were self-reports on the Adult Temperament Questionnaire (ATQ; Rothbart et
al., 2000); emotion suppression scores were from the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003); and exercise levels were assessed through the Godin Leisure-Time Exercise Questionnaire (Godin & Shephard, 1997). High and low functioning groups were created using error ratio scores on the RFFT. The high error group reported significantly less affective (M=3.97, SE=.10) and orienting perceptual sensitivity (M=4.10, SE=.07) than the low error group (affective M=4.26, SE=.10; orienting M=4.35, SE=.07; p values<.05). There was a trend towards significance in that high right functioning students had increased reported associative perceptual sensitivity (M=4.85, SE=.13) than the lower functioning group (M=4.50, SE=.13; p=.62). There was a further trend in that the high error ratio group reported less emotional suppression (M=12.85, SE=.64) than the low ratio group (M=14.47, SE=.62; p=.071). Finally, the lower right frontal functioning group reported significantly more leisure time exercise (M=73.52, SE=.26) when compared with the other student group (M=52.60, SE=.53, p<.05). These results give some indication that college students with high and low right frontal functioning may have different sensitivities and emotionality to their environments which may impact how they interact with the world; physically and psychologically.

142) Abstract 1153

EFFORTFUL LISTENING CAUSES A PHYSIOLOGICAL STRESS RESPONSE
Seth Rogers, B.A., Psychology, Katheryn Cousins, B.A., Neuroscience, Nicolas Rohleder, PhD, Arthur Wingfield, PhD, Psychology, Brandeis University, Waltham, MA

Purpose of study: Acute stress can contribute to an increase in disease frequency which can debilitate the body. Increasingly prevalent in young adults, hearing loss remains endemic to an aged population. Though effortful listening has been shown to decrease memory performance, presently it is unclear if the cognitive demand implicit in effortful listening takes a physiological toll on the body. To understand if and how effortful listening affects relevant physiological functions, we tracked changes in cardiovascular and endocrine stress systems. This study was conducted with the goal of extending this research to the elderly population. Sample and Methods: Participants: Participants were 12 healthy young adults (20.7±1.8 years) with normal hearing as measured by pure tone average (2.2±3 dB HL). Stimuli consisted of recorded six-word lists for free recall presented in either a silent background or in an effortful listening target condition for an equal ratio of 20-Talker babble. All participants were exposed to both conditions in randomized order. Heart rate variability, salivary alpha amylase, and cortisol were monitored. Results: A decrease in high frequency spectrum power during effortful listening as compared to silent listening was found, reflecting decreased vagal activation (p<.01). Higher alpha amylase secretion relative to baseline was found during effortful listening, evidencing greater sympathetic nervous system (SNS) activation (p<.05). Also, a lower frequency spectrum post-activation towards an increase during effortful listening, reflecting increased SNS activation (p<.08). Cortisol results will also be discussed. Conclusions: While decreasing memory performance, this pilot also shows that effortful listening affects relevant physiological functions, we tracked changes in cardiovascular and endocrine stress systems. This study was conducted with the goal of extending this research to the elderly population. Sample and Methods: Participants: Participants were 12 healthy young adults (20.7±1.8 years) with normal hearing as measured by pure tone average (2.2±3 dB HL). Stimuli consisted of recorded six-word lists for free recall presented in either a silent background or in an effortful listening target condition for an equal ratio of 20-Talker babble. All participants were exposed to both conditions in randomized order. Heart rate variability, salivary alpha amylase, and cortisol were monitored. Results: A decrease in high frequency spectrum power during effortful listening as compared to silent listening was found, reflecting decreased vagal activation (p<.01). Higher alpha amylase secretion relative to baseline was found during effortful listening, evidencing greater sympathetic nervous system (SNS) activation (p<.05). Also, a lower frequency spectrum post-activation towards an increase during effortful listening, reflecting increased SNS activation (p<.08). Cortisol results will also be discussed. Conclusions: While decreasing memory performance, this pilot also shows that effortful listening causes an activation of stress systems. As auditory difficulties remain common in an aging population, attendant physiological stress presents negative health outcomes. Further studies will examine stress effects of effortful listening in older adults with hearing loss.

143) Abstract 1360

PERCEIVED EMOTIONAL SUPPORT AND CORTISOL REACTIVITY
Saman Lam, M.A., Sally S. Dickerson, Ph.D., Psychology and Social Behavior, University of California, Irvine, Irvine, CA, Peggy M. Zoccola, Ph.D., Psychology, Ohio University, Athens, OH

An important component of social support is emotional support, or the provision of warmth and emotional resources to an individual and reassurance that the person is cared for. Perceived availability of supportive resources in times of stressful events can help alleviate distress and buffer stress responses (Cohen & Wills, 1985). However, research examining emotional support and cortisol reactivity has been mixed, and few studies have examined individual differences in social support and cortisol responses in the laboratory. The present investigation seeks to examine whether trait emotional support is associated with cortisol reactivity in the lab. Healthy undergraduates (n = 125) performed a speech in front of an evaluative panel. Salivary cortisol was collected at five time points throughout the duration of the session. The tendency to use emotional social support was assessed prior to the speech task using the Positive and Negative Social Exchanges (PANSE) questionnaire (Newsom, Nishishiba, Morgan & Rook, 2005). Participants also completed a questionnaire assessing their appraisals before and after the stressor. It was hypothesized that low emotional support would be associated with greater cortisol responses compared to those high in emotional support. Contrary to hypotheses, higher scores on emotional support was associated with greater cortisol reactivity to the speech task [F(1, 303) = 4.26, p < .005]. Additional analyses demonstrated emotional support was unrelated to perceptions of task performance or difficulty [ps > .05]; participants found it equally demanding and difficult. However, prior to the speech stressor, those high on emotional support had more positive expectations, believing they would perform well [b = .09, t(102) = 2.08, p < .05], compared to those low on emotional support. The results suggest that individual differences in social support may affect one’s expectancies of a situation and can explain, in part, cortisol reactivity to a social evaluative task.

144) Abstract 1076

TRAIT ANXIETY AND TRAUMA: CORRELATES OF RESILIENCE IN THE LGBT COMMUNITY
Celina Y. Rocha, Eliot J. Lopez, Masters, Mark A. Vosvick, PhD, Psychology, Denise Catalano, PhD, Education, University of North Texas, Denton, TX

Trait Anxiety and Trauma: Correlates of Resilience in the LGBT community: Celina Rocha, Eliot Lopez, Cheew-Lye Chng, Denise Catalano, Mandy Logan & Mark Vosvick. Past research suggests that resiliency plays an important role in overall health and social concerns (Atkinson et al., 2009). Since lesbian, gay, bisexual, transgender (LGBT) people experience discrimination and stress associated with traumatic events, facilitators and barriers to resilience are important constructs to examine (Herek, 2007). Resilience allows recovery from life’s challenges. Our study examines the association of anxiety and physical/sexual trauma to resilience in sexual minorities. Our convenience sample consisted of 50 gay, 49 lesbian, 52 bisexual, and 37 transgender individuals (n = 189) recruited from Dallas/Fort Worth. Participants completed the State Trait Anxiety Inventory (STAI; Spielberger et al., 1983; Cronbach’s ±=.89 -.94), the Trauma History Questionnaire (THQ; Green, 1996; Cronbach’s ±=.85), and the Connor-Davidson Resilience Scale (CDRISC; Connor & Davidson, 2003; Cronbach’s ±=.89). Correlational analyses uncovered significant negative relationships between resilience and state anxiety (r = -.56, p < .001), trait anxiety (r = -.67, p < .01) and trauma due to physical/sexual abuse (r = -.56, p = .005). A linear regression analysis found our model accounted for 44% of the variance in resilience (adj. R2=.44, F (3, 185) = 50.15, p < .01), with trait anxiety being the sole predictor (β = -.66, t = -6.82, p < .01). Our findings suggest trait anxiety is strongly associated with resilience. Correlates of resilience must be identified for the development of clinical interventions targeted to improve resilience and increase positive health behaviors in sexual minorities.

145) Abstract 1417

EFFECTS OF BRIEF STRESS MANAGEMENT ON NEUROENDOCRINE AND IMMUNE STATUS IN WOMEN UNDERGOING TREATMENT FOR NON-METASTATIC BREAST CANCER
Jamie M. Stagl, B.A., Psychology, University of Miami, Coral Gables, FL, Alain Diaz, M.S., Bonnie B. Blomberg, Ph.D., Microbiology and Immunology, Suzanne C. Lechner, Ph.D., Psychiatry and Behavioral Sciences, University of Miami Miller School of Medicine, Miami, FL, Charles C. Carver, Ph.D., Sara Vargas, M.S., Emily Lattie, B.S., Psychology, Michael H. Antoni, Ph.D., Psychology, Psychiatry and Behavioral Sciences, University of Miami, Coral Gables, FL

Objective: Women under the stress of treatment for breast cancer (BCa) experience alterations in psychological adaptation, and neuroendocrine and immune functions predict future outcomes (Spielberger et al., 2005). We tested the effects of different 5-week stress management interventions on...
psychological, neuroendocrine, and immune indicators in women undergoing treatment for non-metastatic BCa. The purpose of the study is to determine intervention effects on neuroendocrine and immune status, given prior findings of effects on social adaptation and mood. Methods: Women were recruited 2-8 weeks post-surgery and prior to adjuvant treatment, and randomized to group-based relaxation training (RT), cognitive behavioral therapy (CBT), or a time-matched education control group (ED). To date, 34 participants (CBT n=9; RT n=10; ED n=15) have completed baseline and 6-month follow-up assessments. Measures included afternoon serum cortisol levels and lymphocyte populations, diurnal salivary cortisol output over 2 days (4 samples per day), and psychological questionnaires. For purposes of analyses, CBT and RT groups were collapsed into a treatment condition and compared with ED across the 6-month period. Results: Women in the CBT/RT showed a significant increase in cytoxic CD8+ T cells from baseline to 6-mos vs. ED (p < .01), with a tendency for RT to show the greatest increase. Controlling for anti-inflammatory medication use, women in the CBT/RT showed a decrease in serum cortisol over time vs. ED (p < .01), with RT tending to show the greatest reduction. Effects on mean diurnal cortisol revealed a similar pattern (p < .10). Conclusions: Women with recently diagnosed BCa who receive brief group-based stress management interventions during their treatment show significantly improved psychological, neuroendocrine and immune status, with the largest effects in the receiving RT. Data collection is ongoing and analyses will be updated prior to presentation.

146) Abstract 1753
ANTICIPATORY NAUSEA IN CANCER CHEMOTHERAPY: PREDICTING ITS INCIDENCE AND SEVERITY TO FACILITATE THE DEVELOPMENT OF EFFECTIVE INTERVENTIONS
Max E. Levine, PhD, Kristina M. Pazino, BA, Psychology, Siena College, Loudonville, NY, Kenneth L. Koch, MD, Internal Medicine, Wake Forest University School of Medicine, Winston-Salem, NC.

Background: The factors contributing to the development of anticipatory nausea in patients undergoing cancer chemotherapy are not well understood; therefore, further investigation is needed in order to improve the extent to which its occurrence is effectively managed. Classical conditioning models have been used to explain the occurrence of anticipatory nausea, but the notion has not been thoroughly tested, and the underlying mechanisms involved remain to be elucidated. The purpose of the present study was to examine the extent to which the incidence and severity of anticipatory nausea could be predicted by acute and delayed responses to previous administrations of chemotherapy, and by a variety of other demographic and condition-specific variables. Method: Patients who had undergone at least two sessions of cancer chemotherapy were invited to respond to a series of questions relating to their experience of nausea. A total of 49 patients (27 female; mean age = 60.3 yrs) rated the severity of nausea experienced during their first chemotherapy session (acute nausea), the severity of nausea during the three days after their first chemotherapy session (delayed nausea), and the severity of nausea experienced before their most recent chemotherapy session (anticipatory nausea). Results: Regression analysis revealed that both acute nausea and delayed nausea were significant predictors of anticipatory nausea (p<0.001). Acute and anticipatory nausea were significantly correlated, r(47)=.53, p<0.001, as were delayed and anticipatory nausea, r(47)=.49, p<0.001. Analysis of the prevalence of anticipatory nausea among different patient subgroups is ongoing, and may provide further to the identification of patients who may be particularly at risk. Conclusion: Anticipatory nausea was significantly correlated with both acute and delayed nausea experienced during and after patients’ initial chemotherapy session. These results are consistent with a classical conditioning model of anticipatory nausea, and suggest that it can be accurately predicted on the basis of previous experiences with nausea. An improved understanding of the etiology of anticipatory nausea is hoped to facilitate the development of effective interventions for this debilitating condition.

147) Abstract 1290
PSYCHONEUROIMMUNE PATHWAYS RELATED TO CANCER FATIGUE
Abigail N. Thompson., Psychological and Brain Sciences, University of Louisville, Louisville, KY; Anees B. Chagpar, MD, Oncology, Yale University, New Haven, Connecticut, Firdaus S. Dhabar, Ph.D., Jean M. Tillie, BS, Psychiatry and Behavioral Sciences, Stanford Cancer Center, Stanford School of Medicine, Stanford, California, Elizabeth Lush, M.S., Psychological and Brain Sciences, University of Louisville, Louisville, Kentucky, Eric Dedert, Ph.D., Psychology, Duke University Medical Centers, Durham, North Carolina, Meagan B. Daup, M.A., Psychological and Brain Sciences, University of Louisville, Louisville, Kentucky, David Spiegel, MD, Psychiatry and Behavioral Sciences, Stanford University School of Medicine, Stanford, California, Elhab Dayyat, MD, School of Medicine, UofL Graduate Medical Education, Louisville, Kentucky, Kelly M. McMasters, MD/Ph.D., Surgical Oncology, UofL School of Medicine, Louisville, Kentucky, Sandra E. Septon, Ph.D., Psychological and Brain Sciences, University of Louisville, Louisville, Kentucky.

Throughout the course of breast cancer diagnosis and treatment, fatigue is often the most common distressing symptom to affect patient experiences. Factors related to disease, psychological responses to cancer, and cancer treatment may all contribute to fatigue. We examined among pre-surgical breast cancer patients the potential contributions to fatigue of psychological and physiological factors of cancer-specific distress, circadian abnormalities including rest/activity and hypothalamic-pituitary-adrenal (HPA) rhythm disruption, and inflammatory and tumor-supportive cytokines. Prior to treatment, 55 newly diagnosed breast cancer provided self-reports of demographic data, cancer-specific distress, and fatigue. Over a 6-month period, patients completed questionnaires, provided a series of saliva samples for characterization of diurnal cortisol rhythm, and wore an actigraph for calculation of rest-activity rhythms. A blood sample was collected for analysis of serum concentrations of tumor-supportive cytokines (Il-6, II-8, CRP, Il-1beta, TNF-alpha). Separate hierachical linear regressions adjusting for age, cancer stage, and socio-economic status explored the contributions of psychological and physiological factors to cancer-related distress. Distress was significantly associated with fatigue (R²=0.294; p=0.001). However, neither the circadian measures, nor the serum cytokines were associated with fatigue in this analysis. Among women newly diagnosed with breast cancer, distress is a major contributor to cancer-related fatigue and can influence the quality of life. Early interventions designed to reduce distress among women entering breast cancer treatment may prove helpful in reducing the burden imposed by therapy and improving quality of life. Further research should be done to explore the potential positive feedback loop through the reciprocal influences of distress and fatigue. Grant support: DCR, Stanford Cancer Center
improved short-term memory and processing speed. Means for the other tests were in the expected direction, but did not reach significance. There were slight group differences in processing speed (75.7 vs 76.6, p=0.059) and abilities (22.4 vs 18.5, p=0.08) at the end of the treatment, but not 1 month later. All measures of mental health were also better in TSM group by the end of treatment (CES-D: 8.2 vs 12.6, p=0.05; SF-36 MCS: 53.3 vs 47.2, p=0.04; IES: 11.0 vs 18.8, p<0.04), as well as FACT-SP scores (41.3 vs 37.4, p=0.05), with no differences by 1 month post-intervention. There were no group differences for the other measures, but means were in the expected direction. Results indicate that the TSM program may be associated with short-term improvements in working memory, mental health, and spirituality.

DIURNAL CORTISOL DYSREGULATION, INTERLEUKIN-1 BETA, MOOD STATES, AND PARTNER STATUS IN WOMEN UNDERGOING TREATMENT FOR NON-METASTATIC BREAST CANCER

Jamie M. Stagl, B.A., Psychology, Michael H. Antoni, Ph.D., Psychology, Psychiatry and Behavioral Sciences, University of Miami, Coral Gables, FL, Bonnie B. Blomberg, Ph.D., Microbiology and Immunology, Suzanne C. Lechner, Ph.D., Psychiatry and Behavioral Sciences, University of Miami Miller School of Medicine, Miami, FL, Sara Vargas, M.S., Psychology, University of Miami, Coral Gables, FL, Alain Diaz, M.S., Microbiology and Immunology, University of Miami Miller School of Medicine, Miami, FL, Emily Lattie, B.S., Charles C. Carver, Ph.D., Psychology, University of Miami, Coral Gables, FL

Objective: The present study investigates diurnal cortisol variation and cortisol concentration in relation to negative mood states, partner status, and circulating cytokine levels in women undergoing treatment for non-metastatic breast cancer. Methods: To date, 59 women who were enrolled in a larger intervention study completed baseline assessments 2-8 weeks post-surgery and prior to adjuvant treatment. Measures included cortisol levels from salivary samples (2 days, 4 times per day), serum Interleukin-1 Beta levels from afternoon blood samples, and the Affect Balance Scale. Log-transformed cortisol, mean nocturnal cortisol, and cortisol variability were computed for analyses. Results: Women who were partnered showed significantly greater cortisol variability than those who were not partnered (p < .05). Greater mean diurnal cortisol output was significantly associated with greater anxiety, depressed mood, and negative affect (all ps < .01). Elevated nocturnal cortisol (9pm) was significantly associated with greater anxiety (p < .05). Finally, greater depressed mood was significantly associated with greater circulating Interleukin-1 Beta (p < .05). Conclusions: Women with recently diagnosed non-metastatic breast cancer who experience more anxiety, depressed mood, and overall negative affect during treatment show greater cortisol output. Furthermore, women with greater anxiety show diurnal cortisol dysregulation and those with greater depressive symptoms show greater levels of a pro-inflammatory cytokine. Results suggest that being partnered may be a protective factor for maintaining a healthy cortisol profile. Psychosocial interventions that improve mood which are offered early in the treatment cycle for breast cancer may modulate neuroendocrine and immune status. Data collection is ongoing and analyses will be updated prior to presentation of results.

MINIMAL INTERPERSONAL INTERVENTION TO RADICALLY REDUCE ATTRITION FROM DIABETES SELF-MANAGEMENT AND EDUCATION TRAINING (DSM/E/T): A PILOT STUDY

John M. Ruiz, Ph.D., Psychology, University of North Texas, Denton, Texas, Noel Santini, MD, Community Oriented Primary Care, Meghan Jardine, MS, Community Outpatient Primary Care, Sylvia Pickens, M.Ed., Donald B. Walsh, MS, Strategic Planning & Population Medicine, Parkland Health & Hospital System, Dallas, Texas

The best treatment is no more effective than the worst if unused. The American Diabetes Association (ADA) advises that effective disease management begins with patient education. Systematic reviews and meta-analyses of randomized controlled trials (RCTs) broadly support diabetes self-management and education/training (DSM/E/T) as an effective intervention to improve glycemic control, a key mediator of disease progression. Despite the promise of DSM/E/T, 50 to 70% of enrollees fail to complete the training, a problem common to educational interventions. We propose that a simple interpersonal support intervention (a friendly program ambassador) may be highly effective at reducing attrition. We tested a pilot intervention at the Parkland Health & Hospital System’s (PHHS) Healthy Living with Diabetes Program (HLD), an ADA-recognized DSM/E/T program serving the Dallas metroplex. Consistent with national findings, the PHHS-HLD attrition rate over the last 4 years rate is 73% from enrollment to completion. The interventionist had 2 basic duties: 1) Call patients once a week to remind them of the upcoming class and discuss patients’ self-management goals, and 2) attend classes and interact with the patients in a friendly manner. The intervention was tested on a randomly chosen class with an enrollment of 15 patients. Overall attrition was 20% from enrollment to completion (2 enrolled but did not attend). More specific to the intervention, only one patient was lost after the first class (8% attrition) suggesting that once the interventionist made personal contact with the patients (at first class) they were highly likely to complete. Though only extremely limited, this pilot suggests that simple support intervention can significant reduce attrition with potential patient and system benefits.
SOCIAL COMPARISONS BY PATIENTS WITH TYPE 2 DIABETES: DIFFERENTIATING ILLNESS SEVERITY AND COPING DIMENSIONS

Danielle Arigo, M.S., Joshua M. Smyth, Ph.D., Psychology, Syracuse University, Syracuse, NY

Purpose: Patients with chronic illness often use 'social comparisons' toward other patients to evaluate their own condition, and such comparisons may impact patient mood and motivation to engage in self-care behaviors. Evidence suggests that in the 'real world,' patients simultaneously compare two primary dimensions: severity of illness symptoms and ability to cope with the challenges of illness. Research on the use of social comparisons in interventions, however, typically treats dimensions of illness as orthogonal (i.e., tests the effects of illness severity and coping dimensions separately). Method: The present study tested the concurrent manipulation of illness severity and coping for comparison targets, with the goal of determining whether diabetes patients are sensitive to differences on each dimension. Participants with Type 2 Diabetes Mellitus (T2DM; N=22) reported illness symptoms, coping, mood, and personality traits, and indicated their preferred comparison targets. Participants were provided with four patient descriptions, designed to depict patients with T2DM varying in illness severity (high or low) and coping effectiveness (high or low). Participants were asked to evaluate the descriptions on the dimensions of illness severity and coping effectiveness. Results: Participants showed differences in illness severity and coping dimensions separately. The present findings show that T2DM patients can identify differences between comparison targets on illness severity and coping dimensions simultaneously, even when 'mismatched.' Patient preferences and responses to social comparison have important implications for a range of clinical services (e.g., the design of educational material, support groups, and targeted psychosocial interventions) for patients with chronic illness.

153) Abstract 1006
POSTTRAUMATIC STRESS DISORDER IS A RISK FACTOR FOR INCIDENT DIABETES

Jeffrey F. Scherrer, PhD, Research Service, Veterans Administration, St. Louis, MO, Patrick J. Lustman, PhD, Psychiatry, Washington University School of Medicine, St. Louis, MO, Timothy Chrucicul, MPH, Research Service, St. Louis Veterans Administration, St. Louis, MO, Lauren D. Garfield, MPH, Research Service, St. Louis VA Medical Center, St. Louis, MO, Kenneth E. Freedland, PhD, Robert M. Carney, PhD, Psychiatry, Washington University School of Medicine, St. Louis, MO, Richard E. Owen, MD, Psychiatry, Central Arkansas Veterans Healthcare System, Little Rock, AR, Kathleen K. Bucholz, PhD, Psychiatry, Washington University School of Medicine, St. Louis, MO, William R. True, PhD, Research Service, St. Louis VA Medical Center, St. Louis, MO

Purpose: To determine if posttraumatic stress disorder (PTSD) is an independent risk factor for incident Type II diabetes mellitus (T2DM) after adjusting for age and body mass index (BMI). Subjects and Methods: Using electronic Veterans Administration (VA) patient records, we abstracted a cohort free of cardiovascular disease and of Type 2 Diabetes Mellitus (T2DM; N=22) reported illness symptoms, coping, mood, and personality traits, and indicated their preferred comparison targets. Participants were provided with four patient descriptions, designed to depict patients with T2DM varying in illness severity (high or low) and coping effectiveness (high or low). Participants were asked to evaluate the descriptions on the dimensions of illness severity and coping effectiveness. Results: Participants showed differences in illness severity and coping dimensions separately. The present findings show that T2DM patients can identify differences between comparison targets on illness severity and coping dimensions simultaneously, even when 'mismatched.' Patient preferences and responses to social comparison have important implications for a range of clinical services (e.g., the design of educational material, support groups, and targeted psychosocial interventions) for patients with chronic illness.

154) Abstract 1774
THE EFFECTS OF CHILDHOOD SOCIOECONOMIC STATUS ON SELF-REPORTED GENERAL HEALTH: STRUCTURAL REGRESSION ANALYSIS MODEL OF MEDIATING PSYCHOSOCIAL FACTORS

Alexandra L. Terrill, M.S., Psychology, Washington State University, Vancouver, WA, John M. Ruiz, Ph.D., Psychology, University of North Texas, Denton, TX, John P. Garofalo, Ph.D., Psychology, Washington State University, Vancouver, WA

Research suggest that lower childhood socioeconomic status (SES) is related to adverse physical and psychological health effects in adulthood, potentially through the exposure to chronic stress that can be associated with low SES. Optimism, social support, and self-esteem are psychosocial resources that may affect the relationship between childhood SES and health. Methods: Participants were 485 undergraduate men and women at a state university who completed a set of highly latent mental health measures. Results: Childhood SES was used to model the relationship between childhood SES and general health via optimism, social support, self-esteem, and psychological health problems (anxiety and depression). Results: Overall, the model has good global fit. The X2-test is non-significant, X2(16) = 18.151, p = .32, indicating that the model predicted data are not significantly different from the actual data. The CFI is .978, the SRMR is .017 and the RMSEA is .017, which are all in the ideal range. Higher childhood SES was associated with better self-reported general health, beta = .11, p = .02. This relationship was partially mediated by childhood SES's prior effects on optimism, social support, self-esteem, and psychological health problems. These variables were able to account for 8% of variance in self-reported general health. Conclusion: This model supports a relationship between childhood SES and self-reported general health in adulthood, and highlights the importance of considering a patient's psychosocial resources such as optimism and social support and considering psychological symptoms (i.e. depression and anxiety) in order to evaluate and better manage care.

155) Abstract 1272
BLUNTED STRESS CORTISOL REACTIVITY AND RISK FACTORS FOR ALCOHOLISM: ADVERSE LIFE EVENTS AND ANTISOCIAL BEHAVIOR IN THE OKLAHOMA FAMILY HEALTH PATTERNS PROJECT

Kristen H. Sorocco, Ph.D., DWR Dept. Geriatric Medicine, Noha H. Farag, Ph.D., Epidemiology, College of Public Health, University of Oklahoma Health Sciences Center, Oklahoma City, OK, Andrea S. Vincent, Ph.D., Center for the Study of Human Operator Performance, University of Oklahoma, Norman, OK, William R. Lovoal, Ph.D., Behavioral Sciences Laboratories, OKC Veterans Affairs Medical Center, Oklahoma City, Oklahoma

Persons with a family history of alcoholism (FH+) have reduced cortisol responses to psychological stress relative to those with no such history. FH+ also display antisocial and disinhibitory behaviors (R2 = .95, p < .000001), suggesting that disinhibition may aggregate in FH+ and increase risk for substance use disorders by increasing risky behavioral tendencies. Here we examine contributors to blunted cortisol reactivity in healthy young adults, 18 to 30 years of age (N = 312, 177 females). In the whole sample, greater numbers of alcoholic relatives predicted greater numbers of adverse life events (r = .40, p < .0005, 2-tailed), and greater family density predicted reduced cortisol reactivity (r = -.11, p = .047). We accordingly examined characteristics associated with FH+, including gender, antisocial and psychopathic tendencies, and adversity to determine which had the greatest impact on stress reactivity. In univariate models, female gender and lifetime adversary were the strongest predictors of reduced cortisol responses (R2 = .046 and .022, p < .009, respectively). Lifetime adversity predicted antisocial tendencies (r = .34, p < .001), and in a multivariate model, adversity and female gender were the strongest predictors of blunted cortisol reactivity, accounting together for 5.6% of the variance. In separate analyses on
each gender, adversity and antisocial tendencies predicted reduced cortisol responses in women, together accounting for 5.4% of the variance (R² = .054, p < .001). No variables were significant predictors in men. Basal cortisol was similar across groups, ruling out differences in hypothalamic-pituitary-adrenocortical function, focusing attention on stress reactivity. These results suggest that lifetime adversity may program the stress axis preferentially in women contributing to antisocial and disinhibitory tendencies that may increase risk-taking contributing to risky drinking behaviors.

156) Abstract 1197

REPETITIVE THOUGHT FLEXIBILITY FLATTENS CORTISOL SLOPE IN OLDER ADULTS
Jaime K. Hardy, M.S., Psychology, University of Kentucky, Lexington, KY, Sandra E. Sephton, Ph.D., Department of Psychological and Brain Sciences, University of Louisville, Louisville, KY, Suzanne C. Segerstrom, Ph.D., Psychology, University of Kentucky, Lexington, KY

Repetitive thought (RT) is prolonged or repeated thought about oneself and one’s world, and can be characterized by its valence (positive or negative topic) and purpose (searching or solving process). The ability to utilize a range of RT styles to manage difficulties may protect against stress, as flexibility in RT purpose or valence may imply the ability to adapt to changing circumstances and demands, including stressful events. The purpose of this study was to determine if RT flexibility affects the relationship between daily stress and cortisol slope. Older adults (n=173, age 62-97) completed measures of depression, ratings of daily stress, and RT descriptions, which were coded for valence and purpose, every six months (M=4.39 waves). Flexibility was operationalized as the standard deviation of RT across waves. Stress at each wave was measured as the mean of a single daily stress item over three days. Saliva was collected 4 times a day, for 3 days at each wave, and used to derive cortisol slope. Data were analyzed using multi-level modeling with waves nested within people. Although mean levels of valence and purpose were not highly correlated (r=.37, p<.001), standard deviations of RT were highly correlated (r=.80, p<.001). This suggests that flexibility in RT may be a unique individual difference. Controlling for depression, at waves when stress was higher than usual, people with lower flexibility of purpose and valence had steeper cortisol slopes than those high in RT flexibility (gamma=0.12, SE=0.05, p=.03 and gamma=0.13, SE=0.07, p=0.05, respectively). Steeper cortisol slopes are usually correlated with better health. This suggests that in older adults, low flexibility of purpose and valence may actually be an adaptive trait. In this population, changes in RT across time may indicate higher reactivity to stress, rather than an ability to adapt thought styles to stressful events.

157) Abstract 1734

ONLINE HEALTH INFORMATION AND INTENTIONS TO SEEK HEALTHCARE
Tana M. Lugcr, MA, Jerry Suls, PhD, Psychology, University of Iowa, Iowa City, IA

The internet has provided patients access to a wealth of health information (Ryan & Wilson, 2008). However, the varying accuracy of online health information and the varying ability of patients to discriminate among different treatments and recommendations encountered online could increase patient distress (Ahmad et al., 2016, Bercovitz, Hollenberg, & Levinson, 2006). The current study examined whether acquiring health information online to diagnose a hypothetical illness would increase intentions to utilize healthcare. Undergraduates from the University of Iowa (N= 174, Mean age=19.22) read a vignette about the symptoms of a hypothetical illness in which severity of the illness (sinusitis or appendicitis) and the point of view from which it was written (third person target character or first person perspective written for the person in the story) were manipulated. Participants were randomly assigned to diagnose the illness using WebMDs Symptom Checker application, a Google search, or no electronic aid. Participants were then asked to rate intentions to seek healthcare (e.g. doctor, ER, pharmacist) after receiving a diagnosis. No significant differences were found between WebMD, Google or between the third and first person points of view. No differences were found in participants ability to express intentions to talk to a pharmacist (F(1)=5.85, p <.05), a friend (F(1)=9.30, p <.01), or a family member (F(1)=14.35, p <.001) if the vignette depicted appendicitis rather than sinusitis. Also, participants expressed greater intentions to go to the doctor (F(1)=6.61, p <.01) or the ER (F(1)=5.68, p <.01) if they had diagnosed the illness using an electronic aid like WebMD or Google rather than no electronic aid. Young adult patients know to seek care for more severe illnesses like appendicitis. Nevertheless, rather than encouraging self-care for mild illnesses like sinusitis, accessing online health information seems to increase young adult intentions to seek healthcare. Thus, physicians may be burdened with patients seeking unnecessary care, in part, because of online health information.

158) Abstract 1325

EVALUATING TECHNOLOGY-BASED ECOLOGICAL MOMENTARY INTERVENTIONS [EMI]: A PALMTOP COMPUTER INTERVENTION FOR YOUNG WOMEN WITH DISORDERED EATING
Kristin E. Heron, M.S., Department of Psychiatry and Human Behavior, Alpert Medical School of Brown University, Providence, Rhode Island, Joshua M. Smyth, Ph.D., Department of Psychology, Syracuse University, Syracuse, New York

A growing area of eHealth involves the use of mobile technology (e.g., cell phones) to collect health data and provide real-time monitoring of patients’ health and well-being. Using mobile devices, providers can deliver real-time treatment - or Ecological Momentary Interventions [EMI] - to encourage health behavior change in patients. PURPOSE: This study evaluated the feasibility of palmtop computer-based EMI in conjunction with a disordered eating intervention. METHODS: Women with disordered eating behaviors (N=131, age M=20, BMI M=26) were randomized to: (1) control attention, (2) CBT, or (3) CBT+EMI. The attention control group viewed psychoeducational videos. Treatment groups (CBT, CBT+EMI) completed a computerized CBT-based intervention for disordered eating. All participants completed 5 daily assessments of eating behavior and mood on palmtop computers for 1 week before and after the intervention. The CBT+EMI group also received EMI on the device to encourage health behavior change. Compliance with intervention was assessed via protocol compliance, EMI delivery characteristics, and program satisfaction. RESULTS: Compliance with study protocol was high; 88% of palmtop assessments were completed (~31/week). Women in the CBT+EMI group received an average of 7.9 messages (SD=5.3, range=0-18) during the intervention week. They were satisfied with the content (M=3.5, SD=1.7; 0=not at all, 6=very much) and frequency (M=3.6, SD=1.6) of EMI; women receiving more EMI were marginally more satisfied with message frequency (p=0.09). Overall, participants were satisfied with the study experience (M=4.3, SD=1.3) and would recommend it to others (M=4.3, SD=1.4). CONCLUSION: These findings support the feasibility of using palmtop computer-based EMI in conjunction with disordered eating treatment. This innovative intervention method integrates assessment and intervention using mobile devices, and has promising applications to other interventions for chronic disease management (e.g., diabetes, asthma, pain) and health behavior change (e.g., smoking cessation, weight loss).

159) Abstract 1280

A SIMPLE 15 MIN EXERCISE TASK IMPROVES THE ANTIBODY RESPONSE TO PNEUMOCOCCAL VACCINATION
Kate M. Edwards, Ph.D., Meredith Pung, Ph.D., Lianne Tomfohr, MS, Psychiatry, University of California. San Diego, La Jolla, CA, John P. Campbell, Ph.D., Medicine, University of Birmingham, Birmingham, West Midlands, UK, Michael G. Ziegler, M.D, Medicine, University of California. San Diego, La Jolla, CA, Mark T. Drayson, M.D, Medicine, University of Birmingham, Birmingham, West Midlands, UK, Paul J. Mills, Ph.D, Psychiatry, University of California. San Diego, La Jolla, CA

Purpose of Study: Vaccination is a remarkable medical achievement, but many vaccines elicit poor responses, which limits efficacy. Exercise has been identified as a possible behavioural adjuvant; brief muscle damaging exercise immediately prior to vaccination enhances antibody responses with effects mostly confined to strains showing weaker than expected responses. To either a full or half dose of Pneumococcal (Pn) vaccine. The exercise
task was developed for clinical applicability, minimizing equipment, and inducing less muscle damage. Subjects & Methods: Subjects were 132 young healthy adults (75 women; age: 22±2.7years; BMI: 23±3.8Kg/m2), who were randomized to one of four groups: Exercise or control task, receiving a full or half dose Pn vaccination. Prior to vaccination, exercise groups completed a 15 min task using resistance bands involving 30s of arm and shoulder exercise and 30s rest alternations. Control subjects rested quietly during this time. Antibody levels to 11 Pn strains were evaluated at baseline and 1 month. Summary of results: To assess overall effect of exercise, a multivariate ANOVA was performed with change scores (1 month - baseline) for all 11 Pn strains. A significant effect of group showed an overall greater change in antibody levels among all strains in the exercise groups. Subsequent analyses used averaged antibody values, with a repeated measures ANOVA with four groups and gender. A significant group by dose by sex interaction (p<.05) was detected, driven by women, with the exercise half dose group showing an enhanced response over the control half dose group. Discussion: The current data showed an overall effect of enhanced response among the exercise vs control groups. Specifically, this effect was found in the half dose group, with women, showing exercise-enhanced responses. The current study adds to data indicating the effectiveness of exercise as a vaccine adjuvant, particularly in weaker responses, modeled by a half dose given in young healthy adults. This evidence is important in future application of this effect in at risk groups, who are in greatest need of improvement of immune responses to vaccination.

160) Abstract 1310

CHANGES IN SERUM LEVELS OF PYROGENIC AND CRYOGENIC CYTOKINES ASSOCIATED WITH THE TREATMENT OF PSYCHOCGENIC FEVER

Takakazu Oka, M.D., Ph.D, Psychosomatic Medicine, Kyushu University, Fukuoka, Japan, Takashi Mera, Haruo Hayashi, M.D., Ph.D, Neurology, University of Occupational and Environmental Health, Kitakyushu, Japan

Objective: Fever is initiated by pyrogenic cytokines such as interleukin-1b (IL-1b), interleukin-6 (IL-6), and macrophage inflammatory protein-1a (MIP-1a), and is counter-regulated by cryogenic cytokines such as tumor necrosis factor-a (TNF-a) and interleukin-10 (IL-10). This study was undertaken to assess if these cytokines are involved in psychogenic fever. Methods: Twelve patients with psychogenic fevers (15-37 years old) whose low-grade fever developed in stressful situations and persisted for more than one month were identified for inclusion in this study. Patients were treated with psychosomatic therapy therapy (PST), which is a combination of therapies for treating stress-related physical diseases that includes medical treatment, relaxation training, psychotherapy, and assessment and improvement of environmental stressors. Blood cytokine levels were compared between before and four weeks after PST. Results: Four weeks of PST significantly reduced axillary temperature (Ta) from 37.52±0.25 °C to 36.72±0.09 °C. However, serum levels of these cytokines were not different between pre- and post-treatment. Furthermore, serum IL-1b, IL-6, and TNF-a levels at pretreatment did not correlate with Ta. Changes in levels of these cytokines by the treatment did not correlate with changes in Ta. Conclusions: This study suggests that these pyrogenic and cryogenic cytokines may not be involved in the development of psychogenic fever.

161) Abstract 1721

BIOLOGICAL SENSITIVITY TO LIFESTYLE REDESIGNS: TREATMENT EFFECTS AND SALIVARY CORTISOL

Sarah L. Santon, PhD, Health Systems and Outcomes, Doug A. Granger, PhD, Acute and Chronic Care, Johns Hopkins University, Baltimore, MD, Barbara J. Cherry, PhD, Psychology, California State at Fullerton, Fullerton, CA, Deborah Mandel, MA, Occupational Science and Occupational Ther, University Southern California, Los Angeles, CA, Mei-Yang Lai, MS, Department of Biostatistics, Keck School of Medicine, Los Angeles, CA, USC, Michael Carlson, PhD, Stanley Azen, PhD, Florence Clark, PhD, Occupational Science and Occupational Ther, University Southern California, Los Angeles, CA

Purpose: It is important to evaluate interventions that may increase well-being in older adults because the population as a whole is aging. Theories suggest that intrinsic individual differences in environmentally sensitive physiological systems may mediate the benefits of behavioral interventions for older adults. Few studies have tested this biosocial mediation hypothesis. In this study, we addressed this significant gap in knowledge. Sample: The Well Elderly Study II, tested the Lifestyle Redesign® intervention with a multi-ethnic sample of 360 Los Angeles older adults (age 60-95; 67% female). The intervention consisted of weekly, two-hour group sessions over six months. Within the group sessions, participants focused on participation in meaningful activities, time use, home and community safety, finances, transportation, goal setting, relationships, adaptive equipment and routines. Methods: The study employed a randomized controlled design with a wait-list control. Measurements included subjective measures of well-being, frequency of meaningful activities (the MAPA), and diurnal profile of the activity of the hypothalamic-pituitary-adrenal (HPA) axis (cortisol). The current analysis examined whether diurnal variation in cortisol was affected by the intervention in relation to self-reported meaningful activity (MAPA). Saliva was collected on wake, 30 min post wake, midday, and evening at during pre and post intervention assessments. Repeated-measures ANCOVA was used to examine the difference in cortisol profiles between the treatment and control group. Results and conclusions: Participants who had lower compared to higher levels of meaningful activities at baseline had significant treatment effect (p <0.05) on their cortisol profile. The findings are the first to suggest that meaningful activity interventions with older adults may alter physiologic responses. Discussion will focus on the implications of integrating contemporary theory of biological sensitivity to context with prevention science to improve the quality of life in aging adults.

162) Abstract 1792

INCREASED EVENING CORTISOL IN HEALTHY WOMEN REPORTING FATIGUE AND POOR SLEEP

KáMala S. Thomas, PhD, Psychology, Pitzer College, Claremont University Consortium, CA, Julienne Bower, PhD, Psychology and Psychiatry, University of California, Los Angeles, Los Angeles, CA, Michael R. Irwin, PhD, Psychiatry, UCLA, Los Angeles, CA, Timothy Williamson, BA, in progress, Psychology, Pitzer College, Claremont, CA, Michael Hoyt, PhD, Psychology, UC Merced, Merced, CA, Annette Stanton, PhD, Psychology, UCLA, Los Angeles, CA, David Wellisch, PhD, Psychiatry, UCLA, Los Angeles, CA, UCLA

Fatigue is a common complaint affecting approximately 25% of individuals who have no identifiable medical conditions. However, few studies have investigated the underlying mechanisms associated with fatigue in medically healthy individuals. The current study examined whether diurnal cortisol output varies in healthy, community dwelling women who report being fatigued (N=27) and non-fatigued (N=24). Women between the ages of 32-73 years old provided saliva samples for cortisol assessment (4 times per day over 3 days) in their natural environment and completed questionnaires assessing fatigue (Profile of Mood States-POMS fatigue), sleep disturbance (Pittsburgh Sleep Quality Index), and other psychosocial characteristics. Demographic variables and potential confounding factors were also assessed. Women were classified as having high and low levels of fatigue using the median split of the POMS-fatigue subscale. Repeated measures analyses examined differences in diurnal cortisol patterns controlling for age, depression, hypertension, tobacco use, race, work time and education. Flattened diurnal cortisol slopes were observed in women
who reported more fatigue compared to non-fatigued women (F1, 49 = 5.113, p<.05). Specifically, fatigued women had increased evening cortisol levels. Interestingly, increased evening cortisol was also associated with a trend toward more sleep problems on the PSQI-Global Index (F1, 49 =3.157, p=.09). These findings suggest that increased evening cortisol may be an underlying mechanism influencing fatigue and sleep disturbance in otherwise healthy individuals.

163) Abstract 1847

RELATIONSHIP OF THE DIURNAL RHYTHM OF HEART RATE VARIABILITY WITH PLASMA INTERLEUKIN-6 AND SALIVARY ALPHA-AMYLASE

Myriam Y. Thoma, Ph.D., Psychology, Brandeis University, Waltham, Massachusetts, Emily R. Berman, Psychology, Wesleyan University, Middletown, CT, Stephen J. Gray, Psychology, Brandeis University, Waltham, MA, June A. He, Michelle H. Lerman, Kristen M. Nichols, Marianne F. Specker, Diana Wang, Jutta M. Wolf, PhD, Nicolas Rohleder, PhD, Psychology, Brandeis University, Waltham, MA

Purpose of the study: Salivary alpha-amylase (sAA) shows a strong daily rhythm, and is related to chronic psychosocial stress. While daily rhythms have also been reported for heart rate variability (HRV), a relationship with sAA has not yet been established. Therefore, we sought to assess daily rhythms of sAA and HRV and test for relations with one another, and with indicators of biological (interleukin-6 (IL-6)) and psychological health. Methods: We recruited 38 healthy students (M(age)=19.51±1.33 y, 57.9% women, M(BMI)=22.92±3.07). Participants provided saliva samples on 2 consecutive days, 3 within the first hour after awakening, and 3 samples thereafter (one per hour). Beat-to-beat (RR) interval (FP) and RMSSD (HRV) were assessed. sAA was assessed using a self-reports of chronic stress (perceived stress scale, PSS). Daily rhythms of the variables were analyzed using growth-curve models. Results: Amylase showed a typical daily rhythm, with low secretion levels in the morning and increasingly higher levels in the afternoon (linear: p<.001; curvature: p=.010). The HRV parameters showed a similar daily profile (linear: p=.005; curvature: p=.027). By contrast, HR revealed an exact opposite daily rhythm (linear: p=.029; curvature: p=.027). Heart rate (HR) and LF/HF ratio showed diurnal rhythm. Amylase was positively related with HR (p<.001), but not with LF or HF power. LF was positively associated with IL-6 (p<.001), whereas HF was negatively associated with IL-6 (p<.001). Higher chronic stress ratings were associated with higher sAA (p<.001) but not with any HRV parameters. Conclusion: These results show differential rhythmic patterns within the ANS with opposed daily activity profiles of the SNS (sAA and LF) and the PNS (HF). Daily profiles of sAA and HRV were further differentially associated with psychological and biological health indices. Future analyses have to show whether combining different ANS markers allows for better prediction of health outcomes.

164) Abstract 1315

INCREASING HEALTH BY LISTENING TO MUSIC? A STRUCTURAL EQUATION MODEL IN A HEALTHY POPULATION

Myriam Y. Thoma, Ph.D., Psychology, Brandeis University, Waltham, Massachusetts; Urs Scholz, Ph.D.; Urs M. Näter, Ph.D.; Ulrike Ebelt, Ph.D., Psychology, University of Zurich, Zurich, Zurich, Switzerland

Purpose of Study: It has been proposed that listening to music can have positive effects on psychological and biological health. However, the underlying mechanisms of this effect are not yet clear. Therefore, we investigated whether habitual music listening is associated with health and what factors may mediate this association is scarce. The aim of the current study was therefore to listen behavior and various health indicators. Subject Sample and Methods: An internet-based survey was conducted in university students, measuring habitual music listening behavior, emotion regulation styles, chronic stress, stress reactivity, and health variables (somatic complaints, health concerns, quality of life). A total of 1230 individuals (mean = 24.89 ± 5.34 years, 55.3 % women) completed the questionnaire. Results: Quantitative aspects of habitual music listening behavior, i.e. average duration of music listening and subjective relevance of music, were not associated with number of somatic symptoms or quality of life. In contrast, qualitative aspects, i.e. reasons for listening (e.g. reducing loneliness and aggression, and 'arousing or intensifying specific emotions') were significantly related to health variables (all p = 0.001). These direct effects were mediated by distress-augmenting emotion regulation and individual stress reactivity. Conclusions: Our findings indicate that music listening is an essential ingredient of individuals' everyday lives. Habitual music listening behavior appears to be a multifaceted behavior that is further influenced by dispositional factors that are not related to music listening per se. While there does not seem to be a direct association between habitual music listening behavior and health, a number of possible mediating factors need to be taken into account when examining the positive effect of music on health.

165) Abstract 1767

ASSOCIATIONS BETWEEN SALIVARY ALPHA-AMYLASE AND CATECHOLAMINES - A MULTILEVEL MODELING APPROACH

Urs M. Näter, PhD, Beate Ditzen, PhD, Ulrike Ebelt, PhD, Psychology, University of Zurich, Zurich, Switzerland

Purpose of Study: Salivary alpha-amylase (sAA) is discussed as a new indicator for autonomic activity. Previous findings show that sAA was not associated with NE or EP by means of overall correlation analyses. However, we hypothesized that improved statistical analyses with multilevel modeling might help identify possible associations of sAA, NE, and EP over the time course, thereby providing a deeper insight into the underlying mechanisms of sAA activity. Subject Sample and Methods: Data from two studies were used for this analysis. Levels of sAA, as well as NE and EP in blood were repeatedly measured a) in 13 subjects during rest and during a Yohimbine challenge (8 measures during each session), and b) in 29 subjects during rest and during psychosocial stress (5 measures during each session). Assocations of sAA, NE, and EP over the time course were analyzed using multilevel modeling. Repeatedly assessed sAA was significantly associated with both repeatedly assessed NE and EP during Yohimbine challenge (NE R2 = .38; EP, R2 = .37) and psychosocial stress (NE R2 = .13, EP R2 = .09; all p < .007). In comparison to Yohimbine challenge or stress, associations were weaker or almost nonexistent during rest (all R2 between .001 and .008). Most interestingly, both NE and EP served as statistical mediators of increases in sAA during challenge or stress. Discussion: Contrary to previous analyses from our lab, our current findings suggest that using adequate statistical methods, i.e. multilevel modeling which allows for analysis of time-series relationships. Thus, our findings provide further support for sAA as a useful marker of autonomic activity.

166) Abstract 1613

EXAMINING THE ROLE THAT RUMINATION AND ANXIETY HAVE IN CONNECTING LONELINESS WITH POOR SLEEP QUALITY AND PERCEIVED CHRONIC STRESS

Matthew J. Zawadzki, M.S., Psychology, The Pennsylvania State University, University Park, PA, Jennifer E. Graham, PhD, William Gerin, PhD, Biobehavioral Health, The Pennsylvania State University, University Park, PA

Loneliness affects many college students and has been linked to poor sleep quality and perceived chronic stress. We propose that trait rumination and anxiety mediate the relationship between loneliness and poor sleep quality and stress. Using structural equation modeling, we examine this as well as other competing mediators and their relationship to the loneliness-sleep/stress link, such as pathways via hostility and social support. Undergraduates (N = 218) completed psychosocial reports on loneliness, rumination, anxiety, hostility, social support, sleep quality and chronic stress. Loneliness predicted all the proposed mediators, which were allowed to co-vary with each other: rumination (B = .61, p < .01), anxiety (B = .64, p < .01), hostility (B = .47, p < .01), and social support (B = .66, p < .01). In turn, both rumination and anxiety predicted poor sleep (B = .22, p < .05 & B = .34, p < .01, respectively) and stress (B
extend prior research by testing the feasibility of participants collecting retrospective Cortisol and distress responses among peers of students who died. We report on participants who died at Cornell University, Ithaca, NY, 2009-2010. We found that students' stress may be influenced more in terms of how they perceive and react to objects in their environment rather than resources they perceive as available to them.

167) Abstract 1279
CORTISOL REACTIVITY 15 YEARS AFTER THE NEW BEGINNINGS PROGRAM FOR CHILDREN FROM DIVORCED FAMILIES
Linda J. Luecken, Ph.D., Melissa J. Hagan, M.A., Nicole E. Mahler, B.A., Sharlene A. Wolchik, Ph.D., Irwin N. Sandler, Ph.D., Jenn-Yun Tien, Ph.D., Psychology, Arizona State University, Tempe, AZ
Parental divorce, experienced by over one million children in the U.S., increases the risk of short- and long-term mental and physical illness. Alterations in adrenocortical activity may represent a mechanism linking childhood stress to negative health outcomes. The New Beginnings Program (NBP) is an empirically-based randomized controlled intervention with demonstrated mental health benefits for children from divorced families. The current analyses evaluated whether the NBP had a long-term impact on neurohormonal regulation. Methods. Divorced mothers and their children (82% White non-Hispanic, 11% Hispanic, 2% African American, 4% other) were randomly assigned to the 12-week NBP intervention (n=112 children) or control (n=42 children) group. Fifteen years later (child mean age = 25.6, range 24-28), salivary cortisol was measured before and after a modified Trier stress task. We used repeated measures GLM (SPSS, Greenhouse-Geisser adjusted) to predict log-transformed cortisol from group assignment, age, sex, BMI, and time of day. We also tested if intervention effects differed by age or gender. Summary of Results. Although the main effect of intervention was not significant (p = .86), the group x age interaction was a significant predictor of cortisol reactivity to the task. F(2,335)=3.9, p = .016. Specifically, the intervention group showed moderate cortisol reactivity and appropriate recovery regardless of age. In the control group, however, older participants had exaggerated reactivity and younger participants showed blunted reactivity. Current externalizing symptoms were associated with blunted reactivity, F(2,340)=3.1, p = .041, while higher alcohol use was predicted F(1,149)=9.8, p = .002, but the group x age effect on reactivity remained significant (p = .008) after controlling for externalizing and alcohol use. There was no evidence of gender differences in NBP effects (p = .75). The findings suggest that the NBP may have prevented the development of dysregulated adrenocortical activity in young adulthood, potentially benefitting long-term mental and physical health.

168) Abstract 1823
HAIR SAMPLE CORTISOL AND DISTRESS RESPONSES FOLLOWING DEATH OF PEERS ON A UNIVERSITY CAMPUS
Judith P. Andersen, Ph.D., Billie Kopferwas, BS in progress, Psychology, Cornell University, Ithaca, NY, Clemens Kirschbaum, Ph.D., Lehrstuhl Biopsychologie, Technische Universität Dresden, Dresden, Germany, Roxane C. Silver, Ph.D., Psychology and Social Behavior, University of California, Irvine, Irvine, CA
During the 2009/10 academic year, 14 students died at Cornell University and the majority were suicides. We examined factors related to Cortisol and distress responses among peers of students who died. We extend prior research by testing the feasibility of participants collecting at-home hair samples for the measurement of past 6 month Cortisol levels and associated distress via a web-based survey. Participants (N=126, 60.6% female; ages 18-51 [M 20.8, SD 4.67]) were recruited between July-August 2010 via emails to course rosters from classes in which deceased students had been enrolled, student clubs, sports teams, and friend groups. Reports of reactions to peer deaths between September 2009-June 2010 ranged from no reaction to extreme distress (M 2.20, SD 0.88). Level of closeness to the student(s) who died (not at all to extremely close; M 1.48, SD 1.34) and hours spent watching media coverage of the deaths (range 0-11; M 2.23, SD 2.09) were positively associated with distress (r=0.40 and 0.42, respectively, p<.001). On-going distress (July-August 2010), measured by anxiety, depression and physical symptom reports on the Brief Symptom Inventory-18 (range 0 to 55 symptoms; M 10.06, SD 9.83), was positively related to reports of early distress reactions following the student deaths (r=0.27, p<.01). Twenty-six participants (69.2% female; one was dropped due to Cortisol-related medical condition) returned hair samples useable for testing retrospective Cortisol levels. Participants 3-6 month retrospective Cortisol average values (range 6-64mg [M 25.1mg, SD 15.85mg]) were at the high end of the normal range (10-25mg). Approximately 37% of the participants showed consistently high retrospective Cortisol levels (range 26-64mg) across the 6 months, independent of hair care processes (# of washes, bleaching, dying, or straightening). Analyses of Cortisol and self-reported distress responses were compared. Future research should investigate if hair sampling can be used to predict individual distress and illness variables, which may help in early intervention for mental health care.

169) Abstract 1872
NATURALLY OCCURRING STRESS AND DEPRESSION ARE ASSOCIATED WITH SYMPATHETIC BUT NOT PARASYMPATHETIC RESPONSES TO STRESS
Stephanie L. Bowlin, B.A. Psychology, Tara L. Kraft, B.A. Psychology, Sarah L. Pressman, Ph.D., Maggie L. Searight, B.A. in progress, Psychology, University of Kansas, Lawrence, KS
The current analyses explored the effects of baseline levels of stress and depression on sympathetic and parasympathetic nervous system activation during a brief stressor. Depression and stress are known predictors of poor health, however, it is less understood whether these effects are due to the detrimental impact that these factors have on vagal tone or due to sympathetic nervous system activity. This study examined whether depression and existing stress predicted changes in heart rate variability in response to an experimental stressful task. One hundred and seventy undergraduates (mean age = 19.73, 34% male) participated in a larger ongoing study on emotion and stress. Baseline psychological measures were the Center for Epidemiological Studies Depression Scale (CESD) and the Perceived Stress Scale (PSS). Cardiovascular function was recorded continuously over the study with a ten minutes baseline followed by 2 minute star-tracing stressor using the non-dominant hand. Heart rate measures were averaged over every minute. After controlling for sex, race, and baseline cardiovascular function, regression analyses revealed that perceived stress scale (PSS) was not associated with respiratory sinus arrhythmia (RSA), but was associated with pre-ejection period (PEP) (b = -28, p = .05) accounting for approximately 1.5% increased explained variability in the model (increasing total model R-squared to .062, F(1,97)= 24.495). Similarly, depression was only associated with sympathetic data with higher depression being tied to decreased PEP (b = -13, p = .05), accounting for an increased 1.5% of variability explained on top of the covariates (~ 6% total variance explained by this model). These results indicate that existing levels of negative feelings such as stress and depression may be important to health outcomes due to their impact on the sympathetic nervous system rather than their impact on the parasympathetic nervous system.

170) Abstract 1375
INCIDENCE RATE AND PREDICTORS OF IRRITABLE BOWEL SYNDROME: A 8-YEAR COHORT STUDY IN JAPAN
Yasushi Fujii, Ph.D. in Human Sciences, Jun KANNO, M.A. in Psychology, Shinobu NOMURA, Ph.D. in Philosophy, MD, Human Sciences, Waseda University, Tokorozawa, Saitama, JAPAN [Background] To investigate the incidence rate and predictors of irritable bowel syndrome (IBS) change to IBS and to determine factors predictive of the onset of IBS,
salivary cortisol and DHEA-S levels repeatedly during the experiment (n=21) were compared to non-depressed youth with IBD (n=11), those with depression but no IBD; and 2) how these brain responses differ from healthy adolescents and non-physically ill adolescents in brain regions related to emotion processing.

Conclusions: Depressed participants without IBD displayed decreased activity in the anterior cingulate cortex compared to all other groups. Regardless of their depression status, participants with IBD displayed decreased activity in the dorsolateral prefrontal cortex compared to those without IBD. Both of these regions are associated with emotion regulation.

Depressed subjects with active IBD displayed decreased activity in regions associated with self-related processing (e.g., precuneus) in response to negative words compared to controls whereas depressed participants without IBD displayed increased activity in this region. Compared to pre-treatment, post-treatment depressed adolescents with IBD displayed decreased reactivity to IBD-related words in brain regions associated with self-processing, and increased activity in regulatory regions in response to other negative words. Conclusions: Depression comorbid with IBD shares characteristics with depression in non-physically ill adolescents in brain regions related to emotion regulation. Notably, depression with IBD is also characterized by unique abnormalities in brain function, particularly, in regions associated with regulatory function as well as self-related processing of negative information. Psychotherapy may mitigate observed abnormalities in emotional information processing.

173) Abstract 1850

HIGH ADHERENCE ENHANCES EFFECTS OF MINDFULNESS-BASED STRESS REDUCTION

Michael A. Cohn, PhD, Medicine, Elissu S. Epel, PhD, Psychiatry, Judith T. Moskowitz, PhD, Patricia Moran, PhD, Michael Acree, PhD, Susan Folkman, PhD, Frederick M. Hecht, MD, Medicine, University of California, San Francisco, San Francisco, CA

Mindfulness-based stress reduction (MBSR) is a successful psychosomatic treatment that likely requires adherence to produce benefits. We re-examine data from a trial of MBSR for HIV+ individuals (primary outcomes reported elsewhere) to determine 1) effects of MBSR adherence on affect, perceived stress, and diurnal cortisol and 2) whether baseline personality traits or stress predict adherence. Participants were 177 HIV+ men (all asymptomatic, not yet on antiretrovirals), randomly assigned to 8 weeks of either MBSR (n=89) or HIV education (n=88). Ps who attended at least 5 of 8 sessions for their group were classified as adherent. Before and after the intervention, we measured affect, perceived stress, and coping efficacy. 1a) Positive affect increased for adherent MBSR Ps and did not change for non-adherents. For controls, adherents did not change, and non-adherents decreased. (F(1,175)=5.34, p=0.02), eta-square=0.02, eta-square=0.02, eta-square=0.02). 1b) Negative affect showed...
opposite effects, decreasing with both adherence and MBSR (F=9.38, p<.05, eta-squared=.47, FatherXtime=6.52, p=.01, eta-squared=.04; 3-way interaction ns). 1c) Adherence predicted decreases in perceived daily stressfulness (F=8.27, p<.01, eta-squared = .06) but did not predict change in coping efficacy. 2) Adherence was not predicted by self-reported trait conscientiousness (F=.04, p=.85) nor by any stress measure (F=3.14, p=.25). Effects of intervention adherence on daily cortisol patterns will also be discussed. Non-adherence substantially weakened the emotional benefits of MBSR. Adherence (regardless of group) was required for reductions in perceived stress. Ensuring high adherence is a critical part of MBSR interventions. Assessing adherence in both MBSR and control Ps was central to our results, and we strongly recommend this to other researchers.

174) Abstract 1659

PARENTS JUST DON'T UNDERSTAND? PARENTAL SOCIAL SUPPORT AS A MEDIATOR OF STRESS AND QUALITY OF LIFE IN HIV-INDIVIDUALS

Sam H. Deacon, Psychology, University of North Texas, Denton, Texas, Thomas DeSena, Mark Vosvick, PhD, Psychology, University of North Texas, Denton, Texas

Social support is associated with lower levels of suicidal ideation (Chioqueta & Stiles, 2007), increased medical adherence (Gonzalez et al 2004) and improved Quality of Life (QOL) (Scott-Sheldon et al, 2008) in individuals with HIV. Not explored thoroughly in the literature however, are the specific associations of parental social support for adults. Parental support is associated with how HIV individuals cope with psychological issues such as stigma (Haas, 2002). Research has yet to specifically explore the relationship between Parental Social Support, Stress and QOL. Using the Buffering Hypothesis Theory (Cohen & McKay, 1984), we posit that Social Support and Stress will be predictors of QOL, and Social Support will mediate the relationship between Stress and QOL. We performed a linear regression analysis to examine the relationship of Parental Social Support and Stress with Quality of Life in a gender balanced sample of HIV+ adults (n=287; 54% African-American) with a mean age of 42 (SD = 8.39). We used the UCLA Social Support Inventory (Total Support Received from Parent; Schwarzer et al., 1994), the Perceived Stress Scale (Perceived Stress; Cohen et al, 1983), and the MOS-HIV Survey (Quality of Life; Wu et al, 1991). We tested our model and the results of a linear regression analysis suggest that Parental Social Support (r=.31, t=5.23, p<.01) and Perceived Stress (r=-.34, t=-5.87, p<.01) are significant predictors Quality of Life (adj. r²=.19 F (5, 235), p<.01), explaining 19% of the variance. Our mediation analysis (Baron & Kenny, 1986), however was inconclusive. Our results suggest a link between Perceived Stress, Parental Support and QOL. Our findings indicate that although Perceived Stress and Parental Social Support predict QOL, Social Support may not significantly buffer the relationship between Stress and QOL. This research is important as it helps inform the development of effective interventions that target parental social support in HIV individuals. Future research should continue to examine outcomes associated with Parental Social Support in Adults.

175) Abstract 1854

PERCEIVED STRESS AS A MEDIATOR BETWEEN SELF-EFFICACY AND DEPRESSION IN PLH

Eddie C. Parks, Bachelor of Science, Psychology, University of North Texas, Richardson, Texas, Mark Vosvick, PhD, Chwee-Lye Chng, PhD, Psychology, University of North Texas, Denton, Texas

With the introduction of highly active retroviral therapy, HIV treatment shifted towards chronic illness management. With increased longevity, persons living with HIV (PLH) face more psychological challenges (Scott-Sheldon, Fielder, & Kalichman, 2008), especially when stressors overwhelm the PLH’s coping resources, leading to increased depression, and negative treatment outcomes (Remien et al., 2006). Not surprisingly, major depressive disorder rates are almost twice as high in PLH (Knaaj et al., 2008) than in others. Self-efficacy, a perceived feeling of control over a taxing situation, facilitates the adaptive management of stress, thus reducing psychological impairment (Colodro, Godoy-Izquierdo, & Godoy, 2010). We hypothesize that higher self-efficacy is associated with decreased depression, and that perceived stress mediates this relationship. Our cross-sectional, correlational study examined data from 69 PLH (49.3% male, 65.2% African-American, 30.4% European American, 1.4% Latino, 3% other) recruited from AIDS service organizations. Participants, on average, were 47.6 (SD=8.4) years, with a range ranging from 24-66. A majority was heterosexual. Participants completed the Self-Efficacy for Managing Chronic Illness measure (Lorig et al., 1998; a=.91), the Perceived Stress Scale (Cohen, Kamarck & Mermelstein, 1993; a=.85), and the Center for Epidemiologic Studies Depression scale (Radloff, 1977 a=.76-.92). Our sample experienced moderate levels of perceived stress (Mean=25.6, SD=6.7) and depression (Mean=35.8, SD=12.0). A multiple hierarchical regression analysis found that individuals who reported lower levels of self-efficacy (B=-.44, t=-4.0, p<.001), and higher levels of stress (B=.62, t=6.2, p<.001), also reported higher levels of depression, accounting for 49.3% of its variance (adjusted R square =.49, F (2, 66)=32.1, p<.001). Baron and Kenny’s (1986) mediation analyses confirmed that stress mediated (B=.62, t=6.2, p<.001) the relationship between self-efficacy and depression in our model (Sobel=3.39, p<.01). Clinicians should incorporate self-efficacy and stress management to lower depression in PLH.
177) Abstract 1091

NONLINEAR LONGITUDINAL ASSOCIATIONS OF DEPRESSIVE SYMPTOMS WITH BLOOD PRESSURE
Mauli Shah, B.A., Psychology, University of Maryland, Baltimore County, Baltimore, MD; Alan B. Zonderman, Ph.D., Intramural Research Program, National Institute on Aging, NIH, Baltimore, MD; Shari R. Waldstein, Ph.D., Psychology, University of Maryland, Baltimore County, Baltimore, MD

Both high and low levels of depressive symptoms have been associated prospectively with incident hypertension or increases in blood pressure (BP), although nonlinear relations have not been examined directly. Here we examined prospective relations of coincident trajectories of linear and nonlinear depressive symptoms and BP among 2,094 participants from the Baltimore Longitudinal Study of Aging (aged 19 to 97; 53% male; 74% White) who were free of stroke, heart failure, and dementia. Participants underwent clinical assessment of BP and completed the Center for Epidemiological Studies-Depression (CES-D) scale on up to 16 occasions (M=3.8, SD=2.6) over up to 29 years (M=7.8, SD=6.5) of follow-up. Mixed-effects regression models were adjusted for age, sex, race, education, body mass index, smoking, alcohol use, cardiovascular diseases, diabetes, antihypertensive medication use, and antidepressant medication use. Both linear and quadratic terms were included for depressive symptoms, as well as their respective interactions with sex and age. Interactions of age and depression indexed change over time. Results revealed a significant longitudinal association between quadratic depressive symptoms and age for diastolic BP (p < .02). In general, those with lower depression scores had relatively greater increases in diastolic BP until about age 50 after which they displayed a more pronounced decrease in BP. In contrast, those with greater depressive symptoms had lower BP until about age 50 but then showed lesser decline over time. Next, there was a significant interaction between quadratic depressive symptoms and sex for systolic BP (p < .02). Women with greater depressive symptoms had higher average systolic BP, men with lower levels of depressive symptoms had higher average systolic BP. Such complex patterns may, in part, explain existing inconsistencies in the depressive symptoms-BP literature. Greater levels of depressive symptoms may confer risk for hypertension, particularly among women and later in life.

178) Abstract 1183

PREDICTORS OF ADHERENCE TO HEALTHCARE PROVIDER HYPERTENSION BEHAVIORAL TREATMENT RECOMMENDATIONS: BRFSS 2009 FINDINGS
Eric R. Hanson, M.A., Navineh Hartoonian, M.S., Karen T. Lesniak, Ph.D., Psychology, Loma Linda University, Loma Linda, CA

Hypertension (HTN) prevalence is increasing and if left untreated HTN can lead to increased morbidity and mortality. Lifestyle behavior such as eating habit change, increased exercise, dietary salt reduction, and decreased alcohol consumption can be critical components to successful HTN treatment. This study examines predictors of adherence to HTN healthcare provider (HCP) lifestyle behavioral recommendations. Methods: Behavioral Risk Factor Surveillance System (BRFSS); the final sample was 24618 fully evaluable HTN patients who received behavioral advice. Analyses were conducted using SAS 9.2; CDC sample replacement weights were used to adjust for sampling design and non-response. Variance estimates were calculated using the Taylor Linearization Method in SUDAAN in order to account for the BRFSS stratified multistage sampling design. Predictor variables included gender, age, income, education, ethnicity, marital status, BMI, and perceived health. Outcomes were behavioral change advice adherence/nonadherence for eating, exercise, salt and alcohol reduction. Logistic regression was used to identify predictors. RESULTS: Eating change adherence: African Americans; Eating change nonadherence: males, divorced, separated or never married. Exercise adherence: males, better health, African Americans; Exercise nonadherence: increased BMI. Salt reduction adherence: older age, African Americans or Hispanics; Salt reduction nonadherence: males, being separated. Alcohol reduction adherence: African American; Alcohol reduction nonadherence: males, increased income (all p<.05).

179) Abstract 1024

NEURAL CORRELATES OF PROVIDING SUPPORT TO A LOVED ONE
Tristen K. Inagaki, M.A., Naomi I. Eisenberger, Ph.D., Psychology, University of California, Los Angeles, Los Angeles, CA

Although research has demonstrated a robust relationship between social support and improved health outcomes, most have assumed that these benefits stem from the receiver of support. However, new research suggests that the act of giving support may be just as important as receiving support (Brown et al., 2003). Still, little is known about the processes associated with support giving that contribute to beneficial health outcomes. One possibility is that giving support is both emotionally rewarding for the support giver and reduces the giver's own distress from knowing another is in pain. Based, in part, on work demonstrating activity in the ventral striatum (VS) in response to another's pain region, in response to voluntarily giving money to charity (Moll et al., 2006), we hypothesized that support giving would also be associated with increased VS activity. Additionally, animal research suggests caregiving type behavior, including grooming and huddling over newborns dampens activity in regions associated with negative affect and threat detection (Wartella et al., 2003) and this pattern may be similar for humans providing support to others. To test this, 14 couples were recruited to participate in an fMRI session in which the female partner underwent a scan while her partner stood just outside of the scanner and received unpleasant electric shocks. During the scan, females were told that their partner's were about to be shocked and were then directed to either hold his arm (support-giving) or to hold a ball (no support-giving). In two control conditions, females were told that her partner would not be receiving any shocks and were either asked to hold her partner's arm (arm alone) or hold the ball (control). Region-of-interest (ROD) analyses evidenced increased VS activity during support-giving compared to not giving support (paired-samples t-test, t16=2.24, p<.05) and perhaps surprisingly, the arm alone condition (t16=2.38, p<.03). Moreover, regions associated with negative, threatening stimuli showed decreased activity in support-giving compared to no support. This highlights the uniquely beneficial nature of providing support to another and suggest another possible contributor to the support-health link stems from the giver.

180) Abstract 1390

RELATIONSHIP QUALITY AND ALLOSTATIC LOAD IN MIDDLE-AGED AND OLDER ADULTS
Kathryn P. Brooks, M.A., Psychology, Teresa E. Seeman, Ph.D., Medicine, Division of Geriatrics, UCLA, Los Angeles, CA

Purpose: The aim of this study is to examine how positive and negative aspects of social experience are related to allostatic load (AL), an index of cumulative dysregulation across physiological systems, in middle-aged and older adults. Methods: This study uses data from the study of Mid-life in the US (MIDUS), a longitudinal study of health and aging in the United States. A nationally representative sample of adults (N = 1,054, 45% male) aged 34-84 (mean = 55.26) rated the quality of their relationships with spouse/partner, family, and friends at two measurement occasions 10 years apart. At the second measurement occasion, participants completed a biological protocol in which indices of autonomic, HPA, cardiovascular, inflammatory, and metabolic function were obtained and were used to create an AL summary score. Results: Hierarchical regression analyses revealed that higher levels of social strain predicted higher AL 10 years later (B = -0.07, p < .05), controlling for age, gender, and relevant sociodemographic variables. Changes in support and strain over time did not predict AL (ps > .10), but age moderated the effects of social experience (B support = 0.08, p < .05; B strain = -0.07, p < .05), such that the effects of support and strain on AL were dampened in older age. These findings suggest that negative
aspects of relationships are more potent predictors of health-relevant physiology than positive aspects, particularly among middle-aged adults, and highlight the importance of attending to both positive and negative aspects of social functioning.

181) Abstract 1754
THE IMPORTANCE OF BLOOD STIMULI AND DISGUST IN THE VASOVAGAL RESPONSE: AN EXPERIMENTAL INVESTIGATION
Philippe T. Gilchrist, M.A., Crystal D. Holly, B.Sc., Blaine Ditto, Ph.D., Psychology, McGill University, Montreal, Quebec, Canada
Vasovagal reactions (VVR) are a common and fairly serious medical problem. Although not associated with notable morbidity and mortality, injury from falling is not unusual. More importantly, they complicate a variety of medical procedures and deter people from activities such as immunization, dental care, and blood donation. The origins of this seemingly maladaptive response have puzzled researchers for years, since it can render the individual weak and even unconscious in a threatening situation. A recent perspective (Diehl, 2005) suggests that emotional fainting is related to the earlier adaptive process of hemorrhagic fainting. In essence, people faint or develop VVR because they anticipate blood loss. This is consistent with findings that blood injection, and injury phobics experience VVR much more frequently than individuals with other serious phobias, though the relative importance of these stimuli are difficult to disentangle. The primary goal of this study was to compare two locally-made videos depicting an intravenous injection and a blood draw. The moderating effects of disgust were also examined. Sixty-two young adults (18-27 years) watched either two videos depicting a 23-gauge butterfly needle was inserted into a volunteer's forearm and either 5cc of saline was injected or blood was removed. The videos were identical except for the direction and nature of flow. VVR were assessed with self-reported symptoms of dizziness etc. (Blood Donation Reactions Inventory) and physiological measures, especially heart rate and heart rate variability (HRV). As predicted, participants reported more VVR of dizziness, etc. following the blood draw video than the injection video (p<.003). Further measures revealed that the sympathetic nervous system activity (LF/HF ratio) decreased during both videos, significantly more so during the blood draw video (p=.024), though this could be reversed by repeated isometric muscle tension (Applied Tension; p=.048). Disgust was related to some measures though not as strongly. Results are discussed in terms of the relevance of specific stimuli and emotions in VVR.

182) Abstract 1713
THE ROLE OF APPLIED TENSION IN VASOVAGAL SYNCOPE: CARDIOVASCULAR ACTIVITY OR ANXIETY REDUCTION?
Crystal D. Holly, BSc, Philippe Gilchrist, MA, Blaine Ditto, PhD, Saharnaz Balebeg, BSc, Psychology, McGill, Montreal, Quebec, Canada
Vasovagal syncope (VVS) remains relatively unexplained in the medical field. While we understand the biological mechanisms that occur, the etiology is less clear and likely due to psychosomatic causes. Applied Tension (AT) appears to be an effective treatment through isometric muscle contractions but evidence suggests that AT may act through anxiety reduction. A 2-part study was conducted examining the roles of exercise-related cardiovascular activity vs. anxiety reduction in the etiology of this phenomenon. During the movie found an AT x Needle Fear interaction, F(1,9)=4.97, p=.03. AT reduced VVS in females but only in those with higher fear. An ANOVA on HR during the movie found an AT x Time interaction, F(6,318)=3.83, p=.006. Importantly, sex did not interact with condition: males and females who practiced AT experienced similar increases in HR. Thus, muscle tensing-induced HR acceleration per se cannot explain fewer symptoms in females. Overall, it appears that AT is effective in reducing VVS and that the effects of AT on VVS cannot be attributed entirely to exercise-related cardiovascular activity.

183) Abstract 1676
ONLINE EXERCISE COACHING VS. ONLINE COGNITIVE BEHAVIORAL THERAPY FOR DEPRESSION: A NATURALISTIC OUTCOMES STUDY
Dana C. Nevedal, M.A., Behavioral Sciences and Data Analytics, HealthMedia Inc., Ann Arbor, MI, Chun Wang, M.S., Behavioral Science & Data Analytics Group, HealthMedia, Inc, Ann Arbor, Michigan, Steve Schwartz, Ph.D., Behavioral Sciences and Data Analytics Group, Eli W. Carter, B.S., Behavioral Sciences and Data Analytics, HealthMedia Inc., Ann Arbor, MI
Purpose: To compare the effects on depressive symptoms of 2 tailored, online interventions-- CBT for depression (OCBT-D), and exercise coaching (OEC), and a no-treatment control (NT), and describe differential characteristics of each groups self-selectors. Participants & Method: The Health Media online portal was accessed via participating employer/health care benefit systems. Participants completed a health risk assessment (HRA), screened positive for depression (CES-D), then self-selected OCBT-D, OEC, or NT (N=7,463). OCBT-D restructures unhelpful cognitions, guides lifestyle change, and teaches relaxation. OEC builds motivation, facilitates activity selection, and tracks progress. Both programs provide individually tailored goals, feedback, and content, with open-ended duration. Statistical procedures matched all available OEC selectors (n=63), with OCBT-D (n=63) and NT (n=63) selectors, on age and gender, and on time spent on tasks. Baseline depression and OEC and NT (N=7,463) in moving participants to non-depression. Differences across groups (p=.55). Depression was measured again approximately 1-year later (sd=4.7, range 1-7 days) in annual HRA. Mean participant age was 41.0 years (SD = 11), and most were female (87%). Results: Depression decreased over time in all groups (p<.0001), with large effect sizes (OEC d=1.33; OCBT-D d=0.82; NT d=0.82). OEC (68.3% response rate (RR); OR=2.08; p=0.04) was superior to OCBT-D (50.8% RR), and NT (49.2% RR) in moving participants to non-depression. Race/ethnicity exhibited significant differences in treatment selection patterns (p<.05). Among whites (n=127), 40.9% selected OCBT-D, 32.3% OEC, and 26.8% NT. Among African Americans (n=32), 46.9% selected OEC, 40.6% NT, and 12.5% OCBT-D. Among other racial/ethnic backgrounds (n=30) 53.3% selected NT, OCBT-D and OEC were each chosen by 23.3%. These racial/ethnic findings were corroborated in the larger sample (N=7,463) and differential selection patterns remained similar. Conclusion: Depressed individuals who selected OEC were more likely to be non-depressed 1-year later than those choosing OCBT-D, or NT. Whites exhibited a preference for OCBT-D, while African Americans preferred OEC (the most effective treatment), or NT. Other ethnic groups preferred NT.

184) Abstract 1401
SOCIAL CONSTRAINT INCREASES RUMINATION TO RACE-RELATED MALTREATMENT
Jahanara Ullah, M.A., Elizabeth Bronoldo, Ph.D., Psychology, St. John's University, Jamaica, NY, Joseph Schwartz, Ph.D., Psychiatry and Behavioral Science, Stony Brook University Medical Center, Stony Brook, NY
Does the way other people react influence how long targeted individuals continue to ruminate about episodes of race-related maltreatment? This study tests the hypothesis that race-related maltreatment elicits rumination, and the degree of rumination is, in part, a function of the targeted individual's perceptions that others will not be supportive when they want to talk about the experience (i.e., perceived social constraint). Participants included 247 self-identified Black and Latino(a) adults (178 women, 131 Black; mean age = 29.6 years). They wrote 3 stories
describing episodes of explicit racism (i.e., race/ethnicity bias overtly stated), implicit racism (i.e., race/ethnicity bias implied, but not specifically stated), and ambiguous racism (i.e., race/ethnicity bias was a possible source of motivation). Following each story, they were asked to complete a modified version of the Behavioral Anger Response Questionnaire to assess rumination, and a modified version of the Social Constraint Scale assessing perceptions of social constraint from members of the participants own race group and from members of other racial groups. Repeated measures analyses (PROC MIXED, SAS Institute) revealed a significant main effect of episode type on social constraint from those of the same race (F(2, 424) = 16.22, p < .0001), such that individuals felt more constraint in response to ambiguous (mean = 2.83 on a 1-5 scale) versus explicit (mean 2.56) or implicit (mean = 2.45) situations. Social constraint from other race individuals, but not social constraint from same race individuals was significantly correlated with rumination in the different episodes of race-related maltreatment (B = 0.14, SE = 0.06, t = 2.48, p < .02). Episodes which elicited more perceived constraint from others of a different race were accompanied by greater rumination. Individuals are more likely to ruminate and potentially prolong the stress exposure when they believe that talking about race-related maltreatment will not elicit social support from others of a different race.

185) Abstract 1688

DECIPHERING INTERFERON-INDUCED SIGNAL PATHWAYS IN DEPRESSION THROUGH THE STUDY OF HYPER-PHOSPHORYLATED STAT1

Thomas Meyer, Julia Staab, Cardiology, University of Marburg, Marburg, Germany
Christoph Herrmann-Lingen, Psychosomatics, University of Göttingen, Göttingen, Germany

Major depression is a common, sometimes fatal disorder and the leading cause of disability worldwide. Despite recent advances in our knowledge on the pathophysiology and treatment of depression, there is a pressing need to identify novel signaling pathways relevant to depression. Administration of innate immune cytokines such as interferons to human cells is often associated with profound changes in gene expression and can cause behavioral symptoms that overlap with those found in major depression. Because interferon-induced gene responses are largely dependent on the transcription factor STAT1 (signal transducer and activator of transcription 1), we aimed to identify STAT1 mutations with abnormal signal propagation. Using site-directed mutagenesis we generated a point mutant of STAT1, which upon stimulation of cells with interferon-gamma resulted in an increased signal strength and prolonged signal duration as compared to reconstituted cells expressing the wild-type protein. The molecular basis of this mutation is a substitution of a critical glutamyl residue for alanine in the linker domain, which in reconstituted cells resulted in augmented interferon-gamma-dependent signal strength and transcriptional activity. In addition to known loss-of-function mutants with impaired tyrosine phosphorylation and tested this mutant with respect to receptor association, interferon-inducible nuclear accumulation and target gene activation. Substitution of a critical lysine in the linker domain by alanine rendered a STAT1 mutant with reduced tyrosine phosphorylation levels upon stimulation of cells with interferon-gamma. Phospho-STAT1 dimers of mutant STAT1 accumulated in the nuclei of cytokine-stimulated cells, however, the duration of nuclear retention was considerably shortened as compared to the wild-type protein. When we tested the mutant STAT1 in luciferase and reverse transcriptase-PCR assays, we found a significantly reduced transcriptional activity both for artificial and endogenous target genes as compared to cells expressing wild-type protein. Although the mutant STAT1 recognized specific binding sites on DNA, transcriptional activity was lower in the presence of a STAT1 mutant. This may be of clinical relevance.

187) Abstract 1069

RESPIRATORY SINUS ARRHYTHMIA DURING EPISODES OF RELIVED SADNESS: THE ROLE OF EMOTIONAL INTELLIGENCE AND AFFECT INTENSITY

Josh A. Rash, M.Sc.(Candidate), Ken M. Prkachin, Ph.D., Psychology, University of Northern British Columbia, Prince George, British Columbia, Canada

Purpose: This study investigated respiratory sinus arrhythmia (RSA) during relived episodes of sadness as a function of emotional intelligence (EI) and affect intensity. Hypotheses were: 1) RSA will diminish during episodes of relived sadness, 2) magnitude of RSA change will be inversely related to EI, particularly the emotion regulation dimension, affect intensity, and depressive symptomatology. Sample: Fifty-six participants (28 male, 77% Caucasian) were recruited from a Canadian university. Methods: An online EI Test and an experimental assessment of RSA were administered. Cardiac vagal tone (RSA) was recorded during three phases each spanning five minutes (baseline, experiential sadness recall, and recovery). Results: RSA diminished during re-experienced sadness, F(1.56, 108) = 11.53, p < .01, relative to baseline, Mdif = 0.54, p < .01, and recovery, Mdif = 0.43, p < .01. Magnitude of RSA reduction was inversely recall formed were completed during a RSA recall. Laboratory testing consisted of completing questionnaires and undergoing psychophysiological recording. Physiological parameters of ECG and respiration were recorded during three phases each spanning five minutes (baseline, experiential sadness recall, and recovery). Results: RSA diminished during re-experienced sadness, F(1.56, 108) = 11.53, p < .01, relative to baseline, Mdif = 0.54, p < .01, and recovery, Mdif = 0.43, p < .01. Magnitude of RSA reduction was inversely associated with both EI, r = - .31, p < .05, affect intensity, r = -.28, p < .05. Magnitude of RSA response was not associated with the emotion management dimension of EI, r = .02, p > .05, but rather the perceiving emotions dimension, r = - .31, p < .05, RSA was not associated with depressive symptomatology, r = -.06, p > .05. Participants high in affect intensity experienced more pronounced parasympathetic withdrawal during relived sadness, t(54) = 3.38, p < .01. Cardiac vagal tone was found to be influenced by the mental stressor causing parasympathetic withdrawal. Cardiac vagal tone (RSA)
was more indicative of flexible responding rather than explicitly indeximg emotion regulation. The relationship between vagal tone and empathy will be discussed along with the implications of the findings for the prevention of affect disturbance.

188) Abstract 1344

RESPIRATORY GAINS DURING A BRIEF INTERVENTION TARGETING HYPERVENTILATION IN BLOOD PHOBIA
Erica S. Ayala, B.A., Thomas Ritz, Ph.D., Alicia E. Meuret, Ph.D., Psychology, Southern Methodist University, Dallas, Texas

Although blood-injection-injury (BII) phobia is common, the intervention literature is limited, with existing studies largely focusing on targeting the cardiovascular dysregulation that is presumed to play a central role in the disorder. Yet recent research suggests that respiratory adjustments leading to blood-gas dysregulation may play a critical role in the unique physiological response as hyperventilation can lead to reductions in cerebral blood flow. The current study investigated the effects of a brief hyperventilation-reduction intervention on respiratory responses during exposure in BII phobia. Sixty patients were randomized to 1 of 3 intervention groups: applied tension, hyperventilation training, or relaxation. Respiratory parameters, as well as self-report measures of mood and anxiety, were measured during 2 sessions: an initial baseline followed by the intervention, approximately 1 week apart. In both sessions, patients viewed medical education films followed by recovery periods that were intended to capture the delayed physiological response sometimes seen in this disorder. During session 2, patients watched an intervention video outlining the respective treatment rationale and method, which was followed by practice with feedback. Results indicated that patients in the hyperventilation group significantly increased PCO2 levels compared to the other two groups, while also showing significant decreases in thoracic breathing and respiratory rate. Furthermore, no differences emerged between groups on tidal volume, indicating that patients in the hyperventilation group were successful in preventing reflexive increases in tidal volume as a means to counteract changes in timing parameters. The hyperventilation group also showed improvement in the respiratory parameters compared to the baseline, while the applied tension group on mood and symptom ratings, compared to the relaxation group, which showed minimal improvement. Results suggest that hyperventilation training shows promise as a novel intervention for reducing BII phobia-related anxiety and respiratory dysregulation.

189) Abstract 1820

NUCLEUS ACCUMBENS ACTIVATION IN RESPONSE TO AN ATTACHMENT FIGURE: REPLICATION AND EXTENSION OF FINDINGS IN COMPLICATED GRIEF
Christian R. Schultz-Florey, Pre-degree MD/PhD, Mary-Frances O'Connor, PhD, Psychiatry, UCLA Cousins Center for Psychoneuroimmunology, Los Angeles, California

OBJECTIVE: Prior research has found nucleus accumbens activation in those with Complicated Grief (CG) compared to Non-complicated grief (Non-CG). Other studies have found nucleus accumbens activation when viewing a living attachment figure. It has been hypothesized that those with CG may have reward activation in response to their loved ones as a symptom of not fully assimilating the reality of the death. This study aimed to discover if those with CG and married controls would show nucleus accumbens activation in comparison to those with Non-CG when viewing cues of the deceased. This study found that those with CG may respond subcortically to cues of the deceased as if the deceased person were still living. Thus, EMRI may have a potential role as an outcome measure for CG intervention research.

190) Abstract 1334

ROLE OVERLOAD AND SOCIAL ROLE DISTRESS IN EARLY INFLAMMATORY ARTHRITIS
Sally S. Mustafa, PhD, Pharmacology, The University of Lahore, Islamabad, Pakistan, Karl J. Looper, MD, Phyllis Zelkowitz, EId, Psychiatry, Margaret Purden, PhD, Nursing, Murray Baron, MD, Rheumatology, McGill University, Montreal, Quebec, Canada

Purpose of study: The early phase of inflammatory arthritis (EIA) is characterized by disruption of major life roles including marriage, parenting and work. "Role Overload" is defined as the conflict arising when the demands by a given role set exceed the available time, energy and capacity to carry out the required tasks. We investigated role overload in relation to health outcomes in a sample of EIA patients in Canada. Sample and Methods: One hundred and four patients in the first 12 months of diagnosis of inflammatory arthritis completed self-report questionnaires providing information on disease characteristics, role overload, and functioning in specific roles. Pain was assessed using the Short Form McGill Pain Questionnaire (MPQ), disease severity was measured with the Disease Activity Score in 28 joints (DAS28), and psychological status was assessed by the Depression Anxiety and Stress Scale (DASS-21). Results: Higher role overload was associated with higher MPQ score (p = 0.015), DAS28 score (p = 0.0015) and physical dysfunction (SF-36) (p = 0.001). Psychological distress was associated with higher role overload in the marital role (p = 0.036) and distress in the workplace (RA-WIS) (p = 0.000), although not in the parenting role (pS) (p = 0.134). Conclusion: This study finds that role overload is associated with a range of negative health measures in EIA. Patients experiencing role dysfunction in their marital relationship and in the workplace may represent a vulnerable group in EIA.

191) Abstract 1587

OUTCOMES AND PREDICTORS OF A NOVEL EMOTIONAL AWARENESS AND EXPRESSION TREATMENT FOR CHRONIC PAIN
Amanda J. Burger, Ph.D., Psychology, Cedarville University, Cedarville, Oh, Howard Schubiner, M.D., Internal Medicine, Providence Hospital, Southfield, Michigan, Jennifer N. Carty, B.A., Deborah A. Valentino, B.S., Elyse R. Sklar, B.S., Maren Hyde-Nolan, B.S., Alias Hijazi, M.A., Mark A. Lumley, Ph.D., Psychology, Wayne State University, Detroit, Michigan

Limited awareness and expression of stress-related emotions contribute to chronic musculoskeletal pain, but treatments rarely target these processes. We developed and studied the effectiveness and outcome predictors of an emotion-oriented treatment for 49 patients with musculoskeletal pain not due to disease or autoimmune disorders (76% women; 91% White; M age = 51; M pain duration = 8.8 years). Patients had 1 individual session with emotions and a 4-week set and course, then 4 group sessions that used expressive writing, mindfulness/emotion awareness techniques, and other exercises to help patients identify, express, and integrate emotions. Daily homework was assigned. Pain (McGill Pain Questionnaire and Brief Pain Inventory) and distress (Brief Symptom Inventory) were assessed at baseline, post-treatment, and 6-month follow-up. Depression (CES-D), Ambivalence Over Emotion Expression Questionnaire, and Levels of Emotional Awareness Scale were assessed at baseline as predictors. Pain
and distress improved with medium to large effect sizes at both post-treatment and 6-month follow-up. At post, 64% of patients had > 30% pain reduction, and 43% had > 50% reduction. This was maintained at follow-up (67% > 30%, 53% > 50%). Controlling for education and pain duration, regressions showed that greater baseline depression predicted less affective pain ($b = -0.35, p < .04$) and distress ($b = -0.44, p < .01$) at follow-up. Controlling also for depression, greater ambivalence over expressing emotions predicted improved sensory ($b = -0.39, p = .03$) and affective ($b = -0.45, p < .01$) pain, and marginally improved distress, at follow-up. Greater emotional awareness marginally predicted improved distress at post-tx. We conclude that this emotion awareness and expression intervention leads to substantial and sustained improvement in musculoskeletal pain, and patients with emotional awareness but elevated depression and ambivalence about expressing their emotions are most likely to benefit. Treatments that target unexpressed emotions may benefit people with chronic pain, but controlled studies are needed.

192) Abstract 1704

SLEEP AS A PREDICTOR OF POST-SURGERY ANALGESIA (PCA) USE

Maren E. Hyde-Nolan, B.S., Psychology, Wayne State University, Detroit, Michigan, Mark A. Lunley, Ph.D., Psychology, Wayne State University, Detroit, MI, Christina Diederichs, B.A., Timothy A. Roehrs, PhD, Sleep Disorders and Research Center, Henry Ford Health System, Detroit, MI

Poor sleep quality and shortened duration enhances pain in both patients with chronic pain and controls tested with experimental pain. Patient-controlled analgesia (PCA) use post-surgery is a useful pain paradigm but has not been studied with respect to sleep. We assessed self-reported sleep (typical sleep duration, sleep quality, and daytime sleepiness) on 96 patients (63.5% female, age M = 65.5) prior to elective hip (n = 39) or knee (n = 57) replacement surgery. PCA was initiated after surgery, and the number of analgesia requests (1 mg morphine) for the next 10 hours was recorded. Patients were administered medication, if requested, only once during each 10 min interval and were locked out of additional administrations during the interval (denials). Patients averaged 21.0 (SD = 10.7) total administrations, 30.9 (SD = 51.4) denials, and a mean reported pre-surgery sleep duration of 6.9 hrs (3.5 to 10.5 hrs). For all patients, correlations (controlling for age and sex) of sleep variables with administrations and denials (square root transformed for normality) were non-significant. However, in knee surgery patients, sleep duration correlated positively with denials ($r = .40, p = .002$) but not administrations ($r = .12, n.s.$), and the sleep duration-denials correlation differed significantly ($r > z$ test) from that among hip surgery patients ($r = -.12, p = n.s.$). Knee patients were heavier (BMI M = 32.8) than hip patients (M = 28.9), so we compared obese (BMI > 30, n = 49) and non-obese (BMI < 30; n = 47) patients. In obese patients, sleep duration predicted denials ($r = .31, p = .03$), but did not do so in non-obese patients ($r = .08, n.s.$). We conclude that longer sleep duration predicts more post-surgery analgesia requests--but not actual administrations--in knee replacement patients or obese patients. The seemingly counter-intuitive positive sleep-pain association is consistent with several prospective diary studies, perhaps because longer reported sleep duration reflects primary sleep disorders or psychiatric problems. The sleep-pain association in obese patients, who are more likely to have primary sleep disorders, is consistent with this interpretation.

193) Abstract 1836

COLD PAIN-EVOKED BLOOD PRESSURE RESPONSES ARE DISSOCIATED FROM ACUTE PAIN SENSITIVITY FOLLOWING SUPPRESSION OF ANGER AMONG HEALTHY NORMOTENSIVE PARTICIPANTS

Phillip J. Quartana, Ph.D., Psychiatry and Neuroscience, Walter Reed Army Institute of Research, Silver Spring, MD, John W. Burns, Ph.D., Behavioral Sciences, Rush University, Chicago, IL, Stephen Bruendl, Ph.D., Anesthesiology, Vanderbilt University School of Medicine, Nashville, TN

Anger suppression (trait and state) is associated with amplified pain sensitivity. Physiological mechanisms for this association are not fully characterized, though there is reason to speculate a role for mechanisms that co-regulate cardiovascular function and pain modulation. Here, we determined whether the suppression of anger was associated with an uncoupling of acute pain-evoked press responses and pain sensitivity. Eighty-four healthy pain-free participants (66% female; Mage = 19.3) underwent a 5-min anger recall interview and were then randomly assigned to suppress thoughts and feelings related to the recalled event (suppression) or to think about whatever they wished (think-anything control). A cold pressor task (CPT) followed. Self-reported pain severity and pain tolerance were recorded. SBP and DBP were assessed throughout. Participants in the suppression condition reported greater pain severity ($p < .01$) and had marginally lower pain tolerances ($p = .08$). CPT-evoked SBP (but not DBP) was associated with higher pain tolerance and lower self-reported pain severity ratings ($p = .05$). Suppression moderated the CPT-evoked SBP-Pain Tolerance relationship such that CPT-evoked SBP responses were associated with greater pain tolerance within the think-anything control condition ($p < .05$). However, CPT-evoked SBP responses were unrelated to pain tolerance within the suppress condition ($p = .20$). These findings suggest that efforts to suppress anger-related thoughts and feelings can acutely dissociate homestatic cardiovascular and pain regulatory systems. This dissociation might serve to augment risk for development of persistent pain and possibly hypertension as well.

194) Abstract 1191

ARE SOCIAL SUPPORT AND INVALIDATION INDEPENDENT PREDICTORS OF MENTAL AND PHYSICAL HEALTH IN PATIENTS WITH RHEUMATIC DISEASES?

Marianne B. Kool, MSc, Clinical and Health Psychology, Utrecht University, Utrecht, The Netherlands, Henriët Van Middendorp, PhD, Johannes W.J. Bijlsma, MD, Rheumatology and Clinical Immunology, University Medical Center Utrecht, Utrecht, The Netherlands, Rinie Geenen, PhD, Clinical and Health Psychology, Utrecht University, Utrecht, The Netherlands

Purpose: People with rheumatic diseases may be faced with supporting responses of others as well as with invalidating responses, such as dismissing, denying, and not acknowledging the symptoms. Both social support and invalidation can affect patients’ health, but it not clear to what extent these effects are (in)dependent. Purpose of this study was to examine whether social support and invalidation are independently associated with patients’ mental and physical health status.

Subject sample and methods: Participants were 1455 patients with rheumatic diseases; 341 with fibromyalgia, 171 with rheumatoid arthritis, 152 with ankylosing spondylitis, 150 with osteoarthritis, 113 with systemic diseases, 46 with psoriatic arthritis, 77 with other rheumatic diseases, and 405 with more than one rheumatic disease. Participants were invited to participate in an online questionnaire study via hyperlinks on websites of Dutch and Belgian patient associations. The online questionnaire included assessments of health status (SF-36), invalidation (Illness Invalidation Inventory, 3*I), and social support (MOS Social Support Survey).

Results: Social support and invalidation were negatively correlated with the ten aspects of invalidation (discounting and lack of understanding by five social environments): $r > .09, r < -.52$. Invalidation correlated with a worse and social support with a better health status. In multiple regression analysis, after taking account of gender, age, and disease type, invalidation and social support were independent predictors of patients’ health status. Social support was associated more strongly with physical health, while invalidation was associated more strongly with mental health. No interaction effects of invalidation and social support were found.
Conclusion: Social support and invalidation are partly related constructs, but are also independently associated with mental and physical health in patients with rheumatic diseases. This might suggest that a different focus concerning patients' perceived social responses of others is needed to improve the mental versus physical health of patients, and/or that mental and physical health differentially affect social experiences of patients.

195) Abstract 1838

GENDER DIFFERENCES IN PERIPHERAL NEUROPATHY OF THE LOWER EXTREMITY: A POPULATION BASED SURVEY
Sharada Tata, M.S., Stephen J. Morewitz, Ph.D., & Associates, San Francisco, CA, Stephen Morewitz, Ph.D., Nursing and Health Sciences, California State University, East Bay, San Francisco, CA, Joel Clark, D.P.M., Podiatric Surgery, St. Mary's Medical Center, California School of Podiatric Medicine, San Francisco, CA

Purpose of Study: Several studies have established an association between lower extremity peripheral neuropathy and depressive symptoms. There is a link between number of insensate areas in foot that cause peripheral neuropathy, suggesting an increased likelihood for diabetics to suffer pain symptoms and other complications in the lower extremity. The goal of this investigation is to determine if there are gender differences in the number of insensate areas in right and/or left foot after controlling for, race, education, marital status, and duration diabetes mellitus. Subject Sample and Statement of Methods: A large population-based sample (N=10,122 adults) from the 2003-2004 National Health and Nutrition Examination Survey NHANES) was analyzed using multivariate statistical procedures. Chi square procedure was used to examine the association between gender and the number of insensate areas in right and/or left foot in persons with and without diabetes mellitus. Summary of Results: There were significant gender differences in the number of insensate areas in right and/or left foot within persons suffering with and without diabetes mellitus, rejecting the null hypothesis. Chi-Square analysis yielded significant results concluding that males are more prone to suffer from lower extremity peripheral neuropathy than females with and without diabetes mellitus. We have then fit the variables in logistic regression models to analyze those using SAS and SUDAAN software. Logistic regression results have yielded significant statistical values, concluding that there are gender differences among persons suffering from peripheral neuropathy of the lower extremity (p=0.001, =0.05). Conclusion: Among persons with and without diabetes mellitus, males are more likely to have more insensate areas of the right or left foot, indicating they are more at risk of suffering complications related to peripheral neuropathy of the lower extremity.

196) Abstract 1798

THE RELATIONSHIP BETWEEN SYMPTOM SEVERITY AND PHYSICAL ACTIVITY IN FIBROMYALGIA: THE ROLE OF MODERATION
John E. Schmidt, PhD, Scott E. Feeder, MS, Psychiatry and Psychology, Ann Vincent, MD, General Internal Medicine, Michael J. Joyner, MD, Anesthesiology, Mayo Clinic, Rochester, MN

Multidisciplinary treatment approaches for Fibromyalgia often include training in self-management techniques. Patients are frequently instructed to approach activities with moderation and to exercise or high activity. While fostering activity and exercise has activity levels from the International Physical Activity Questionnaire and self-efficacy. Participants were grouped according to standardized assessment included physical activity, fatigue, depression, pain severity, and self-efficacy. Participants were grouped according to standardized activity levels from the International Physical Activity Questionnaire into low (n=5), moderate (n=14), and high (n=5). Preliminary results indicate differences between groups on depression (CES-D), pain severity, emotional fatigue, (all p's<.05), and self-efficacy (p=.09). The high activity group scored better on all variables compared to both the low and high activity groups. Resting cardiac autonomic activity (RMSSD) followed the same pattern (p=.10). There were no differences in cold pressor scores. Results suggest regular and moderate physical activity is associated with better psychological and physiological characteristics compared to patients that engage in either minimal activity or high activity. While fostering activity and exercise has obvious benefits for patients with fibromyalgia, moderation is indeed an important behavioral strategy.
inflammatory event modulated by environmental and physiological processes. Prenatal birth (PTB) is an early initiation of normal pulmonary events. PTB can have significant consequences for maternal health and neonatal health. While infection is the most common initiator of the inflammatory response, the etiology in over 50% of PTB is unknown. Thus, we evaluated associations among sleep, cytokines, and delivery outcomes. Our intent was to provide preliminary evidence as to whether disturbed sleep may increase risk of PTB via an exaggerated inflammatory response. Subjective sleep (including insomnia symptoms, sleep onset latency, nocturnal waketime, sleep duration, and sleep efficiency), immune (IL-6, IL-8, TNF-α, and IFN-γ) and stress hormone (cortisol) concentrations were assessed in a cohort of depressed and non-depressed pregnant women (N= 212) at 20 and 30 weeks gestation. Delivery was categorized as preterm (<37weeks) or term (≥37 weeks). Pearson correlations were run on sleep and cytokines/cortisol at 20 and 30 weeks gestation. Insomnia at 20 weeks was associated with higher plasma cortisol (r=.24, p = .003), while poor sleep continuity and efficiency, and short sleep duration were associated with higher IL-6 (r’s .16 -.24, p’s < .05). At week 30 poor sleep continuity and efficiency, and short sleep duration were associated with higher IL-6 and TNF-α (r’s =15, 18, p’s < .05). There were no significant associations among the cytokines/cortisol and PTB. We propose that disturbed sleep is likely to increase adverse pregnancy outcomes via an exaggerated inflammatory response. However, evidence for this relationship is lacking, therefore we evaluated sleep in relation with previous reports, disturbed sleep is associated with inflammation. On the contrary, plasma cytokines were not correlated with PTB which may be due to the fact that maternal levels are not indicative of the milieu at the maternal-fetal interface.

THE SLEEPINESS OF OBSTRUCTIVE SLEEP APNEA PATIENTS IS MODIFIED BY THEIR DEPRESSIVE SYMPTOMS

Reiko Hori, Health and Psychosocial Medicine, Ryujiro Sasanabe, Toshiaki Shiomi, Sleep Medicine, Fumio Kobayashi, Health and Psychosocial Medicine, Aichi Medical University School of Medicine, Nagakute, Aichi, Japan

Background: It is well known that psychological factors such as depression and anxiety relate to the onset and course of various physical diseases. Although a few reports show some patients with obstructive sleep apnea syndrome (OSAS) have atypical depression, there is still some discussion about the relationship between OSAS and depression. This paper's purpose is to clarify whether depression effects sleepiness of OSAS patients. Methods: We conducted semi-structured interviews with 1378 male and 301 female patients, who were supposed to suffer from OSAS, undergoing polysomnography by using Hamilton Depression Rating Scale (HAM-D). Results: Among the subjects, 972 men (51 ± 14 yr) and 143 women (55 ± 15 yr), who had 5 or more apnea hypopnea index (AHI), were diagnosed with OSAS. They were each classified as one of the following: HAM-D score < 15 group (high, 100 men and 20 women), 7< HAM-D score <16 group (moderate, 308 men and 43 women), and HAM-D score ≥18 group (low, 564 men and 80 women). In male OSAS patients, the higher HAM-D score group had significantly higher Epworth sleepiness score (ESS) (high, 10.7 ± 5.0, moderate, 9.9 ± 5.1, low, 9.2 ± 5.0, p<0.01), higher proportion of stage(N1+N2) to total sleeping time, lower arousal index and %REM, and younger. In female OSAS patients, the higher HAM-D score group had significantly higher Epworth sleepiness index and proportion of stage(N1+N2) to total sleeping time, and no significantly different ESS. Stepwise multiple regression analysis was performed to estimate the magnitude of the association between the indices regarding sleep condition as independent variables and ESS as a dependent variable. It showed that age (F value=46.5, p<0.0001), HAM-D score (F value=11.0, p<0.0001), lowest SpO2 (F value=11.2, p<0.0001), and proportion of stage N3 to total sleeping time (F value=4.0, p<0.05) were selected as independent variables related to the ESS of male OSAS patients, and that age (F value=8.9, p<0.01), proportion of stage N3 to total sleeping time (F value=4.2, p<0.05), and HAM-D score (F value=2.4, p=0.124) were selected as independent variables related to the ESS of female OSAS patients. Conclusion: The sleepiness of OSAS patients would be modified by their depressive symptoms.

DOES ANXIETY AND DEPRESSION INCREASE THE RISK FOR EXACERBATION IN PATIENTS WITH COPD? A SYSTEMATIC REVIEW AND A META-ANALYSIS

Gregory Moulele, Ph.D., Catherine Laurin, Ph.D., Simon L. Bacon, Ph.D., Kim L. Lavoie, Ph.D., Exercise Science, Psychology, Medecine, Univ. of Concordia, UQAM, Univ. of Montreal, Montreal, Canada

Purpose of study: Exacerbations are common in Chronic Obstructive Pulmonary Disease (COPD) and contribute significantly to COPD morbidity and mortality. COPD is also associated with high levels of psychological distress, which has been shown to be associated with higher exacerbation rates. However, the existing literature on the association between psychological distress and exacerbation risk remains poorly understood. The objective of the current study was to review and quantify the impact of depression and anxiety on outpatient and inpatient-treated exacerbations in patients with COPD. Subject sample and statement of methods: English-language peer-review cohort, longitudinal, and prospective studies (over a 1-yr period) that described the impact of anxiety and depression on COPD exacerbations were searched using the Ovid portal to access Medline, EMBASE, and PsycINFO databases. Searches were current as of April 2010. Studies with clinical diagnosis of anxiety and/or mood disorders (using a clinical interview) or symptoms of anxiety and/or depression (using questionnaires) as the exposure, and outpatient or inpatient-treated exacerbations (as an event-based definition) as the outcome, were selected. We calculated pooled relative risks (RR) using fixed-effects models. We requested missing data from the authors of the primary studies. Summary of results: We identified six trials including 2122 patients. Anxiety (pooled RR 1.14 [95% CI 1.00 to 1.31]), depression (pooled RR 1.26 [95% CI 1.06 to 1.50]) and anxiety + depression (pooled RR 1.41 [95% CI 1.14 to 1.75]) confer greater risk for exacerbation (outpatient + inpatient-treated exacerbations). This is the first review of literature on the link between psychological distress and COPD exacerbations. However, methodological weaknesses and a high heterogeneity across studies make it difficult to draw any firm conclusions on the nature and strength of these associations. Further prospective studies are needed to more comprehensively assess the question, particularly in light of the high levels of both anxiety and depression in COPD patients.

ECOLOGICAL MOMENTARY ASSESSMENT (EMA) : A NEW WAY TO EVALUATE PSYCHOLOGICAL IMPACT OF PULMONARY REHABILITATION IN COPD PATIENTS?

Way of study: Pulmonary rehabilitation (PR) is a well-established treatment modality for chronic obstructive pulmonary disease (COPD), and is associated with improved perception of dyspnoea, fatigue, emotional function, and disease control over 6-12 month follow-ups. These improvements have been linked to improved health behaviours, which tend to subside within weeks after PR discharge. Global assessments of health behaviours - traditional questionnaires, often too long for idiographic protocols in which they have to be completed repeatedly - can obscure observing dynamic changes over time and across situations. The current pilot study explored an alternative to static retrospective reports of health behaviours - EMA, among COPD patients post-PR. Subject sample and statement of methods: Five inpatient PR patients were recruited. Each completed a brief questionnaire, twice a day, between 7 and 9 (am & pm) over 4 periods of 4 weeks: before and during the PR, 1- and 6 months after PR. Each diary page included 6 items of the Physical Self Inventory (PSI-6b) plus one item on perceived dyspnoea. We collected 168 con secutive measures (per patient/per day, between 7 and 9 (am & pm) over 4 periods of 4 weeks: before and during the PR, 1- and 6 months after PR. Each diary page included 6 items of the Physical Self Inventory (PSI-6b) plus one item on perceived dyspnoea. We collected 168 con secutive measures (per patient/per period) plus 56 measures over the sixth month period after PR. The ARIMA procedures (Auto Regressive Integrated Moving Average) were applied to explore the process governing the dynamics of time series for each self-perception, per period/per patient. Summary of results: The observed dynamic changes over the 1-month PR period rapidly dissipated from the first month onward after PR. Patterns were systematically driven by a dynamic generated by an autoregressive process
(i.e., excessive variability). The vulnerability of the dynamics of self-perceptions, highlighted here by EMA methods, is an original explanation of the discrepancy between the results of follow-up studies that show maintenance of self-perception scores at least 6 months after PR, and the early withdrawal of healthy behaviour observed by clinicians a few weeks after PR discharge. Furthermore, this pilot-study shows the feasibility of EMA methods to evaluate the psychological impact of PR in COPD patients.

202) Abstract 1336
THE ASSOCIATION BETWEEN TYPE D PERSONALITY AND ADULT ASTHMA IN A COMMUNITY SAMPLE
Adrian Loerbroks, PhD, Mannheim Institute of Public Health, Heidelberg University, Mannheim, Germany, Antionette M. Pommer, MSc, Paula MC Mommersveeg, PhD, Center of Research on Psychology in Somatic Diseases, Tilburg University, Tilburg, The Netherlands

Background: Type D refers to an individual's tendency to experience increased negative affect and, at the same time, social inhibition. Type D personality has been consistently associated with poor health outcomes in cardiovascular patient samples and in the general population. To date, only one study addressed Type D in relation to asthma reporting that Type D and asthma levels were not associated in individuals with asthma. Our aim was to examine the association between Type D personality and asthma for the first time in a community sample.

Methods: We used data from three cross-sectional community samples (n=3,216). Quota sampling ensured equal representation of each sex and age group between 20 and 80 years. Asthma was measured by self-reports of a physician diagnosis. Type D personality was assessed by the DS-14 questionnaire. T1 health status, chronic diseases, and psychological distress were measured at T1 and T2. Prevalence ratios (PRs) for the Type D personality were adjusted for age, sex, education, smoking status, and body mass index.

Results: Asthma was neither associated with Type D personality (PR=1.40, 95%CI=0.86-2.29) nor with its subcomponents (PR for NA=1.34, 95%CI=0.88,2.03 and PR for SA=1.34, 95%CI=0.88,2.03) in a sample of 1,322 participants. The prevalence of asthma was 10.3% for the whole sample and 9.6% for Type D cases.

Conclusions: Our findings suggest that Type-D personality is not meaningfully associated with the prevalence of asthma.

203) Abstract 1743
SALIVARY PROTEINS AND LEUKOTRIENE B4 LEVELS DURING PSYCHOSOCIAL STRESS TESTING IN ASTHOMATIC AND HEALTHY INDIVIDUALS
Ana F. Trueba, BS, Psychology, Pia Vogel, PhD., Biochemistry, Thomas Ritz, PhD., Psychology, Southern Methodist University, Dallas, TX

Past stress research has examined salivary proteins and markers related to stress and the immune system. However, many immune and inflammatory markers that may react to acute stress remain unexplored. Our study aimed to examine the association between salivary proteins and leukotriene B4, an important early mediator of Th2 immune responses, and stress-related asthma symptoms. We used a validated parent protein and leukotriene B4 ELISA in a subsample of participants in both groups. No significant changes were found across the protocol, but asthmatic individuals had significantly higher LTB4 levels. In conclusion, substantial increases in total protein concentrations and amounts encourage further research into protein markers of stress and atopy.

204) Abstract 1305
ASSOCIATIONS BETWEEN CHILDHOOD ASTHMA AND PARENTING STYLES: A PROSPECTIVE STUDY
Crista N. Crittenden, MPH, Sheldon Cohen, PhD, Psychology, Carnegie Mellon University, Pittsburgh, PA, Patrick T. Davies, PhD, Clinical and Social Psychology, University of Rochester, Rochester, NY, Dante Cicchetti, PhD, Institute of Child Development, University of Minnesota, Minneapolis, MN

Children with asthma have been found to suffer from increased emotional and behavioral problems. Little is known about the mechanisms that lead to such outcomes. We hypothesized that negative parenting styles due to asthma may be one potential pathway. Objective: To examine changes in parenting styles over time as predicted by child asthma status and symptoms. Design: Methods: We collected data on parenting styles and children's asthma outcomes from 172 urban mothers of children aged 2 to 3. At T1, self-reported using a validated parenting questionnaire and a brief asthma interview. Information on the following parenting styles were obtained as measured by the Adult and Adolescent Parenting Inventory (AAPI; Bavelok, 1984); lack of empathy, value of corporal punishment, parent-child role reversal and inappropriate parental expectations. Data were collected when the children were age 2 and then again at age 3. Partial correlations between asthma diagnosis and parenting styles at age 2 with parenting styles at age 3 were conducted controlling for maternal race and age, as well as parenting styles at age 2.

Results: Mothers classified themselves as Black (57%), White (27%), Latino (9%) and other (7%), with a mean age of 26.05 years (SD = 5.65). Asthma diagnosis itself was not predictive of any differences in parenting styles. However, increased asthma symptoms at age 2 was predictive of decreased inappropriate expectations at age 3 (r = .20, p = .03, decreased valuing of corporal punishment; r = .20, p = .027), and decreased role reversal at age 3 (r = .21, p = .008). There was also a trend for increased symptoms at age 2 to be predictive of increased empathy at age 3 (r = .14, p = .09). Conclusions: We found that asthma symptom scores at age 2 were predictive of positive changes in parenting styles from age 2 to 3. Therefore, while asthma may lead to changes in parenting, these changes may not be indicative of later behavioral and emotional outcomes. Further research is needed to see if these positive parental changes persist throughout childhood.

205) Abstract 1122
PRE-OPERATIVE ILLNESS PERCEPTIONS ARE ASSOCIATED WITH HEALTH STATUS FOLLOWING CARDIAC SURGERY
Lydia F. Poole, MSc, Tara Kidd, PhD, Department of Epidemiology and Public Health, University College London, London, England, Marjan Jahangiri, MS, Department of Cardiac Surgery, St George's Hospital, London, England, Andrew Septo, DSc, Department of Epidemiology and Public Health, University College London, London, England

The study aimed to assess the association between pre-operative illness perceptions and health status after coronary artery bypass graft (CABG) surgery. Short-term survival rates following CABG are high; however, the impact of CABG on patients' self-rated health status is less positive. Research has shown that patients' beliefs about their illness are associated with reduced quality of life and increased depression in cardiac populations. Fifty-two patients (age = 66.99 ± 10.13) undergoing elective CABG surgery (with or without valve replacement) completed the SF-12 and the Brief Illness Perceptions Questionnaire (BIPQ) 2-3 days pre-surgery (T1) and 6-8 weeks post-surgery (T2). Lower scores on the SF-12 indicate poorer health status; higher scores on the BIPQ indicate a more threatening view of the illness. Participants reported significant decreases in physical health status (T1 mean = 39.60 ± 10.27, T2 mean = 34.72 ± 8.82, p = 0.005), but no change in T2 mental health status. Pre-operative illness perceptions were entered in separate hierarchical multiple regression analyses to predict T2 health status, with age, gender, T1 health status, and ejection fraction as covariates.
Pre-operative beliefs that the illness had severe consequences (Beta = -0.60, p<0.001) and would last a long time (Beta = -0.60, p<0.001) were significant predictors of T2 physical health status, independently of covariates. Pre-operative beliefs that the illness had severe consequences (Beta = -0.29, p = 0.041) and severe symptoms (Beta = -0.43, p = 0.001) predicted T2 mental health status independently of covariates. These findings suggest that more threatening illness perceptions before surgery are associated with poorer physical and mental health status up to two months following CABG surgery.

206) Abstract 1643
PERCUTANEOUS CORONARY INTERVENTION PREDICTS ANXIETY SEVERITY AMONG PATIENTS WITH IMPLANTABLE CARDIOVASCULAR DEFIBRILLATORS
Julia D. Bentzley, M.S.; Richard J. Contrada, Ph.D.; Ian Mohlman, Ph.D.; Psychology, Rutgers, The State University of New Jersey, Piscataway, NJ
The implantable cardioverter defibrillator (ICD) has become standard treatment for reducing risk of sudden death in patients with malignant cardiac arrhythmias. Many patients who receive ICDs have comorbid health conditions and have undergone multiple procedures prior to receiving their ICD. Anxiety is highly prevalent in this population. However, biomedical predictors of anxiety following device implantation have not been firmly established. The purpose of this study was to prospectively examine whether patients who have undergone multiple cardiac-related procedures are at greater risk for anxiety following a visit to the electrophysiologist that implanted their ICD. Thirty-four ICD recipients completed the Beck Anxiety Inventory when they visited their electrophysiologist and 2 months later by telephone. Biomedical data were acquired from medical records. Results indicated that ICD patients who had undergone percutaneous coronary interventions (PCI) in the past experienced increased anxiety severity 2 months following the electrophysiologist visit, compared with ICD patients who had never undergone PCI, controlling for initial anxiety levels (β = -3.5, t(30) = 2.19, p < .05). PCI explained a significant amount of the variance in anxiety (Adjusted R² = 0.27). The same effect was not seen for prior coronary bypass graft surgery (p > .68). These findings suggest that PCI patients experience intensified anxiety after being exposed to their heart condition, which is consistent with numerous empirical studies elaborating on psychological sequelae of the procedure. A visit to an electrophysiologist for PCI patients may trigger a recurrence of distress about having foreign objects in one's body, a concept that may be more frightening than having had a successful graft. These findings may help to identify PCI patients at high risk for anxiety and may also begin to lay the groundwork for developing tailored interventions to reduce anxiety among ICD patients who have undergone PCI.

207) Abstract 1352
THE COSTS AND BENEFITS OF CHILDREN EATING FISH: LIPIDS, MERCURY, AND HEALTH
Brooks B. Gump, PhD; Health and Wellness, Syracuse University, Syracuse, NY; Kestuts Bendinskas, PhD; Chemistry, SUNY Oswego, Oswego, NY; Robert Morgan, MD; Family Medicine, Oswego Hospital, Oswego, NY; Amy K. Dunas, BA; Psychology, SUNY Oswego, Oswego, NY; and Brooks B. Gump, PhD; Laboratory of Inorganic and Nuclear Chemistry, Wadsworth Center, NYS Dept. of Health, Albany, NY, Patrick J. Parsons, PhD; Environmental Health Sciences, SUNY Oswego, Oswego, NY; Christopher D. Palmer, PhD; Laboratory of Inorganic and Nuclear Chemistry, Wadsworth Center, NYS Dept. of Health, Albany, NY, Kurunthachalam Kannan, PhD; Occupational and Environmental Health Sciences, SUNY Oswego, Oswego, NY; and Brooks B. Gump, PhD; Environmental Health Sciences, SUNY Oswego, Oswego, NY
The implantable cardioverter defibrillator (ICD) has become standard treatment for reducing risk of sudden death in patients with malignant cardiac arrhythmias. Many patients who receive ICDs have comorbid health conditions and have undergone multiple procedures prior to receiving their ICD. Anxiety is highly prevalent in this population. However, biomedical predictors of anxiety following device implantation have not been firmly established. The purpose of this study was to prospectively examine whether patients who have undergone multiple cardiac-related procedures are at greater risk for anxiety following a visit to the electrophysiologist that implanted their ICD. Thirty-four ICD recipients completed the Beck Anxiety Inventory when they visited their electrophysiologist and 2 months later by telephone. Biomedical data were acquired from medical records. Results indicated that ICD patients who had undergone percutaneous coronary interventions (PCI) in the past experienced increased anxiety severity 2 months following the electrophysiologist visit, compared with ICD patients who had never undergone PCI, controlling for initial anxiety levels (β = -3.5, t(30) = 2.19, p < .05). PCI explained a significant amount of the variance in anxiety (Adjusted R² = 0.27). The same effect was not seen for prior coronary bypass graft surgery (p > .68). These findings suggest that PCI patients experience intensified anxiety after being exposed to their heart condition, which is consistent with numerous empirical studies elaborating on psychological sequelae of the procedure. A visit to an electrophysiologist for PCI patients may trigger a recurrence of distress about having foreign objects in one's body, a concept that may be more frightening than having had a successful graft. These findings may help to identify PCI patients at high risk for anxiety and may also begin to lay the groundwork for developing tailored interventions to reduce anxiety among ICD patients who have undergone PCI.

208) Abstract 1365
PERFLUOROCHEMICAL (PFC) EXPOSURE IN CHILDREN: ASSOCIATIONS WITH IMPAIRED RESPONSE INHIBITION AND RISKY BEHAVIOR
Brooks B. Gump, PhD; Health and Wellness, Syracuse University, Syracuse, NY; Qian Wu, BS; Environmental Health Sciences, The University of Albany, Albany, NY; Amy K. Dunas, BA; Psychology, SUNY Oswego, Oswego, NY; Kurunthachalam Kannan, PhD; Environmental Health Sciences, The University of Albany, Albany, NY; and Brooks B. Gump, PhD; Environmental Health Sciences, SUNY Oswego, Oswego, NY
Perfluorinated chemicals (PFCs) have been used widely in consumer products such as Gore-tex, Stainmaster, and Teflon, since the 1950s and are currently found at detectable levels in the blood of humans and animals across the globe. In stark contrast to this widespread exposure to PFCs, there is relatively little research on potential adverse health effects of exposure to these organic compounds. For the present study, serum levels of 11 PFCs were measured in children (N = 83) with no known occupational exposure. These levels were associated with performance during a Differential Reinforcement of Low rates of responding (DRL) task. This 20-min task provides minimal instructions and measures children's rate of learning that infrequent responding - button presses - is being rewarded. During this task, a button press after a 20-sec period of no response is rewarded and a clock is reset after every button press. Therefore, pressing the button frequently would result in no reward and pressing the button every 20.1 seconds would result in the greatest reward. As such, the DRL task constitutes a measure of behavioral inhibition and impulsivity. In the present study, we found widespread exposure to PFCs in our sample - perfluorocane sulfonate (PFOS), perfluorohexane sulfonate (PFHxS) and perfluorooctanoate (PFOA) were at detectable levels in all children. In addition, higher PFC exposure was associated with significantly greater impulsive responding (M = 599 button presses for the lowest total PFC quartile and M = 1182 presses in the highest PFC quartile; p < .05 for linear trend across quartiles) and poorer task performance (children earned an average of 24% less money in the top PFC quartile relative to the bottom quartile; p < .05). Finally, parental reports of their child's risky behaviors (e.g., not wearing a bicycle helmet) were significantly positively associated with blood PFC levels (p values < .05). This represents the first study to document an adverse behavioral effect of PFCs in humans. As such, these associations suggest a need for further investigation into the potential role of PFC exposure on children's impulsivity and risk-taking.
HYPOTHALAMIC-PITUITARY-ADRENAL DYNAMICS IN FUNCTIONAL SOMATIC DISORDERS: A SYSTEMS APPROACH TO ASSESSING ALLOSTASIS

Kirstin E. Aschbacher, Ph.D., Psychiatry, University of California San Francisco, San Francisco, CA, Emma K. Adam, PhD, Human Development and Social Policy, Northwestern University, Evanston, IL, Margaret E. Kemeny, PhD, Psychiatry, University of California San Francisco, San Francisco, CA, Leslie J. Crofford MD, Department of Internal Medicine, University of Kentucky, Lexington, KY, Mark Demitrack, MD, Neurometrix, Inc., Malvern, PA, Amos Ben-Zvi, PhD, Chemical and Materials Engineering, University of Alberta, Edmonton, AB, Canada

A dynamic systems approach was used to investigate potential alterations in the behavior of the Hypothalamic-Pituitary-Adrenal (HPA) system in 36 patients with functional somatic disorders (chronic fatigue syndrome (CFS) and/or fibromyalgia (FM)) and 36 matched healthy controls. An HPA system with high steady state gain (i.e., characterized by heightened cortisol responses to adrenocorticotropic hormone (ACTH) and/or blunted feedback control) may contribute to the pathophysiology of functional disorders. Blood plasma was assayed for cortisol and ACTH every 10 minutes between 11pm and 9am. The dynamic model was specified with an autoregressive differenced equation, using three dynamic parameters: 1) ACTH-adrenal signaling, 2) inhibitory feedback signaling, and 3) an error term representing external influences. Model parameter estimates were calculated for each individual (i.e., a personalized system model), and subjected to group differences comparisons using paired t-tests. Relative to individually-matched healthy controls, patients with CFS exhibited marked increases in ACTH-adrenal signaling (t(13)= 3.01, p<0.01) and borderline increases in feedback signaling (t(13)=2.05, p=0.06), while patients with FM (with or without concomitant chronic fatigue) exhibited significant decreases in feedback signaling (t(21)= -2.69, p=0.01). Compared to healthy controls, patients had a trend toward a higher steady state gain (t(35)=1.77, p=0.09) and lower mean ACTH (t(35)= -1.71, p=0.10). This is the first study to use a “personalized” systems modeling approach to capture patient-specific differences in a disorder of unclear etiology. Results are broadly consistent with an “excitable” (high gain) HPA system among patients, which could potentially be a risk or maintaining factor in the disorder. Moreover, personalized HPA “system behavioral phenotypes” that map onto diagnostic symptom clusters, may help understand the pathophysiological mechanisms underlying disorders of function, even in the context of comorbidity. System dynamics may constitute a novel marker of allostatics, and its role in chronic disease.

210) Abstract 1414

THE CHRONIC STRESS OF CAREGIVING IS ASSOCIATED WITH INCREASED OXIDATIVE DAMAGE TO RNA/DNA

Kirstin Aschbacher, PhD, Psychiatry, University of California San Francisco, San Francisco, CA, Firdaus Dhabhar, PhD, Psychiatry & Behavioral Sciences, Stanford University, Stanford, CA, Yali Su, PhD, Kronos Science, Phoenix, AZ, Owen M. Wolkwitz, MD, Eli Puterman, PhD, Psychiatry, Synthia Mellon, PhD, Department of Obstetrics, Gynecology & Reproductive, Elissa Epel, PhD, Psychiatry, University of California San Francisco, San Francisco, CA

Caregiving stress among dementia caregivers, are associated with heightened risk of morbidity and mortality. Oxidative damage to RNA/DNA and chronic inflammatory activity are two key mechanisms that may explain associations between caregiving stress and diseases of aging. However, to date, relatively little is known about whether markers of oxidative damage are altered in chronically stressed human populations, and whether damage markers are coactivated with indices of chronic low-grade inflammation. 1) Do chronically stressed caregivers exhibit increased markers of oxidative damage to RNA/DNA and inflammatory activity compared to controls? 2) Among caregivers, do increases in an objective index of caregiving burden (hours of daily care provided) predict elevated markers of oxidative damage and inflammation? Fasting blood draws and 12-hour overnight urine measures were taken from 33 post-menopausal women caring for spouses or partners with dementia and 28 age-matched non-caregiving women. Two key markers of oxidative damage to RNA/DNA were assessed in urine (8-oxoG and 8-OHdG), and basal IL-6 concentrations were quantified in blood. Caregivers had significantly higher levels of 8-oxoG (p=0.001) compared to non-caregivers, controlling for age, race/ethnicity, income, body mass index, physical activity, medication and antidepressant use. However, caregiving did not predict levels of 8-OHdG or IL-6. Nonetheless, high burden caregivers exhibited significantly increased RNA/DNA damage (8-oxoG) (p=0.04) and higher IL-6 (p=0.02) compared to low burden caregivers. The chronic stress of caregiving is associated with elevations in a marker thought to reflect oxidative damage to RNA/DNA. Moreover, high burden caregivers exhibit both increased oxidative damage and elevated basal inflammatory activity relative to caregivers providing fewer hours of care per day. Increased oxidative stress and chronic low-grade inflammation may be two mutually-potentiating mechanisms that help explain why chronic stress is associated with increased morbidity and mortality.

211) Abstract 1370

AGONISTIC STRIVING, EVERYDAY SELF-REGULATION, AND BLOOD PRESSURE: A MODERATION ANALYSIS

Jessica H. Schoolman, BA, Gavin J. Elder, MA, Mariam Parekh, BA, Carlee Ewert, PhD, Psychology, Northwestern University, Evanston, IL, John C. Boles, PhD, Department of Psychology, University of Minnesota, Minneapolis, MN, and Mary Ann Keenan, PhD, Department of Community Health Sciences, School of Public Health, University of California, Berkeley, CA

Social Action Theory holds that Agonistic Striving (AS; trying to control others) increases blood pressure (ABP) by fostering alert vigilance during everyday social interactions, and that self-regulation skills moderate this relationship. We have shown that emotion regulation skill, assessed by a laboratory attention-shifting task, moderates the AS-ABP association as predicted. We now extend this analysis to examine emotion regulation behaviors observed in the natural environment. Participants were 64 youth (37% Black, 47% White, 16% Other, 45% male) in a public high school in NY state who participated in the earlier study. Teachers who had taught participants during the previous school year rated self-regulatory skills and difficulties participants exhibited in the classroom, as indicated by Externalizing (EX), Internalizing (IN), and Self-Control (SC) behaviors. Trained observers rated indices of AS exhibited during the Social Competence Interview (SCI). ABP was withheld over 2 days of normal activities. Results supported our hypothesis: Regression analyses controlling for race and gender revealed that AS predicted higher SBP (p < .01) and DBP (p < .01), and interacted with IN (p < .02) and SC (p < .05) to predict SBP. Thus, persons with the AS profile exhibited elevated ABP; those with AS and high IN or low SC exhibited the highest levels of SBP. Everyday self-regulation indexed by IN and SC appears to moderate the AS-SPB relationship.

212) Abstract 1100

RELATIONSHIP OF RESTING DIASTOLIC FUNCTION AND STRESS INDUCED LEFT VENTRICULAR DYSFUNCTION IN PATIENTS WITH STABLE CORONARY ARTERY DISEASE

Wei Jiang, MD, Medicine and Psychiatry & Behavioral Sciences, Litong Qi, MD, Cardiology, Carolyn M. Martzsberger, PhD, Biological Psychiatry, Zainab Samad, MD, Joseph Rogers, MD, Cardiology, Redford Williams, MD, Behavioral Psychiatry and Medicine, Ranga Krishnan, MD, Psychiatry and Behavioral Sciences, Christopher M. O’Connor, MD, Eric J. Velazquez, MD, Cardiology, Duke University, Durham, NC

Mental stress induced myocardial ischemia or reduction of left ventricular ejection fraction (LVEF) predicts poor cardiac outcome in patients with coronary heart disease (CHD). This study evaluated the relationship of resting diastolic function and stress induced LVEF changes. Clinically stable CHD patients were tested at the baseline assessment of Responses of Myocardial Ischemia to Escitalopram Treatment trial for 3 mental stress (MS) tests and an exercise treadmill test (EST), with an initial and subsequent rest period, after a 1-2 day beta blocker hold. LVEF was measured from echocardiography performed at each period. Diastolic function was graded according to a scale determined by mitral annulus velocity of the lateral and septal walls during early diastole, the peak left atrial volume, the ratio of the E and A wave, and the de-acceleration time of the E-wave. A total of 131 patients were included in this study with a mean age 63.7±9.7 yrs. and 86.3% male. 38 patients had normal diastolic function at rest (ND) while 93 patients had diastolic dysfunction at rest (DD). Patients with DD were
older (65.9 ± 8.5 vs. 58.3 ± 10.3; p=0.002), had lower resting LVEF (56.0 ± 10.7 vs. 59.6 ± 8.03; p=0.04), and higher rate of past myocardial infarction (51.6 vs. 29.0%, p<0.018) compared to ND patients. Patients with DD were more likely to have mental stress induced LVEF reduction than patients with ND (odds ratio [OR]: 1.7; 95%CI: 1.1-2.6). However, LVEF changes during ES were not different between the groups (OR: 1.2; 95%CI: 0.5-2.9). LVEF changes between rest and MS or ES are shown in the table. The association of DD and reduction of LVEF under MS was independent of age, resting LVEF, and history of MI (OR: 2.514; 95%CI: 1.400-4.512).

<table>
<thead>
<tr>
<th>[LVEFstress, VEFrest]</th>
<th>MS1</th>
<th>MS2</th>
<th>MS3</th>
<th>ES</th>
</tr>
</thead>
<tbody>
<tr>
<td>ND [mean(SD)]</td>
<td>0.70 (4.84)</td>
<td>0.53 (5.67)</td>
<td>-0.08 (6.01)</td>
<td>3.91 (7.64)</td>
</tr>
<tr>
<td>DD [mean(SD)]</td>
<td>-0.88 (5.91)</td>
<td>-1.07 (4.90)</td>
<td>-0.92 (5.79)</td>
<td>3.12 (7.71)</td>
</tr>
</tbody>
</table>

213) Abstract 1763
SUCCESSFUL BEHAVIORAL INTERVENTION TRIALS FOR CORONARY HEART DISEASE. DO THEY DIFFER BETWEEN MEN AND WOMEN?
Kristina Orth-Gomer, PhD, Christina Waldin, PhD, May Blom, PhD, Othe Center, Karolinska Institutet, Stockholm, Sweden, Frank Zimmermann-Vichoff., Hans-Christian Deter, MD, Psychosomatic Medicine, Charité Universitätsmedizin, Berlin, Germany

In group based cognitive behavioral coronary interventions (CBT), women are often underrepresented. We previously conducted a trial of CBT in women, and found that quality of life and survival improved significantly in intervention compared to control patients. We now tested our method in a pilot study of both men and women. 19 men and 11 women (60 years or under) after an acute coronary event were referred to CBT because of high levels of emotional stress. Two groups of women and three groups of men were formed and CBT was provided according to our previous controlled intervention trial. The intervention was similar in men and women, but the stress experiences and the way they were presented and discussed differed substantially between men and women. Women spent more sessions discussing their heart disease and its origins, men tended to deny the role of their own lifestyle for their disease. 4 months after hospitalization, groups met for a total of 15 sessions over a year. A research nurse provided education about risk factors, relaxation techniques, methods for self-monitoring and cognitive restructuring, for self care and compliance with clinical advice. Questionnaires on Everyday stress exposure, the Hospital Anxiety and Depression scale (HADS), and the Health related Ladder of life were filled out before and after the intervention. Both men and women similarly reduced their rates of everyday stress and HADS anxiety score, and improved their quality of life, women more so than men. Multivariate control for clinical prognostic factors, including age, severity of disease, ejection fraction < 40 % and medications, largely confirmed the results. The most obvious behavioral change was found for Everyday Stress Behavior, which decreased more steeply in women than in men. Changes in standard behavioral or physiological risk factors did not explain the effects. In this pilot study, women seemed to benefit more than men from a group based CBT stress reduction intervention. Conclusions can only be tentative, but based on previous studies, spontaneous remissions are unlikely to explain the effects.

214) Abstract 1144
RESTING STATE BRAIN CORRELATES OF BAROREFLEX FUNCTION
Victoria Egizio, M.S., Psychology, Israel Christie, PhD, Psychiatry, Ike Oyenyuenyi, BA, Psychology, Lei Sheu, PhD, John Ryan, PhD, Peter Gianaros, PhD, Psychiatry, University of Pittsburgh, Pittsburgh, PA

The default mode network (DMN) is a brain circuitry widely studied in association with depressive symptomatology, ruminative cognition, and other psychological variables related to cardiovascular risk. Little attention, however, has been directed at testing whether DMN activity covaries with aspects of autonomic-cardiovascular control that may proximally relate to cardiovascular risk. Such covariability is plausible because the DMN includes brain systems that govern autonomic and neuroendocrine outflow to the heart and vasculature. Accordingly, we examined the covariation between DMN functional connectivity (correlated neural activity between brain regions), baroreflex sensitivity (BRS), and the baroreflex effectiveness index (BEI). BRS reflects the magnitude of heart rate (HR) responses corresponding to systolic blood pressure (SBP) changes. BEI reflects how often such SBP changes are met with compensatory changes in HR. BRS and BEI are complementary indices and predict differential clinical outcomes. Here, we obtained fMRI data and separately assessed baroreflex measures with a Finometer® PRO in 99 healthy adults (mean age=40, SD=6.08, 47 male) during comparable 5-min resting protocols. Chief results were that DMN functional connectivity, derived using a seed-based method anchored by the posterior cingulate cortex (PCC; MNI coordinates 0-60 12), covaried positively with both BRS and BEI, controlling for age, gender, resting SBP, and smoking status (ps <0.005, ts=2.98, ks<20 voxels). Critically, several central autonomic control regions within the DMN exhibited increased PCC-connectivity in association with higher BRS: namely, the parietal, temporal, and perigenual anterior cingulate cortices, as well as the cerebellum and insula. Further, the ventromedial prefrontal, temporal, and retrosplenial cortices, as well as the thalamus, cerebellum, amygdala, and cerebellum, also showed increased PCC-connectivity in association with higher BEI values. These findings advance our understanding of the role of the DMN in physical health in that aspects of autonomic-cardiovascular control, as reflected by baroreflex functionality, relate to DMN activity.

215) Abstract 1739
MINDFULNESS BASED MEDITATION RESULTS IN IMPROVED SUBJECTIVE EMOTIONAL ASSESSMENT AMONG PATIENTS WITH CORONARY ARTERY DISEASE: RESULTS FROM THE MINDFULNESS BASED STRESS REDUCTION STUDY
Anurag Kalshreshtha, MD, Catherine Norton, MD, Emir Veledar, PhD, Cardiology, Emory University, Atlanta, GA, Gina Eubanks., Public Health, University of South Florida, Tampa, Florida, David Sheps, MD, Cardiology, Emory University, Atlanta, GA

Introduction: Interventions to reduce mental stress have been shown to reduce stress reactivity and possibly improve some outcomes among patients with Coronary Artery Disease (CAD). Methods: We assigned 89 patients diagnosed with CAD to a mindfulness meditation intervention, a disease education control, or a usual care control for a period of eight weeks using a skewed 2:2:1 randomization scheme. All patients were given daily diaries and instructed to complete visual analog scales measuring feelings of anger, coping, frustration, sadness, stress, and tension that described their levels of these emotions for that day, on a scale from 0 (no stress, anger, etc.) to 10. Diaries were obtained every day for 2 weeks before intervention classes started and the last 2 weeks of the intervention class. The average was calculated for each emotion and the mean was then determined for each patient and each group. Data were analyzed using a general linear model approach. Results: Of the 89 patients enrolled, 45 patients were randomized to the mindfulness meditation intervention, 29 patients to the disease education control and 15 patients to usual care. The mean age of the participants was 64±9 years, 80% were white and 37% were females. We had diary data from 75 patients. Patients in the meditation group had a significant decrease in mean sadness=SD, from 13±11mm before to 12±13mm after the meditation intervention compared to patients in the cardiac education control (17±16mm before to 20±21mm after; p-value=0.05). Similarly a significant decrease in stress was observed for the meditation arm (32±20mm before to 24±20mm after; p-value=0.033) compared to the cardiac education control (27±20mm before to 32±21mm after). Improved trends were observed for other variables: frustration, anger, coping and tension in the meditation arm compared to the cardiac education and usual care control but they were not statistically significant. Conclusion: Mindfulness meditation may result in better emotional adjustment (e.g. decreased feelings of stress and sadness) among patients with CAD.
SLEEP AND MARKERS OF LOW GROWTH HORMONE AS MEDIATORS BETWEEN DEPRESSIVE SYMPTOMS AND INFLAMMATORY DISEASES
Elissa H. Patterson, PhD, Psychiatry, Boston University School of Medicine, Boston, MA, Martha K. McClintock, PhD, Psychology, University of Chicago, Chicago, IL

The number and scope of scientifically documented associations between depression and negative health outcomes have been growing rapidly over the last 25 years. In addition, depression is associated with sleep disturbance, suggesting it may link deteriorating mental and physical health. Using biomarkers and self-reported measures from a nationally representative sample of 3005 adults, age 57-85, from the National Social Life, Health, and Aging Project (NSHAP), we present cross-sectional evidence in support of a pathway that links depression, inadequate sleep, and an index of symptoms indicating low levels of growth hormone (GH): elevated C-reactive protein (CRP), central obesity, frailty, elevated glycosylated hemoglobin, diabetes, and hypertension. As expected based on our model, men and women with higher levels of depressive symptoms had lower levels of GH as measured by the index ($F_{[13, 44]} = 36.52, p = 0.0005$). Furthermore, individuals with greater symptoms of depression had decreased odds of reporting satisfactory sleep in multivariate analysis controlling for demographic variables, including BMI, waist size, and disease diagnoses ($OR = 0.183, SE = 0.015, F_{[10, 45]} = 41.00, p = 0.0005$). Thus, these results provide evidence that depressive symptoms are associated with inflammation and associated disease processes via poor quality sleep and the associated decrease in GH levels.

217) Abstract 1397

THE INFLUENCE OF DEPRESSION, ANTI-DEPRESSANT MEDICATION ON MORTALITY IN A SAMPLE OF PORTUGUESE HEART FAILURE PATIENTS, AT 1-YEAR FOLLOW-UP
Margarida Fontelonga Bento, master, Internal Medicine, H.São Francisco Xavier, Faculty Ciências Médicas, UL, Lisbon, Portugal, Cândida Fonseca, Internal Medicine, H.São Francisco Xavier, Faculty Ciências Médicas, UN, Lisbon, Portugal, Filipa Marques, MD, Internal Medicine, H.São Francisco Xavier, Faculty Ciências Médicas, UN, Lisbon, Portugal, Arturo Botella, MD, Internal Medicine, H.São Francisco Xavier, Faculty Ciências Médicas, UL, Lisbon, Portugal, Ana Leitão, MD, Internal Medicine, H.São Francisco Xavier, Faculty Ciências Médicas, UL, Lisbon, Portugal, Ricardo Gumsão, PhD, Psychiatry, Faculty Ciências Médicas, UN, Lisbon, Portugal, William Gorin, PhD, Biobehavioural Health, University Pennsylvania, Pennsylvania, Paul J. Mills, PhD, Psychiatry, University California, San Diego, Fátima Ceia, PhD, Internal Medicine, H.São Francisco Xavier, Faculty Ciências Médicas, UN, Lisbon, Portugal

Heart failure (HF) is associated with poor outcomes, including a high mortality and hospitalizations rate. Mortality is about 50% 4 to 5 years after the initial diagnosis of HF is made. Some predictors of mortality in HF have been studied: depression (in its multiple biobehaviour and psychosocial pathways), older age, severity of HF (NYHA and NT-proBNP) and, for depressed patients, not being on anti-depressant medication. The aim of this study was to examine predictors of mortality in HF patients over a 1-year interval. Methods: 51 HF patients (diagnosed according to ESC), NYHA functional classes I-IV, male 66%, mean age 72.94 ± 12.65 years. Sociodemographic, clinical data and outcomes were obtained from the medical files and through patient interviews. Follow-up was obtained from medical records. Depression ratings were obtained by BDI-II. Results: The mortality rate at 1-year follow-up was 17.6%. Depression ($p=0.028$), cognitive symptoms of depression ($p=0.009$), greater severity of HF, including higher NYHA class ($p=0.013$) and NT-proBNP > median ($p=0.001$), higher heart rate ($p=0.001$), higher sum of congestive symptoms and signs ($p=0.005$), measured one year prior were associated with a greater mortality rate. Other variables measured during the prior year were also associated, including more episodes of acute HF ($p=0.008$), higher total hospitalizations ($p=0.038$) and higher cardiovascular hospitalizations ($p=0.038$). In multiple regression analysis adjusting to age, HF aetiology and anti-depression drug use, the clinical and psychological predictors of mortality were depression (OR, 6.25; 1.036-37.75) and NYHA class (OR, 8.99; 0.912-88.78). Conclusion: In this sample of Portuguese HF patients, severity of depression was independently associated with long-term mortality. Effective treatment of depression in this population is clearly warranted.

218) Abstract 1709

THE IMPACT OF VITAL EXHAUSTION, DEPRESSED MOOD AND FATIGUE ON CORONARY ATHEROSCLEROSIS PROGRESSION IN YOUNGER WOMEN AFTER AN ACUTE CORONARY EVENT
Frank Zimmermann-Viehoff, MD, Psychosomatic Medicine, Charité Universitätsmedizin, Berlin, Germany, Huxin Wang, PhD, Public Health Science, Karolinska Institute, Stockholm, Sweden, Richard Kirkeide, MD, Health Science, University of Texas, Houston, TXs, Neil Schneiderman, PhD, Psychology, University of Miami, Miami, FL, Laurence Erdr, Psychosomatic Medicine, Charité Universitätsmedizin, Berlin, Germany, Kristina Orth-Gomer, PhD, Department of Public Health Science, Karolinska Institutet, Stockholm, Sweden

Objective: We investigated the impact of vital exhaustion (VE) on coronary atherosclerosis progression over three years. We further aimed to detect whether any of the VE subcomponents of fatigue or depressed mood were especially cardiotoxic. Methods: 103 women after an acute coronary event from the Stockholm Female Coronary risk study (age range 35-65 years) underwent repeated quantitative coronary angiography. VE was assessed at baseline using the Maastricht Questionnaire. For our analysis, women were allocated to four groups according to their quartile distribution of the VE, fatigue and depressed mood scores. Results: Women with high VE scores at baseline showed more pronounced coronary artery laminar diameter narrowing than those with mild or low levels regardless of absolute change or percent change ($p<0.0001$). On average, women in the highest quartile of VE showed a decrease in the coronary artery diameter of 0.21 mm, whereas women in the first and second quartiles showed no significant change. Results remained significant after adjustment for standard medical, sociodemographic and behavioural risk factors. The depressed mood and fatigue subscales were also significantly associated with coronary artery luminal diameter ($p=0.003$ and $p=0.03$ respectively). Other variables measured during the prior year were also associated, including more episodes of acute HF ($p=0.007$ and $p=0.07$ respectively). Conclusion: Our results confirm and extend previous evidence linking VE to poor prognosis in coronary heart disease patients. We showed that VE was associated with accelerated coronary atherosclerosis progression in a high risk group of younger women after an acute coronary event, and that this association was mainly driven by depressed mood.

219) Abstract 1435

BERLIN ANXIETY INTERVENTION TRIAL (BAT) IN PATIENTS WITH CORONARY HEART DISEASE (CHD)

Background: Patients with CHD often show high anxiety (A) before and during hospitalization. Methods: 103 patients with CHD in a previously tested behavioural intervention. Patients (age ≤ 75 years) were included if they had a score of 8 or higher on the HADS-A. This and the Freiburg Questionnaire for Coping with Illness were evaluated. The treatment had a score of 8 or higher on the HADS-A. This and the Freiburg Questionnaire were evaluated. For our analysis, women were allocated to four groups according to their quartile distribution of the VE, fatigue and depressed mood scores. Results: Women with high VE scores at baseline showed more pronounced coronary artery laminar diameter narrowing than those with mild or low levels regardless of absolute change or percent change ($p<0.0001$). On average, women in the highest quartile of VE showed a decrease in the coronary artery diameter of 0.21 mm, whereas women in the first and second quartiles showed no significant change. Results remained significant after adjustment for standard medical, sociodemographic and behavioural risk factors. The depressed mood and fatigue subscales were also significantly associated with coronary artery luminal diameter ($p=0.003$ and $p=0.03$ respectively). Other variables measured during the prior year were also associated, including more episodes of acute HF ($p=0.007$ and $p=0.07$ respectively). Conclusion: Our results confirm and extend previous evidence linking VE to poor prognosis in coronary heart disease patients. We showed that VE was associated with accelerated coronary atherosclerosis progression in a high risk group of younger women after an acute coronary event, and that this association was mainly driven by depressed mood.
Methods: ACS Patients (N = 457) completed the Beck Depression Inventory (BDI) and vulnerability measures (measures of rumination/brooding (RB), dysfunctional attitudes (DAS), lack of pleasant events (PES), dyadic adjustment disagreement (DYAD), and role transitions (RLT) at hospitalization and after 3 months. Hierarchical regression analyses were used. We used demographic covariates (age, sex, partner, years of schooling, and work status) in the 1st step, other depression vulnerabilities (DAS, PES, DYAD, and RLT) in the 2nd step, and the Ruminiation vulnerability (RB) in the 3rd step of the model. Results: RB is independently related to elevated depressive symptoms both predictively, baseline to 3 months (Beta = .309, 7.5% R2 change, p < .001) and concurrently, 3 months to 3 months (Beta = .380, 9.2% R2 change, p < .001). RB also generally amplifies the effects of other vulnerabilities, DAS (1.7% R2 change, p < .001), PES (1.6% R2 change, p < .001) and amplifies one vulnerability 3 months later (DYAD 1.5% R2 change, p < .05). Specifically, the form of each interaction indicates that the presence of rumination/brooding worsens the level of depressive symptoms with each other vulnerability. Discussion: Rumination is an independent predictor of elevated depressive symptoms at 3 months after an ACS. Patients with one other depression vulnerability and the tendency to brood have the highest level of depressive symptoms.

220) Abstract 1597

TYPE D PERSONALITY, DISEASE SEVERITY AND CARDIOVASCULAR RISK FACTORS IN ICELANDIC CORONARY ARTERY DISEASE PATIENTS

Erla Svansdottir, cand. psych, Krista C. Van den Broek, PhD, CoRPS-Department of Medical Psychology, Tilburg University, Tilburg, The Netherlands, Hrobtjurtar D. Karlsson, MD, Department of Cardiology, Icelandic Heart Association, Kópavogur, Iceland, Thorarinn Gudnason, MD, Department of Cardiology, Landspitali University Hospital, Reykjavík, Iceland, Johan Donollet, PhD, CoRPS-Department of Medical Psychology, Tilburg University, Tilburg, The Netherlands

Purpose: Type D personality (the combination of negative affectivity and social inhibition) has been associated with increased morbidity and mortality across diverse cardiovascular disease (CVD) groups, independent of disease severity and standard risk factors. The aim of this study was (1) to assess whether Type D personality is also independent of disease severity and standard risk factors in Icelandic patients with established coronary artery disease (CAD) and (2) to examine potential gender differences. Method: The sample consisted of 1427 Icelandic CAD patients (mean age= 64 years (SD 10), 78% males) undergoing coronary angiography. Demographic and clinical data regarding disease severity and CVD risk factors were gathered cross-sectionally from medical files. The Type D scale (DS14) was administered to all participants. Results: Prevalence of Type D personality (24%) was similar to previous studies. Type D personality was not associated with indicators of disease severity (consisting of multivessel disease (p= 0.71), angina symptoms (p = 0.47) and invasive treatment (p = 0.39)). No association was found between Type D personality and standard risk factors, aside from more smoking in men, with 31% of Type D men vs. 23% of non-Type D men reporting current smoking (p < 0.001). Similar prevalence rates of smoking were found in Type Ds and non-Type Ds in the considerably smaller group of women. Finally, Type D women (mean age= 63 years (SD 11)) were of similar age as men (mean age= 64 years (SD 10)), but on average 6 years younger than non-Type D women (mean age= 69 years (SD 9); p < 0.001), while having comparable disease severity as their female counterparts. Conclusion: Type D personality was not associated with worse disease severity in Type D patients in general, and the possibility of earlier coronary artery disease progression in Type D women.

221) Abstract 1630

RUMINATION AS A DEPRESSION VULNERABILITY AFTER ACUTE CORONARY SYNDROME

Ellen-ge D. Denton, PsyD, Department of Medicine, Columbia University, New York, New York, Nina Rieckmann, MD, Department of Health Psychology, Free University Berlin, Berlin, Germany, Chaplin Karina W. Davidson, PhD, Department of Medicine, Columbia University, New York, New York

Depression vulnerabilities may predispose individuals to develop depression after a significant life stressor (Monroe et al., 1991). The purpose of this study is to determine whether rumination is an independent vulnerability of depressive symptoms among ACS patients and to test if rumination amplifies other depression vulnerabilities. Methods: ACS Patients (N = 457) completed the Beck Depression Inventory (BDI) and vulnerability measures (measures of rumination/brooding (RB), dysfunctional attitudes (DAS), lack of pleasant events (PES), dyadic adjustment disagreement (DYAD), and role transitions (RLT) at hospitalization and after 3 months. Hierarchical regression analyses were used. We used demographic covariates (age, sex, partner, years of schooling, and work status) in the 1st step, other depression vulnerabilities (DAS, PES, DYAD, and RLT) in the 2nd step, and the Ruminiation vulnerability (RB) in the 3rd step of the model. Results: RB is independently related to elevated depressive symptoms both predictively, baseline to 3 months (Beta = .309, 7.5% R2 change, p < .001) and concurrently, 3 months to 3 months (Beta = .380, 9.2% R2 change, p < .001). RB also generally amplifies the effects of other vulnerabilities, DAS (1.7% R2 change, p < .001), PES (1.6% R2 change, p < .001) and amplifies one vulnerability 3 months later (DYAD 1.5% R2 change, p < .05). Specifically, the form of each interaction indicates that the presence of rumination/brooding worsens the level of depressive symptoms with each other vulnerability. Discussion: Rumination is an independent predictor of elevated depressive symptoms at 3 months after an ACS. Patients with one other depression vulnerability and the tendency to brood have the highest level of depressive symptoms.

222) Abstract 1719

PHYSICAL AFFECTION IN MARRIAGE AND RISK FACTORS FOR CARDIOVASCULAR DISEASE

Bryan Jensen, B.S., Juliane Holt-Lunstad, PhD, Patrick R. Steffen, PhD, Psychology, Jonathan Sandberg, PhD, Family Life, School of, Rondi Jenson, B.S., David Marsh, Psychology, Brigham Young University Provo (1100102221), Provo, Utah

Purpose: Epidemiological research indicates that marriage may significantly protect individuals from various causes of morbidity and mortality including cardiovascular disease (Johnson et al., 2000). One relatively understudied pathway by which this might occur is the role of physical affection. Previous research has shown that couples who use warm touch affection (holding hands and sitting close with each other) exhibited lower reactivity to stress (Grewen, Anderson, Girdler, & Light, 2003). The present study aims to examine the potential benefits of physical closeness and touch on cardiovascular health within marriage. Sample: 102 normotensive, pre-hypertensive and unmedicated hypertensive married individuals (n= 51 couples) who were seeking marital therapy were recruited via advertisement from the community and at clinic intake. The sample consisted mostly of non-Hispanic White (83%) and African American (10 %) participants ages 19-71 (M = 29). Method: The physical affection scale (OT) and risk factors for cardiovascular disease (CVD) were obtained at baseline assessment. CVD Risk assessment included 24-hour ambulatory blood pressure (ABP) and a blood draw to obtain physiological markers including blood lipids, impaired fasting glucose, and hemoglobin A1C (H-A1c). Results: Correlation analysis revealed negative relationships between overall amount of physical affection and diastolic ABP (r = -.38, p = .02), H-A1c (r = .20, p < .05). Additionally, multiple regression analysis tested whether physical affection was predictive of these correlated CVD risk factors. Higher overall physical affection only predicted lower H-A1c (b = -.011, p < .05); with a higher frequency of physical affection characterized by warm touch (hugging and sexual intercourse) being the most predictive of lower H-A1c (b = -.05, p < .01). These results suggest that warm touch within marriage can have a positive influence on cardiac health.

223) Abstract 1265

PERSONALITY DIMENSIONS AND MOOD SYMPTOMS IN RELATION TO HEALTH RELATED QUALITY OF LIFE IN PATIENTS WITH CORONARY ARTERY DISEASE

Juste Buneviciute, BS, Psychiatry, University of North Carolina at Chapel Hill, Chapel Hill, NC, Margarita Staniute, PhD, Robertas Bunevicius, MD/PhD, Institute of Psychophysiology and Rehabilitation, Palanga, Lithuania

Objective: Health-related quality of life (HRQoL) is an important outcome parameter in patients with coronary artery disease (CAD). The aim of the study was to examine the effects of personality dimensions in relation to the symptoms of depression and quality of life in patients with CAD. Methods: Five hundred fourteen consecutive
patients with CAD attending rehabilitation program were invited to the study. Patients filled in three scales, the 36-item Short Form Medical Outcome Questionnaire (SF-36), the Ten Item Personality Inventory (TIPI), and the Hospital Anxiety and Depression scale (HADS). A stepwise linear regression analysis was used to examine if personality dimensions or symptoms of depression and anxiety determine HRQoL. Results: Scores of the HADS subscale of depression were the strongest determinants for the scores on the majority of the SF-36 scales, but scores of the HADS subscale of anxiety were strongest determinants for the Role Limitations due to Emotional Problems; and the TIPI Emotional Stability dimension was the strongest independent determinant of the SF-36 score on the subscale of Mental Health. Conclusions: Personality trait of emotional stability and symptoms of depression and anxiety have independent significant effect on the HRQoL in patients with CAD. Psychological interventions in CAD patients should be extended to the management of personality traits and should not be limited to the treatment of symptoms of depression and anxiety alone.

224) Abstract 1349
NEGATIVE EMOTIONS AND POOR RELATIONSHIPS ARE ASSOCIATED WITH AN INCREASED NUMBER OF METABOLIC RISK FACTORS IN ADOLESCENTS.
Aimee J. Midei, M.S., Psychology, Martica H. Hall, Ph.D., Karen A. Matthews, Ph.D., Psychiatry and Psychology, University of Pittsburgh, Pittsburgh, PA

Previous research suggests that negative emotions and poor social relationships predict arterial stiffness and increases in adiposity in adolescence. The purpose of this study was to examine whether negative emotions and poor social relationships are associated with the clustering of metabolic risk factors in black and white adolescents. Participants were 173 adolescents (53% Black, 56% Female) from Pittsburgh Project Pressure II (mean age = 15.8). Metabolic risk factors included SBP >= 130 or DBP >= 85 mmHg, waist circumference >= 40 inches (males) or 35 inches (females), triglycerides >= 150 mg/dl, HDL <= 40 mg/dl (males) or 50 (females), and fasting glucose >= 100 mg/dl. Adolescents were categorized as having 0 metabolic risk factors (n = 58), 1 risk factor (n = 68), or 2-4 risk factors (n = 47). Positive Affect and Negative Affect Schedule, Life Orientation Test, Rosenberg Self-Esteem scale, Spielberger Trait Anger scale, Cook-Medley Cynicism scale, Attachment Qualities, and subjective socioeconomic status (SES) were measured. After adjusting for age, sex, and race, ANCOVAs showed that adolescents with 2-4 metabolic risk factors had higher negative affect (F(2, 167) = 7.75, p < .01) and attachment avoidance (F(2, 167) = 3.56, p < .04), and lower self-esteem (F(2, 167) = 5.18, p < .01) and subjective SES measured against peers (F(2, 167) = 8.07, p < .01) compared to those with fewer metabolic risk factors. Interactions between risk factor category and gender (p < .04) showed that increased metabolic risk factors were associated with higher trait anger (β = .19, p = .06), pessimism (β = .26, p < .01) and attachment avoidance (β = .27, p < .01) in girls, whereas increased metabolic risk factors were associated with lower positive affect in boys (β = -.26, p < .03). In sum, adolescents with an increased number of metabolic risk factors experience more negative emotions and have difficulty with relationships, with some associations stronger among girls. Supported by HL025767.

225) Abstract 1301
INTEREST IN QUALITY OF LIFE COUNSELING FOR ATRIAL FIBRILLATION PATIENTS.
Sabine N. Johnson, M.Sc., Psychology, York University, Toronto, ON, Canada, Taavir Khaykin, MD, Cardiology, Southlake Regional Health Centre, Newmarket, ON, Canada, Brian Baker, MBChB, Division of Behavioural Sciences & Health, Toronto General Research Institute, Toronto, ON, Canada, Jane Irvine, Ph.D., Psychology, York University, Toronto, ON, Canada

Purpose: The prevalence of elevated anxiety symptoms in atrial fibrillation (AF) patients is high relative to other health populations such as hypertensives, both prior to and 6 months after radiofrequency ablation (RFA) for AF treatment. This suggests the need for psychological intervention for some AF patients; however previous research has observed a low acceptance of psychological treatments in medical patients. The aim of this study was to examine AF patients perception of their health care needs (HCN), interest in psychological treatment, and preferred treatment modality (PTM). We also examined the relationship between HCN, AF type (paroxysmal vs. persistent/permanent) and PTM. Method: A convenience sample of AF patients were recruited to complete a survey during their first electrophysiology (EP) clinic visit. Method: ‘Needs Survey’ assessed demographics, AF type, HCN and PTM. Sample: Adults (n=42) 18 years plus, assessed at the EP clinic for RFA treatment. Results: Patients (78.6% male, 54.9±9.33 years) identified sleep (87.2%) and exercise (85.0%) as most common HCN overall. Anxiety (82.9%) and stress management (79.5%) were the top psychological HCN. Reading materials (59.5%), web-based materials with (39.0%) and without (11.9%) clinician advice, mobile phone apps (17.4%) and consultation with a counselor (22.7%) were the top PTMs. There were no differences in HCN or PTM in AF patients who required urgent RFA (within 6 months) vs non-RFA candidates (p<0.05). AF patients with severe symptoms chose counselor-led classes (83.3%) significantly more than less severe AF patients (16.7%) (X2(1)=5.74, p=.03). Fisher's exact tests showed trends in the relationship between HCN endorsed and PTM. A greater proportion of patients who endorsed stress and meditation also desired having a counselor present (X2(1)=4.04, p=.06; X2(1)=3.85, p=.06 respectively). In sum, AF patients expressed a desire for psychological services as part of their HCN and endorsed reading materials as their most PTM. Some PTMs differed depending on type of AF and HCN chosen; however, greater statistical power is needed to determine if these results suggest that PTM be tailored to specific HCN being addressed.

226) Abstract 1328
ASSOCIATION BETWEEN DEPRESSIVE AND ANXIETY DISORDERS AND PERIODONTAL DISEASE: ANALYSIS OF 1999-2004 NHANES DATA.
Tasneem Khambaty, B.S., Jesse C. Stewart, Ph.D., Psychology, Indiana University Purdue University Indianapolis, Indianapolis, Indiana

Prospective studies suggest that emotional factors, including depression and anxiety may be risk factors for cardiovascular disease (CVD). Although several possible mediators of these associations have been proposed, the precise mechanisms have not been identified. Accordingly, we examined the relationships between depressive and anxiety disorders and periodontal disease, which may be a novel mediator of the emotional factors-CVD associations given its separate links with depression, anxiety and CVD. Data from the 1999-2004 waves of the National Health and Nutrition Examination Survey (NHANES) - a large probability sample representative of the U.S. population - were examined. Participants were 1,969 individuals aged 20-39 years (55% female, 54% non-white, free of CVD) who were administered the major depression, panic disorder, and generalized anxiety disorder modules of the Composite International Diagnostic Interview. Participants were also examined by a licensed dentist and periodontal disease was defined according to the Healthy People 2010 definition of one or more sites with loss of attachment of ≥ 4 mm. There were 122 (6.2%) cases of periodontal disease, 126 (6.4%) cases of major depression and 71 (3.6%) cases of anxiety disorders in the sample. Logistic regression analyses, adjusted for the complex NHANES sample design, revealed that the presence of an anxiety disorder was associated with an increased likelihood of periodontal disease (OR=2.57, 95% CI: 1.12-5.89, p=.02), while the relationship between major depression and periodontal disease was not significant (OR=1.12, 95% CI: 0.51-2.45, p=.77). Further adjustment for age, sex, race-ethnicity, diabetes, pregnancy, and smoking only slightly attenuated the magnitude of odds ratio for anxiety disorder; however, it did not affect short of significance (OR=2.03, 95% CI:0.85-4.88, p=.11). These findings raise the possibility that the presence of an anxiety disorder, but perhaps not major depression, may be a risk factor for periodontal disease.

227) Abstract 1240
ENVIRONMENTAL INFLUENCES ON CARDIOVASCULAR DISEASE RISK: OBJECTIVE VERSUS SUBJECTIVE NEIGHBORHOOD CHARACTERISTICS IN RELATION TO METABOLIC SYNDROME FACTORS IN MEXICAN-AMERICAN WOMEN.
Study Purpose. Social contexts may contribute to health disparities beyond individual-level influences. The current study investigated how objective (census-tract socioeconomic status; SES) and subjective features of neighborhood environments related to blood pressure (BP; systolic and diastolic), lipid (HDL cholesterol, triglycerides), and metabolic (waist circumference, plasma glucose) components of the Metabolic Syndrome (MetSyn) in Mexican-American women. Sample and Methods. A randomly-selected community sample of 304 Mexican-American women (mean age = 49.8, SD = 6.58) completed questionnaires assessing demographics and perceptions of neighborhood social (e.g., crime, loitering) and physical (e.g., vandalism, noise) disorder. SES was indicated by a composite of income and education at both individual (self-reported) and census tract (area) levels. Trained assessors measured BP and waist circumference. Blood plasma levels of lipids and glucose were collected through a fasting venous blood draw.

Structural equation modeling of MetSyn revealed a 3-factor solution comprised of BP, lipid, and metabolic factors. Hierarchical linear modeling was used to address clustering in analyses of neighborhood disorder. Within SES factors and multi-level area SES on MetSyn factors. All analyses were adjusted for age and individual SES. Summary of Results. Analyses revealed positive associations of neighborhood social disorder with lipid (p=.02) and metabolic factors (marginal; p<.10), but no association with the BP factor (p>.05). Physical disorder did not relate to any factors (all p>.05). Area SES was negatively associated with all MetSyn factors (all ps<.001). When entered simultaneously, area SES association remained significant. Social disorder effects became nonsignificant. Findings underscore the importance of macro-level influences on CVD risk, and the utility of subjective and objective neighborhood characteristics in relation to MetSyn.

228 Abstract 1225

BETA BLOCKADE DOES NOT PROTECT AGAINST THE HEMOCONCENTRATING EFFECTS OF MENTAL STRESS

Jet Veldhuijzen van Zanten, PhD, Sport and Exercise Sciences, University of Birmingham, Birmingham, United Kingdom, Paul J. Mills, PhD, Psychiatry and Behavioral Medicine, University of California, San Diego, San Diego, California, Natalie E. Fudelik, PhD, Sport and Exercise Sciences, University of Birmingham, Birmingham, United Kingdom, Kate M. Edwards, PhD, Psychiatry and Behavioral Medicine, University of California, San Diego, San Diego, California, Roland von Kanel, MD, General Internal Medicine, University of Bern, Bern, Switzerland, Brigitte M. Kudielka, PhD, Jacobs Center on Lifelong Learning & Institutional D, Jacobs University Bremen, Bremen, Germany, Joachim E. Fischer, MD, Public Health & Social Medicine, Heinrich-Heine University Düsseldorf, Germany, Jos A. Rosch, PhD, Sport and Exercise Sciences, University of Birmingham, Birmingham, United Kingdom

Mental stress-induced hemoconcentration, measured by a reduction in plasma volume (PVol), increases shear stress on blood vessels which may in part explain how stressful events trigger cardiac events. The mechanisms underlying stress-hemoconcentration remain poorly understood. The two studies described here examined the effects of beta-adrenergic blockade on hemoconcentration induced by mental stress and induced by infusion of the beta-agonist isoproterenol.

Methods: In Study 1, 67 healthy participants (mean age 47 years, 44 men) underwent the Trier Social Stress Test, whereby 33 participants underwent beta-blockade using a double-blind placebo-controlled design. In Study 2, 19 healthy participants (mean age 35 years, 11 men) underwent beta-blockade using an isoproterenol infusion (average infusion rate=34 μg/min/1.73 m²). 8 participants were infused twice, with and without beta-blockade (order counter-balanced), using a single-blind placebo-controlled design. In both studies beta-blockade was achieved by 5 days of 80 mg of oral propanolol (Inderal). Results: Mental stress induced the well-known effects on hemoconcentration (PVol -4.6%, p<.001) and BP (Systolic BP +12mmHg, p<.05) in both the placebo and the blockade condition, yielding a non-significant condition effect (p>.6). Infused isoproterenol similarly induced hemoconcentration (PVol -5.1%, p<.001) and increased BP (Systolic BP +16mmHg, p<.001). However, these effects were completely abrogated by propanolol (condition effect p<.01). Conclusion: Mental stress-induced hemoconcentration involves a pathway that is distinct from the hemoconcentrating effects of isoproterenol. The fact that hemoconcentration and BP responses during stress were both unaffected by beta-blockade suggests a role for alpha-adrenergic vascular mechanisms in stress-hemoconcentration. In contrast, the effects on hemoconcentration of isoproterenol were likely accomplished through beta-adrenergic cardiac activation. These findings indicate that beta-blockers do not protect against the consequences of mental stress-induced hemoconcentration, such as increased shear stress.

229 Abstract 1217
WITHDRAWN

230 Abstract 1180

EXPLORING THE HEMODYNAMIC EFFECTS OF STATE PERSEVERATIVE COGNITION

Lauren K. Hill, M.S., Effects of Cardiac Autonomic Activity on Body Mass Index in Adults, The Ohio State University, Columbus, OH, Dewanye P. Williams, M.S., Psychology, The Ohio State University, Columbus, Ohio, Dixie D. Hu, B.S., Psychology, The Ohio State University, Columbus, OH, John J. Sollers, III, PhD, Psychological Medicine, University of Auckland, Auckland, New Zealand, Julian F. Thayer, PhD, Psychology, The Ohio State University, Columbus, OH

Numerous studies have now confirmed the cardiac-acceleratory (i.e. increased heart rate|HR) effects of induced or state worry. Assuming that the concomitant decrease in heart rate variability (HRV) represents a robust and consistent observation, an equally feasible assumption is that worrisome thinking or Perseverative Cognition (PC) is also associated with an increase in blood pressure (BP) and related dynamics. Surprisingly, few investigations have sought to explore changes in other hemodynamic mechanisms during an induced state of worry. We report on preliminary results indicating a consistent pattern of elevations in BP and related hemodynamics (i.e. cardiac output|CO) during a state PC induction and relative to baseline in a sample of young, healthy individuals (33 males, 33 females, 68% European American, Mage = 19.50, SD = 3.0). Specifically, actively perseverating was associated with significant increases in HR, BP and CO and a significant decrease in HRV across all participants (p<.05). This pattern suggests that PC may have a greater immediate impact on autonomic-hemodynamic regulation than previously suggested.

231 Abstract 1699

PHYSICAL ACTIVITY AS A MODERATOR OF THE ASSOCIATION OF PERCEIVED STRESS WITH SYSTEMIC INFLAMMATION

Alvin Lim, BSc, Anna L. Marsland, PhD, Psychology, Matthew F. Muldoon, MD, Medicine, University of Pittsburgh, Pittsburgh, Pennsylvania, Stephen B. Manuck, PhD, Psychology, University of Pittsburgh, Pittsburgh, PA

It is widely suggested that physical activity buffers the negative impact of psychological stress on physical health. Evidence supports a positive association of stress and an inverse association of physical activity with levels of systemic inflammation and risk for the future onset and progression of inflammatory disease. However, it is unclear whether physical activity moderates the impact of stress on inflammation. To explore this possibility, we measured plasma levels of interleukin (IL)-6, a marker of systemic inflammation, perceived stress, and physical activity among 1,019 community dwelling adults aged 30 to 54 (52% female, 84% Caucasian, 16% African American). Perceived stress was assessed...
with the Perceived Stress Scale and an estimate of the kilocalories expended per week was derived from the Paffenbarger Physical Activity Questionnaire. After controlling for age, gender, race and smoking status, hierarchical regression analyses revealed a positive association of perceived stress and a negative association of physical activity with IL-6 (b=-1.38, p<.01 and b=-.094, p<.01 respectively). In addition, there was a trend for perceived stress and physical activity to interact in the prediction of IL-6 (b=-.175, p=.06), with individuals reporting high stress and low physical activity showing greater levels of IL-6 than those who were stressed, but more active. Although these findings provide some support for a stress buffering hypothesis, the associations of physical activity and perceived stress with IL-6 were largely independent, suggesting that individuals who have low levels of perceived stress and who are more physically active may be at decreased risk for inflammatory disease. Support for this project as provided by NIH PO1 HL040962

232) Abstract 1784
THE ADVANTAGE OF MARITAL STATUS IN CARDIAC SURGERY
Lori E. Stone, BS, Sari D. Holmes, PhD, Lisa M. Martin, PhD, Sharon L. Hunt, MBA, Linda L. Henry, PhD, Niv Ad, MD. Cardiac Surgery Research, Inova Heart and Vascular Institute, Falls Church, VA
Objective: Social support is vital to recovery from cardiac surgery. Marital relationships are a large component of a patient's social support system. The objective of this study was to examine the effect of marital status on outcomes and survival in coronary artery bypass (CABG) surgery patients.
Methods: Data was available from 6,942 patients who underwent isolated first-time CABG surgery at our institution since 2001. Outcome measures included length of hospital stay (LOS), fast-track status with "Rapid After Bypass Back Into Telemetry" (RABBIT), discharge disposition, and 5 year survival.
Results: Married patients (n=4792) were younger (t=4.77, p<0.001), had a higher ejection fraction (t=-4.52, p<0.001), and a lower predicted operative risk (EuroSCORE II=-13.92, p<0.001). Husbands of patients (n=2150) married had better outcomes with a shorter LOS (t=-6.93, p<0.001), more likely to be a RABBIT (Chi-Square=7.87, p<0.006), and more often discharged home (Chi-Square=61.43, p<0.001). Kaplan-Meier survival analysis found that married patients had significantly greater 5 year survival (Log Rank=-35.42, p<0.001). After adjusting for the pre and postoperative factors, marital status remained only a marginally significant predictor of survival (HR=0.85, p=0.07). Additionally, those with shorter LOS, RABBIT, and home discharge were significantly younger and healthier at admission regardless of marital status.
Conclusions: Examining preoperative risk factors found that married patients presented for CABG surgery in more favorable circumstances and experienced improved outcomes (LOS, fast-track status, discharge disposition and survival). The preoperative advantages of the married patients appeared to account for the postoperative benefits, which in turn were beneficial to long-term survival. A supportive or concerned spouse may encourage earlier recognition and treatment of heart disease, which can lead to better outcomes, particularly after CABG surgery. Prevention tactics directed towards the unmarried should focus on the signs of heart disease and prescribe earlier treatment for optimal outcomes.

233) Abstract 1777
CARDIAC AUTONOMIC REGULATION AND DEPRESSIVE SYMPTOMOLOGY IN A HEALTHY COLLEGE SAMPLE
Larry D. Keen II, M.S., Psychology, Howard University, Hyattsville, MD, Jules Harrell, PhD, Denee Mwendwa, PhD, Alfonso Campbell Jr., PhD, Psychology, Psychology and Epidemiology, University of Washington, D.C.
Depression is associated with increased morbidity and mortality when it accompanies cardiovascular disease. The mechanisms through which depression exacerbates physical illnesses remain unclear. Likewise, studies of the association between autonomic activity and depression have produced equivocal findings. Previous investigations have reported that depressive symptoms are associated with decreased heart rate variability in clinical and healthy adult samples. However, these samples did not include college students. The purpose of this study was to examine the relationship between autonomic regulation and depressive symptomology in a sample of healthy college students. The sample included 72 college students (18 males and 55 females) with a mean age of 20.23 years (SD= 2.69). After giving informed consent, participants completed demographic and other questionnaires, including the Beck Depression Inventory II (BDI-II). Before the participants were escorted to the quiet test room, a six-lead ambulatory impedance cardiographic monitoring system was attached. Baseline measurements of blood pressure, thoracic impedance, and the interbeat intervals (expressed in milliseconds) between the R waves of the ECG were obtained. Cardiac pre-ejection period and high frequency fluctuations in heart rate variability were used to derive a measure of cardiac autonomic regulation (CAR) (Berntson et al., Psychophys, 2008, p. 643). Multiple regression analysis revealed a significant positive association between CAR and BDI-II total scores (Beta = .281, p = .022) after adjusting for demographic, self-report medical history variables and BMI. Supplementary analysis revealed a significant positive association between the somatic-affective domain of the BDI and CAR (Beta = .292, p = .013), but not with the cognitive domain of the BDI (Beta = .180; p = .153). These findings suggest a somatic aspect of depressive symptomology is associated with increased sympathetic tone in this healthy college sample. The inefficiency in autonomic regulation could impair the body's ability to fight disease.

243) Abstract 1819
ANXIETY DISORDERS AND CAROTID INTIMA MEDIA THICKNESS AMONG WOMEN IN MIDLIFE
Sanam S. Dhaliwal, MS, Psychology, Joyce T. Bronberger, Ph.D., Epidemiology and Psychiatry, Carolyn Gibson, MPH, Psychology, Rebecca Thurston, Ph.D., Epidemiology and Psychiatry, Karen A. Matthews, Ph.D., Psychiatry, Psychology & Epidemiology, University of Pittsburgh, Pittsburgh, PA
Purpose: Few studies have assessed the association between anxiety disorders and cardiovascular morbidity and mortality and even fewer have considered subclinical atherosclerosis. The present study examines the relationship between history of anxiety disorders and carotid intima medial thickness and plaque in healthy middle-aged women. Methods: The Study of Women's Health Across the Nation (SWAN), is a prospective, multi-site, multi-ethnic cohort of women undergoing the menopausal transition. As part of their baseline visit, the Pittsburgh site conducted a carotid ultrasound in women free of cardiovascular disease. Each woman in the mental health sub-study at the Pittsburgh site also participated in the Structured Clinical Interview for DSM-IV Axis I diagnoses (SCID) assessing lifetime history of mood and anxiety disorders (total n=289; 36.33% African American). Multivariate linear or logistic regressions were used to examine the relationships between a lifetime history of any anxiety disorder (including social phobia, generalized anxiety disorder, specific phobias, panic disorder, or anxiety NOS) and carotid IMT and plaque (any/none) respectively. Covariates were ethnicity, age, and body mass index. Results: Lifetime history of any anxiety disorder was not related to either IMT (p=.765) or presence of plaque (p=.875). Panic disorder tended to be associated with increased IMT (p=.07) and presence of plaque (p=.07). Conclusions: This cross-sectional analysis showed a trend in the association between history of panic disorder and carotid IMT as well as plaque at baseline. Later analyses will address the association between history of anxiety disorders and subclinical cardiovascular disease progression. Acknowledgements: Supported by NIH NR004061; AG012505, AG012535, AG012531, AG012539, AG012546, AG012553, AG012554, AG012495.
THE EFFECT OF ANXIETY DISORDERS AND INSULIN RESISTANCE ON MUSCULAR HYPEREMIC UPTAKE

Bernard Meloche, college, Nuclear medicine, Montreal heart Institut, MONTREAL, QC, Canada, Lynn Jolicoeur, college, Nuclear medicine, Montreal heart Institut, Montreal, QC, CAN, Andre Arsenault, Doctor, Nuclear medicine, Montreal heart Institut, MONTREAL, QC, Canada, Simon L. Bacon, PhD, Department of Exercise Science, Concordia University, Montreal, QC, Canada, Kim L. Lavoie, PhD, Dept. of Psychology, University of Quebec at Montreal, Montreal, QC, Canada.

Background: We developed a two-component kinetic model of tetrafosmin to evaluate muscle forearm hyperemic reactivity uptake (MFHU). Anxiety disorders (AD) and insulin resistance (IR) have been linked to cardiovascular disease (CVD) development. In this study, we compared the muscle kinetic parameters of MFHU in association with AD and IR. Methods: A total of 281 subjects underwent a five minute supra-systolic ischemic provocation of the right arm as part of the rest study of a standard SPECT myocardial perfusion imaging study, with the left arm being used as a control. The MFHU time activity curves were used to derive a tetrafosmin blood to muscle uptake rate (Kbm).

A general linear model was used to estimate the main and interaction effects of AD and IR on Kbm adjusting for sex, age, and beta blockers or medications use. Results: MFHU decreased with the presence of IR (F=6.1, p<0.01) and 30% higher in the presence of AD (F=4.4, p<0.04). There was a significant interaction between AD and IR (F=4.3, p=0.04) such that AD in the absence of IR multiplied Kbm by a factor of two. Conclusion: These results suggest that AD and IR have direct effects on peripheral muscle hyperemic uptake but also interact so that the presence of AD without IR multiply muscle uptake. Future research is needed to replicate these findings and elucidate the mechanisms of these interactions between metabolic, psychological, and physiological parameters.

237) Abstract 1615

IS THE IMPACT OF AGONISTIC STRIVING ON BLOOD PRESSURE MAGNIFIED BY IMPAIRED BEHAVIORAL ACTIVATION?

Mansum Parekh, Bachelors of Arts, Gavin Schoolman, BA, Craig K. Ewart, PhD, Psychology, Syracuse University, Syracuse, NY.

We have shown that individuals who experience recurring stress involving ‘agonistic striving’ (AS) “a struggle to influence or control other people” exhibit higher ambulatory blood pressure (ABP) during daily activities than do individuals who suffer other forms of chronic stress. Persons with the AS profile who have difficulty generating and friendly affect on a laboratory attention-shifting task have the highest ABP levels. The present research tested the hypothesis that the latter finding reflects an underlying impairment of behavioral activation systems that enable people to generate positive affect in challenging encounters, resulting in poor emotion regulation and higher ABP. Participants were 176 adolescents (46% Female, 41% Black, 38% White) living in an urban public high school in NY State. AS was assessed with the Social Competence Interview (Ewart et al, 2002); proneness to experience positive feelings was assessed with the BAS Reward Responsiveness (BRS) scale (Carver & White, 1994). ABP was recorded at 30-min intervals during normal activities for 2 days. Hypotheses were tested with GLM regressions in which ABP was predicted by AS, BRS, and their interaction, controlling for gender, race, and BMI. Planned comparisons disclosed a significant effect of AS on SBP (p < .004) and DBP (p < .01), and a significant effect of AS by BRS interaction predicting SBP (p < .05). Analysis of the interaction showed that, in persons with the AS profile, lower BRS scores predicted higher SBP levels during daily activities (p < .05). Results are consistent with our previous findings, and support the hypothesis that impairment of the behavioral reward system may contribute to poor emotion regulation and higher ABP in persons with the AS profile.

238) Abstract 1620

A PROSPECTIVE STUDY OF PSYCHIATRIC TREATMENT RECEIVED BY PATIENTS WITH NON-CAD CHEST PAIN AND REASSURANCE FOLLOWING NEGATIVE TESTING

Kamila S. White, PhD, Diane L. Rosenbaum, MA, Jared J. Israel, BS, Psychology, University of Missouri-Saint Louis, Saint Louis, MO, Ernest V. Gervino, ScD, Cardiovascular Division, Beth Israel Deaconess Med Ctr, Harvard Med Sch, Boston, MA, Gregory S. Sayuk, MD, Gastroenterology, Washington University School of Medicine, Saint Louis, MO.

Many patients are not reassured by negative test results following cardiac evaluations for a chief complaint of chest pain. Although considerable research has speculated that these patients may not be reassured because of anxiety-related factors, few longitudinal investigations have examined if these patients have received psychiatric treatment and the potential impact past psychiatric treatment may have on reassurance following a negative test result. The primary aim of this study is to examine whether a history of psychiatric treatment is associated with cardiac-related reassurance and clinical course of chest pain in patients with non-CAD chest pain. The sample consisted of 307 patients with non-CAD chest pain (M age = 51, 57% female) seeking medical evaluation at one of two urban academic medical centers. Data were collected as part of two prospective cohort studies examining the clinical course of non-CAD chest pain in medical settings. At Time 1, 41% of non-CAD patients had received psychiatric treatment, and 23% were currently receiving or had received psychiatric treatment for an emotional or psychological problem in the past year. At the follow-up data points (6, 12, and 18 month follow-up [MFU]), the proportion of the sample receiving psychiatric treatment was notably lower, 22%, 22%, and 18%, respectively. A history of psychiatric treatment at Time 1 was associated with less reassurance at Time 2 (6 MFU), F(1,175) = 8.2, p < .01, d = -.60, and Time 3 (12 MFU), p < .01. Chest pain interference was also significantly related with BNP and DBP. When adjusting for covariates including systolic BP, higher Cynicism scores were associated with lower BNP (β=-2.8, p=.042; R2=0.37, p=.017) and Aggressive Responding (β=-4.2, p=.001; R2=0.25, p=.002). Conclusions: In HF, components of Hostility are related to subjective symptom reports and poorer functional status. Surprisingly, Cynicism was negatively correlated with BNP, suggesting that high cynical attitudes may have been due to the effects of disease severity on cynical attitudes.

These findings support a role for hostile traits in subjective and objective markers of HF severity.
suggest that few non-CAD chest pain patients have received psychiatric treatment, and that reassurance is lower and chest pain interference is higher in patients with a history of psychiatric treatment. Data for patients with and without current DSM-IV-TR Axis I psychiatric disorders will also be examined. These data suggest that a significant psychiatric treatment history is prospectively associated with decreased reassurance over time in patients with non-CAD chest pain.

239) Abstract 1061
EFFECTS OF AEROBIC FITNESS AND ADIPOSY ON BIOMARKERS OF A HYPERCOAGULABLE STATE
Kathleen L. Wilson, M.S., Psychiatry, University of California San Diego, La Jolla, California, Lianne Tomfohr, M.S., Psychology, SDSU & UCSD Joint Doctoral Program, San Diego, California, Kate Edwards, Ph.D., Psychiatry, University of California San Diego, La Jolla, California, Cindy Knott, B.S., Clinical and Translational Research Institute, University of California San Diego, San Diego, California, Sazi Hong, Ph.D., Psychiatry, University of California San Diego, La Jolla, California, Roland von Kanel, M.D., Department of General Internal Medicine, Bern University Hospital, Bern, Switzerland, Paul J. Mills, Ph.D, Psychiatry, University of California San Diego, La Jolla, California, Julienne E. Bower, PhD, Psychology, University of California San Diego, Merced, CA, Michael R. Irwin, MD, UCLA Cousins Center for Psychoneuroimmunology, University of California, Los Angeles, CA, Michael A. Hoyt, PhD, Psychology, University of California, Merced, CA, Kathleen L. Wilson, M.S., Psychiatry, University of California San Diego, La Jolla, California

Purpose: Increasing physical fitness and lower adiposity are associated with a decreased risk of coronary heart disease (CHD). A hypercoagulable state may be one potential mechanism linking adiposity and a sedentary lifestyle to development of CHD. Here we examined the relationships among aerobic fitness, adiposity and biomarkers of a hypercoagulable state in relatively sedentary subjects. Subjects and Methods: Eighty three otherwise healthy unmedicated men and women (Mean+/−SD=45+/−10 years) with blood pressure (BP) in the normal to mildly hypertensive range participated. Aerobic fitness was determined by peak oxygen consumption (VO2peak) during a maximal treadmill test. Dual Energy X-Ray Absorptometry (DXA) was used to determine percent body fat. Blood levels of anti-fibrinolytic PAI-1 (plasminogen activator inhibitor-1), and of prothrombotic factors D-Dimer, vWF (von Willebrand factor) and thrombomodulin were assessed as biomarkers of a hypercoagulable state. A series of multivariate regression analyses controlling for age, BMI, BP and gender were conducted to determine predictors of each coagulation biomarker. Results: D-Dimer was associated with percent body fat (beta=0.455, p=0.044). PAI-1 was higher in men than in women (beta=0.297, p=0.031) and associated with VO2peak (beta=0.423, p=0.029) such that increased VO2peak was associated with decreased PAI-1. Thrombomodulin was positively associated with VO2peak (beta=0.551, p=0.006). No significant associations were identified for vWF. Conclusion: Percent body fat and physical fitness are to some extent associated with biomarkers of a hypercoagulable state, even when controlling for demographic and metabolic factors. Our results emphasize the notion that achieving a healthy body weight and physical fitness are important behavioral goals for maintaining haemostatic balance.

239a) Abstract 1234
DIURNAL CORTISOL RHYTHM AND URINARY FUNCTION IN PROSTATE CANCER PATIENTS
Michael A. Hoyt, PhD, Psychology, University of California, Merced, Merced, CA, Julienne E. Bower, PhD, Psychology, University of California, Los Angeles, Los Angeles, CA, Michael R. Irwin, MD, UCLA Cousins Center for Psychoneuroimmunology, University of California, Los Angeles, Los Angeles, CA, Roberto Corona, B.A, Psychology, University of California, Merced, Merced, CA, Michael R. Irwin, MD, UCLA Cousins Center for Psychoneuroimmunology, University of California, Los Angeles, Los Angeles, CA, Steven Scott, B.A, Psychology, University of California, Merced, Merced, CA, Annette L. Stanton, PhD, Psychology, University of California, Los Angeles, Los Angeles, CA, Kamala Thomas, PhD, Psychology, Pitzer College, Claremont, CA

Following treatment for prostate cancer, many survivors are faced with the onset of a number of treatment-related morbidities, including urinary dysfunction. Decrements in urinary function are especially pronounced in the period following treatment. For many, urinary symptoms recede over time while others face a more complicated or persistent course. To date, little is known about the biobehavioral mechanisms that might underlie symptoms. The current study examined the diurnal rhythm of salivary cortisol in prostate cancer survivors who recently underwent radical prostatectomy or radiation therapy. Salivary cortisol measures were obtained from men categorized as experiencing high (n=23) or low (n=24) levels of urinary dysfunction (M age = 66.62, SD = 9.62). Participants collected saliva samples upon awakening, 30 minutes post awakening, 8 hours post awakening, and at bedtime on three consecutive days. Diurnal cortisol slope for each day was determined by linear regression of log-transformed cortisol values on collection time and analyzed using multilevel modeling. Prostate cancer survivors reporting higher levels of urinary dysfunction had a significantly flatter cortisol slope than those with lower dysfunction [B = -0.029 (0.014), t(37)= -2.02, p<.05], with a less pronounced morning rise in cortisol levels and less rapid decline in the evening. Group differences remained significant in analyses controlling for age and the degree of bother men reported in regard to their urinary functioning (i.e., distress related to urinary symptoms). Results suggest a subtle dysregulation in hypothalamic-pituitary-adrenal axis functioning in prostate cancer survivors with more pronounced urinary dysfunction.
EMOTIONAL AWARENESS COVARIATES WITH THEORY OF MIND ABILITY: IMPLICATIONS FOR THE CONCEPTUALIZATION AND MEASUREMENT OF ALEXITHYMIA

Richard D. Lane, MD, PhD, Psychiatry, University of Arizona, Tucson, AZ, Cynthia Sonnington, M.D., Psychiatry, Mayo Clinic, Scottsdale, Arizona, Cheryl Ritenbaugh, Ph.D., Family and Community Medicine, University of Arizona, Tucson, AZ

Purpose: German psychosomatic inpatients were recently shown to have impairments in both emotional awareness, the ability to know what someone is feeling, and theory of mind (ToM) function, the ability to know what someone is thinking. We examined the association between emotional awareness and ToM in American outpatients with somatic symptoms. Methods: We studied 89 outpatients (29 conversion disorder, 30 functional somatic syndromes [e.g. fibromyalgia] and 30 medical controls [e.g. diabetes], 79% female, age 43 + 12 years). Patients completed the Levels of Emotional Awareness Scale (LEAS), the Twenty-Item Toronto Alexithymia Scale (TAS-20), the Positive and Negative Affect Scale (PANAS), the Eyes Test (ET) [a ToM measure], and the Mental State Stories task, which requires answering these simple stories in four categories: inferences about mental states (ToM), inferences about objects, or facts about people or objects (non-ToM).

Results: Groups did not differ in somatic symptom severity (SCL-90), ToM measures, TAS-20 after adjusting for PANAS variables or emotional awareness. Across all patients (n=89), LEAS correlated positively with the Eyes Test (r= 0.29, p<0.01) and with 3 of 4 Mental State Stories tasks (r=0.32, p<0.01; r=0.24, p=0.02; r=0.31, p<0.01), including all tasks involving ToM and people, even when controlling for PANAS variables (all p<0.05). By contrast, associations between TAS-20 and ToM variables were not significant after controlling for PANAS variables. Summary: The findings with the LEAS, a performance measure that assesses emotional awareness independent of self-ratings, are consistent with previous evidence that emotional awareness is a ToM function. Although the TAS-20 findings were unrelated to ToM ability, this conclusion is based on self-ratings (TAS-20, PANAS). These and other findings raise important questions about whether alexithymia is best conceptualized as an impairment in verbal labeling of emotions or a more general deficit involving that aspect of ToM function related to mentalization of emotional states.

EXPRESSIVE WRITING AND PSYCHOLOGICAL WELL-BEING IN AMYOTROPHIC LATERAL SCLEROSIS (ALS)

Suzanne C. Segerstrom, PhD, Psychology, University of Kentucky, Lexington, KY, Alyssa J. Averill, PhD, Psychology and Behavioral Sciences, Medical University of South Carolina, Charleston, SC, Edward J. Kasarskis, MD, PhD, Neurology, University of Kentucky, Lexington, KY

ALS is a progressive, paralytic neurological disorder without substantial therapeutic options and a life expectancy of 5 years or less. In addition to being terminal, the disease threatens autonomy and ability to communicate, posing challenges to psychological well-being. Emotional expression and cognitive processing may help people meet these challenges, particularly those who are emotionally or socially isolated. The present study randomized 48 people with ALS to either expressive writing about their disease over 3 days or no writing. Subjects were at least 6 months post-diagnosis, able to speak or write, and had expected survival of at least 6 months. Psychological well-being (afective, existential, social, and spiritual) was assessed before the intervention and 3 and 6 months after. Results of multi-level models indicated that people who wrote about their deepest thoughts and feelings about ALS had higher psychological well-being than those who did not at 3 months post-intervention but not at 6 months (F (2, 69) = 4.27, p < .05).

Individual differences in ambivalence over emotional expression (AEE) moderated 3 month post-intervention well-being. Those low in AEE had higher well-being than those high in AEE regardless of condition. Those high in AEE writing about their disease had increased well-being from pre-intervention, whereas those who did not had decreased well-being from pre-intervention (gamma = 0.315, SE = 0.16, t (64) = 1.96, p = .05). There were main effects of both emotional approach coping, which was associated with higher well-being (gamma = 0.315, SE = 0.16, t (44) = 1.96, p = .05) and social constraints, which were associated with lower well-being (gamma = -0.375, SE = 0.13, t (44) = -2.90, p < .05), but they did not significantly interact with the intervention. Expressive writing may be helpful for people with ALS, but potentially only those who normally have difficulty expressing emotions. In addition, the intervention had only temporary effects; the ongoing, dynamic challenges of ALS progression may mean that the effect of processing thoughts and feelings about the disease in one stage may not generalize to later stages.

THE EFFECTS OF INTERVENTIONS TO IMPROVE LEADERSHIP BEHAVIOR ON SUBORDINATE EMPLOYEE’S HEALTH AND LEVELS OF STRESS: A SYSTEMATIC LITERATURE REVIEW

Michael C. Gadinger, Dipl. Psych., Tatiana Yarmoluk, Dipl. Soz., Walter Kromm, Joachim E. Fischer, Professor, Adrian Loerbroks, PhD, Public Health, University of Heidelberg, Mannheim Medical Faculty, Mannheim, Germany

Purpose: To review quantitative studies assessing the effectiveness of interventions to improve leadership behavior on indicators of subordinate employee's stress and health. Methods: We formulated eligibility criteria regarding participants (supervisors executing leadership functions), interventions aims (improve any sort of indicators related to employee’s stress and health via improved leadership behavior), comparators (any forms of control groups), outcomes (indicators of the psychosocial work environment, subjective health / stress, physiological stress indicators, productivity) and study designs (randomized controlled trials, cluster randomized trials, quasi-experimental studies). Multiple search terms covering the eligibility criteria were systematically combined and employed in search engines of different academic disciplines (PubMed, PsycINFO, Cochrlli). The selected studies were (evaluated with respect to their aims, theoretical foundation, duration, follow-up duration, and effectiveness in improving the above-mentioned outcomes. Results: Eight studies met the inclusion criteria. Most studies aimed at improving knowledge about psychosocial determinants of stress and health (6/8). Few studies aimed at increasing insight into the consequences of one’s own leadership style (2/8), trained ‘healthy’ leadership behaviors (2/8) or developed work reorganization plans (1/8). No study targeted dysfunctional attitudes regarding healthy leadership behaviors. No study was designed according to a specific theory. Most studies (7/8) lasted for less than one working day and had short follow-up duration of maximum three months. The following ratios of favorable significant to insignificant result within the outcome categories were observed across all studies: psychosocial work environment (5/43), subjective health/stress (1/6), physiological stress markers (1/3), productivity (1/5). Conclusion: The empirical basis concerning leadership interventions is severely limited and the overall effectiveness of the selected studies is low. More theory-driven interventions targeting managers knowledge, attitudes and skills regarding ‘healthy’ leadership behaviors are needed.

PERCEIVED STRESS, SLEEP QUALITY, AND CORTISOL DYSREGULATION

Jennifer J. McGrath, PhD, MPH, Ourania Timoteoats, Forrest Rogers, Jessica Sykucki, Katrina Messina, Teresa McPeak, Stephane Jette, Amy Bilodeau, Valerie D'Amour-Horvat, Cinthya Luca, Michael Wilgas, Noel Nguyen, Katie Harbron, Jason De Lima, Andrea McCarthy, Valerie Aubrais, Rana Mohamed Salah Ahmed, Ate Hatami, Catherine Tardiff, Julia Rusu, Melissa Dimitriadis, Stephanie Correia, Lana Karabachian, Emilie Gregoire Fiset, Reginald Beaubrun, Neressa Noel, Anne Alo, Courtney Ostrega, Josie Macri, Jordan O’Byrne, Jennifer Novinsky, Marc-Olivier Hamel-Doyon, Leisha Seymour, Psychology, Concordia University, Montreal, QC, Canada, Alex J. Gavrila, MA, Anastasia J. Arvanitidis, MA, Sabrina J. Giovannucci, B.A., Psychology, Concordia University, Montreal, Québec, Canada
Sleep and stress are known to share a complex bidirectional relationship. Sleep has an inhibitory influence on the hypothalamic-pituitary-adrenalin axis and cortisol secretion (Bierwolf, et al., 1997; Wettman, et al., 1983). Sleep disruptions (poor sleep quality, frequent nighttime awakenings) are associated with greater diurnal cortisol dysregulation (Spiegel, et al., 1999). In experimental sleep deprivation studies, partial sleep loss is associated with subsequent evening cortisol elevation (Leproult, et al., 1997). Perceived stress is associated with both poorer sleep and the diurnal cortisol profile. The purpose of the present study was to model the association between sleep, cortisol, and perceived stress. Participants (N=32, 75% female) aged 23.2 years (SD=4.6), registered in an advanced research methods course, voluntarily agreed to take part in the study. Participants collected six saliva samples (awakening, +30 min, +45 min, before lunch, before dinner, before bed) on a weekday; cortisol assays were conducted at the University of Trier. The Pittsburgh Sleep Quality Index (Buysse, et al., 1989) was used to measure seven dimensions of sleep quality (subjective quality, latency, duration, efficiency, disturbances, and medication use, daytime dysfunction). The 10-item Perceived Stress Scale (Cohen & Williamson, 1988) was used to assess stress levels over the past month. Multivariate analyses were used to test the models. Age and gender were not significant and not retained as covariates. Results indicated perceived stress significantly predicted sleep quality, duration, efficiency, disturbance, daytime dysfunction; F=5.55, p<.01, eta squared=.058). Sleep quality significantly predicted evening cortisol level (F=5.17, p<.05, R squared=.016) and sleep latency significantly predicted cortisol (maximum, morning rise, AUC ground; F=3.25, p<.05, eta squared=.026). These preliminary findings provide support for a possible sequential process whereby perceived stress disrupts sleep, which in turn leads to subsequent evening cortisol elevation and heightened awakening cortisol levels. Future research using prospective data should consider growth modeling to test this complex relation.

244) Abstract 1644
CHRONIC STRESS AND DIURNAL VARIATION IN CORTISOL
Kimberly A. Dienes, PhD, Psychology, Roosevelt University, Chicago, IL; Nicholas A. Hazel, PhD, Psychiatry, Northwestern University, Chicago, IL
Chronic stress has been linked to multiple adverse outcomes, both medical and psychological. A recent summary of the research involving chronic stress and the hypothalamic-pituitary-adrenal (HPA) axis indicated that measurement of cortisol, the hormonal output of the HPA axis, provides a link between chronic stress and the serious health outcomes associated with it (Miller, Chen, & Zhou, 2007). Miller and colleagues (2007) reported a number of variables that affect the relationship between chronic stress and HPA axis functioning. They stated that higher reports of subjective distress were associated with greater evening output, lower morning output, and greater overall cortisol secretion. The use of a well-validated interview measure of chronic stress (e.g., the Life Stress Inventory (LSI); Hamner et al., 1990) can further elucidate the relationship between diurnal cortisol and chronic stress would be valuable. The LSI is associated with a more objective measure of chronic stress, given the interviewer ratings. However, it is predicted that the results will be similar to those of subjective distress: greater overall chronic stress, given the interviewer ratings. Results of this study should provide additional information on the complex relationship between chronic stress and HPA axis functioning.

245) Abstract 1351
PRELIMINARY VALIDATION OF THE SOCIAL NETWORK HEALTH BEHAVIOR SCALE (SNHBS): A MEASURE OF HEALTH BEHAVIOR EXPOSURES
Kelly A. Battle, B.A., Psychology, University of Kentucky, Lexington, KY; Kara E. Goyla, B.A., Behavioral and Community Health Sciences, Emily Heineman, Masters, Barbara Anderson, Ph.D., Thomas Kamarch, Ph.D., Psychology, University of Pittsburgh, Pittsburgh, PA
Smoking, obesity, and other health behaviors may be influenced by one's social network (Christakis & Fowler, 2009). Because researchers do not always have direct access to the social networks of their subjects, an accurate and indirect measure of health practices in one's social network peers is needed. We developed the Social Network Health Behavior Scale (SNHBS), which estimates health behaviors of subjects' social network members in each of five domains (smoking, body size, eating, alcohol, activity, sleep). 30 subjects (ages 30-60) recruited a 'close tie' (e.g., someone seen frequently, who could be called on for help, known for 2 + years) who also agreed to participate in the study. Subjects and close ties (total n=60; 80 % female) were asked to describe each others' health behaviors using the SNHBS, and they were also asked to report on their own health behaviors. Perceived body size of self and other was determined using the Stunkard Figure Rating Scale (Stunkard et al., 1983). Smoking status (r=.82, n=59, p<.0001) and body size (r=.73, n=60, p< .0001) of social network members were estimated with reasonable validity, Estimates of junk food intake (r=.56, n=60, p< .0001), frequency of sedentary behavior (r=.58, n=60, p<.0001), drinking status (r=.69, n=60, p<.0001), and drinking frequency (r=.58, n=44, p<.0001) were also moderately accurate. In conjunction with measures of social contact, the SNHBS may be used to measure negative health behavior exposures among social network peers during daily life. This may facilitate further investigation of the influence of social networks on health practices. Supported by HL 076852 and HL076858.

246) Abstract 1255
THE JOINT EFFECT OF CHILDHOOD PHYSICAL ABUSE AND IMPULSIVENESS ON TOBACCO USE
Janine D. Flory, PhD, Psychology, Queens College, Flushing, NY; Stephen B. Manuck, PhD, Psychology, University of Pittsburgh, Pittsburgh, PA
Tobacco use causes 1 in 5 deaths annually with an estimated cost of $167 billion to the US economy, making the search for reliable and preventable predictors of tobacco use and dependence a public health priority. Childhood physical abuse is associated with early initiation of use, persistent use and tobacco dependence. In addition to this, the child's environmental risk factor, research documents an association between impulsivity and risk for tobacco use and dependence. Because childhood abuse and impulsivity frequently co-occur, analyses were conducted to examine the joint influence of these two factors on tobacco use phenotypes in a sample of 1000 middle-aged adults. The sample was divided into 4 groups based on the presence versus absence of childhood physical abuse and clinical interview for impulsivity. Logistic regression models estimated the excess risk resulting from the joint effect of these factors on the initiation of tobacco use, current smoking status and related tobacco use phenotypes. Results revealed that people with a history of childhood abuse were not more likely to have ever tried smoking relative to the reference group (p=.74) but impulsivity increased the risk for tobacco use initiation by 1 ½ times (OR=1.5, p=.02). People reporting childhood abuse and higher levels of impulsivity were nearly 12x more likely to have ever tried smoking (OR = 11.7, p=.02). Similar, albeit weaker, findings were observed for smoking persistence among the subset of participants who had ever started smoking: people reporting both childhood abuse and high impulsivity were nearly three times more likely to be current smokers (OR = 2.72, p=.02). The groups did not differ with respect to lifetime tobacco consumption (pack years), but people with both risk factors started smoking at an earlier age (p=.02) and were more likely to report tobacco dependence (p=.04). In conclusion, the results suggest that the joint effects of childhood abuse and impulsiveness on tobacco use are greater than expected based on the combined independent effects of each factor.

247) Abstract 1083
A DOUBLE WHAMMY: SMOKING AND FATIGUE INCREASE TNF-A LEVELS IN OLDER ADULTS

A-84
Jeanette M. Bennett, Ph.D., Ronald Glaser, Ph.D., Janice K. Kiecolt-Glaser, Ph.D., Institute for Behavioral Medicine Research, The Ohio State University, Columbus, OH

Fatigue is a commonly reported symptom in older adults. Both fatigue and aging are independently associated with elevations in tumor necrosis factor-alpha (TNF-α). Individuals who smoke also exhibit elevated TNF-α levels compared to their non-smoking counterparts. Therefore, investigating the interaction of fatigue and smoking in older adults on inflammation may yield insight into the development or predisposition to smoking-related chronic diseases. Interestingly, no studies have reported on the dual effects of fatigue and smoking on TNF-α levels. This study addressed the effects of fatigue and smoking status on TNF-α levels in a population of older adults (62.26 ± 1.04 yrs; Male: n=43; Female: n=142); covariates included age, BMI, education, CRP levels, and sex. Age and CRP levels were the only two statistically significant covariates. The analysis revealed a significant interaction between smoking and fatigue status (p<.05). Specifically, for non-smokers, fatigue status was associated with no change in TNF-α levels; yet, fatigued smokers had about a 2-fold increase in TNF-α levels compared to non-fatigued smokers. Thus, fatigue is associated with an elevation in inflammation in older adults, especially those who smoke. Increased inflammation observed in older adults is associated with frailty. Therefore, additional studies on frailty in older adults need to include measures of fatigue and smoking in addition to inflammation.

248) Abstract 1858

THE LEVEL OF CORTISOL INDUCED BY ACUTE STRESS IS RELATED TO DECISION MAKING INCLUDING RISK
Yamakawa Kaori, Master, Psychology, Nagoya University, Nagoya, Japan; Matsunaga Masahiro, PhD, Neurology (Psychosomatic Medicine), Fujita Health University, Nagoya, Japan; Isowa Tokiko, PhD, Nursing, Me University, Me, Japan, Ohira Hideki, PhD, Psychology, Nagoya University, Nagoya, Japan

Acute elevated levels of cortisol are associated with reward-like properties related to sensation-seeking behavior. Thus, acute stress and elevated levels of cortisol may promote risk-taking behavior. Recent research reported that high cortisol responders are more sensitive to immediate rewards than low cortisol responders. Indeed, using the task of decision-making, subjects with higher basal levels of cortisol were more risk-averse than subjects with lower basal levels of cortisol (van Honk et al., 2003). However, it is not clear whether acute stress will also affect decision-making when the stressor is presented first. In present study, we aimed to examine decision making during stress response, which was the increase of cortisol induced by acute stress. Nineteen Japanese male undergraduates (age range 18-22 years; mean=21 years) divided into two groups that were control and stress group (respectively, n=10; n=9). The participants in stress group experienced the Trier Social Stress Test (TSST), on the other hand that in the control group experienced resting as a control. In risk choice task, the strategy of just look without any coping strategies. In the fMRI (high resolution: r=.60, p=.03; low resolution: r=.50, p=.09). Interestingly, cortisol reactivity was associated with better discrimination (Hit-F/A) in the high challenge TSST condition for both high (r=.61, p=.03) and low (r=.49, p=.09) resolution images. No associations for image discrimination were found for the memory test in the lab (all p>.40). In summary, our data suggest that stress-reactivity, when conceptualized as a trait, is associated with better image recognition under more challenging environments. It can be speculated that preserved cortisol stress-reactivity may promote appropriate arousal to cognitive challenges and thus indicate superior fitness overall and cognitive fitness in particular in the elderly.

250) Abstract 1708

NEURAL BASIS FOR THE META-COGNITIVE STRATEGY OF EMOTION REGULATION
Hiroki Murakami, Japan Foundation for Neuroscience and Mental Health, Kodaira, Tokyo, Japan; Yoshiya Moriyuchi, PhD, Akiko Hida, PhD, Kazuo Mishima, PhD, Department of Psychophysiology, National Center of Neurology and Psychiatry, Kodaira, Tokyo, Japan

There are adaptive and maladaptive ways of emotion regulation strategies. The representative example of maladaptive ways of emotion regulation is emotion suppression, which leads sympathetic excitation, and gets the individuals to diminish well-being. On the other hand, meta-cognitive strategy of emotion regulation such as mindfulness and metacognitive therapy are effective to treat psychological disorders. To date, the two types of emotion regulation strategies have not been well examined in simultaneous. The purpose of this study is to investigate the neural mechanism by using fMRI during the different types of emotion regulation. Healthy right-handed volunteers were participated. Before entering fMRI scanner, the participants were well instructed and trained how to cope with the presenting affective pictures by the two strategies and the strategy of just look without any coping strategies. In the fMRI scanner, the participants conducted the three types of coping strategies for affective pictures. As a result, compared with look condition, the meta-cognitive strategy of emotion regulation showed neural activity in the dorsal anterior cingulated cortex (dACC; Z=4.28), bilateral superior temporal gyrus (STG; left: Z=3.32, right: Z=3.57), and middle prefrontal cortex (MPFC; Z=3.65), which represent cognitive monitoring and self-other processing. Whereas the suppression strategy showed neural activity in the left ventrolateral prefrontal cortex (VLPFC; Z=4.43), in which typically involved in inhibitory process of emotion.
PERCEIVED SOCIAL SUPPORT IS USED BY EMPLOYED BUT NOT BY UNEMPLOYED INDIVIDUALS TO DETERMINE SUBJECTIVE SOCIAL STATUS

Ashley Geiger, B.S., Psychology, Brandeis University, Waltham, MA, Clemens Kirschbaum, Ph.D., Psychology, Dresden University of Technology, Dresden, Germany, Jutta Wolf, Ph.D., Psychology, Brandeis University, Waltham, MA

Subjective social status (SSS) is an important predictor of health beyond the more traditional indicators of socioeconomic status, such as education. A person determines their SSS by deciding where they perceive themselves in the social hierarchy relative to a reference group such as US residents or friends. While many studies assessed SSS in patients or older adults, little research has been conducted in individuals exposed to unemployment and on the types of information used to determine SSS. The present study aims at examining how employed and unemployed individuals differ in their subjective social status and furthermore, which types of social support are used by each of the two groups to determine SSS. Subjective social status relative to neighbors and relative to friends as well as social support (instrumental support, emotional support, social integration) were assessed by self-report in 18 employed and 20 unemployed individuals (33.4±9.8yrs). Average duration of unemployment was 10 months. Unemployed individuals rated their SSS relative to neighbors significantly lower than employed individuals (t=2.0,p<.05), however, SSS relative to friends did not differ between the groups (t=-1.1,p=.27). Interestingly, only in employed participants, instrumental support was a predictor of SSS relative to neighbors (β=30,p=.09), while social integration was a predictor of SSS relative to friends (β=44,p=.09). Unemployed participants ranked both types of SSS independent of the amount of social support they reported. The current findings suggest that the mechanism used to determine subjective social status differs between unemployed and employed individuals, such that only the latter use distinct types of social support to determine their social status relative to their neighbors or their friends. Unemployed individuals, in contrast, appear not to use perceived social support as a basis for determining their subjective social status. It can be speculated that this represents an adaptive response, given that job loss is often associated with loss of social support and social contacts.

SLEEP DURATION AND BODY MASS INDEX IN A DIVERSE GROUP OF ADOLESCENTS

Katherine D. Marczyk, BA, Daniel J. Taylor, PhD, Trent A. Petrie, PhD, Psychology, Scott B. Martin, PhD, Christy A. Greenleaf, PhD, Kinesiology, Health Promotion, & Recreation, John M. Ruiz, PhD, Camilo Ruggero, PhD, Psychology, University of North Texas, Denton, Texas

For the first time, the sleep duration and body mass index (BMI) relationship within different genders and ethnicities, and none have done so within adolescents. The current study examined the relationship between sleep duration and BMI across a diverse population of adolescents and within different genders and ethnicities. Participants were 725 female and 684 male middle school students (mean age = 12.32) in a north Texas school district. Race/ethnicity characteristics were: 63% Caucasian, 23% Hispanic/Latino, 10% African American and 2% Asian. BMI was assessed through the PITTsburg Sleep Quality Index. There were no significant differences between genders on BMI (p = .810), but boys reported longer sleep durations than girls, F1, (1505) = 7.33, p < .007. Analyses found significant differences between ethnicities on both BMI, F3, (1405) = 12.30, p < .001 and sleep duration, F(4, 1502) = 4.179, p < .002, with African American students presenting with higher BMIs and shorter sleep durations than Caucasian, Asian and Latino students. A between-groups analysis of covariance (ANCOVA) was conducted to see if differences existed between gender and ethnicity on BMI, after controlling for the influence of sleep duration. There continued to be a significant main effect for ethnicity F(3, 1400) = 9.913, p < .001, where African American students once again presented with higher BMIs than Caucasian, Asian and Latino students. The present study is that it demonstrates that differences do exist in BMI among ethnicities, even after controlling for the influence of sleep duration. One limitation is that the reasons for the differences in BMI have not been determined, therefore, future research is warranted to assess for the factors that contribute to this disparity.

EXISTENTIAL MEANING IS ALTERED BY CANCER EXPERIENCE

Silla M. Consoli, PhD, Sylvie Pucheu, PhD, Najoua Oumina, PhD, Cecile You-Harada, PhD, Cecile Roygman, PhD, CL-Psychiatry, European Georges Pompidou Hospital, Paris, Ile de France, France

Existential meaning is supposed to constitute a trait characterizing individual's capacity to transcend daily life experience and to successfully cope with harmful life events. It is nevertheless unclear whether cancer experience could modify existential meaning and which variables could account for this potential modification due to cancer diagnosis and treatment. Method: 49 patients aged 55.4 ± 10.5 years (77.6% females; 27 breast, 10 colon, 8 head and neck, 3 ovarian and 1 lung cancer) were evaluated 2 to 4 months after the diagnosis (T1) and one year later (T2). Patients completed the Life Attitude Profile-Revised (LAP-R-48) questionnaire (Recker, 1992), which comprises 6 scores (purpose, coherence, choice/responsibility, death acceptance, goal seeking, existential vacuum), pooled into 2 global scores: the personal meaning index (PMI = purpose + coherence) and the existential transcendence (ET = purpose + coherence + choice/responsibility + death acceptance - goal seeking - existential vacuum). Results: from T1 to T2 most of LAP-R-48 scores changed. Impairments were observed for purpose, choice/responsibility, PMI, ET, and an increase for existential vacuum (all: p<.01). One global indicator of the degree of existential vacuums was increased for young patients (r=0.30; p=0.038). Choice/responsibility decreased only in patients who underwent chemotherapy. Conclusions: findings suggest that a life-threatening event like a cancer can modify existential meaning and that this change may be at physiological risk for higher mortality. We know little about how repressors or the high-anxious actually express and withhold their emotions. It can be speculated that this represents an adaptive response, given that job loss is often associated with loss of social support and social contacts.
The high-anxious group expressed greater hostility (in particular micromoments) relative to all other groups, $z = -2.73$, $p = .006$ (d=0.80) and the non-extreme. The high-anxious had higher SBP than a combined low-anxious and non-extreme group $z = 2.85$, $p = .004$ (d=1.00). The repressors expressed higher levels of defensive/hostile affect and tension, and the high-anxious higher levels of hostile affect and higher SBP when under stress. These specific emotional expressions were related to their autonomic reactions.

255) Abstract 1807

HAPPINESS IS ASSOCIATED WITH IMPROVED BIOLOGICAL OUTCOMES IN RENAL CELL CARCINOMA (RCC)

Sara Prinivilo, PhD, Louis Pisters, MD, Shellie Scott, BS, Qi Wei, MS, Lorenzo Cohen, PhD, The University of Texas MD Anderson Cancer Center, Houston, TX, USA

Evidence indicates that positive affect is associated with better health outcomes and may protect against disease. Additionally, happiness is inversely related to health outcomes such as ambulatory systolic blood pressure. To date, studies have focused on healthy populations and risk factors associated with disease development. In the current study, we analyzed whether happiness was associated with biologic markers in patients with RCC. Patients with newly diagnosed metastatic RCC (N=202; mean age 59.3; 77% men) completed psychosocial measures of happiness (MSPH), stress (COPE), religious/spirituality (ORA, NORA), and coping style (COPE). Biological markers associated with disease outcomes included hemoglobin, albumin, and alkaline phosphatase. Correlational analyses and linear regression analyses were performed to determine the association between the biologic markers and psychosocial measures. Correlational analyses indicated a positive association between happiness (items from the MSPH) and hemoglobin ($r = 0.12$) and albumin ($r = 0.13$), and a negative association with alkaline phosphatase ($r = -0.04$). Linear regression analyses, controlling for disease group (high, intermediate, low predictor of mortalityitation), demonstrated that happiness was the only variable that remained significantly positively associated with hemoglobin ($r = 0.028$) and negatively associated with alkaline phosphatase ($r = -0.044$). The clinical significance of the link between happiness and disease markers in cancer patients warrants further research; however, it is reasonable to conclude that happiness may be an independent predictor of health measures in chronic disease.

256) Abstract 1160

PSYCHOSOCIAL FACTORS OF JAPANESE OBESE CANDIDATES FOR INTRAGASTRIC BALLOON PLACEMENT THERAPY

Shuji Inada, MD, Yoshiyuki Takimoto, PhD, Kazuhiro Yoshikichi, PhD, Stress Sciences and Psychosomatic Medicine, Graduate School of Medicine, The University of Tokyo, Tokyo, Japan, Fumihito Hatao, PhD, Gastrointestinal Surgery, The University of Tokyo, Tokyo, Japan, Yusuke Hada, PhD, Sumio Okahata, PhD, Yoshimasa Yamauchi, PhD, Takashi Kadowaki, PhD, Diabetes and Metabolic Diseases, Akira Akabayashi, PhD, Stress Sciences and Psychosomatic Medicine, Graduate School of Medicine, The University of Tokyo, Tokyo, Japan

Bariatric surgery for treatment of obese patients, which promotes the reduction of gastric volume and absorption of food, was not so popular influenced by patients psychosocial factors, and vice versa. Therefore it is important to assess psychosocial factors before procedures. The purpose of the present preliminary study is to explore characteristics of psychosocial factors of Japanese obese candidates for intragastric balloon placement therapy. Eligible patients for this study were adult obese ones classified to class II or higher (body mass index [BMI] was over 35 kg/m2) who applied to receive intragastric balloon placement therapy. Thirteen male (44.8 ± 8.7 years) and 14 female patients (51.4 ± 9.6 years) were candidates for the therapy and received an initial psychosocial assessment between 2007 and 2010. Mean BMI was 42.6 kg/m2 in the male patients and 43.2 kg/m2 in the females. Five patients had psychiatric comorbidity. The psychosocial assessment included an interview about weight history, lifestyle, and psychiatric history, and questionnaires about mood states, coping skills, self-esteem, and social support. We evaluated correlations between initial BMI and the psychosocial factors. There was a significant negative correlation between initial body mass index and problem-focused coping ($r = -0.485$, $p = 0.012$). In the subscales of the problem-focused coping, planful problem solving ($r = 0.393$, $p = 0.047$) and confrontive coping ($r = 0.473$, $p = 0.015$) had negative correlations with BMI. In conclusion, heavier patients might have poorer ability to solve their own problems including their weight and diet. Because this study was cross-sectional, it is necessary to assess prospectively the influence of preoperative psychosocial factors on outcomes of intragastric balloon placement therapy and vice versa.

257) Abstract 1438

CAFFEINE ABSTINENCE IMPROVES CHRONIC GLUCOSE CONTROL IN TYPE 2 DIABETIC COFFEE DRINKERS

James D. Lane, Ph.D., Alex J. Lane, B.A., Psychiatry and Behavioral Sciences, Mark N. Feinglos, M.D., Department of Medicine, Richard S. Survit, Ph.D., Psychiatry and Behavioral Sciences, Duke University Medical Center, Durham, NC

Caffeine can acutely exaggerate glucose responses to carbohydrate ingestion, an effect that might impair chronic control of blood glucose levels in patients with type 2 diabetes (T2D). This pilot study tested the feasibility and effects of a 3-mon period of caffeine abstinence on chronic glucose control in T2D patients who drink coffee. Adults (N=12, 6 males) who had T2D and drank at least 2 cups of coffee daily took part in a 3-mon trial of caffeine abstinence. Measures of chronic glucose control (HbA1c) and fasting glucose and insulin were collected before and up to 3 mons after total abstinence from all caffeine-containing beverages and medicines. Self-reports and saliva caffeine assays assessed continued abstinence. In those who completed the study (N=7, 5 males), 3 months of caffeine abstinence produced a significant improvement in HbA1c (2.2%±0.6% vs 0.4%, $p< 0.05$), indicating improved chronic glucose control. The average change in HbA1c was -5.6%. Greater improvements were observed for those who had worse glucose control (HbA1c>8%) while drinking coffee, with smaller reductions in those who initially had good glucose control (HbA1c<7%). Fasting glucose and insulin did not change during the trial, consistent with evidence that caffeine affects postprandial glucose responses more than fasting levels.

Body weight remained stable across the 3 months. All participants maintained caffeine abstinence during the trial, confirmed by self-report and saliva caffeine levels. Although this was a small open-label pilot study, results suggest that extended caffeine abstinence is feasible with minimal intervention and can help improve chronic glucose control for those with T2D who are coffee-drinkers. Improvements in HbA1c were clinically significant, comparable to those obtained in trials of diabetes medications. Changes cannot be attributed to weight loss. A significant proportion of T2D adults are habitual coffee drinkers. If these results are confirmed in larger trials, caffeine abstinence may gain recognition as an important lifestyle choice for those with T2D.

258) Abstract 1330

PROACTIVE REHABILITATION AND TELEPHONE INTERVENTION IN TYPE 2 DIABETES (PARTI}: METHODS AND RESULTS OF SCREENING FOR REHAB NECESSITY IN DIABETICS WITH LOW SOCIO-ECONOMIC STATUS

Oskar Mittag, ScD, Andrea Doebler, Department of Quality Management and Social Medicine, University Medical Center of Freiburg, Freiburg, Germany, Hartmut Pohlmann, MD, Niederrhein Clinic, Bad Neuenahr-Ahrweiler, Germany, Heiner Raspe, PhD, MD, Institute of Social Medicine, University of Luebeck, Luebeck, Germany

Worldwide disease burden of diabetes in terms of premature mortality, disability, and economic loss is high. There are multiple modifiable risk
factors for complications in patients with type 2 diabetes, including hyperglycemia, hypertension, tobacco smoking, depression, and sedentary life style. The PARTID trial aims at reducing the risk of late complications in diabetes by targeted, long-term interventions addressing multiple risk factors. It includes two treatments: (1) a three week treatment in a rehab clinic specializing in for diabetes care, and (2) an additional active follow-up based on an evidence-based treatment protocol (see abstract # 1200). Patients were recruited from a Disease Management Program (DMP) of a large health insurance company with predominantly lower-class insurants. A survey mailed to 5,500 patients aged 18 to 54 years assessed clinical status, comorbid conditions, modifiable risk factors, limitations of daily activities, and rehab need. Response rate was low (15.4 %). Of the 823 patients who responded needed treatment for hyperglycemia (HbA1c > 7); the percentages requiring treatment for other conditions are shown in table 1 (only percentages larger / equal 40 %): Hyperlipidemia / hypertension 66 %; dietary problems 65 %; obesity 63 %; sedentary life style 58 %; limitations of daily activities 45 %; chronic stress 40 %. Almost all (94 %) of the total sample needed three or more interventions (mean: 5.7).

About one third of the patients stated that in-patient rehab treatment was not an option for them due to life circumstances, or met other exclusion criteria. The remaining sample was randomized to the intervention (rehab clinic; N = 298) or usual care condition (N = 99). Following rehab treatment, patients in the intervention group will be randomized to subsequent telephone counselling or usual care without follow-up intervention. Since we did not obtain the full total of 750 patients that we had planned for, additional patients will be recruited from the clinic. Main endpoints are HbA1c and global coronary risk; further outcomes include depression, health related quality of life, and complications associated with diabetes.

259) Abstract 1706
PRESENCE OF THE METABOLIC SYNDROME COVARIATES WITH BASAL GANGLIA MORPHOLOGY AND ANHEDONIA
Ikechukwu C. Onyewuenyi, BSc, Psychology, Israel C. Christie, PhD, Psychiatry, Kirk L Erickson, PhD, Psychology, Lei K. Sheu, PhD, Psychiatry, Peter J. Gianaros, PhD, Psychiatry and Psychology, University of Pittsburgh, Pittsburgh, PA

The metabolic syndrome (MetS) is a cluster of cardiometabolic risk factors for cardiovascular disease that has been associated with depressive symptomatology. The MetS has a complex pathophysiology, and the neurobiological pathways linking MetS and depression are poorly understood. Midbrain dopamine pathways contribute to anhedonia and amotivational behaviors prominent among those with MetS and exhibiting depressive symptoms. Moreover, obesity and insulin resistance, two cardinal parameters of MetS, may contribute to associations between anhedonic symptoms and caudate nucleus and globus pallidus volumes (p = .06). Exploratory analyses revealed that basal ganglia volumes were anhedonia, a facet of depressive symptomatology reflecting decreased reward responsiveness. Participants were 18 adults meeting MetS criteria and 18 controls meeting no criteria, matched for age and gender (mean age = 39.1yrs; 14 men). MetS criteria were based on the National Cholesterol Education Program Guide line. Basal ganglia volumes were computed by automated segmentation of high-resolution magnetic resonance images. Anhedonia was assessed from a derived Beck Depression Inventory-II Anhedonia subscore (cronbach's alpha = .54). After adjusting for total grey matter volume in ANCOVAs, MetS associated with reduced volume of caudate nucleus and globus pallidus (ps < .05). Individuals with the MetS also reported increased anhedonic symptoms (p<.05). Contrary to expectation, we did not observe any associations between anhedonic symptoms and caudate nucleus volume; however, a trend was found between anhedonic symptoms and globus pallidus volumes (p = .06). Exploratory analyses revealed that basal ganglia volumes did not attenuate the relationship between MetS-anhedonia. Collectively, these findings suggest that structural changes in reward-related regions of the basal ganglia represent a neural correlate of MetS. Further, basal ganglia morphology does not appear to explain anhedonic symptomatology in MetS.

260) Abstract 1653
IMPACT OF SPIRITUALITY ON MENTAL HEALTH OF RHEUMATOID ARTHRITIS PATIENTS: A SYSTEMATIC REVIEW
Parshkit Deshmukh, MD, Psychiatry, University Hospital Case Medical Center, Cleveland, OH, Gaurav Kadkarni, MD, Psychiatry, University of Missouri, Columbia, MO, Jeanne Luckamp, MD, Psychiatry, University Hospital Case Medical Center, Cleveland, OH

Background and objective: Rheumatoid arthritis (RA) is a chronic debilitating illness associated with chronic pain, leading to significant psychological distress. Few studies are available to understand the effects of spirituality and religious involvements on mental health of RA patients. We aim to summarize these findings and further suggest recommendations that will help bridge the gap between available literature and need for future research. Method: Relevant studies were identified using the PubMed central computerized database using words: ‘rheumatoid arthritis’, ‘RA’, ‘mental health’, ‘psychotherapy’, ‘psychiatric’ and ‘religion.’ We explored the relevant references from the generated studies and cited them as needed. In this paper, we describe the concepts of spirituality briefly and address how spirituality and mental health are interrelated in RA patients. Results: Psychiatric comorbidities are found to be significantly associated with RA, most specifically in those patients with chronic pain. RA patients also are found to be involved in spiritual practices to a great extent. Spirituality in general is found to have positive impact on the mental health of these patients through various mechanisms, such as giving purpose of life to RA patients, stimulating coping mechanisms, and inducing positive health perceptions. However, some exceptions: Considering spiritual and religious beliefs while treating psychiatric symptoms in RA patients, and intervening accordingly, may help ameliorate their psychiatric symptoms. Further studies are warranted to understand the utility of these approaches in clinical settings, and to explore the neurobiological basis of this relationship in these chronically ill patients as well as others.

261) Abstract 1650
ADULTS WITH PSYCHOSOMATIC SYMPTOMS IN COMMUNITY PARTIAL HOSPITALIZATION PROGRAM: CHARACTERISTICS AND PREDICTORS OF CLINICAL RESPONSE
Parshkit Deshmukh, MD, David Kemp, MD, MS, Psychiatry, University Hospital Case Medical Center, Cleveland, OH, Richard Hill, MD PhD, Psychiatry, Recovery Resources, Cleveland, OH, Stephen Ganocy, PhD, Psychiatry, University Hospital Case Medical Center, Cleveland, OH

Background: Psychosomatic symptoms (PS) are one of the most common forms of psychiatric illness to present in the community, accounting up to 59% of the patient population according to the Diagnostic Criteria for Psychosomatic Research. Intervention studies for the treatment of PS in the community setting are limited, particularly in partial hospitalization program (PHP) settings. Methods: Patients enrolled in a PHP (N=81) were administered serial clinical assessments using the BASIS-32 (Behavior and Symptom Identification Scale) which consists of 32 self-reporting questions representing 5 domains that include Daily Living and Role Functioning (DLRF), Relation to Self and Others (RSO), Depression and Anxiety (DAA), Psychosis, Impulsive and Addictive Behavior (IAB) and which was found to be a valid measure for outpatient treatment. One question assessing PS such as headaches, aches and pains, sleep disturbance, stomach aches and dizziness was considered as a separate domain. Multiple regression analysis was performed to determine if the change in the PS domain during PHP treatment was correlated with demographic factors such as age, gender, race, marital status, level of education and living arrangement. The correlation between magnitudes of change in PS and within each domain was also explored. Results: Thirty (16 %) patients showed a 30% or greater reduction of PS score and race was the only significant (p=0.01) demographic factor associated with this improvement. Whites/Caucasians showed greater improvement than Blacks/African Americans. The improvement in PS scores were found to correlate with improvements in IAB (r=0.03) and DLP (p=0.06) but not with DAA scores. Conclusion: PHP treatment appears modestly
effective in improving PS. White/Caucasian race may predict greater improvement. In addition, impulsive and addictive patients may show greater improvement in PS scores than depressed and anxious patients. Future studies are needed to confirm if race and IAB are moderators of PS improvement.

262) Abstract 1788

STRESS MANAGEMENT FOR BMT CAREGIVERS
Mark L. Laudenslager, PhD, Psychiatry, University of Colorado Denver, Denver, Colorado, Janet Spradley, LSW, Psychosocial Oncology, Presbyterian/St. Luke's Medical Center, Denver, Colorado, Rachel Grayza, BS, Crystal L. Narvig, BS, Psychiatry, University of Colorado Denver, Denver, Colorado, Susan K. Mikulich-Gilbertson, PhD, Psychiatry, University of Colorado Denver, Aurora, Colorado, Kristin Kilbaugh, PhD, Psychology, University of Colorado Denver, Denver, Colorado, Teri Simonene, PhD, Psychosocial Oncology, Presbyterian/St. Luke's Medical Center, Denver, Colorado

BACKGROUND: Caregivers of blood or marrow transplant (BMT) recipients are quite distressed. In the case of allogeneic recipients, attention is focused on tracking patient health for indications of graft versus host disease. Control of respiration is core to stress management approaches. Randomized control trials have not focused on how and stress management in this population. We are testing an individualized PsychoEducation and Paced Respiration and Relaxation (PEPRR) intervention for BMT caregivers including a device, the RESPeRATE, which entrains paced respiration to auditory stimuli to facilitate relaxation. The device monitors caregiver adherence as total minutes/week and time with respirations below 10/min. METHODS: Sixty five caregivers have been randomized to PEPRR or treatment as usual following baseline behavioral data collection including measures addressing affect (CESD), stress (PSS), and general health (SF-36). We evaluated these baseline measures as predictors of RESPeRATE use over a 6 week interval. A total of 19 caregivers who had completed the intervention phase were available for analysis. RESULTS: Caregivers averaged 51 +/- 13 years of age; 65% were female. Due to blinding, we are unable to report demographic details. For PEPRR caregivers, stress (CESD), mood disturbance (POMS), and perceived stress (PSS) exceeded published population norms at baseline. Caregivers fell above population norms on scales of the SF36. RESPeRATE use during the first week predicted use during the subsequent five weeks (Pearson r =.69, p<.001). Mean number of min used across the first 6 wk was negatively correlated to perceived stress (Spearman r = -.46, p = .05) and the well being subscale on the CESD (Spearman r = -.56, p = .01) and positively to body pain on the SF36 (Spearman r = .51, p = .02). Achieving target rate showed similar relationships. SUMMARY: Initial observations indicate that BMT caregivers were significantly distressed prior to transplant and that most adhered with use of a biofeedback device. Overall use was also predicted by 1) use during the first week and 2) baseline measures of distress. [Supported by NIH grant CA126971.]

263) Abstract 1607

EXCEPTIONS TO THE SES GRADIENT: RACIAL/ETHNIC DIFFERENCES IN SOCIOECONOMIC EFFECTS ON SCHOOL ABSENCES AMONG ADOLESCENTS
Mónica Garza, BA, John M. Ruiz, Ph.D., Psychology, Scott Martin, Ph.D., Christy Greenleaf, Ph.D., Kinesiology, Daniel Taylor, Ph.D., Trent Petrie, Ph.D., Psychology, University of North Texas, Denton, Texas

Higher socioeconomic status (SES) is reliably associated with better health including lower all-cause mortality. This relationship has been used to explain aspects of black-white health disparities. However, sporadic findings suggest that SES exerts benign or paradoxical influences on health amongst Hispanics. The current aim was to examine racial/ethnic differences in the relationship between SES and school days missed as a health marker in a diverse sample of adolescents. Participants were 2959 middle school students (11-14 years) in a north Texas public school district. The sample included 1021 Hispanic/Latinos, 1564 White/Caucasians, and 373 Black/African Americans. SES was based on federal guidelines for determining which students qualified for free or reduced lunch based on family income. Racial/ethnic groups did not differ in terms of total absences during the school year (mean = 3.26 [3.13] days), F(1,2956) = 1.70, p = ns. As expected, lower SES was significantly associated with greater total absences for Whites, F(1,1561) = 12.96, p < .001, and Blacks, F(1,371) = 23.29, p < .001. However, SES did not influence total absences among Hispanics, F(1,1017) = 1.24, p = ns. Data was also available for medically-excused (ME) absences which may reflect access to healthcare. The mean ME absence rate was 0.75 (1.34) days; Whites were more likely to have ME absences relative to Hispanics (0.96 vs. 0.48 days), t(2583) = 8.85, p<.001. Higher SES was associated with more medically excused absences within each racial/ethnic group: White, F(1,1558) = 7.51, p<.01; Hispanic, F(1,1017) = 4.37, p < .05; Black, F(1,369) = 3.24, p=.07. This finding suggests that Hispanics are less likely to have ME absences although when they do, they are a function of higher SES. Overall, these findings challenge the generalizability of SES as a mediator of racial/ethnic differences.

264) Abstract 1324

STRESSFUL ANCIENT EGYPT? ASSESSING CORTISOL CONCENTRATIONS IN A MUMMY’S HAIR
Adrian Loebbroks, PhD, Cluster of Excellence Asia and Europe, Humboldt University, Heidelberg, Germany, Friedhelm Hoffmann, PhD, Egyptological Institute, Ludwing Maximilians University, Munich, Germany, Alfred Grimm, PhD, Egyptian Museum Munich, Munich, Germany, Clemens Kirschbaum, PhD, Institute of Biological Psychology, Dresden University of Technology, Dresden, Germany

Background: Cortisol is a key marker of the physiological stress response. Sources previously used to assess cortisol levels include blood plasma, saliva and urine. More recently, techniques to measure cortisol from hair have been developed. Hair analyses may allow the application of cortisol assessments to new types of research populations, namely, archaeological samples. If feasible, such measurements could provide insight into potential stress experiences in ancient times. The aim of the present study was to examine the feasibility of cortisol measurement in mummy hair. Method: Two hair samples were taken from a mummified head in the Egyptian Museum of Munich. PEPRR and the well being subscale on the CESD, stress (PSS), and general health (SF-36). We evaluated these baseline measures as predictors of RESPeRATE use over a 6 week interval. A total of 19 caregivers who had completed the intervention phase were available for analysis. RESULTS: Caregivers averaged 51 +/- 13 years of age; 65% were female. Due to blinding, we are unable to report demographic details. For PEPRR caregivers, stress (CESD), mood disturbance (POMS), and perceived stress (PSS) exceeded published population norms at baseline. Caregivers fell above population norms on scales of the SF36. RESPeRATE use during the first week predicted use during the subsequent five weeks (Pearson r =.69, p<.001). Mean number of min used across the first 6 wk was negatively correlated to perceived stress (Spearman r = -.46, p = .05) and the well being subscale on the CESD (Spearman r = -.56, p = .01) and positively to body pain on the SF36 (Spearman r = .51, p = .02). Achieving target rate showed similar relationships. SUMMARY: Initial observations indicate that BMT caregivers were significantly distressed prior to transplant and that most adhere with use of a biofeedback device. Overall use was also predicted by 1) use during the first week and 2) baseline measures of distress. [Supported by NIH grant CA126971.]

265) Abstract 1446

MINDFULNESS AND PSYCHOLOGICAL ADJUSTMENT AMONG PARKINSON’S DISEASE PATIENTS AND THEIR PARTNERS
Samuel J. Dreeben, B.A., Sandra E. Sephton, Ph.D., Megan E. Jablonski, M.S., Psychological and Brain Sciences, University of Louisville, Louisville, Kentucky, Irene Litvan, M.D., Neurology, University of Louisville School of Medicine, Louisville, KY, David J. Houghton, M.D., Neurology, University of Louisville School of Medicine, Louisville, Kentucky, Janine Giese-Davis, Ph.D., Oncology, University of Calgary Faculty of Medicine, Calgary, Alberta, Canada, Estate M. Sokhadze, Ph.D., Psychiatry and Behavioral Sciences, Rafael Fernandez-Botran, Ph.D., Pathology and Laboratory Medicine, University of Louisville School of Medicine, Louisville, Kentucky, Emily A. Eissmann, M.S., Scott M. Hanneman, B.S., Paul Salmon, Ph.D., Psychological and Brain Sciences, University of Louisville, Louisville, Kentucky

Background: Cortisol is a key marker of the physiological stress response. Sources previously used to assess cortisol levels include blood plasma, saliva and urine. More recently, techniques to measure cortisol from hair have been developed. Hair analyses may allow the application of cortisol assessments to new types of research populations, namely, archaeological samples. If feasible, such measurements could provide insight into potential stress experiences in ancient times. The aim of the present study was to examine the feasibility of cortisol measurement in mummy hair. Method: Two hair samples were taken from a mummified head in the Egyptian Museum of Munich. PEPRR and the well being subscale on the CESD, stress (PSS), and general health (SF-36). We evaluated these baseline measures as predictors of RESPeRATE use over a 6 week interval. A total of 19 caregivers who had completed the intervention phase were available for analysis. RESULTS: Caregivers averaged 51 +/- 13 years of age; 65% were female. Due to blinding, we are unable to report demographic details. For PEPRR caregivers, stress (CESD), mood disturbance (POMS), and perceived stress (PSS) exceeded published population norms at baseline. Caregivers fell above population norms on scales of the SF36. RESPeRATE use during the first week predicted use during the subsequent five weeks (Pearson r =.69, p<.001). Mean number of min used across the first 6 wk was negatively correlated to perceived stress (Spearman r = -.46, p = .05) and the well being subscale on the CESD (Spearman r = -.56, p = .01) and positively to body pain on the SF36 (Spearman r = .51, p = .02). Achieving target rate showed similar relationships. SUMMARY: Initial observations indicate that BMT caregivers were significantly distressed prior to transplant and that most adhere with use of a biofeedback device. Overall use was also predicted by 1) use during the first week and 2) baseline measures of distress. [Supported by NIH grant CA126971.]

265) Abstract 1446

MINDFULNESS AND PSYCHOLOGICAL ADJUSTMENT AMONG PARKINSON’S DISEASE PATIENTS AND THEIR PARTNERS
Samuel J. Dreeben, B.A., Sandra E. Sephton, Ph.D., Megan E. Jablonski, M.S., Psychological and Brain Sciences, University of Louisville, Louisville, Kentucky, Irene Litvan, M.D., Neurology, University of Louisville School of Medicine, Louisville, KY, David J. Houghton, M.D., Neurology, University of Louisville School of Medicine, Louisville, Kentucky, Janine Giese-Davis, Ph.D., Oncology, University of Calgary Faculty of Medicine, Calgary, Alberta, Canada, Estate M. Sokhadze, Ph.D., Psychiatry and Behavioral Sciences, Rafael Fernandez-Botran, Ph.D., Pathology and Laboratory Medicine, University of Louisville School of Medicine, Louisville, Kentucky, Emily A. Eissmann, M.S., Scott M. Hanneman, B.S., Paul Salmon, Ph.D., Psychological and Brain Sciences, University of Louisville, Louisville, Kentucky
Mindfulness and psychological adjustment among Parkinson's disease patients and their partners. Background: Parkinson's disease (PD) is a neurodegenerative disorder characterized by motor control loss and psychological distress. Family members often serve as caregivers as functional abilities are lost. Little is known about potential benefits of mindfulness or psychoneuroendocrine/immune effects in patients or their partners. We hypothesized mindfulness would protect against disease-related distress and be linked with better coping, lower psychological and physiological stress, and better quality of life. Methods: We used pre-randomization data from 36 PD patient/partner pairs recruited for a trial of Mindfulness-Based Stress-Reduction. Data included demographic, medical, and self-reports of mindfulness (KIMS), perceived stress (IES), coping (brief COPE), anxiety (BAI), depressive symptoms (BDI), and quality of life (PSQI, ESS). Psychophysiology (heart rate, galvanic skin response, heart rate variability, respiration rate), diurnal salivary cortisol profiles (slope, mean, response to awakening), and serum inflammatory cytokines (CRP, IL-6, IL-1beta, TNF-alpha) were assessed. Primary analyses used dyad scores created from the mean of each patient-partner pair for psychological/physiological outcomes (n=18). Associations with mindfulness were tested using separate linear regressions for each outcome. Secondary analyses utilized individual scores (n=36) to explore effects of mindfulness in hierarchical regressions adjusting for patient, caregiver stress, gender, and partner's score (using a conservative significance criterion of p<.01). Results: Primary analyses revealed that mindfulness was related to lower anxiety (p=.013) and depressive symptoms (p<.0001). Secondary analyses, in addition to confirming primary analyses results, further showed that patients had more anxiety and faster breathing rates than partners, and revealed a positive association between mindfulness and sleep quality. Conclusions: Mindfulness may contribute to psychological adjustment among families contending with Parkinson's disease.

266) Abstract 1270

EFFECTS OF ACCULTURATION ON OVERWEIGHT IN CANADIAN IMMIGRANT YOUTH
Elizabeth C. Quon, M.A., Jennifer J. McGrath, Ph.D., Psychology, Concordia University, Montreal, Quebec, Canada

The healthy immigrant effect refers to the observation that the health of immigrants at the time of immigration is superior to the health of the native-born population and that immigrants lose this health advantage over time. A similar pattern has been observed for excess weight. As immigrants undergo acculturation, they may acquire the ‘obesogenic’ lifestyle habits of Canadian culture. Acculturation variables that tie first-generation immigrants to their original culture have been found to be protective against weight gain. The purpose of this study was to assess the relationship between acculturation and overweight across generations of Canadian immigrant youth. Children aged 6-11 years (N = 13,657) and adolescents aged 12-17 years (N = 10,467) from the National Longitudinal Survey of Children and Youth (Cycles 1-7) were included in this study. Youth were classified into one of five generations of immigration: first, second, mixed, third and higher, and Aboriginal. Overweight was assessed using CDC age- and sex-specific percentiles, based on reported body mass index. Acculturation was measured by the youth’s first language (English/French, Other). Multilevel modelling was used to test hypotheses. Results showed that Generation of immigration x First language interaction significantly predicted child BMI percentile (F = 3.77; p < .01). First-, second-, and third-generation children speaking English/French had higher mean BMI percentiles (Mavg = 60.59) than Other (Mavg = 56.62). Conversely, mixed-generation and Aboriginal children speaking English/French had lower mean BMI percentiles (Mavg = 61.91) than Other (Mavg = 75.06). First language was not related to overweight in adolescents. Post-hoc analyses of language changes over time suggested it may be adaptive for mixed-generation immigrant children to retain their first language and for first-generation immigrant children to lose theirs. The acculturation process may contribute to overweight in Canadian immigrant children.

267) Abstract 1811

POSITIVE BENEFIT FINDING IS ASSOCIATED WITH SALIVARY CORTISOL AWAKENING RESPONSE IN CAREGIVERS OF HOSPICE PATIENTS
Shannon L. Madore, BA, Allison Costenaro, MA, Psychology, Crystal L. Natvig, BS, Psychology, University of Colorado Denver, Denver, CO, Tarah A. Keech, MA, General Internal Medicine, University of Colorado Denver, Aurora, CO, Derek Anderson, MA, Psychology, The Ohio State University, Columbus, Ohio, Mark L. Laudenslager, PhD, Psychiatry, University of Colorado Denver, Denver, CO, Jean S. Kutner, MD, General Internal Medicine, University of Colorado Denver, Aurora, CO, Kristin M. Kilbourn, PhD, Psychology, University of Colorado Denver, Denver, CO

Background and Purpose: Informal caregivers (CGs) of hospice patients experience multiple stressors leading to high distress and increased morbidity and mortality. Biological markers may increase our understanding of the relationship between caregiver-related distress and health outcomes. This study describes the association between psychosocial variables and awakening response in salivary cortisol in CGs of home-based hospice patients enrolled in a pilot study of a telephone counseling intervention (CaLL). Method: Psychosocial assessments included measures of caregiver burden (CRA), depression (CES-D), stress (PSS) and positive benefit finding (BSF). CGs also collected saliva using special filter paper in booklets at 4 time points for 3 consecutive days. Booklets were mailed to the research team and analyzed by validated procedures. Awakening response (AR) was calculated as the change in cortisol level from wake and wake+30 minutes time points. Results: 18 of 25 CGs collected saliva. Mean age was 61 years (SD=12.4). 95% were female, 84% Caucasian and 63% married. The majority were caring for a family member - 39% for a spouse and 61% for a parent. 71% reported that saliva collection directions were ‘very clear’ to follow. Mean baseline distress measures indicated moderate to high levels of distress (for example, CES-D =14.77 (SD=11.81). Correlational analysis found no association between AR and age, sleep quality, perceived health status, CES-D scores, PSS or CRA but baseline AR level was negatively associated with BSF (r=-.52, p =.03). Conclusion: The CaLL pilot study demonstrated the feasibility of collecting saliva in hospice caregivers. This found no association between baseline AR or health-related measures. Interestingly, lower AR response was associated with greater reports of caregiver-related positive benefit finding, suggesting that the positive aspects of caregiving may be associated with biological indices and that benefit finding may be a useful coping mechanism for these distressed individuals. (Supported by American Cancer Society: PEP-07-212-01-P01)

268) Abstract 1062

MODULATION OF NEURAL, CARDIOVASCULAR, AND IMMUNE REACTIVITY TO COGNITIVE CHALLENGE BY CHRONIC JOB STRESS
Fumihito Ohira, PhD, Psychology, Nagoya University, Nagoya, Aichi, Japan, Masahiro Matsuoka, PhD, Psychosomatic Medicine, Fujita Health University, Nagoya, Aichi, Japan, Kenta Kimura, PhD, Hiroki Murakami, MA, Takahiro Osumi, MA, Psychology, Nagoya University, Nagoya, Aichi, Japan

 Twenty healthy men with full-time employment were recruited and divided into a low job-stress group and a high job-stress group based on their scores from a self-administered questionnaire measuring job stress. We simultaneously recorded regional cerebral blood flow using 15O-water positron emission tomography and cardiovascular parameters such as blood pressure and heart rate and immune parameters such as proportions of subsets of lymphocytes, during a stochastic reversal learning task composed of two stages: initial acquisition of stimulus and reward/punishment contingencies and a reversal of the contingencies. Whereas participants in the low job-stress group exhibited increases of diastolic blood pressure probably caused by contraction of vessels at the reversal learning stage and dynamic changes of NK cell proportion as learning progressed, participants in the high job-stress group showed blunted reactivity both in cardiovascular and immune parameters. In concordance with these parameters, activation of brain regions known to relate to reversal learning such as the orbitofrontal cortex, insula, striatum, and midbrain was significantly lower in the high job-stress group compared to the low job-stress group. In addition, activation of the perigenual and dorsal regions of the anterior
cingulate cortex and posterior cingulate cortex correlated with changes of cardiovascular and immune parameters in reversal learning in the low job-stress group, suggesting that the cingulate zone can work as an interface system for the brain and cardiovascular activity. However, such functional associations between the brain and physiological reactivity was not observed in the high job-stress group. These findings suggest that functions of the preferential-limbic-striatal network can be altered by chronic job stress, resulting in dysregulated reactivity to acute stress.

269) Abstract 1698

EATING BEHAVIOR IN MIDDLE-AGED WOMEN
Suzana Drobnjak, M.S., Ulrike Ehler, Prof., Department of Psychology, University of Zurich, Zuerich, Switzerland
In general, eating disorders are a well researched phenomenon. However, most studies in this field only apply to young women. Little or no research has been conducted on eating behavior in middle-aged women (40 years or older). This study is a contribution to closing that gap. Menopause needs to be considered when studying middle-aged women. Clinically, menopause describes the permanent cessation of menstruation due to the loss of the ovarian follicular function. One of its secondary effects is weight gain. Therefore, we investigated the following questions: 1) Do postmenopausal women show a higher Body Mass Index (BMI) and waist to hip ratio than premenopausal women? 2) Do premenopausal and postmenopausal women show different eating behavior? 3) Is the body mass index a predictor for a specific kind of eating behavior? We used an online version of the Eating Disorder Examination-Questionnaire (EDE-Q) (Fairburn & Beglin, 1994), a self-report measure that assesses attitudes, feelings, and behaviors related to eating, body shape, and weight over the last 28 days. The EDE-Q yields a global score and four subscale scores: restraint eating, shape concern, weight concern and eating concern. In addition, the women were asked to measure their weight, height, waist and hip circumference. A total of 620 women (age 40 to 77 years.) completed the questions. The women also indicated whether they had had their menstruation during the past 6 months or not. This cut-off date was used to build two groups: premenopausal women (305) and postmenopausal women (315). Postmenopausal women have a significantly higher BMI (t=2.178, p<.030) and waist to hip ratio (t=2.309, p=.022). Postmenopausal women also show significantly higher scores in the ‘restraint eating’ subscale (t=3.036, p=.003). Moreover, BMI scores significantly correlate with ‘restrained eating’ (r=.246, p<.000). In addition, age correlates significantly with ‘restrained eating’ (r=.246, p=.000). This study suggests that restrained eating might be a behavioral reaction for postmenopausal women employ to counterbalance menopausal related changes.

270) Abstract 1331

NEGATIVE AFFECT AND VASOMOTOR SYMPTOMS IN THE DAILY HORMONE STUDY
Carolyn Gibson, MPH, Psychology, Rebecca Thurston, PhD, Joyce Bromberger, PhD, Epidemiology, Psychiatry, Thomas Kamarck, PhD, Psychology, Psychiatry, Karen Matthews, PhD, Psychiatry, Epidemiology, Psychology, University of Pittsburgh, Pittsburgh, PA
Purpose: Vasomotor symptoms (VMS) are linked to poorer health and quality of life, and are common in the menopausal transition. Negative affect is commonly associated with self-reported VMS. A multi-site, multi-community based prospective cohort study of the menopausal transition. Daily affect and VMS were reported in diaries over 12-50 days. Multilevel mixed models, with daily observations nested within women, were used to determine the associations between daily diary-reported VMS and negative affect, adjusted by woman-level covariates (antidepressant use, age, education, menopausal status, self-reported health, and race/ethnicity) drawn from concurrent SWAN visits. Results: Overall, VMS was reported on at least one day of observation by 327 women (52.3%). Women with higher average negative affect were more likely to report VMS (OR 1.8, 95% CI 1.2-2.5, p<.01). Negative affect was also positively associated with VMS (OR 1.6, 95% CI 1.4-2.0, p<.001) within each 24 hour period. Negative affect, adjusted by same day VMS, was not predictive of next day VMS (OR 1.1, 95% CI 0.9-1.3, p=.4), while VMS, adjusted by same day negative affect, was predictive of negative affect the next day (OR 1.3, 95% CI 1.1-1.5, p=.01). Conclusions: VMS and negative affect were positively associated with each other using prospective daily diaries. Assessment of temporal relationships suggests that VMS precedes acute elevations in negative affect, but negative affect does not increase likelihood of VMS. Acknowlegements: Supported by NIH NR004061; AG012505, AG012535, AG012539, AG012546, AG012553, AG012554, AG012495.

271) Abstract 1399

SHORT-TERM COMMITMENT IS ASSOCIATED WITH BETTER MENTAL HEALTH AND LESS STRESS IN YOUNG ADULTS
Nicole Piccirillo, Stephen Martinokovich, Aubrey Marano, Sarah Conklin, PhD, Neuroscience and Psychology, Allegheny College, Meadville, PA
The effect of social support, especially marital status, on morbidity and mortality is increasingly considered an important variable influencing multiple domains of health. Compared to unmarried individuals, married people consistently report stronger feelings of belonging and higher self-esteem. This suggests that marriage may facilitate the presence of a beneficial social support system, and that the perception of social support may lead to better physical and mental health. The current study examined mental and physical health status and self-reported stress in young adults as a function of their romantic relationship status (single vs. committed). It was hypothesized that participants in committed relationships would report less stress, physical and mental health problems than single students. Participants (N=134, M age=19.58(1.03), 69.4% female) completed the Symptom Check List-90 (SCL-90), and the Penn State Eating Disorder Examination (PSEDE) to examine eating disorders in single and committed participants (N=76) scored significantly higher on five component sub-scores of the SCL-90: obsessive-compulsive (F(1,127)=4.78, p=.03), interpersonal sensitivity (F(1,127)=4.78, p=.03), depression (F(1,126)=4.48, p=.04), paranoid ideation (F(1,127)=5.60, p=.02), and positive symptoms distress index (F(1,127)=6.203, p=.01) than participants in committed relationships (N=58). Single participants also scored significantly higher on the PSS (F(1,131)=12.38, p=.00). Interestingly, there were no differences between single and committed participants on health behaviors such as self-reported alcohol consumption or cigarette smoking. Similarly, group differences were not seen for physical health symptoms. Participants in committed relationships reported less stress and mental health symptoms than single participants, suggesting that such relationships in young adults may have similar protective health benefits as marriage in older adults. These associations were seen despite the fact that most committed participants had been in such relationships for less than two years.
fainting (Diehl, 2005). In essence, people fear or develop less dramatic vasovagal symptoms because they anticipate significant blood loss. To evaluate this idea, indices were examined between VVRs and individual differences in a variety of medically-related fears, assessed via the Medical Fears Survey (MFS), in two samples of young adult blood donors. Both Sample 1 (N = 274) and the earlier archival group Sample 2 (N = 726) were participants in clinical trials of the muscle tension technique (Applied Tension). Subjective and objective measures of VVRs were obtained using the Blood Donation Reactions Inventory (BDRI) and nurse-initiated chair reclining. Stepwise regression equations, including fears as well as age, sex, and previous blood donation experience, were used to predict BDRI scores and logistic regression used to predict chair reclining. Sample 1 results indicated that, while needle fears were more common than blood fears, the primary predictor of both BDRI score and chair reclining (OR = 2.17, p = .001) was rating of fear of seeing blood being drawn from someone's arm. Other predictors of symptoms in Samples 1 and 2 were limited to fears related to blood as opposed to specific fears of needles and mutilation. The idea of blood loss seems very important in risk for VVR.

273) Abstract 1606

PSYCHOSOCIAL PREDICTORS OF HEALTH-RELATED QUALITY OF LIFE AFTER SOLID ORGAN TRANSPLANTATION: A REVIEW
Alexander L. Patterson, PsyD, Department of Psychology, Portland VA Medical Center, Portland, Oregon

Background: Organ transplantation is a life-saving procedure for thousands of individuals annually. Improvement in health-related quality of life (HRQOL) post-transplant is significant. HRQOL is a concept that incorporates psychosocial variables with medical variables in order to provide a global gauge of the health status. There is variability in post-transplant HRQOL depending on individual patient variables. Researchers have sought to identify specific psychosocial variables that predict post-transplant HRQOL; this information helps providers to tailor interventions that may increase the likelihood of better outcome. This study is a comprehensive review of the empirical literature regarding psychosocial predictors of post-transplant HRQOL. Methods: A literature search was conducted for articles pertaining to HRQOL and organ transplantation. Studies were required to (a) investigate a population that had undergone solid organ transplantation, (b) measure post-transplant HRQOL using a quantitative measure, (c) analyze statistical relationships between psychological and/or social variables and post-transplant HRQOL. Results: Of the 2,529 abstracts that were identified, 29 papers met full criteria. The most common psychosocial predictors of post-transplant HRQOL were pre- and post-transplant depression and anxiety (11 studies), coping style (7 studies) and self-efficacy (2 studies). The most common social predictors were pre- and post-transplant social support (8 studies), employment status (7 studies), and marriage/cohabitation (5 studies). Overall, specific psychological and social variables appear to play an important role in determining post-transplant HRQOL. 

274) Abstract 1337

QUALITY IN COLONOSCOPY SERVICES FROM THE PATIENT PERSPECTIVE: IMPORTANCE OF PSYCHOSOCIAL FACTORS
Maida J. Sewitch, PhD, Medicine, McGill University Health Center, Montreal, Quebec, Canada, Catherine Dubé, MSC, MD, FRCP(C), Medicine and Community Health Sciences, University of Calgary, Calgary, Alberta, Canada, Alan Barkun, MD,CM, FRCPC(F), FACP, MS, Medicine, McGill University Health Center, Montreal, Quebec, Canada, Robert Hilsden, MD PhD FRCP(C), Medicine and Community Health Sciences, University of Calgary, Calgary, Alberta, Canada, David Armstrong, MA, MB BChir, FRCP(UK), Medicine, McMaster University, Hamilton, Ontario, Canada

Background. Colonoscopy is considered the optimal screening test for colorectal cancer (CRC) and is central to any CRC screening program as either the initial or follow-up exam. Patient adherence to screening is key to the success of a CRC screening program. Objective. To better understand Canadian patients’ perspectives of indicators of quality in colonoscopy services in order to incorporate the patient's perspective into the consensus development process. Methods. Focus groups were held in Montreal, Calgary and Hamilton among gastroenterology patients aged 18 years and over, able to speak English or French and either scheduled for or having already undergone a colonoscopy. Participants were asked to discuss what in their view would best indicate high quality colonoscopy services and why. Focus group facilitators used an interview guide to direct participants to consider each phase of the colonoscopy experience (pre-, intra-, post-procedure). Discussions were audio-taped, transcribed and analyzed using the constant comparative approach. Results. Overall, 66 patients from 12 focus groups participated (age range: 22-82; 50% female, 66% had undergone colonoscopy). Three major themes emerged that focused on quality: communication, comfort and the service environment. Communication referred to knowing what to expect, interaction with the team, obtaining results, having phone numbers to call for questions before and after the procedure as well as for psychological support for newly diagnosed CRC and ability to provide feedback about service. Comfort addressed physical (lack of pain) and emotional concerns (anxiety, privacy, dignity, demeanor of the health care team). Service environment issues addressed ability to choose the endoscopist, flexibility in scheduling the colonoscopy and the waiting, recovery and changing areas. By contrast, endoscopist expertise and safety of equipment and the procedure were of less importance; patients assumed these aspects were closely monitored and acted upon by regulating bodies. Conclusions. Patients were most concerned with psychosocial aspects of the colonoscopy experience. Colonoscopy screening programs should incorporate the patient perspective on quality service to optimize adherence to future colonoscopy screening.

275) Abstract 1619

SELF-EFFICACY AS A MEDIATOR BETWEEN ACTIVE COPING AND QUALITY OF LIFE
Thomas DeSena, M.A., James Miller, B.S., Mark Yovsick, PhD, Clinical Health Psychology, University of North Texas, Denton, Texas

The examination of Quality of Life (QOL) in individuals with HIV/AIDS is a recent focus in the research literature. QOL is associated with a lack of social support, increased pain, and disease progression (Diamond et al., 2010; Ellis et al., 2010; Ra et al., 2010). QOL in particular is associated with active coping among HIV+ patients (Ellis et al., 2010; Bandura, 1997). Identifying methods to increase QOL is important. Self-efficacy is a psychological construct often conceptualized as a belief or confidence in one's own capabilities to control, organize, and execute a task or specific behavior in order to achieve a particular goal or outcome (Bandura, 1997). Self-efficacy is associated with coping ability when implementing a self-management program particularly for chronic disease (Bandura, 1977). Our hypothesis is that self-efficacy and active coping directly predict QOL and self-efficacy mediates the relationship between QOL and coping. HIV-positive participants (n = 57; 49% Female; 63% African American; Mean Age = 49, SD = 7.1) consented to participate in an IRB-approved research study. We conducted a hierarchical multiple regression and several mediation analyses to examine the relationship between Self-Efficacy for Managing Chronic Disease (s = .94; Marks, 2001), Active Coping (s = .88; from the BriefCOPE Scale; Carver, 1997) and QOL (from the MOS HIV Scale; Wu, 1996). A multiple regression model found Self-Efficacy (β = .47, t = 3.75, p < .001) to be a predictor of QOL (adj. r² = .26, F (4, 52) = 5.93, p < .001). The Sobel (Sobel, 1982) test for mediation was conducted and we found that self-efficacy mediated the relationship between Active Coping and QOL (p < .05). Analyses confirmed self-efficacy was a significant predictor of QOL and mediated the relationship between coping and QOL. Self-efficacy is an important construct that allows individuals to cope in a way that increases their quality of life. Future research should further examine the link between efficacy and other constructs associated with QOL.

276) Abstract 1378

SOCIAL SUPPORT AND MINDFULNESS SKILLS: CORRELATES OF DEPRESSION IN A LESBIAN, GAY, AND BISEXUAL SAMPLE

A-92
Minority group members experience more stress due to minority-related stigma, increasing the risk of developing mental health problems (Meyer, 2003). Mindfulness is related to better psychological well-being and self-care, including social support (Richards, Campanelli, & Muse-Burke, 2010) and to less psychological symptoms (Carmody & Baer, 2008). Increased social support is significantly related to less depression in those with HIV/AIDS (Li et al., 2009). Thus, increased social support and mindfulness may result in decreased depression. Our study examines the association of mindfulness and social support with depression in an LGB sample. Participants included 148 LGB individuals (42% women) with an average age of 32 (SD=12.7, range=55). Of the sample, 62.2% reported they were European-American, 12.2% African-American, 12.8% Latino, 10.1% Other, and 2.1% Asian-American. Additionally 33.8% were gay, 33.8% lesbian and 32.4% bisexual. Data was collected via participant surveys. Correlational analyses suggested a significant negative relationship between depression and mindfulness (r=-.32, p<.001) and a significant positive relationship between social support and mindfulness (r=.21, p=.03). Social support was positively but not significantly correlated with depression. We found a significant negative relationship between age and depression (r=-.20, p=.015), a significant positive relationship between age and mindfulness (r=.26, p=.002) and a significant positive relationship between African-American ethnicity and depression (r=.25, p=.002). A linear regression analysis found that the acceptance without judgment component of mindfulness (β=.33, t=3.60, p<.001) and being African-American (β=.22, t=2.45, p=.016) significantly predicted depression in the LGB sample (adj. R²=21, F(4,101)=7.75, p<.001), but age and social support did not significantly predict depression. A one-way ANOVA indicated no significant differences in depression, social support, or mindfulness between lesbians, gays, or bisexuals. Our results suggest that mindfulness and African-American ethnicity are associated with depression in an LGB sample. Therapists should consider integrating mindfulness skills in clinical treatment for LGB individuals, and should carefully assess LGB African-Americans for possible depression.

277) Abstract 1795

DENIAL AS A MODERATOR OF DAILY HASSLES AND DISTRESS
Brooke M. Gomez, High School Diploma, Mark A. Vosvick, PhD, Psychology, University of North Texas, Denton, Texas

Denial as a Moderator of Daily Hassles and Distress Gomez, B., Vosvick, M., DeSena, T., Miller, J., Deaton, K. & Ridings, J. The University of North Texas Health distress is associated with lower QOL in people living with HIV/AIDS (Rustoen, 2010) and is correlated with anxiety, depression and general emotional distress (Rotheram-Borus, 2000). Therefore, factors that influence health distress are critical to identify. Diak (2000) studied the relationship between daily hassles and denial coping and found that denial mediated the relationship between daily hassles and states of mind. Building on this research, we hypothesize that denial (a maladaptive form of coping) and hassles both predict health distress, and that denial moderates the relationship between daily hassles and health distress. More specifically, as denial and daily hassles increase health distress increases. Our study was approved by the IRB and participants were provided informed consent. We collected data from 287 HIV+ adults (female 48.6%; age M=41.7, SD=8.4: 54.2% African Americans, 29.5% European Americans, and 11.1% of Latino(a)). We conducted a regression analysis and a moderation analysis to examine the relationship between our independent variables, daily hassles intensity (z=-.97; from the Daily Hassles Scale; Kanner, Coyne, Schaefer, & Lazarus, 1980) and denial coping (z=.89; From the BriefCOPE Scale; Carver, 1997) with our dependent variable, health distress (z=.94; From MOS-HIV Scale; Wu, 1996). Our analysis revealed a significant interaction between denial coping (z =.39, t=6.18, p<.001), denial coping (z =.44, t=7.18, p<.001), and African American ethnicity (z=-.20, t=2.17, p<.05) were significant predictors of health distress in our model (F(9,224) =7.96, adj. r2 =.25, p<.001). Our moderation analysis did not reach significance. Our findings are important from a therapeutic perspective, and suggest that experiencing hassles and choosing to use denial as a coping strategy are associated with more health distress. Further research should assess the efficacy of reducing denial to reduce amount of health distress.

278) Abstract 1848

CARDIOVASCULAR RESPONSES TO LABORATORY STRESS: THE INFLUENCE OF RACE AND ANGER EXPRESSION
Cynthia M. Dolezal, MA, Sydney B. Miller, PhD, Psychology, Concordia University, Montreal, QC, Canada

Studies have repeatedly reported elevated blood pressure in Black men and women as compared to Whites. It has been suggested that this greater incidence of CVD may be due to an exaggerated cardiovascular response to stress in Blacks, and that this differential response may be moderated by psychological variables. The purpose of this study was to examine how anger expression style and specifically, the tendency to hold anger in might moderate racial differences in the cardiovascular response to acute laboratory stress in a Canadian sample. Ninety-five individuals (27 Black men, 19 Black women, 28 White men, and 21 White women) were exposed to three laboratory stressors: forehead cold pressor, discrimination recall, and mental arithmetic. Hemodynamic measures were taken before (rest), and during the stressor (heart rate (HR), systolic blood pressure (SBP), diastolic blood pressure (DBP), and total peripheral resistance (TPR)). Anger-in (referring to the tendency to hold in or suppress angry feelings) was measured using the Spielberger Anger Expression Scale. Multiple linear regression analyses were used to examine the main and interaction effects of race, sex, and anger-in on the hemodynamic measures. At rest, Blacks had higher scores on vascular measures as compared to Whites (DBP: B=1.70; p<.05). This difference is consistent with previously reported findings. During the stressor periods, significant findings were primarily observed during the cold pressor task. Interesting interactions were observed. A moderating effect of anger-in was found, where anger-in moderated reactivity to stress in Whites but not Blacks. Specifically, on vascular measures, Blacks generally exhibited greater reactivity to the cold pressor task than did Whites, however Whites with lower anger-in scores showed cardiac responses similar to those of Black participants (TPR: B=-49.02; p<.05). On cardiac measures, Whites generally exhibited greater reactivity to stressors than did Blacks, however again Whites with lower anger-in scores showed cardiac responses similar to those of the Black participants (CO: B=-40; p<.05). The results of this study highlight the complex interactions among race and anger expression style in the cardiovascular response to stress, and the importance of psychological processes in cardiovascular outcomes.
began at approximately 3:30 am. Prehypertensive subjects also showed a significant drop in Code Substitution Delayed Recall subtest of the A-WAM memory task (p<.05). Prehypertensive subjects displayed a drop in task accuracy at about 3:30am, but showed recovery in performance during the following testing session at about 8:00am. We attribute this performance increase during the morning session to a diurnal increase in arousal. We conclude that the negative impact of sleep deprivation on cognitive performance may be exacerbated in prehypertensive young adults. These data further suggest that subtle central nervous system changes accompany elevations in resting blood pressure in persons at risk for development of essential hypertension later in life.

280) Abstract 1092

PERCEIVED STRESS IS ADVERSELY RELATED TO SLEEP QUALITY IN ADULTS

Denise C. Jarrin, MA, Jennifer J. McGrath, Ph.D., M.P.H., Psychology, Concordia University, Montreal, Quebec, Canada

The relationship between stress and sleep is complex and is influenced by multiple factors. Evidence suggests this relationship is bidirectional, such that, inadequate sleep may induce stress and, in turn, experiencing stress can affect sleep quality. Furthermore, both stress and sleep quality have been independently linked to increased risk of psychiatric and neurological diseases, reduced quality of life, poor daytime functioning, and mortality. Based on animal and human studies, a relation between acute and chronic stress and reduced sleep duration and poor sleep quality has been reported. While researchers have started to examine whether an association exists between experimentally induced stress and sleep, little is known about current levels of experienced stress and sleep in healthy adults. The aim of the current study was to investigate whether adults’ perception of their stress levels was associated with their perceived sleep quality. Participants were part of the larger Healthy Heart Project at Concordia University and included 177 adults (81% female), aged 30 to 65 years (M=45.25, SD=6.24). Using the Perceived Stress Scale (Cohen et al., 1983), adults rated the degree to which they experienced situations they perceived as stressful during the past month. Based on the subscale from the Pittsburgh Sleep Quality Index (Brysse et al., 1989), adults rated their sleep quality over the past month. Multiple regression analyses revealed that perceived stress was a significant predictor of self-rated sleep quality (r=0.49, p<.01) among healthy adults, controlling for age, sex, and socioeconomic status. In fact, perceived stress accounted for 13% of the variance in reported sleep quality. Results indicate that adults who reported experiencing more stressful situations also reported poorer sleep quality, irrespective of various socio-demographic variables. Future research should aim to elucidate the mechanisms underlying the link between sleep and perceived stress, which may provide additional information about the association between pathology, sleep, and stress.

281) Abstract 1150

THE ROLE OF PERSONALITY DIMENSIONS IN SICK LEAVE - THE DOWNSIDE OF NOVELTY SEEKING AND COOPERATIVENESS

Rupert Conrad, MD, Psychosomatic Medicine and Psychotherapy, University of Bonn, Bonn, Germany

Sick leave in the context of psychiatric illness is of increasing importance. Up to the present predominantly the influence of sociodemographic factors has been investigated. In the present study the importance of personality factors according to Cloninger's psychobiological model of personality is in the foreground. In 1254 patients aged between 18 and 65 years who presented to the outpatients ambulace of the clinic of Psychosomatic Medicine at Bonn University Hospital the length of sick leave during the preceding 12 months was documented. In 765 patients (61%) duration of sick leave varied from one week or longer, 489 patients (39%) showed a shorter duration of sick leave. Longer incapacitated patients were significantly more often female and had a lower educational level. Concerning psychological distress and the diagnosed psychiatric illnesses (DSM-IV Axis 1) or personality disorders (DSM-IV Axis 2) there were no significant differences between both groups. In Analyses of Covariance calculated separately for men and women analysing personality differences measured with the temperament and character inventory (cognitive psychological stress) women longer on sick leave showed significantly higher scores on the dimensions novelty seeking (p<0.003) and cooperativeness (p=0.001). There were no significant differences between both groups in men. Respective findings in women are discussed with regard to an increased risk of being overtaxed by professional tasks due to personality-based difficulties in adequate distancing from professional demands.

282) Abstract 1176

THE EFFECT OF RELATIONSHIP QUALITY AND WORKLOAD ON BLOOD PRESSURE AND STRESS LEVELS

Julianne Holt-Lunstad, PhD, Bryan Jenson, BS, Psychology, Brigham Young University, Provo, Utah; Kathleen Light, PhD, Anesthesiology, University of Utah, Salt Lake City, UT, Tracy Brown, BS, Sarah LeMonte, BS; Molly Mitchell, BS, Psychology, Brigham Young University, Provo, UT

Purpose: Relationship quality and workload (WL) are vital factors related to health. One aspect that needs more attention is the role of WL equality in the home on maternal blood pressure (BP). High WL is associated with increased BP in employees who have less control in their job or receive less support (Iliis et al, 2010). For mothers WL distribution is an especially salient aspect of well-being. Research shows that working women are at increased risk of physiological stress, perhaps greater than their professional counterparts even with they have less to juggle (Duxberry & Higgins, 2001). It also shows that household tasks (HT) increase maternal stress more than childcare (MacDonald, Phipps, & Lethbridge, 2005). This study examines the effect of poor relationship quality and WL/carechildcare inequality in the home on maternal BP.

Methods: Participants included 52 healthy mothers (ages 21-41; M = 29.2) of 2-4 months infants. Measures of relationship quality and workload were used to assess the level of task (domestic vs. paid) adjustment, WL and BP were measured during a laboratory assessment that included two stress tasks—a speech task (describing a stressful event, then listening to it repeated) and a cold-pressor task. Results: Regression analysis revealed that mothers with poor relationship quality exhibit increased SBP reactivity when listening to speech replay (b = -.18, p < .05). To explain this reactivity during stress we examined the influence of unequal division of labor within the home. If the mother had more HT responsibility, stress over the inequality of HTs (b = .02, p < .01) and DBP during the cold-pressor task (b = .17, p < .05) increased. Interestingly, less childcare load was associated with higher stress regarding HT inequality (b = .04, p < .01). Also, maternal DBP while giving the speech (b = .24, p < .05) and SBP during speech replay (b = .42, p < .05) was significantly greater among those who had other people assist more with childcare relative to mothers who had less assistance.

Conclusion: These results suggest that division of labor within the home is an important source of stress to the mother which can significantly influence BP.

283) Abstract 1127

COGNITIVE COMPLAINTS IN SUBJECTS WITH UNEXPLAINED FATIGUE EXPLAINED BY MENTAL EFFORT

Tamarat E. Lacourt, MSc, Jan H. Houtveen, PhD, Lorentz J. van Doornen, PhD, Clinical and Health Psychology, Utrecht University, Utrecht, Netherlands, Cobi J. Heijnen, PhD, Laboratory for Neuroimmunology, University Medical Center Utrecht, Utrecht, The Netherlands

Concentration and attention difficulties are frequently reported symptoms in chronic fatigue syndrome (CFS). However, the objective performance of CFS patients in test situations has often been shown within the normal range. The latter may be due to a compensatory influence of effort investment. Studies using brain scanning techniques to approach this issue show inconsistent results. However, tasks used in these studies differed in presentation mode, required attention span, and difficulty. Increased mental effort may be found in relation to specific task demands using a well validated measure of mental effort. For this reason we choose to measure pupil dilation during task performance under fatiguing conditions in a self reported fatigued and a non-fatigued group. Methods From a sample of 34 undergraduates a fatigued (n=11; 8 males) and a non-fatigued (n = 20; 15 females) group was selected based on scores on a validated fatigue questionnaire (CFS-20; mean scores 59.1 and 48.80 respectively). First, reaction times (RT) and pupil dilation (using an eye-scanning device) were assessed in response to a
Stroop task (2 conditions: congruent and incongruent) and an n-back task (4 conditions: 0-4 back). Next, the n-back task was repeated several times to induce fatigue. Finally, RT and pupil dilation assessment during the n-back task was repeated. Self-reports of momentary fatigue were assessed throughout the session.

Results Preliminary results show that fatigue inducement was successful: reported momentary fatigue significantly increased in both groups (p<.0001). RT’s and errors made during the tasks did not differ between groups (all p-values >.05), indicating that performance was the same in both groups. Pupil dilation during the Stroop task was larger in the difficult (incongruent) condition in both groups (p<.0001), but no difference was found between groups either in the congruent condition (p=.34) or the incongruent condition (p=.33). Results on pupil dilation during the n-back task are pending. These results will provide additional insights in different task demands and fatigue inducement.

284) Abstract 1155
TESTING CAUSALITY IN THE ASSOCIATION BETWEEN REGULAR EXERCISE AND PSYCHOLOGICAL WELLBEING IN ADOLESCENTS
Eco J. de Geus, PhD, Niels van der Aa, PhD, Marleen de Moor, PhD, Danny de Jongh, PhD, Bouke Bouman, PhD, Mijke Buwalda, PhD, Biological Psychology, VU University, Amsterdam, Netherlands
Higher levels of psychological wellbeing found in exercisers are hypothesized to reflect causal effects of exercise. We previously found no empirical support for this causal hypothesis in an adult sample. The association between regular exercise and symptoms of anxiety and depression was accounted for by common genetic factors. In this study we re-tested the causal hypothesis in a sample of adolescents. Data on exercise behavior and psychological wellbeing were available in a sample of 6,317 adolescent twins and 1,180 non-twin siblings. The majority of the sample had longitudinal data with 2-year follow-up. Psychological wellbeing was defined by the absence of internalizing problems as well as by the presence of positive subjective wellbeing (SWB). Exercise behavior, internalizing problems and SWB were found to be substantially genetically correlated. Exercise behavior at baseline was associated with fewer internalizing problems and increased SWB at baseline as well as in the 2-year follow-up data. Causal effects of exercise on internalizing and SWB were tested by bivariate genetic models and by correlation of monozygotic intrapair differences in exercise behavior and wellbeing measures. Cross-sectional and longitudinal associations were mainly accounted for by genetic factors, whereas the contribution of environmental factors was negligible. In genetically identical twin pairs, the twin that exercised more did not show higher levels of wellbeing than the co-twin that exercised less. This was found cross-sectionally and longitudinally. In conclusion, as previously found in adults, adolescent exercise behavior is associated with higher levels of wellbeing, but this cannot be explained by causal effects of exercise. Instead, the association largely reflects the effects of common genetic factors on these traits.

285) Abstract 1165
SEVERITY OF DEPRESSION AS THE LEADING DETERMINANT OF THE QUALITY OF LIFE AMONG PATIENTS WITH MULTIPLE SCLEROSIS IN NORTH WEST OF IRAN
Mohammad Z. Pezeshki, M.D., Mehdi Panahali, M.D., Community Medicine, Tabriz University of Medical Sciences, Tabriz, East Azarbijan, Iran
This study aimed to measure the quality of life and its determinants among patients with multiple sclerosis in Tabriz; a city in North West of Iran. Using stratified and simple random sampling technique and as a cross sectional study we selected 80 women and 40 men from the list of the members of Tabriz branch of Iranian Multiple Sclerosis Society. The study was conducted between 2006 and 2008. Iranian version of short-form health survey 36 (SF-36) was used for measuring the physical and mental aspects of the quality of life. Iranian version of patient health questionnaire (PHQ-9) was used for measuring the severity of depression. Several questionnaires were used for measuring disability, emotional stress, and clinical history of the disease and background sociodemographic variables. The data were analyzed by SPSS version 13 software to establish two stepwise multiple regression models for predicting physical and psychological aspects of the quality of life separately. There was not any significant difference between women and men regarding physical (p=0.57) and psychological aspects of the quality of life (p=.97). Multivariate analysis showed severity of depression is the most important determinant of both physical (beta=-0.36, p<0.001) and psychological (beta=-0.4, p<0.001) aspects of quality of life. Having a job was associated with higher (better) score of physical (beta=0.17, p<0.01) and psychological ( beta=0.23, p<0.001) aspects of the quality of life. Being married was only associated with higher (better) score of the physical aspect of quality of life (beta=0.17, p<0.01). We suggest periodical screening of depression with PHQ-9 questionnaire as a cost effective and practical intervention for improving both physical and mental aspects of the quality of life among Iranian patients with multiple sclerosis.

286) Abstract 1769
THE DIFFICULTIES WITH EATING DISORDER PATIENTS IN EARLY STAGE OF THE TREATMENT
Hitomi Kobayashi, Master, Human Sciences, Waseda University, Tokorozawa, Saitama, Japan, Toshio Ishikawa, MD/Ph.D, Psychosomatic medicine, National Medical Center of Japan, Ichikawa, Chiba, Japan, Shinobu Nomura, MD/Ph.D, Faculty of Human Sciences, Waseda University, Tokorozawa, Saitama, Japan
Objective: This study investigated the difficulties with eating disorder (ED) patients in early stage of the treatment, and the relationships between those difficulties and cognitive factors related to treatment behaviors. Subjects and methods: Following data regarding the difficulties with ED patients were collected from semi-structured interviews for 6 patients (6 females, 29.17±3.76years) including 4 Anorexia Nervosa (AN) and 2 Bulimia Nervosa (BN) patients. From these data, we developed the questionnaire about the difficulties with ED patients, and conducted the study of this self-reported questionnaires for 56 ED out-patients (56 females,28.11±7.31years; 32 AN; 18 BN and 4 Eating Disorders Not Otherwise Specified patients). All subjects agreed with the participation to this study. Results: The factor analysis confirmed the four postulated factors "ineffectiveness","evasive attitude","lack of willingness to treatment" and "concern with a public image". Regarding the internal consistencies, the Cronbach’s’s for four scales were from .658 to .861. Spearman rank correlation revealed that the factor score of "lack of willingness to treatment" was negatively correlated with the scores of cognitive factors related to treatment such as "importance of treatment","self-efficacy for treatment","understanding of treatment" and "satisfaction for treatment". Conclusion: We revealed the characteristics of the difficulties with ED patients in early stage of the treatment. These results indicated that the difficulties with ED patients were related to the core features in ED and that the lack of willingness to treatment was related to the cognitive factors related to treatment. It is suggested that the further intervention for reducing the difficulties in early stage of treatment would be effective in facilitating the patients' treatment behaviors.

287) Abstract 1283
CAN THE POSITIVE EFFECT OF ELECTRO-CONVULSIVE TREATMENT ON MOOD IN MAJOR DEPRESSIVE DISORDER BE CLASSICALLY CONDITIONED?
Marzio E. Sabbioni, MD, Psychosomatic and Psychotherapeutic Medicine, Lindenhofspital, Bern, Bern, Bern, Switzerland
Previous research has shown that specific effects of drugs can be classically conditioned. The possibility that the positive effect of ECT on mood can be classically conditioned was explored in this n=1 study. A 39-year old woman suffering from treatment-refractory MDD receives weekly maintenance ECT with an improvement of her mood of 4.5 points on a 10- point mood scale (worst possible mood =0, best possible mood=10). However, during the following days there is again a steady decline of her mood from 7 to 2.5 . Every pharmacological attempt to prolong the positive effect of the ECT on mood has failed so far. The attempt was made to classically condition the effect of ECT (the unconditioned stimulus) on mood by introducing a conditioned stimulus (a novel pleasant scent) after having had ECT. The patient gave her
informed consent. She was advised to repeat the pairings of the conditioned stimulus and the ECT over three consecutive weeks. Then the conditioned stimulus was introduced every day for two weeks, and every second day for an additional two weeks. The patient assessed her mood on the 10-point scale before smelling the scent, and then 30 min. and 4-6 hours after the scent (the conditioned response) (22 times) or at the same time points on the days without scent (7 times). There was a statistically significant slight improvement of mood 30 min (t=1.77; p=0.044) and 4-6 hours (t=2.42; p=0.011) (the conditioned response) after the exposure to the pleasant smell (the conditioned stimulus), compared to the mood at the same time points of the days without smell. This indicates the possibility that the effect of ECT on mood could be classically conditioned. However, other explanations such as expectations could not be ruled out. The slight improvement of mood was not clinically meaningful enough to induce the patient to want to continue to use the pleasant smell.

288) Abstract 1317
TITERS OF CIRCULATING ANTIbODIES TO THE HEAT SHOCK PROTEIN 60 (ANTI-HSP60) INCREASE IN WOMEN IN RESPONSE TO STRESSFUL LIFE SITUATIONS
Jose A. Pena, MD, PhD, Internal Medicine, Carabobo University, Venezuela, Valencia, Carabobo, Venezuela, Maria A. Lopez, Psy.D, Psychology, Unidad de Psicoatrauma, Valencia, Carabobo, Venezuela, Sabrina Islam, MD, Babette Weskler, MD, Division of Hematology-Medical Oncology, Paul Szabo, PhD, Neuroscience, Weil Cornell Medical College, New York, NY, Karla Molina, MS, Clinical Biochemistry, Los Andes University, Merida, Merida, Venezuela, Cirilo Yelamo, MD, Anatomy, Romulo Gallegos University, San Juan de Los Morros, Guarico, Venezuela, Jose M. Poveda, MD PhD, Psychiatry, Universidad Autonoma de Madrid, Madrid, Madrid, España
Our aim is to explore factors contributing to circulating antibodies to (Human) Hsp60 in a group of women who suffered Post Traumatic Stress Disorder (PTSD) and/or divorce and separation from their partners. Circulating antibodies against Hsp60 have been found in normal individuals with a distinct increase in both human and animal models under certain stresses and diseases. We recently documented an association between levels of anti-HSP60 and psychosocial measures of stress, in patients with coronary artery disease and in patients who underwent surgery after bone trauma. We developed a case-control observational study in which a quantitative variable such as Anti-Hsp60 was measured in a group of 21 women 18 to 52 years old: 7 suffered PTSD, 7 were divorced or separated in the previous year and 7 were healthy controls. Results/Conclusions: Patients who suffered PTSD had a higher average serum concentration of Anti-Hsp60 than controls (P=0.05, t test). Women who divorced or separated the previous year had a seven fold higher average serum concentration of Anti-Hsp60 than controls (P=0.01). We conclude in this preliminary small study that circulating antibodies to Hsp60 could serve as a biological marker of PTSD or other stressful life situations. Confirmation of these observations in a larger study would suggest an immunological response to psychological trauma mediated by Anti-Hsp60.

289) Abstract 1074
HEART RATE VARIABILITY IN ANOREXIA NERVOA AND IN THE IRRETABLE BOWEL SYNDROME
Nazar Mazarak, MD, Internal Medicine, Ivanovo-Frankivsk National Medical University, Ivanovo-Frankivsk, Ukraine, Paul Enck, PhD, Psychosomatic Medicine and Psychotherapy, University Clinic, Tuebingen, Germany, Eric R. Muth, PhD, Department of Psychology, Clemson University, Clemson, Steffen Haefner, MD, Martin Teufel, MD, Stephan Zigler, MD, Psychosomatic Medicine and Psychotherapy, University Clinic, Tuebingen, Germany
Objective: Many studies have reported disturbances of heart rate variability (HRV) in patients with psychosomatic disorders such as anorexia nervosa (AN) and irritable bowel syndrome (IBS), however both have never been directly compared. Methods: We compared HRV in AN (n=21) and IBS (n=21) (all females) with 42 healthy female control subjects that were matched for age and body mass index (BMI) (only in IBS) to AN and to IBS patients. Different cardiac load tests (metronomic breathing, Valsalva, Stroop, mental arithmetic, and passive tilt) were evaluated together with baseline recordings and recovery periods in-between tests to estimate time (MSD) and frequency domain (Goldberger dimension, frequency of HF peak location and HF power, log HF power) values and to assess general reactivity of the autonomic nervous system. Results: Significantly longer inter-beat-intervals (IBI) in AN patients (1023 ± 144 ms vs. 877 ± 120 ms, F=5.907, p<.002) and lower values of MSD in IBS patients (27.6 ± 11.7 ms vs. 36.7 ± 18.2 ms, F=4.839, p=.034) were found in comparison to respective controls; both were independent from experimental conditions and are found in baseline recordings only. Both effects were also independent of age and BMI. We also demonstrate a significant though complex relationship between BMI and HRV parameters such as IBI. Goodness-of-fit between IBI and BMI was maximized with a quadratic function and a peak at BMI 17.5: with lower BMI the regression function was positive while with higher BMI the function became negative. Conclusion: Opposite autonomic patterns were found in AN and IBS: stronger vagal withdrawal in IBS and weaker vagal inhibition in AN patients. Recordings made at rest and without any autonomic load may be representative for the assessment of AN function. Age and BMI should be taken into consideration during assessment of HRV data. (Supported by a stipend from KAAD for NM).

290) Abstract 1381
THE EFFECTS OF BODY IMAGE ON MATERNAL DEPRESSION AND CORTISOL LEVELS DURING PREGNANCY
Nina A. Smallwood, B.A., Guido G. Urtiz, Ph.D, Psychology, California State University, Long Beach, Long Beach, CA, Ibona S. Yim, Ph.D, Psychology and Social Behavior, University of California, Irvine, Irvine, CA
Depression and cortisol reactivity during pregnancy have been shown to have multiple negative health outcomes for both mothers and their infants. However, no studies to date have investigated whether aspects of body image are associated with depressive symptoms or cortisol among low income minority populations during pregnancy. The current study examined whether aspects of body image (e.g., pregnancy body image, negative pregnancy body image, positive pregnancy body image, weight control, pregnancy weight optimism, and social interactions) during pregnancy were associated with prenatal depression levels (CES-D) and salivary cortisol patterns, controlling for education status, gestational age, prior history of depression, pre-pregnancy body mass index (BMI), and changes in weight. Our sample consisted of 100 pregnant women in LA County between 10 and 24 weeks pregnant. Hierarchical regression analyses showed that women who were more optimistic about their pregnancy weight gain (e.g., liked being able to gain weight for a change) had significantly greater depression levels (R²=.44, p<.001). A second regression analyses showed that women who had fewer beliefs about pregnancy beauty (i.e., women were less likely to think that a pregnant woman is beautiful) had significantly higher cortisol reactivity. Additionally the same model showed that women who experienced more negative feelings as a result of comments that others made about their appearance had significantly lower cortisol reactivity (R²=.57, p<.01). Results from this study help to further understand factors associated with pregnant women’s risk for depression and their risk for abnormal cortisol reactivity. Further, these results provide evidence for the need of programs that will facilitate the building of positive attitudes toward weight gain and body image among minority populations during pregnancy in order to improve their own health and the health of their baby.

291) Abstract 1060
THE LONGITUDINAL RELATIONSHIP BETWEEN ADOLESCENT OBESITY AND DEPRESSIVE SYMPTOMS: GENDER AND RACE/ETHNIC DIFFERENCES
Frank C. Bandiera, MPH, Epidemiology and Public Health, University of Miami, Miami, FL, Sharon L. Christ, PhD, Child Development and Family Studies, Purdue University, West Lafayette, Indiana, Elizabeth Goodman, MD, MassGeneral Hospital for Children, Massachusetts General Hospital for Children, Boston, MA, David J. Lee, PhD, Shi Huang, PhD, Lora E. Fleming, MD PhD, Epidemiology and Public Health, University of Miami, Miami, FL
Background: Longitudinal studies in adolescents on the association between obesity and depression have been inconclusive, with some studies finding a gender and/or race differences. Previous research in England has found no gender by race differences. However, to date, there have been no similar studies in the US. Methods: This study used data from the National Longitudinal Study on Adolescent Health (Add Health), which is a nationally representative sample from the United States (ages 12-19 at baseline) followed for 10 years (N = 13,559). Body mass index was calculated from measured height and weight (kg/m2) in Waves 2-4, and depressive symptoms assessed by a shortened 9-item Center for Epidemiologic Studies Depression Scale (range 0-27). Cross-lagged models in a structural equation modeling framework were used to test a bi-directional association between obesity and depressive symptoms. Results: Among non-Hispanic White females, obesity during adolescence predicted depressive symptoms during early adulthood (unstandardized beta = 0.07; p = 0.003) and depressive symptoms during adolescence predicted obesity in early adulthood (odds ratio = 1.24; p = 0.02). There were no significant associations between obesity and depressive symptoms for non-Hispanic Blacks and Hispanics among females. Among males, there was no consistent association between obesity and depressive symptoms. Conclusion: Early prevention interventions are needed to prevent both obesity and depressive symptoms during adolescence, given their long-term impact on health and the possibility that associations between these conditions are bi-directional in select population sub-groups.

Linguistic Markers of Emotion Regulation and Their Relation to Cardiovascular Reactivity
Joann K. Monin, PhD, Richard Schulz, PhD, Thomas B. Cook, MPH, University Center for Social and Urban Research, University of Pittsburgh, Pittsburgh, PA

The goal of this research was to examine the degree to which people regulate their emotions by focusing on positive emotions and cognitive appraisals of the situation in the face of partner suffering and how this relates to cardiovascular reactivity. Fifty three spouses of older adults with osteoarthritis were audi-taped while they privately disclosed an instance of the suffering of their partners as well as a typical daily interaction (i.e. a meal with the partner). A text analysis program (Linguistic Inquiry and Word Count; LIWC; Francis & Pennebaker, 1993; Pennebaker & Francis, 1996) was used to examine the word content of the verbal accounts. Cardiovascular reactivity (systolic and diastolic blood pressure, SBP and DBP, and heart rate, HR) was measured during each account and self-reported distress was measured after each account. Results of multilevel analyses (PROC-MIXED in SAS) revealed that using more positive emotion words was associated with lower DBP (estimate = -0.68, SE = 0.30, t(47) = -2.28, p < .05), HR (estimate = -0.33, SE = 0.11, t(46) = -2.94, p < .01), and emotional distress (estimate = -0.56, SE = 0.10, t(49) = -5.73, p < .01) in general. Using more words reflecting cognitive appraisal (e.g. because, realize) in the suffering account (estimate = -.22, SE = .12, t(44) = -1.87, p = .07), but not in the typical interaction account (estimate = .26, SE = .11, t(44) = 2.42, p = .02), was associated with lower HR (cognitive word use X condition: estimate = .48, SE = .17, t(44) = 2.86, p < .01). Results of this study suggest that positive emotion and cognitive appraisal in expressive disclosure about the suffering of a loved one is associated with health benefits.

Acute Urinary Retention Precipitated by Buprenorphine/Naloxone
Katherine T. Walla, MD, Adekola O. Alao, MD, Psychiatry, Upstate Medical University, State University of NY, Syracuse, New York

Buprenorphine/naloxone is a partial mu agonist that has been FDA approved for treatment of opiate dependence. It is a semi synthetic opiate which acts primarily as a mu receptor partial agonist, with kappa receptor antagonism. It acts in combination with naloxone, an opiate antagonist to reduce the potential for abuse. However, it has also been used for pain control since the late 1960s (Wesson and Smith 2010). The main adverse effects associated with buprenorphine include respiratory and central nervous depression as well as gastrointestinal symptoms (Fudala et al 2003; Reckitt Benckiser Pharmaceuticals). We are reporting acute urinary retention caused by buprenorphine/naloxone combination. We will also discuss possible mechanisms of this side effect. Although the manufacturers of buprenorphine/naloxone recommended caution with the use of this medication in cases of urethral stricture or prostatic hypertrophy, there are no reported cases suggesting acute urinary retention with buprenorphine/naloxone. There is a previous report of urinary retention with sublingual buprenorphine...
without naloxone in the setting of pain control (Murray and Feneley 1982). We are reporting the case of a 40 year old man with a history of Post Traumatic Stress Disorder (PTSD) as well as polysubstance dependence who developed urinary retention as well as a rash after his first dose of buprenorphine/naloxone.

**296) Abstract 1742**

**PROTECTIVE EFFECTS OF OPTIMISM ON BASAL STRESS LEVELS AND STRESS REACTIVITY**

Yvo Meeussen, MSc, Madelon Peters, Professor, Clinical Psychological Science, Faculty of Psychology and Neuroscience, Maastricht, Netherlands

Optimism has repeatedly been related to health-promoting psychological as well as physiological characteristics. Up until now, apart from a few longitudinal studies, a direct causal relationship has never been indicated. The present study therefore attempts to establish the causal relationship between optimism and basal stress levels and stress reactivity. We used a repeated measures between subject design with 2 conditions. In the experimental condition, optimism was induced by having participants visualize their best possible self (BPS) on a daily basis over a period of 2 weeks. In the control condition, participants visualized their daily activities during the same period with no change in frequency. In order to measure basal stress levels before and after the intervention, cortisol levels were determined by having participants collect saliva samples on 2 consecutive days. Moreover, before and after the intervention participants were invited to the lab where they were exposed to a standardized stress induction paradigm (the Trier Social Stress Task - TSST). During the course of these 2 lab sessions, stress reactivity and recovery was determined by measuring cortisol, heart rate, frequency, blood pressure, skin conductance and subjective stress. We hypothesized that after the intervention, participants in the experimental condition would demonstrate lower daily cortisol levels, decreased reactivity to the TSST and increased recovery (while controlling for their pre-intervention baselines). Data of the first 40 participants will be presented at the conference.

**297) Abstract 1026**

**PARENT PERCEPTIONS THAT PAIN IS A THREAT PREDICT SOLICITOUS RESPONSES IN CHILD FUNCTIONAL ABDOMINAL PAIN (FAP)**

Kimberly S. Swanson, Ph.D., Shelby Langer, Ph.D., School of Social Work, Joan Romano, Ph.D., Department of Psychiatry, Rona Levy, Ph.D., School of Social Work, University of Washington, Seattle, WA

Background: Parental catastrophic cognitions about pain have been associated with solicitous responses (protectiveness and other responses thought to foster illness behavior). Solicitousness, in turn, has been associated with adverse child health outcomes. Purpose: To examine the predictive power of (1) parent cognitions of pain as a threat in explaining solicitousness, above and beyond that of parent generalized anxiety, and (2) parental solicitousness in explaining child disability. Methods: 200 parent-child dyads were enrolled in an RCT investigating a psychosocial intervention for children with FAP. Parent sample was 94% female, mean age 44 (SD = 6), and 99% Caucasian. Child sample was 73% female, mean age 11 (SD = 2), and 97% Caucasian. Parent-reported baseline measures included the Child Pain Beliefs Scale (perceived threat), the Brief Symptom Inventory (anxiety) and the gastrointestinal threat), the Brief Symptom Inventory (anxiety) and the gastrointestinal

**298) Abstract 1123**

**PSYCHOLOGICAL STRESS AND ORAL HEALTH AMONG PREGNANT WOMEN OF LOW SOCIOECONOMIC STATUS**

Lisa M. Christian, PhD, Psychiatry, The Ohio State University, Columbus, Ohio, Jay D. Iams, MD, Obstetrics and Gynecology, The Ohio State University Medical Center, Columbus, Ohio, Kyle Porter, MAS, Center for Biostatistics, Binnaz Leblebicioglu, College of Dentistry, The Ohio State University, Columbus, Ohio

Objective: This study provides preliminary data on the prevalence of stress and periodontal disease among low SES pregnant women; both factors have been associated with increased risk of preterm birth, possibly via inflammatory pathways. Methods: Thirty-nine pregnant women (27 African-American and 12 Caucasian) with no major health conditions and ≥20 teeth were assessed between 20-27 weeks gestation. All were of lower SES, with 72% reporting an annual family income of <$15,000. Each completed the perceived stress scale (PSS) and Center for Epidemiologic Studies Depression scale (CES-D) and a received a comprehensive periodontal examination conducted by a single calibrated periodontist in a blinded and within subject fashion. Significant assessment of clinical attachment loss (CAL) and percentage of bleeding on probing (BOP) and plaque at six surfaces per tooth for all dentition. Results: Women were 18-31 years of age (Mean=24.8, SD=3.9). The average PSS score was 16 (SD =7.7; 0.5 SD higher than population-based norms) and 36% (14/39) scored at or above a clinical cut-off on the CES-D. In terms of oral health, 36% had gingivitis, 15% had localized slight chronic periodontitis, 44% had localized moderate to severe periodontitis, and 5% had generalized moderate to severe chronic periodontitis. On average, 37% of teeth showed bleeding on probing, indicating gingival inflammation. Attachment loss of ≥4mm was seen in 13% of teeth, substantial plaque in 62% of teeth, and 21% of women (n=8) had at least one decayed tooth (range 1-14). In terms of oral health behaviors, 45% brushed their teeth once per day or less and 33% had no dental visit in >3 years. Smoking associated disease, with 80% of smokers (8/10) showing moderate to severe disease compared to 37% of non-smokers (11/29)(X2 = 5.27, p = .02). CES-D and PSS scores did not differ with periodontal diagnosis or disease severity. African-American women showed a greater % of sites with probing depth ≥4mm (t(37) =2.19, p = .04), with no racial differences in other clinical indicators, PSS, or CES-D scores. Discussion: These preliminary data demonstrate high psychological stress and poor oral health among African-American and Caucasian pregnant women of low SES. Future analyses will examine the unique and interactive effect of these factors on systemic inflammatory markers and risk for preterm birth.

**299) Abstract 1131**

**PARTNERSHIP OR RIVALRY? - PSYCHOLOGICAL IMPLICATIONS OF THE RELATIONSHIP BETWEEN COUPLE AND PHYSICIAN 6 YEARS AFTER SUCCESSFUL DONOR INSEMINATION**

Rupert Conrad, MD, Psychosomatic Medicine and Psychotherapy, University of Bonn, Bonn, Germany, Guntram Schilling, MD, Psychosomatic Medicine and Psychotherapy, Center of Rehabilitation Am Sprudelhof Bad Nauheim, Bad Nauheim, Germany

Little is known concerning long-term psychological implications of the relationship between physician and couple in donor insemination. This study presents an idiographic approach to understand the significance of the physician in the self concept of donor insemination couples six years after the intervention. 15 couples were investigated by the repertory grid technique six years after successful donor insemination was performed by a male physician. In analysing the self concept of the women the majority (12) showed an idealization of the physician and - with the exception of one couple - there was no devaluation of the husband. The analysis of the self concept of infertile men showed that men with higher self-esteem devaluated the physician, whereas men with lower self esteem showed an idealization (p=0.05). Theoretical considerations on the basis of psychoanalytic theory that women devalue the infertile husband's role could not be confirmed. However, the investigation indicates that infertile men experience feelings of rivalry towards the physician.
As a consequence of individually different coping requirements due to high or low self-esteem they idealize or devalue the physician. The study shows that an idiographic approach using repertory grid technique can give further insights into psychological implications of donor insemination, which are important for couple counseling in reproductive medicine.

300) Abstract 1757

CHRONIC INFLAMMATION IS ASSOCIATED WITH LOWER PROACTIVE SEXUAL MOTIVATION IN U.S. RESIDENTS, AGE 57-85

Elissa H. Patterson, PhD, Psychiatry, Boston University School of Medicine, Boston, MA; Martha K. McClintock, PhD, Psychology, University of Chicago, Chicago, IL

Using cross-sectional data from a nationally representative sample of 3005 adults age 57-85 from the National Social Life, Health, and Aging Project (NSHAP), we tested whether there were sexual motivation symptoms associated with chronic inflammation, as measured by elevated C-reactive protein (CRP) levels. Extensive in-home interviews were conducted and blood spots were collected for measurement of CRP. Healthy, non-obese men and women with elevated CRP had lower sexual motivation (tested via hierarchical linear regression analysis; B = -0.055, F [10, 41] = 66.89, p<.002), even after controlling for other medical and demographic variables. Testosterone and DHEA did not mediate this relationship in the model. Women have higher CRP levels than men do, and are therefore more likely to have greater decreases in sexual motivation; thus, this finding may represent a newly described physiological mechanism by which men have higher sexual motivation than women. Furthermore, these findings represent advancement in the quest to find mechanistic links between psychological and physiological processes that have heretofore been undocumented.

301) Abstract 1212

STABILITY OF SELF-ESTEEM AND PHYSICAL SELF: EXAMINING THE ROLE OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Grégoire Ninot, Pr, Psychology, Medicine, University of Montpellier, Montpellier, France

The study compared global self-esteem and physical self scores measured with the Physical Self-Inventory (Ninot et al., 2006) and their stability over a three-week period in patients with chronic obstructive pulmonary disease (COPD) and healthy adults, through the analysis of day-to-day time series. Subject sample and statement of methods Two groups were formed: a COPD group of 27 patients with stable and moderate COPD, and a control group of 31 healthy adults. Each participant completed an inventory on a single page of a personal notebook twice a day between 7:00 and 9:00 (AM and PM) over a three-week period. Each page included the six items of the PSI-6, plus the dyspnea item for the COPD group, presented in random order. Individual time series were then composed of 42 observations per dimension. The results showed lower mean scores over the study period for global self-esteem, physical self-worth, and each of the physical self subdomains in COPD patients as compared with the healthy group. Moreover, the results showed less stability in global self-esteem, physical self-worth, and the physical self subdomains over the same period than the healthy group. Results Conclusion The principal findings support the assertion of Kernis and colleagues that unstable global self-esteem and physical self reflects a certain vulnerability to endogenous and exogenous events. The results suggest several strategies of acceptance of chronic disease. Perspective Fluctuations across multiple assessments of daily selfperceptions reflect meaningful psychological processes. Further studies are needed to discover the principles that govern the emergence of order in complex systems such as self-esteem over time.

302) Abstract 1840

IMPACT OF CIGARETTE SMOKING, ANXIETY AND DEPRESSION ON ASTHMA CONTROL

Karine Ouellet, BA, Maxime Boudreau, BA, Annik Plourde, BA, Simon L. Bacon, PhD, Kim L. Lavoie, PhD, MD/MC/Psychology/Exercise science, Hospital du Sacré-Coeur de Montréal/UQAM/Concordia, Montréal, Québec, Canada

Background: Despite the availability of effective therapies, research indicates that over 50% of asthmatics are poorly controlled. Poor asthma control has been linked to several psychological (i.e., anxiety, depression) and behavioral factors (i.e., cigarette smoking, obesity), though little is known about the interaction of anxiety and depression and smoking on asthma control in adult asthmatics. This study assessed the interactions between anxiety and mood disorders and current cigarette smoking on asthma control in a large sample of asthmatics. Methods: 796 confirmed adult asthma patients completed a sociodemographic and medical history interview, including questions about current and past smoking status, and a brief structured psychiatric interview evaluating anxiety and mood disorders using the Primary Care Evaluation of Mental Disorders (PRIME-MD). Asthma control was evaluated using the Asthma Control Questionnaire (ACQ). Results: After adjusting for age, sex, and asthma severity, general linear model analyses indicated a significant association between current smoking and ACQ score (B (SE) = 0.336 (0.147), p=.022), such that patients who are currently smoking had worse asthma control relative to non-smokers. There were significant associations between anxiety disorders and asthma control (B (SE) = 0.317 (0.093), p=.001), and between mood disorders and asthma control (B (SE) = 0.451 (0.095), p<.001), such that the patients who had an anxiety disorder had worse asthma control compared to those without an anxiety disorder, and patients who had a mood disorder had worse asthma control relative to those without a mood disorder. There were no interaction effects between current smoking and anxiety or mood disorders on asthma control. Discussion: Findings suggest that current smoking, anxiety and mood disorders alone are associated with poorer asthma control, but that having an anxiety or a mood disorder and being a current smoker do not confer any additional risk to asthma control.

303) Abstract 1139

SEX DIFFERENCES IN INFLAMMATION, DISTRESS, AND DISEASE OUTCOMES AMONG COPD PATIENTS PARTICIPATING IN PULMONARY EXERCISE REHABILITATION

Andrea K. Bushy, Ph.D., Medical Psychology, Boston VA Healthcare System, Boston, MA; Charles F. Emery, Ph.D., Psychology, The Ohio State University, Columbus, OH

Recent studies indicate that women are now more likely than men to be diagnosed with COPD and they are likely to have worse disease outcomes than men. Systemic inflammation has been hypothesized as a critical factor in this sex difference. This study evaluated sex differences in inflammation among COPD patients (N=23) before and after participation in an 8-week pulmonary exercise rehabilitation program. Before and after rehabilitation, participants had blood drawn to measure serum interleukin-6 (IL-6) and completed self-report measures of distress, quality of life, and measures of the different domains of physical fitness. It was hypothesized that women would have higher levels of inflammation, distress, and dyspnea, and lower levels of quality of life and physical fitness compared with men. In addition, it was hypothesized that men would experience significantly greater improvements on most outcome variables after completing rehabilitation. Results indicated that women reported higher depressive ([F[1,21]=6.14, p=.02] and anxious ([F[1,21]=9.17, p=.003) symptoms than men at baseline, but that men and women did not differ on systemic inflammation at baseline. In addition, both men and women experienced statistically significant (p<.05) improvements in multiple outcome variables following exercise rehabilitation. However, neither group experienced changes in inflammation as a result of rehabilitation. Pearson correlations revealed that IL-6 was negatively correlated with pulmonary functioning (r=-.37, p=.09) but was not correlated with most other outcome variables. Results indicate that men and women benefit from pulmonary rehabilitation in multiple disease-relevant domains, but that systemic inflammation may be more closely related to lung functioning than to physical endurance, quality of life, or distress. Thus, an 8-week exercise rehabilitation program may have limited impact on inflammation in this population. Although time x sex interactions were not significant, effect sizes for the interactions were small to medium for most outcomes. Additional research with a larger sample is needed.
more fully explore the relationship between COPD, inflammation, lung functioning, and exercise training.

304 Abstract 1738
THE EFFECT OF DEPRESSIVE DISORDERS ON CHANGES IN BODY MASS INDEX IN ADULT PATIENTS WITH ASTHMA
Ariane Jacob, Bsc, Simon L. Bacon, Ph.D, Maxine Boudreau, BA, Kim L. Lavoie, Ph.D, MBMC/Psychology/Exercise Science, Hôpital du Sacré-Coeur de Montréal/UQAM/Concordia, Montréal, Québec, Canada

Background: Cross-sectional studies have shown an association between depression and obesity and longitudinal studies have also found a negative effect of depression on weight gain. However, no studies have looked at the impact of depression on change in Body Mass Index (BMI) in patients with asthma, even though weight gain and obesity are considered important risks factor for asthma morbidity. Further, no study has examined the impact of different types of depressive disorders (major vs. minor depression and dysthymia) on changes in BMI. The goal of this study was to prospectively examine the impact of 3 types of depressive disorders on change in BMI in adult asthmatics. Methods: A total of 323 patients (M = SD age: 52 ± 13 years) with physician diagnosed asthma were recruited from the Thoracic and Pulmonary clinic at Hôpital du Sacré-Coeur. During a clinic visit, patients provided self-reported demographic and medical history information and underwent a brief psychiatric interview (PRIME-MD) to assess different types of depression. BMI was calculated from patients’ self-reported height and weight. Follow-up BMI data was collected an average of 4.6 years later. Results: General Linear Model (GLM) analyses revealed a main effect of any depression on BMI change (F=4.76, p = 0.03), such that patients who were not depressed increased in BMI (M ± SE adjusted change = 0.64 ± 0.12 kg/m2) whereas patients with depression did not (M ± SE = -0.02 ± 0.28) at follow-up. There were no significant differences between the 3 types of depression on changes in BMI (F=0.11, p = 0.89). Conclusion: Contrary to results found in the literature, these results suggest that depression is not associated with BMI changes over a 4.5 year follow-up, though being non depressed was associated with increased BMI among asthmatics.

305 Abstract 1775
A NOVEL INTERVENTIONAL STRATEGY TO IMPROVE STROKE AWARENESS: THE HIP HOP STROKE PROJECT

Pre-hospital delays related to poor stroke awareness are linked to low rates of acute stroke treatment. We used a novel approach to improve knowledge of stroke symptom recognition and urgent response in a high-risk community, Child-Mediated Health Communication (CMHC), in which children in grades 5 and 6 participate in a multimedia age- and culture-appropriate presentation, to teach stroke symptoms and urgent response, and techniques for teaching the parent the material. Participants were 182 (9-12 y/o) students from NYC public schools. Following the intervention, assignments requiring parental participation were used to facilitate parental engagement. Parental recall of stroke information communicated by their child was assessed with posttest questionnaires administered 1 week after the intervention. A total of 71 parents (39%) completed pretest and posttest. Before the program, 3 of the 71 parents (4%) could name the 5 stroke symptoms compared to 20 (28%) who could name all 5 (p<0.001). The use of a Child-Mediated Health Communication model in this high-risk population, demonstrates that school children aged 9-12 can effectively transmit critical stroke information to their parents/grandparents. Randomized Controlled Trials to assess the effect of the HHS intervention on clinical events are needed to confirm these findings.

307 Abstract 1071
THE INTERACTION OF ANXIETY AND DEPRESSION ON ENDOTHELIAL FUNCTION IN CARDIAC PATIENTS
Darren A. Mercer, Bachelor of Science, Psychology, McGill University, Montreal, Quebec, Canada, Kim L. Lavoie, PhD, Psychology, University of Quebec at Montreal, Montreal, QC, Canada, Blaine Ditto, PhD, Psychology, McGill University, Montreal, QC, Canada, André Arsenault, MD, Nuclear Medicine, Montreal Heart Institute, Montreal, QC, Canada, Simon L. Bacon, PhD, Exercise Science, Concordia University, Montreal, QC, Canada

Objective: Preliminary data suggests that anxiety and depression may have qualitatively different effects on endothelial function (EF), a measure thought to have prognostic value in predicting cardiovascular disease (CVD) events. This study aimed to further explore this relationship, by assessing the association between trait anxiety and EF, and examining the role of depression as a moderating variable, in patients referred for myocardial perfusion testing. Methods: A sample of outpatients referred for myocardial perfusion single photon emission computed tomography (SPECT) stress testing at the Montreal Heart Institute was recruited (n = 295). Patients were administered the Beck Depression Inventory-II and the trait anxiety scale of the State-Trait Anxiety Inventory, as well as other socioeconomic and medical history questionnaires on the day of their stress test. EF was assessed the following day using a nuclear medicine variation of the well-established ow-mediated dilatation technique, which calculates the rate of uptake ratio (RUR) between hyperemic and non-hyperemic arms. Results: No main effect for anxiety (F = 1.27, p = .261) or depression (F = 2.73, p = .100) was found in models predicting EF, however there was an interaction (F = 4.03, p = .046) after adjusting for a priori defined covariates. Further examination of the data revealed that high levels of anxiety and low depressive symptoms were associated with superior RUR co compared to low anxiety and high depression. Anxiety had no influence on RUR in those patients with high depressive symptoms, who

MIGRAINE WITH AURA IN PMDD WOMEN: ASSOCIATION WITH HISTORY OF SEXUAL ABUSE
Ariusnas Bunericius, MD, Erin Richardson, BA, Jane Leserman, PhD, Susan Girdler, PhD, Department of Psychiatry, University of North Carolina at Chapel Hill, Chapel Hill, NC

Migraine with aura is a complex disorder that carries an increased risk for a number of negative clinical and functional outcomes. Although histories of sexual abuse (SA) are associated with a number of medical outcomes, there is scant data on the association between migraine with aura with a history of SA. One aim of our on-going study is to evaluate the association of migraine with aura with a history of SA, as well as with premenstrual dysphoric disorder (PMDD) since PMDD women have greater abuse rates. Sixty-four women who met DSM-IV prospective criteria for PMDD were compared with 64 non-PMDD women (half of whom were recruited based on abuse history). All women completed daily mood and symptom ratings for two menstrual cycles. A history of SA and physical abuse (PA) was verified via validated structured interview and migraine with aura was determined by interview using ICHD-II criteria. Nine (14%) PMDD women and none of the non-PMDD women had migraine with aura (X2=9.7, p=0.001). In PMDD women, 6 (22%) women with a history of SA and 3 (10%) without a history of SA had migraine with aura (p=0.189). No PMDD women with PA only had migraine with aura. In the PMDD women with a history of SA, migraine with aura was more prevalent in women who experienced SA before the age of 13 (n=6; 33%) when compared to women who experienced sexual abuse after the age of 13 (n=0) (X2=3.9, p=0.05). In contrast, PMDD women with first SA experience as an adult had greater daily severity ratings than all other PMDD women for anhedonia (p=0.009), difficulty concentrating (p=0.005), overwhelmed (p=0.06), breast tenderness (p=0.02), work impairment (p=0.03). Our results suggest that a history of childhood SA is associated with a greater prevalence of migraine with aura, but only when PMDD is present. This data is consistent with our previous findings that history of abuse has different biological sequelae in PMDD versus non-PMDD women. While childhood SA predicted migraine with aura in PMDD women, adult SA was associated with greater symptoms consistent with depressive mood. Age at first SA appears to affect different domains of function in women with PMDD.
generally displayed the lowest levels of RUR. Conclusions: These results suggest that patients with high levels of anxiety and low depression have better brachial artery reactivity to hyperemia, suggesting superior EF. It is speculative whether this increased vasodilation reflects differential levels of sympathetic arousal or neuroendocrine function seen in anxious patients, or some unknown mechanism, however the presence of depressive symptoms seem to eliminate the effect of this mechanism.

309) Abstract 1789

PSYCHOSOCIAL EXPERIENCE AND IMPACT OF RECOVERY AFTER CARDIAC SURGERY: PRELIMINARY ANALYSES

Sari D. Holmes, PhD, Lisa M. Martin, PhD, Linda L. Henry, PhD, Sharon L. Hunt, MBA, Cshantara Woolfolk, BS, Niv Ad, MD, Cardiac Surgery Research, Inova Heart and Vascular Institute, Falls Church, VA

Purpose: Advances in surgical techniques and postoperative care have led to reductions in mortality and morbidity among cardiac surgery patients and have been well published. However, the impact of surgery on psychosocial outcomes is lacking. The objective of this study was to evaluate the psychosocial experience and impact of recovery after cardiac surgery.

Methods: A survey was sent to 1702 post-cardiac surgery patients (CABG, valve, and/or Maze). So far, 703 have responded and data was available for 220 patients (mean follow-up=34 months). Psychosocial measures included CES-D for depressive symptoms, Perceived Stress Scale-4 (PSS), and ISEL for social support. Patients were asked whether they felt recovered from surgery. Quality of life (SF-12) prior to surgery and patient characteristics were also available.

Results: Mean age was 65 years (SD=10.2). There were no significant gender differences in psychosocial measures. The CES-D was positively correlated with PSS (r=0.03, p<0.01) and negatively with ISEL (r=-0.40, p<0.001). The PSS was also negatively correlated with ISEL (r=-0.37, p<0.001). Patients who reported feeling recovered had lower CES-D and PSS scores and higher ISEL scores (p<0.03). Multivariate regression was conducted to examine the predictors of CES-D scores after adjustment for age, gender, and operative risk. The model (F=25.36, p<0.001) found that ISEL (r=-2.03, p<0.05), PSS (r=-9.72, p<0.001), baseline mental score (r=-2.51, p<0.02), and recovery (r=-3.17, p<0.03) were independent predictors of CES-D.

Conclusion: After cardiac surgery, depressive symptoms were higher for those with low social support and higher stress levels. However, the experience of feeling recovered from surgery was related to improved psychological measures. These findings reaffirm qualitative data regarding depression when recovery is slow, incomplete, or longer than expected. Emphasis should be placed on helping patients recover quickly from cardiac surgery, but also providing realistic expectations for recovery. Screening and treatment for depressive symptoms and stress may also improve patient experience.

310) Abstract 1089

MENTAL STRESS AND EXERCISE STRESS LEAD TO DIFFERENT ECHOCARDIOGRAPHY-DERIVED LEFT VENTRICULAR FILLING PRESSURE ALTERATIONS IN CORONARY HEART DISEASE PATIENTS

Litong Qi, MD, Eric J. Velazquez, MD, Cardiology, Carolyn M. Maritsberger, PhD, Biological Psychiatry, Zainab Samad, MD, Joseph Rogers, MD, Cardiology, Ranga Krishnan, MD, Psychiatry, Redford Williams, MD, Behavioral Psychiatry, Christopher M. O’Connor, MD, Cardiology, Wei Jiang, MD, Biological Psychiatry and Medicine, Duke University, Durham, NC

This work compares left ventricular (LV) function and hemodynamic changes induced by mental stress (MS) and exercise stress (ES) in patients with clinically stable coronary heart disease (CHD) in the Response of Myocardial Ischemia to Escitalopram Treatment Trial. After a 1-2 day beta blocker hold, 152 patients underwent 3 mental stress (MS) tests and a treadmill test (ES) each with an initial and subsequent rest period. Echocardiography was performed at the end of rest, during MS and ES. Blood pressure (BP) and heart rate (HR) changes were recorded throughout the tests. LV ejection fraction (LVEF), mitral blood flow velocity and mitral annulus velocity were measured. Differences in LVEF, BP, HR and diastolic function between ES and MS were examined using a paired t-test. Systolic BP and HR during ES were significantly higher compared to MS, while diastolic BP was higher during MS compared to ES. LVEF changes (delta EF) induced by MS and ES were significantly different. Mitral annulus E’ velocity increased significantly during ES compared to MS while E/E’ had greater increase during MS than ES (table; BP and HR are the average of 3 readings obtained during each MS and at the peak of ES. *P value between ES and MS not significant). MS was associated with a decrease in LVEF and an increase in LV filling pressure when compared to ES in

A-101
Inflammatory processes may represent one pathway underlying individual (ISES) and area-level socioeconomic status (ASES) gradients in cardiovascular disease (CVD). This study examined associations between ISES and ASES with three inflammatory markers linked with CVD risk (C-reactive protein (CRP), Interleukin-6 (IL-6), and soluble Intercellular Adhesion Molecule-1 (sICAM-1) in Mexican American (MA) women. A random community sample of 285 MA women (mean age = 49.77) completed a battery of questionnaires and underwent a physical exam with fasting blood draw. ISES and ASES (census-tract level) were represented by composites of income, education, home ownership, and receipt of public assistance. Multi-level analyses were conducted to test the independent associations of ISES and ASES with each inflammatory marker and to examine the unique association of ISES with inflammation after accounting for ASES. Cross-level (ISES by ASES and language by ASES) and within-level (ISES by language) interaction effects were also examined. Analyses controlled for age and language of survey, and secondary analyses examined the contributions of behavioral and biological variables (e.g., substance use and obesity) to associations between SES and inflammation. When examined separately, higher ISES and ASES related to lower CRP (all p<.01 and sICAM-1 (all p<.05). Greater ISES was associated with lower IL-6 levels (p=0.05). ASES was uniquely associated with CRP and sICAM-1 but not IL-6 or sICAM-1 after controlling for ISES. SES gradients in inflammation did not vary consistently by language. SES-inflammatory marker relationships were attenuated when relevant biobehavioral pathways were statistically controlled; only the association of ISES with CRP still approached statistical significance (p=0.06). In particular, obesity appeared to be an important pathway connecting SES and inflammation. Findings add to the literature on SES and inflammation within MA women, and suggest that the unique explanatory utility of ISES is modest, once ISES is controlled.

### 311) Abstract 1171

**DEPRESSIVE SYMPTOMS PREDICT ADIPOPOINOTIN LEVELS OVER FIVE YEARS IN WOMEN**

Susan A. Eversen-Rose, PhD, Cari J. Clark, ScD, Medicine, Hongfei Guo, PhD, Biostatistics & CTSI, Qi Wang, MS, CTSI, University of Minnesota, Minneapolis, MN, Peter Mancuso, PhD, Jared Goldberg, BS, Environmental Health Sciences, University of Michigan, Ann Arbor, MI, Joyce T. Bromberger, PhD, Epidemiology & Psychiatry, University of Pittsburgh, Pittsburgh, PA, Howard M. Kravitz, PhD, Psychiatry & Preventive Medicine, Rush University Medical Center, Chicago, IL, MaryFron Sowers, PhD, Epidemiology, University of Michigan, Ann Arbor, MI

Depression may contribute to obesity, diabetes, and heart disease via chronic inflammation. Adiponectin, the most abundant anti-inflammatory hormone secreted by fat cells, has received far less attention than inflammatory markers in relation to depression. Cross-sectional data link depressive symptoms to lower levels of adiponectin but no prior research has examined whether depressive symptoms are related to adiponectin levels over time. We measured circulating adiponectin four times over five years in relation to baseline levels of depressive symptoms in 266 women (31.6% black; 68.4% white; mean age = 45.3 ± 2.4 years) with no history of diabetes, metabolic syndrome or cardiovascular diseases at two clinical sites of the Study of Women’s Health Across the Nation (SWAN). SWAN is a longitudinal study with annual assessments of women transitioning through menopause. Depressive symptoms were measured at baseline by the 20-item Center for Epidemiologic Studies Depression scale (CES-D); 26.3% of women had elevated CES-D scores (> 16). Adiponectin, measured at baseline and follow-up visits 1, 3, & 5, was assayed in duplicate using a commercially available enzyme linked immunosorbent assay. The logarithm of adiponectin values were log-transformed for analyses. Repeated measures random effects regression models comparing women with elevated CES-D scores to those with lower scores (CES-D < 16) showed that depressed women had 12.1% lower (95% CI, 2.3% to 20.9%; p<0.02) adiponectin levels over time, adjusting for age, race, study site, sex hormone binding globulin, and body mass index. This association was attenuated and no longer significant (p=0.07) with further control for diet, physical activity, alcohol consumption, and smoking. This study provides evidence for the...
314) Abstract 1703

RELATIONSHIPS BETWEEN PHYSICAL ACTIVITY, BODY FAT AND HEART RATE VARIABILITY WITH INTERLEUKIN-6

Sarosh J. Motivala, Ph.D., Cousins Center for Psychoneuroimmunology, UCLA Semel Institute, Los Angeles, CA, Leah FitzGerald, Ph.D., UCLA School of Nursing, Los Angeles, CA

Introduction: Physical activity is associated with reduced levels of interleukin-6 (IL-6), a systemic cytokine that promotes chronic inflammatory processes associated with poor health. The extent to which other factors such as adipose tissue, cortisol levels or autonomic regulation account for the relationship between physical activity and IL-6 are unknown. The purpose of this cross-sectional study was to examine the relationship between IL-6 and self-reported physical activity (vigorous, moderate, low), after controlling for these physiological parameters. Method: Seventy-five male participants were categorized into high (n=41), moderate (n=17) and low activity (n=13) groups based on scores on the International Physical Activity Questionnaire. Participants underwent a blood draw, heart rate variability (HRV) and body fat assessment. HRV was measured using spectral analysis to derive parasympathetic (HF-HRV) and relative sympathetic activity (LF/HF-HRV); body fat assessment used dual energy X-ray absorptiometry. Results: On age, ethnicity, lean body mass and cortisol levels (p < .05) with the vigorous group being older, leaner and having higher cortisol. Plasma levels of IL-6 correlated with % body fat (r=.36, p < .01), HF-HRV (r=.32, p < .01) and cortisol (r=-.30, p < .05). An analysis of covariance was run to determine whether activity level predicted IL-6 after controlling for age, ethnicity, lean mass, percent body fat, HF-HRV and cortisol. Results indicated that physical activity was significantly associated with IL-6, F(2, 55) = 7.8, p < .001. HF-HRV was a significant covariate (p < .05) and % body fat evidenced a trend for significance (p < .11), cortisol was not significant. The vigorous group had lower IL-6 than the low activity group (p < .05). Conclusions: These findings suggest that body fat and vagal activity are related to IL-6, but they do not sufficiently account for the relationship between IL-6 and physical activity. Exercise interventions examining inflammation should explore connections between autonomic activity, body fat and exercise, but these findings indicate that physical activity-related reductions in IL-6 likely involve additional pathways.

315) Abstract 1434

NEIGHBORHOOD STRESS AND HYPERTENSION RISK: DOES PERCEIVED SUBORDINATION EXPLAIN THE LINK?

Gavin J. Elder, Master of Science, Mariam Parekh, BA, Jessica Schoolman, BA, Craig K. Ewart, Ph.D., Psychology, Syracuse University, Syracuse, NY

Evidence suggests that psychological factors contribute to the well established negative correlation between socioeconomic status (SES) and blood pressure (BP). One potential mechanism is social subordination; reduced SES increases one's exposure to denigration, discrimination, and marginalization, thereby inducing cognitive self-appraisals of low social worth or power. Such appraisals may promote states of heightened psychological vigilance against potential threats, thus raising blood pressure (BP) and hypertension risk. We evaluated this causal model by asking if appraisals of social denigration, low social power mediate the relationship between exposure to neighborhood disorder and elevated BP during daily activities. Participants were 177 urban youth (53% male, 41% Black, 39% White) attending a public high school in NY State. Stress exposure was assessed with the Neighborhood Disorder (ND) scale of the City Stress Inventory. Two months later, participants completed a 2-day ambulatory blood pressure (ABP) monitoring and ecological momentary assessment protocol. Perceptions of social denigration (DEN) were assessed at the end of the day. ABP was recorded at 30-min intervals during daily activities. Bivariate correlations supported relationships among ND, DEN, and LSP, and MAP, LSP, and ND (all p < .05), but not MAP and ND. Mediation by Subordination (DEN, LSP) was tested using MPlus with a maximum likelihood estimation procedure and 1,000 bootstrap draws. Model fit indices exceeded acceptable levels across all indices. Path coefficients supported significant positive pathways (all p < .05) indicating ND predicts DEN, which subsequently predicts LSP, which in turn predicts ABP. Tests of the indirect path supports Subordination as an indirect path through which ND influences ABP (b=.02, 90% CI = .01, .05). Together, DEN and resultant LSP perceptions explained 21% of the variance between ND and ABP. Results indicate that the relationship between SES and health may be partially explained by perceptions of subordination.

316) Abstract 1108

INFLUENCE OF HOSTILITY ON ACTIVITY-RELATED DIURNAL VARIATIONS IN BLOOD PRESSURE

Elimear M. Lee, MSc, Brian M. Hughes, PhD, Centre for Research on Occupational and Life Stress, National University of Ireland, Galway, Galway, Ireland

Several studies have implicated hostility in the etiology of cardiovascular disease, but the precise pathogenic mechanisms remain unclear. Some ambulatory studies have identified anger variables as possible risk factors for blood pressure (BP) elevation. However, such research fails to account for the possible role of diurnal BP variability, previously identified as a likely indicator of cardiovascular disease risk. As hostility reflects a dimension of psychological adjustment to taskload, anger variables may interfere with diurnal cardiovascular flux. Thus, the present study investigated whether trait hostility is associated with shifts in usual BP, measured longitudinally across a four-day period. To account for between-day differences in activity, data were collected during two activity-days and two downtime days. Twenty college men and 56 college women used portable sphygmomanometers to record BP over four consecutive days, and completed a battery of psychometric measures of anger and hostility. All participants completed behavioral diaries throughout the protocol. Analyses of covariance showed significant differences in patterns of systolic and diastolic BP, qualified by hostility and contingent on diurnal comparisons. Specifically, hostility was associated with higher activity-related systolic BP during daytime periods (F(1,68) = 5.79, p = .02) and higher activity-related diastolic BP during evenings (F(1,65) = 5.98, p = .015). Overall, effects suggested an association between trait hostility and impeded post-autonomic cardiovascular recovery. Distinctions between systolic and diastolic effects conform to expectations regarding the relative influence of sympathetic and parasympathetic arousal during activity as compared to relaxation. The results suggest that hostility is associated with how workdays and downtime days are experienced. Hostility may prevent people from deriving benefit from rest after work and during downtime days.

317) Abstract 1162

SOCIALLY RELEVANT TRAITS ARE MORE PREDICTIVE OF CARDIOVASCULAR STRESS RESPONSES THAN PERCEIVED SOCIAL SUPPORT

Ann-Marie Creaven, B.A. (Psych), Centre for Research, NUI Galway, Galway, Galway, Ireland, Brian M. Hughes, PhD, Centre for Research on Occupational Life Stress, National University Institutional Galway, Galway, Galway, Ireland

Much research has investigated the impact of structural and functional social support on cardiovascular reactivity and recovery. This research tends to examine social support independently of (a) the processes that lead to its provision and (b) individual differences among support recipients in need for support, support seeking behavior, and related personality traits such as loneliness and hostility. The current study sought to examine the effects of socially-relevant individual differences on cardiovascular reactivity and recovery during acute stress. 70 healthy female participants (aged 17 to 27 years) underwent a social support mental schema-activation protocol. Results indicate that social trait factors were more predictive of SD, DBP, and CO responses to acute stress than were ratings of perceived social support. For example, SDP
responses to acute stress were subject to main effects for instrumental support (F(1,36) = 11.27, p = .002) and support-seeking (F(1,36) = 12.37, p = .001), while post-support recovery SBP was associated with trait measures of need-for-support (F(1,51) = 5.32, p = .025), and trait psychotism (F(1,41) = 4.20, p = .047). However, neither structural nor functional support measures predicted SBP recovery. Furthermore, while perceived support failed to predict DBP reactivity to stress, change in DBP from stressor to post-support was significantly associated with need-for-support (F(1,32) = 5.73, p = .023) and support-seeking (F(1,32) = 6.19, p = .018) even after controlling for trait hostility and loneliness. The results suggest that while structural measures of support may be associated with reactivity to stress; additional trait and support variables may be associated with the cardiovascular response to not only acute stress but post-stressor support and longer-term recovery, thereby identifying possible targets for support-based interventions.

318) Abstract 1095

CHRONIC POSTTRAUMATIC STRESS AND ITS PREDICTORS IN PATIENTS WITH AN IMPLANTABLE CARDIOVERTER DEFIBRILLATOR: FINDINGS FROM THE THE LIVING WITH AN IMPLANTABLE CARDIOVERTER DEFIBRILLATOR (LICAD) PROSPECTIVE STUDY
Roland von Känel, MD, General Internal Medicine, University Hospital, Bern, Switzerland, Jens Baumert, PhD, Epidemiology, Helmholtz Zentrum, Munich, Germany, Christoph Kolb, MD, Electrophysiology, Deutsches Herzzentrum, München, Germany, En-Young N. Cho, MD, General Internal Medicine, University Hospital, Bern, Switzerland, Karl-Heinz Ludwig, MD, PhD, Epidemiology, Helmholtz Zentrum, Munich, Germany

Background: Patients with an implantable cardioverter defibrillator (ICD) show clinically relevant depression and anxiety, but little is known about their levels of posttraumatic stress. We assessed chronic posttraumatic stress attributable to a traumatic cardiac event and its predictors in patients at two time points after ICD placement. Methods: We investigated 107 consecutively enrolled patients (57±14 years, 62% male) on average 24±18 months after ICD placement and again 41±18 months later (follow-up). All patients completed the Impact of Event Scale-Revised (IES-R) to self-rate severity of posttraumatic stress (range 0-110). The 30% of patients with the highest IES-R scores (>25) at baseline were defined as PTSD cases; the same threshold was applied to define PTSD caseness at follow-up. Results: Posttraumatic stress increased from baseline to follow-up (19±22 vs. 25±19, p=0.001); 19% of patients had PTSD at both assessments, 12% at baseline only, and 18% at follow-up only. Female gender as well as greater peritraumatic dissociation and depression predicted greater posttraumatic stress at baseline (p-values <=0.041). Greater baseline posttraumatic stress, helplessness, alexithymia, and >=5 shocks during posttraumatic stress at baseline predicted PTSD at follow-up (p-values <=0.029). Female gender, helplessness, and depression predicted PTSD at baseline (p-values <=0.022); low education and posttraumatic stress at baseline predicted PTSD at follow-up (p-values <=0.003). Conclusions: Between 2 and 5.5 years post-ICD placement chronic posttraumatic stress slightly increased and nearly one-fifth of patients had newly developed PTSD. The identified psychological predictors of long-term chronicity of posttraumatic stress might particularly inform behavioral interventions for ICD recipients.

319) Abstract 1021

RESILIENCE ENHANCEMENT: A PILOT STUDY IN PATIENTS WITH AN IMPLANTABLE CARDIOVERTER DEFIBRILLATOR
Linda C. Vlasy, LP, NNP, Stony Brook University, Stony Brook, New York, Emma Corrigan, PhD, RN ANP-BC FAHA, School of Nursing, Stony Brook University, Stony Brook, NY

Implantable cardioverter defibrillators (ICD) are effective in preventing sudden cardiac death. Yet 38% of ICD patients experience psychosocial distress post implant. Research has demonstrated that chronic perceived stress increases morbidity and mortality (via allostatic load). Biopsychosocial resilience modifies perceived stress and may reduce allostatic load. The purpose of this study was to evaluate the effects of a resilience enhancement program in ICD patients. Secondary aims: test the effects of resilience enhancement on perceived stress, anxiety, depression, resilience. Method: A convenience sample of ICD patients was enrolled. The program, modeled after the Benson Henry Mind-Body Institute, used visual imagery, focused breathing and cognitive behavioral strategies over six 90 minute sessions. Psychosocial measurement scales: Connor-Davidson resilience, Cohen perceived stress, Florida shock anxiety, Spielberger state-trait anxiety, CES-D (depression) at baseline, 6 weeks, 3 months. Holmes-Rahe stress inventory was done weekly. Analysis was confined to percent change score calculations: (mean present - mean past) / mean past. Aggregate mean scale scores and standard deviations were calculated. Results: Sample (N=8) was 75% male, Caucasian, mean age 73.3(SD 8.29). Cardiac function was low (mean EF 24.75%, SD 9.18). Baseline allostatic load was higher than healthy normals: CAD 87.5%; HTN 100%; Hyperlipidemia 100%; DM 12.5%; Depression/Angiomyopathy 50%. ICD shock anxiety 63%. By week 6 (N=7) all psychosocial scores, except shock anxiety, improved. Depression and perceived stress scores improved the most (30% and 15.4% respectively). Resilience improved 5%. Improvements were not sustained at 3 months. The majority (70%) continued to meditate. Conclusions: The study showed a small but promising trend in reduction of perceived stress, anxiety, depression and improvement in psychosocial resilience in ICD patients at 6 weeks. ICD shock anxiety reduction may require an increase in program duration. Future studies using biomarkers for allostatics may assist in establishment of a dose response curve.

320) Abstract 1395

VULNERABILITY AND PROTECTIVE FACTORS OF NON-RESILIENCE IN A SAMPLE OF PORTUGUESE PATIENTS WITH HEART FAILURE
Margarida Fontelonga Bento, MD, Internal Medicine, H.São Francisco Xavier, Faculty Ciências Médicas, UN, Lisbon, Portugal, Cândida Fonseca, PhD, Internal Medicine, H.São Francisco Xavier, Faculty Ciências Médicas, UN, Lisbon, Portugal, Inês Araujo, MD, Internal Medicine, H.São Francisco Xavier, Faculty Ciências Médicas, UN, Lisbon, Portugal, Filipa Mendes, MD, Internal Medicine, H.São Francisco Xavier, Faculty Ciências Médicas,UN, Lisbon, Portugal, Ana Leitão, MD, Internal Medicine, H.São Francisco Xavier, Faculty Ciências Médicas, UN, Lisbon, Portugal, António Mendes Pedro, PhD, Psychology, University Autonoma, Lisbon, Portugal, Ricardo Gusmão, PhD, Psychiatry, Faculty of Ciências Médicas, UN, Lisbon, Portugal, Paul J. Mills, PhD, Psychiatry, University of California, San Diego, CA, William Gerin, PhD, Biobehavioral Health, University of Pennsylvania, Pennsylvania, Fátima Ceia, PhD, Internal Medicine, H.São Francisco Xavier, Faculty Ciências Médicas, UN, Lisbon, Portugal

The families of and patients with heart failure (HF), a distress disease with poor prognosis, adapt (positively or not) and try to change negative adverse effects (e.g. physical incapacity, dependency, fatigue), according to their own resources. Such resources include vulnerable and reliable protective factors, as well as supportive health interventions. Aim: To analyse vulnerable bio-psychosocial factors that predict non-resilience in HF patients. Methods: 51 HF patients (according to ESC), NYHA class I-IV, male 66.6%, mean age 72.94 ± 12.65 years. Sociodemographic and clinical data were obtained from medical records and other bio-psychosocial factors, (including non-resilience), were obtained by Structured Interview of Symptoms and Concerns. Symptoms of depression were assessed by BDHI-II. A qualitative question was asked for the most positive aspects of patients’s life. 17.6% of the patients were non-resilient. Data were analysed by multiple regression. Results: Factors associated with non-resilience were: difficulty of communication (p=0.006), small social network (p=0.013), negative perception of social support (p=0.004), anxiety (p=0.053), depression (p=0.002), dispnea (p=0.002), higher NYHA class (p=0.019) and non-adherence to medication (p=0.016). After multiple regression analysis adjusting for age, anxiety and hopelessness, predictors of non-resilience were: NYHA class (OR, 28.309; 1,102-727.1), depression (OR, 29.898; 138-645.7), and difficulty of communication (OR=17.24; 1,047-283,9). Conclusions: Higher severity of HF (NYHA class) and depression predict non-resilience, which suggests that both severity could change the patient’s resilience. Depression and difficulty of communication could be more permanent vulnerable factors that contribute to non-resilience. In addition, non-resilient patients compared to resilient patients have more difficulty
finding positive aspects, have lower personal psychological valuation. It would be valuable to identify which are the most important resilience resources and their potential limits in supporting patients with greater severity of HF.

321) Abstract 1808

INFLUENCE OF SPACEFLIGHT ON PLASMA VOLUME AND HEMOCONCENTRATION OF IMMUNE CELLS AND SOLUBLE ADHESION MARKERS

Stephen M. Patterson, Ph.D., Psychology, Ohio University, Athens, Ohio, Michael G. Ziegler, Ph.D., Psychiatry and Medicine, University of California, San Diego, San Diego, California, Anthony W. Austin, M.A., Psychology, Ohio University, Athens, Ohio, Paul J. Mills, Ph.D., Psychiatry and Medicine, University of California, San Diego, San Diego, California

The goal of this study was to examine the effects of spaceflight on calculated plasma volume (CPV) and potential hemoconcentration of immune cells (CD3, CD4, CD8, CD19, and NK) and circulating soluble adhesion markers (sP-selectin, sE-selectin, and sICAM-1). Twenty astronauts who flew aboard one of nine different US Space Shuttle missions were examined 10 days prior to flight, immediately after landing, and 2-3 days post-flight. Blood samples were taken at each time point for the assessment of CPV (hematocrit, hemoglobin), immune cell counts, and adhesion markers. Results indicated that there was a significant decrease in CPV after landing (p<0.01) and an increase 2-3 days post-flight (p<0.001). Results also indicated that cd3, cd4, cd8, and cd19 cell counts significantly increased after landing and CD3, CD4, and CD8 remained elevated 2-3 days post-flight. NK cells showed a significant decrease after landing (p<0.01) and an increase 2-3 days post-flight. Results for the adhesion markers revealed that sE-selectin and sICAM-1 decreased while sP-selectin increased after landing and only sICAM-1 and sP-selectin returned to pre-flight levels. Statistical corrections for the hemoconcentration effects of decreased plasma volume after landing and 2-3 days post flight revealed that 2-3 days post-flight CD3, CD4, and CD8 counts actually returned to pre-flight levels while 2-3 days post-flight NK counts significantly decreased. Furthermore, after correcting for hemoconcentration effects on the soluble adhesion markers, sP-selectin, sE-selectin, and sICAM-1 remained significantly decreased (p<0.05) during post-flight. The data suggest that spaceflight leads to an internal environment that significantly decreases plasma volume levels and therefore leads to greater hemocoagulation of some immune cells and soluble adhesion markers relevant to immune cell trafficking.

322) Abstract 1228

LIFESTYLE INTERVENTIONS IMPROVE HEART RATE RECOVERY IN HYPERTENSION

Kate M. Edwards, PhD Kathleen L. Wilson, MS, Julie Sadja, MS, Joel E. Dimsdale, M.D, Psychiatry, Michael G. Ziegler, M.D, Medicine, Paul J. Mills, PhD, Psychiatry, University of California, San Diego, La Jolla, CA

Purpose of Study: Hypertension is related to abnormalities in autonomic nervous system (ANS) function, with increased sympathetic output and decreased parasympathetic tone. Heart rate recovery (HRR) from an exercise challenge is a simple, accessible and reproducible tool which is an index of parasympathetic tone. Lifestyle interventions are the first line of treatment in hypertension, and have been found to result in decreased blood pressure (BP), which may be related to changes in ANS function. Subjects & Methods: Forty-nine sedentary subjects with elevated BP (age 46±9.7 years, SBP 142±10.7 mmHg, DBP 85±8.4 mmHg) were randomly assigned to either an Exercise only (N=24), Exercise plus Dietary Approaches to Stop Hypertension (DASH) diet (N=11), or Waitlist control (N=15) 12-week intervention. Subjects performed a peak exercise test on a treadmill before and after intervention. HRR was calculated as peak HR minus HR at 1-minute post-exercise. Summary of results: HRR showed a significant group by time interaction (p=.031). Both intervention groups showed increases in HRR from pre to post intervention; Exercise plus diet group increased from 17.1 to 19.3 bpm, p=.022; Exercise group showed a trend towards increases in HRR (15.9 to 19.3 bpm, p=.1), while Waitlist showed no change (17.1 to 19.3 bpm). Similarly, both the Exercise plus Diet and Exercise groups, but not Waitlist, showed significant reductions in SBP (Exercise plus diet: 9.1 mmHg; Exercise 6.7 mmHg) from pre to post intervention (p<.005). Linear regression revealed that SBP post intervention was significantly predicted by change in HRR when controlling for pre SBP, age, gender and BMI (deltaR2 =.102, B=-.34, p=.014). Discussion: Lifestyle interventions induced a training effect that altered autonomic tone, indexed by HRR, as well as reduced SBP. We found that 10% of variance in post intervention SBP was predicted by change in HRR when controlling for baseline SBP, gender, age and BMI. This study indicates the importance of behavioural modification in hypertension and indicates that success in reduction of BP is associated with increased parasympathetic function.

323) Abstract 1121

A new application of EMDR: Treatment of Posttraumatic Stress following Childbirth

Clare Strumrood, MD, Janneke van der Velde, PhD, Willibrord Weijmar Schultz, MD PhD, Mariëlle van Pampus, MD PhD, Obstetrics & Gynecology, University Medical Center Groningen, Groningen, The Netherlands

Purpose: To evaluate the possibility of using eye-movement desensitization and reprocessing (EMDR) treatment for women with posttraumatic stress following childbirth. EMDR is internationally recognized as one of the treatments of choice for posttraumatic stress disorder (PTSD). However, as outlined in a recent article on the management of PTSD following childbirth, very little is known about the effect of the intervention in women who experienced the delivery as traumatic. METHODS: Two patients suffering from posttraumatic stress symptoms following childbirth were treated with EMDR. Patient A developed PTSD symptoms following the lengthy labor of her first child that ended in an emergency cesarean section (CS) after unsuccessful vacuum and forceps extraction. Patient B suffered from PTSD symptoms since the birth of her first child, during which a second degree vaginal rupture occurred, causing pain and resulting in the inability to use tampons and engage in sexual intercourse for several years. RESULTS: Both patients received EMDR treatment during their second pregnancy, using the standard protocol. After 2 sessions of EMDR including RDI and future template, patient A felt strong and confident about the upcoming delivery. She did not prefer a CS over vaginal birth or vice versa, as long as she "would end up psychologically undamaged". Due to insufficient engaging of the fetal head, patient A underwent a secondary CS, but nonetheless looks back positively at the experience. Patient B felt calm and less anxious after two sessions of EMDR. Despite her initial request for an elective CS, she agreed to attempt vaginal delivery, and a healthy infant was born. Even though she suffered another second degree vaginal rupture, which fortunately did not cause dyspareunia this time, patient B also looks back positively at the second delivery. CONCLUSIONS: Treatment with EMDR reduced PTSD symptoms in these two women, and hence proved to be an effective intervention. Furthermore, both women were confident enough to attempt vaginal birth rather than demanding an elective CS. We advocate a large scale RCT involving women with postpartum PTSD to confirm the effect of EMDR in this patient group.

PAPERS

Paper Session: Cardiovascular Disease Risk
support that marital distress is significantly associated with elevated hs-CRP, and that marital therapy is associated with reductions in hs-CRP and possibly cardiovascular risk.

Abstract 1179
HOT FLASHES AND CARDIAC VAGAL CONTROL IN THE AMBULATORY SETTING: A LINK TO CARDIOVASCULAR RISK?
Rebecca C. Thurston, PhD, Israel C. Christie, PhD, Karen A. Matthews, PhD, Psychiatry, University of Pittsburgh, Pittsburgh, PA
Hot flashes are experienced by most midlife women. Although they have important impact on quality of life, hot flashes are assumed to have few medical implications. However, emerging research links hot flashes to cardiovascular risk. The mechanisms underlying these links are poorly understood. Reductions in heart rate variability (HRV) have been linked to cardiovascular morbidity and mortality, and we previously found reductions in high frequency (HF)-HRV during hot flashes in the laboratory. We now extend this work to the ambulatory setting. We hypothesized that acute decreases in HF-HRV would occur during physiologically-assessed hot flashes relative to periods preceding and following hot flashes. 43 nonsmoking women ages 40-60 without hypertension or diabetes (60% Caucasian, 40% African American). 22 women had daily hot flashes, and 21 had no hot flashes. All women underwent 24 hours of ambulatory electrocardiogram and physiologic hot flash monitoring. Hot flashes were identified from sternal skin conductance via validated methods. HRV was quantified as band limited variance of the heart rate time series. HF-HRV was examined on a minute-by-minute basis with the 15 minutes preceding and following hot flashes compared to the 5 minutes during the hot flash.
Linear mixed models were estimated, covarying age, race, menopausal status, and body mass index. Among women with hot flashes, an average of 13 (range: 2-24) physiologic hot flashes/24 hrs were detected. Physiologic hot flashes were associated with acute reductions in HF-HRV compared to pre [b(SE)=0.28(0.05), p<0.0001] and post [b(SE)=0.27(0.05), p<0.0001] hot flashes. These findings extended the laboratory extended to the ambulatory setting. These results help further shed light on the physiology of hot flashes. These findings also provide a putative mechanism linking hot flashes to cardiovascular risk. Supported by AG029216.

Abstract 1220
DAILY PSYCHOSOCIAL DEMANDS ARE ASSOCIATED WITH SIX-YEAR CHANGES IN CAROTID ARTERY ATHEROSCLEROSIS: THE PITTSBURGH HEALTHY HEART PROJECT
Thomas W. Kamarck, Ph.D., Saul Shiffman, Ph.D., Psychology, Kim Sutton-Tyrrell, Dr. P.H., Epidemiology, Matthew F. Muldoon, M.D., Medicine, University of Pittsburgh, Pittsburgh, PA
We have previously shown associations between the perception of ongoing psychosocial demands by ecological momentary assessment (EMA) and concurrent and 3-year changes in carotid artery atherosclerosis (CAA) by ultrasonography. Here we extend these findings by examining 6-year changes in CAA in the same sample. At baseline, healthy community adults (age 50-70) responded to electronic diary questions 15 times per day over a 6-day period, in conjunction with ambulatory blood pressure (ABP) assessments. Among other questions, a 3-item scale measuring current psychosocial demands (e.g., "Juggled several tasks at once?") was administered at each assessment. Scores were averaged across assessments. CAA was measured at baseline and, again, 6 years later; repeat assessments were available on 84 % of the sample (n=287/340). Over 6 years, 60 % of the sample showed increases in number of observed carotid artery plaques, and carotid intima-media thickness (IMT) grew .13 mm, on average. Baseline ratings of daily psychosocial demands were associated with 6-year changes in IMT and plaque progression, after adjustment for standard demographic and risk factor covariates; effects were limited to those not on antihypertensive drugs (for IMT, multiple regression, n=202, b=−.09, p=.02, for plaque progression, logistic regression, n=202, odds ratio = 1.58 (1.2-2.1, p = .001). Mean systolic ABP partially mediated the association between mean baseline psychosocial demands
Paper Session: Post-Traumatic Stress Disorder

Abstract 1755

HYDROCORTISONE AS A SECONDARY INTERVENTION TO PREVENT SUBSEQUENT PTSD SYMPTOMS
Douglas L. Delahanty, PhD, Psychology, Kent State University, Kent, OH, Sarah Ostrowski, PhD, Psychology, Western Kentucky University, Bowling Green, KY, Nicole Nugent, PhD, Psychology, Albert Brown Medical School, Providence, RI, Crystal Gabert, MA, Psychology, Kent State University, Kent, OH, William Fallon, MD, Surgery, Summa Health System, Akron, OH

The present study represents a pilot test of the efficacy of hydrocortisone treatment, initiated within hours post-trauma, at decreasing the subsequent development of PTSD symptoms assessed via clinical interview (Clinician Administered PTSD Scale: CAPS). Sixty-five trauma victims were randomly assigned in double blind fashion to either a 10-day regimen of 20mg hydrocortisone or placebo bid. Medication was initiated within 12 hours post-trauma, and follow-up assessments occurred in participants’ homes at 1- and 3-month follow-ups. There were no baseline differences between groups in demographics or any study variables, suggesting that we were successful at randomizing participants to groups. A repeated measures ANCOVA on CAPS total scores at 1- and 3-month post-trauma, covarying for age, revealed a significant main effect of drug group, F(1,36)= 4.0, p<.05, such that the hydrocortisone recipients reported fewer PTSD symptoms at follow-up assessments. Similar analyses on depression scores (Center for Epidemiological Studies-Depression Scale: CESD) revealed a significant main effect of drug group, F(1,18)=7.7, p<.05, demonstrating that the hydrocortisone group also reported significantly lower depression symptoms at follow-up assessments. Analyses on self-reported quality of life (SF-36) revealed a significant drug group by time interaction, F(1,18)=5.3, p<.05, suggesting that quality of life improved over time in the hydrocortisone group relative to the placebo group. Results were particularly promising in participants who had not sought prior (pre-trauma) mental health treatment (mean CAPS scores of 15.1 for no prior treatment versus 33.9 for prior treatment; F(1,26)=4.80, p<.05), suggesting that hydrocortisone may be an efficacious secondary preventive intervention in acute trauma victims without significant prior psychopathology. As a 10-point decrease on CAPS scores is a clinically significant difference, further study into hydrocortisone as a preventive intervention appears warranted.

Abstract 1783

POSTTRAUMATIC STRESS DISORDER AND THE INCIDENCE OF CORONARY HEART DISEASE
Viola Vacciarrino, MD PhD, Epidemiology, Emory University School of Public Health, Atlanta, GA, Jack Goldberg, PhD, Vietnam Era Twin Registry, Seattle, WA, Cherie Rooks, PhD, Epidemiology, Emory University School of Public Health, Atlanta, GA, Nicholas L. Smith, PhD, Vietnam Era Twin Registry, Seattle, WA, James D. Bremner, MD, Psychiatry, Emory University School of Medicine, Atlanta, GA

Background. It has long been hypothesized that posttraumatic stress disorder (PTSD) increases the risk of coronary heart disease (CHD) but empirical evidence is limited. Methods. We conducted a prospective study of PTSD and CHD in monogynogotic and dizygotic middle-aged male twins part of the Vietnam Era Twin Registry. Lifetime diagnoses of PTSD and major depression were assessed at baseline in 1990-1991 with the Diagnostic Interview Schedule. Among twin pairs free of CHD at baseline, we selected three groups: 1) pairs discordant for PTSD, 2) pairs discordant for major depression (which is comorbid with PTSD), 3) pairs without a history of depression or PTSD. These pairs underwent a follow-up clinic visit for outcome assessment at Emory University between 2002-2010 (median follow-up 15 years). Outcomes included a CHD history (previous myocardial infarction, unstable angina, and coronary revascularization) and myocardial perfusion abnormalities by means of [99mTc] positron emission tomography. Cardiac imaging was done at rest and after adenosine stress; a stress total severity score (STSS) quantified perfusion abnormalities. GEE and mixed models were used to account for pair cluster and to separate between- and within-pair effects. Results. A total of 534 twins (267 pairs) were included. Of these, 112 were discordant for a lifetime diagnosis of PTSD at baseline. The mean age at follow-up was 55 yr (range 47-64) and 59 (22%) had developed CHD since baseline. History of ever smoking, depression and substance abuse, and lower levels of physical activity, were more common in twins with PTSD than those without, but other CHD risk factors were similar. The incidence of CHD was doubled in twins with PTSD (18.1%) compared to those without (8.8%), relative risk (RR)=2.1, p=0.004. The association was attenuated but remained significant after adjusting for major depression, ever smoking, substance abuse and other behavioral factors (RR= 1.59, p=0.04). STSS by PET was also higher in twins with PTSD than those without, denoting more perfusion defects. Within pairs, the adjusted mean STSS was 131 in twins without PTSD and 179 in their brothers with PTSD (p=0.01). Conclusions. Among Vietnam era veterans, PTSD is associated with increased risk of CHD and with abnormal myocardial perfusion, an objective measure of CHD.

Abstract 1605

ASSOCIATION BETWEEN PTSD, SUBSTANCE USE DISORDERS, AND MEDICAL CONDITIONS AMONG RETURNING VETERANS
Deborah Nazzirian, PhD, VA Palo Alto Health Care System, Stanford University School of Medicine, Menlo Park, CA, Rachel Kimering, PhD, VA Palo Alto Health Care System, Menlo Park, CA, Susan M. Frayne, MD, VA Palo Alto Health Care System, Stanford University, Menlo Park, CA

Posttraumatic stress disorder (PTSD) and substance use disorders (SUD) are independently associated with greater medical disease burden among veterans from past conflicts. Research on this association is more limited among returning veterans from Operation Enduring Freedom and Operation Iraqi Freedom (OEF/OIF). This study examined whether there is an increased likelihood of medical conditions among OEF/OIF veterans with PTSD, SUD, or comorbid PTSD-SUD compared to veterans with no mental health conditions (No MHC). This cross-sectional study used Veterans Health Administration (VHA) administrative data of the OEF/OIF primary care population (N=73,720; 22% women). Clinician-diagnosed mental health and medical conditions were obtained from ICD-9-CM diagnosis codes. We calculated adjusted odds ratios (AOR’s) and 95% confidence intervals of diagnoses in 10 specific medical condition categories (from the Agency for Healthcare Research and Quality's Clinical Classifications Software algorithm) in relation to diagnosed PTSD, SUD, or their comorbidity (reference group for all comparisons was No MHC). Women with SUD or PTSD-SUD had significantly more than twice the rate of other medical conditions compared to women with No MHC (AOR's = 2.20 and 2.19). Men with PTSD or PTSD-SUD had significantly 1.5 times greater odds of having a medical diagnosis relative to men with No MHC (AOR's = 1.57 and 1.53). The three most frequent medical conditions among women were diseases of the musculoskeletal, nervous, and genitourinary systems; among men, they were diseases of the musculoskeletal, nervous, and digestive systems. Despite their relatively young age, OEF/OIF veterans with diagnosed PTSD, SUD, or their PTSD-SUD had a heavy burden of medical illness (versus veterans with No MHC). A disproportionate burden of musculoskeletal conditions was also observed. VHA has a unique opportunity to develop interventions that take into account co-occurring mental health and medical conditions which may prevent the late-life burden of medical illness seen among older veteran cohorts of previous conflicts.

Abstract 1346

PTSD AND RECURRENT RISK PERCEPTIONS IN ACUTE CORONARY SYNDROME PATIENTS
Donald Edmondson, Ph.D., Jonathan A. Shaffer, Ph.D., Ellen-ge Denton, Ph.D., Daichi Shimbo, M.D., Lynn P. Clemon, Ph.D., General Medicine, Columbia University Medical Center, New York, NY

For acute coronary syndrome (ACS), i.e. myocardial infarction (MI), unstable angina and coronary revascularization and myocardial perfusion abnormalities by means of [99mTc] positron emission tomography. Cardiac imaging was done at rest and after adenosine stress; a stress total severity score (STSS) quantified perfusion abnormalities. GEE and mixed models were used to account for pair cluster and to separate between- and within-pair effects. Results. A total of 534 twins (267 pairs) were included. Of these, 112 were discordant for a lifetime diagnosis of PTSD at baseline. The mean age at follow-up was 55 yr (range 47-64) and 59 (22%) had developed CHD since baseline. History of ever smoking, depression and substance abuse, and lower levels of physical activity, were more common in twins with PTSD than those without, but other CHD risk factors were similar. The incidence of CHD was doubled in twins with PTSD (18.1%) compared to those without (8.8%), relative risk (RR)=2.1, p=0.004. The association was attenuated but remained significant after adjusting for major depression, ever smoking, substance abuse and other behavioral factors (RR= 1.59, p=0.04). STSS by PET was also higher in twins with PTSD than those without, denoting more perfusion defects. Within pairs, the adjusted mean STSS was 131 in twins without PTSD and 179 in their brothers with PTSD (p=0.01). Conclusions. Among Vietnam era veterans, PTSD is associated with increased risk of CHD and with abnormal myocardial perfusion, an objective measure of CHD.
symptoms may be related to increased risk of ACS recurrence and mortality. Poor treatment adherence, possibly due to inaccurate risk perception, has been hypothesized as a mechanism of PTSD's influence on ACS recurrence (Shemesh et al., 2006). Purpose: To test whether ACS patients with current PTSD symptoms during hospitalization differ from patients without current PTSD symptoms on perceived risk of ACS recurrence. Method: Participants who had experienced an ACS [n=412; 66% men, mean age= 63 (SD = 11)] were enrolled in the ongoing Prescription Use and Lifestyle Evaluation (PULSE) study. During hospitalization, participants rated their “risk for having a heart attack in the next year compared to other men (or women) their age” on a 5-point scale from “much lower than average” to “much higher than average,” and confidence “they could control their heart disease” on a 5-point scale from “not at all” to “very.” Participants were screened 3-7 days after their ACS event for the presence of PTSD symptoms in the previous 3 months (due to any trauma) as part of a structured diagnostic interview. Demographics, ACS type, and Charlson comorbidity score were derived from self-report and chart review. Heart attack risk perceptions were subjected to a one-way ANCOVA with PTSD symptoms in the past 3 months as the grouping factor, and age, gender, MI as the index ACS type, Charlson comorbidity score, and self-confidence in heart disease control as covariates. Results: The main effect of PTSD symptoms in the previous 3 months was significant, F (1, 406)= 4.11, p< .05, such that participants with PTSD symptoms perceived a lower risk of a future heart attack (2.2 vs. 2.7). Conclusions: While these results run counter to some cognitive models of PTSD that would predict more pessimistic risk perceptions (e.g., Dalgleish, 2004), investigating the role of unrealistically optimistic risk perceptions in ACS patients with PTSD may be fruitful for determining mechanisms by which PTSD influences ACS recurrence.

Paper Session: Type D Personality and Cardiac Disease

Abstract 1433

ASSOCIATION OF TYPE D PERSONALITY WITH CARDIOVASCULAR DISEASE RISK FACTORS, UNHEALTHY LIFESTYLE AND CORONARY EVENTS IN THE GENERAL POPULATION

Erla Svendsdottir, cand. psych, Krista C. Van den Broek, PhD, CoRPS-Department of Medical Psychology, Tilburg University, Tilburg, The Netherlands, Hrohbjartur D. Karlsson, MD, Department of Cardiology, Bolli Dorsson, MD, Research, Icelandic Heart Association, Kópavogur, Iceland, Johan Denollet, PhD, CoRPS-Department of Medical Psychology, Tilburg University, Tilburg, The Netherlands

Purpose: Type D personality (the combination of negative affectivity and social inhibition) has been associated with poor outcomes across cardiovascular diseases (CVD). It is still unclear, however, which behavioral or physiological mechanisms account for this adverse effect of Type D. We examined whether Type D personality is associated with CVD risk factor profiles in a general population, with a specific focus on gender differences. Methods: A random sample of 4753 individuals (mean age= 49 years (SD 12); 49% men) was drawn from the Icelandic National Registry. Data on demographics, Type D personality, CVD risk factors, unhealthy lifestyle and previous coronary events were assessed cross-sectionally by self-report and biological measures. Results: The prevalence of Type D personality was 21% (N=1000), and did not differ by age groups or gender (all p's >0.05). Type D personality was associated with a higher prevalence of hypertension (33% vs. 29%, p=0.04), less use of hypertension medication (62% vs. 73%, p=0.005) in men, and more diabetes in women (5% vs. 3%, p=0.006). Type D personality was strongly associated with lower exercise levels in both men (p=0.001) and women (p=0.002). Type D men also reported more current (26% vs. 21%, p=0.027) and former (50% vs. 43%, p=0.025) smoking, and had a wider maximum abdominal circumference (102.8 cm (SD 13) vs. 101.5 cm (SD 12), p=0.036). Estimates of overall CVD risk factors, however, did not differ between Type Ds and non-Type Ds. Yet, older Type Ds (>54 years) had a higher incidence of previous coronary events (RR 1.6, 95% CI:1.2-2.2 in men; RR 1.8, 95% CI: 1.1-2.9 in women). Conclusion: Type D personality is not associated with an overall risk factor profile in the general Icelandic population. However, Type D individuals report an unhealthy lifestyle and a higher incidence of previous coronary events. Inclusion for unhealthy lifestyles in Type Ds, such as sedentary lifestyle, smoking or low medication adherence, may partly explain the adverse cardiac outcomes associated with Type D personality.

Abstract 1104

CROSS-CULTURAL DIFFERENCES IN TYPE D PERSONALITY? - A STUDY FROM THE EURO CARDIO-QOL PROJECT

Nina Knappe, PhD, Susanne S. Pedersen, PhD, Medical Psychology, Tilburg University, Tilburg, The Netherlands, Stephan Höfer, PhD, Medical Psychology, Innsbruck Medical University, Innsbruck, Austria, Hugo Saner, MD PhD, Cardiovascular Prevention and Rehabilitation, University Hospitals Inselspital, Bern, Switzerland, Neil Oldridge, MD, PhD, Comprehensive Cardiovascular Care Group, University of Wisconsin School of Medicine, Milwaukee, Wisconsin, Johan Denollet, PhD, Medical Psychology, Tilburg University, Tilburg, The Netherlands

Background The Type D Scale (DS14) has demonstrated good psychometric properties and prognostic value across diseases and distinct cultural settings. However, cross-cultural differences have not been examined yet in a direct comparison of countries. Aim To examine measurement equivalence, validity and sensitivity of the DS14 in patients with ischemic heart disease in 16 European and 4 East Asian countries. Methods: A total sample of patients with angina (33.1%), myocardial infarction (37.6%) or ischemic heart failure (29.3%) completed the DS14. Multi-group confirmatory factor analysis in AMOS, and reliability analysis and ANOVA in SPSS were used. Results Type D personality was reliably assessed across countries (alphaNA >.80; alphaSI >.74). Cross-cultural measurement equivalence was established for Type D personality at a configural, metric and scalar level. The factor-item correlation values of the factor loadings and error structure were not significantly different across all participating countries (fit indices for this model: CFI =.91; NFI=.88; RMSEA=.018). Subanalyses indicated measurement equivalence with regard to gender and diagnosis. Specificity analysis showed significant differences between countries with respect to Type D personality prevalence (range 19-44%), with Southern (37%) and Eastern European (35%) countries having a significantly higher prevalence of Type D personality than Western and Northern European countries (27%), and English Speaking countries (27%; Chi2=50.271, p<.001). In 9 countries women showed higher levels of negative affectivity (p<.03), while in Spain and Norway, men were more socially inhibited than women(p<.04). The relation with anxiety and depression was high for NA (r=.74) and lower for SI (r=.49), but similar across countries and across diagnoses. Conclusion Cross-cultural measurement equivalence was demonstrated for the Type D scale as well as measurement equivalence for gender and the ischemic heart disease diagnostic spectrum. Whether these findings extrapolate to other than European and English-speaking countries is not known.

Abstract 1058

TYPE-D PERSONALITY AND ALL-CAUSE MORTALITY IN CARDIAC PATIENTS - DATA FROM A GERMAN COHORT STUDY

Gesine Grande, DrPH, Matthias Romppel, MS, Applied Social Sciences, Leipzig University of Applied Sciences, Leipzig, Germany, Jana-Marie Patzer, MS, Christoph Herrmann-Lingen, MD, Psychosomatic Medicine and Psychotherapy, University of Goettingen, Goettingen, Germany

Background: In recent years, the Type-D personality has been established as a predictor of adverse clinical events in patients with cardiovascular diseases. To date, all investigated samples except one have been recruited in Belgium or the Netherlands; thus, the aim of our study was an independent replication of the results regarding the prognostic validity of Type D in a German sample of cardiac patients. Method: A sample of 1,040 cardiac patients was recruited from different settings within the German health care system. Cardiac health status, comorbidity (Charlson score), medical risk factors, sociodemographic characteristics, psychological symptoms (HADS), and Type-D personality (DS14) were assessed at baseline. The primary endpoint was all-cause mortality. Cox proportional hazard regression was used to estimate the relative risk of death. Results: Vital status was known for 977 patients (22.5% women; 63±11y.). Patients suffered from coronary artery disease (CAD) (76.3%), other structural heart diseases (58.5%)
and arrhythmias (33.5%). Within the follow-up time (71.5±3.6 months), 172 patients died. Age (Hazard ratio [HR]=1.04; CI: 1.02-1.06; p<.001), sex (female; HR=0.60; CI: 0.38-0.94; p=.03), lower education (HR=0.64; CI: 0.44-0.95; p=.03), arrhythmias (HR=1.94; CI: 1.40-2.67; p<.001), NYHA class (HR=1.64; CI: 1.08-2.49; p=.02), multimorbidity (HR=1.35; CI: 1.23-1.48; p<.001), BMI (linear HR=0.93; CI: 0.90-0.97; squared HR=1.17; CI: 1.08-1.27; both p<.001) and smoking (ex-smoker vs. nonsmoker; HR=1.49; CI: 1.05-2.11; p=.03) independently predicted all-cause mortality. We found that 25.2% of survivors and 22.2% of nonsurvivors had a Type-D personality (p=.78). Neither Type D nor Negative Affectivity or Social Inhibition and their interaction were associated with all-cause mortality in bivariate and multivariate analyses. The same was true when analyses were restricted to patients with specific cardiac diagnoses such as CAD, chronic heart failure, or arrhythmias. Conclusion: The Type-D pattern and its constituents are not associated with increased mortality in German patients with heart disease.

Paper Session: Placebos

Abstract 1710

ARE SOME PLACEBOS MORE EFFECTIVE THAN OTHERS? FIRST RESULTS FROM A SYSTEMATIC REVIEW ON MIGRAINE PROPHYLAXIS
Karlin Meissner, MD, Klaus Linde, MD, General Practice, Technical University, Munich, Germany, Gerta Rücker, PhD, Medical Biometry and Medical Informatics, University Medical Center, Freiburg, Germany, Margrit Fässler, MD, General Practice, Technical University, Munich, Germany.

It is no secret that placebo effects can be observed in medical practice. Placebo effects are known to occur in a wide range of medical conditions, and their mechanisms are now beginning to be understood. The aim of the present study was to evaluate the potential for relieving many symptoms. The purpose of this study was to understand whether expectations deriving from the clinical encounter can also produce opposite negative effects, known as “nocebo effects.” Methodologically, we performed a non-systematic review of the literature on placebo and nocebo effects. Placebo adverse effects resulted to be common in clinical trials and practice. In clinical trials, a substantial proportion of patients in control groups - those given supposedly inert therapies - experience negative side effects which mimic the iatrogenic effects. The severity of placebo adverse effects matches those associated with real drugs. Finally, verbal communication, providers’ behavior, and environmental cues can also have negative, nocebo effects. I will present research relating to the neurobiology of the nocebo effect and patient-oriented investigation, and discuss clinical implications.

Abstract 1717

DIRECT EFFECTS OF A SHAM INTERVENTION ON CORONARY ARTERIES
Karlin Meissner, MD, Medical Psychology, University of Munich, Munich, Germany, Julinda Mehilli, MD, Cardiovascular Diseases, Deutsches Herz Zentrum, Munich, Germany, Karl-Heinz Ludwig, PhD, Epidemiology, Helmholtz Zentrum München, Neuherberg, Germany, Hannah Blättler, Psychosomatic Medicine and Psychotherapy, Nina Oversohl, Klaus Linde, MD, General Practice, Peter Henningen, MD, Joram Ronel, MD, Psychosomatic Medicine and Psychotherapy, Technical University Munich, Munich, Germany.

Improvement of chest pain in the placebo arm of clinical trials has been frequently observed. The aim of the present study was to examine whether placebo-related chest pain improvement could be the result of biological mechanisms. We therefore performed an experiment to investigate whether a sham intervention (SI) has an impact on the diameter of coronary arteries. A total of 30 biomarker-negative chest pain patients with normal diagnostic angiograms were randomly assigned to a SI or control group (CG). Salt solution was administered intracoronarily to both groups. The SI group received a standardized verbal suggestion, implying coronary vasodilation. The CG remained without verbal suggestion. Primary endpoint was the change in percentage diameter stenosis (% DS) of the index coronary segment before and 60 seconds after the administration of saline. Secondary endpoints were changes in chest pain, hemodynamic parameters, and psychological distress. The SI resulted in a significant coronary vasodistraction in comparison to CG (mean change in % DS: 3.2% ± 6.3% vs. -1.7% ± 6.8%; p=0.048; age adjusted). At the same time, the degree of chest pain was significantly reduced in the SI group (0.7 ± 1.3) compared to the CG (0.3 ± 1.3), p=0.024. Findings suggests that the SI resulted in a biological alteration within the coronary artery tree. Contrary to expectation, the verbal suggestion led to vasodistraction, while chest pain decreased. The psychobiological effect was possibly due to a down-regulation of beta-adrenergic activity.

Paper Session: Acute Stress and PNI

Abstract 1818

LATENT CYTOMEGALOVIRUS INFECTION IS ASSOCIATED WITH INCREASED LYMPHOCYTE BETA-ADRENERGIC RECEPTOR SENSITIVITY AND ENHANCED CD8 T CELL RECRUITMENT DURING ACUTE STRESS
Jos A. Bosch, PhD, Paul Moss, MD, Institute of Cancer studies, University of Birmingham, Birmingham, United Kingdom, Suzi Hong, PhD, Paul J. Mills, PhD, Brent T. Mausbach, PhD, Thomas L. Patterson, PhD, Psychiatry, University of California San Diego, La Jolla, CA, Roland von Kanel, MD, General Internal Medicine, Bern University Hospital, Bern, Switzerland, Sonia Ancoli-Israel, PhD, Joel E. Dimsdale, MD, Psychiatry, University of California San Diego, La Jolla, CA, Michael G. Ziegler, MD, Medicine, UCSD Medical Center, San Diego, CA, Matthew Allison, MD, Igor Grant, MD, Psychiatry, University of California San Diego, La Jolla, CA.

Background: Cytomegalovirus (CMV) is a latent herpes virus that leads to lifelong latent infection, and causes a persistent elevation in the numbers of CD62L- T lymphocytes. These cells express high levels of the beta2-adrenergic receptor, and becomes strongly mobilized in response to acute stress. Hence, we predicted that latent CMV infection might be associated with an increased immunological response to stress. Methods: Participants were 171 older adults who took part in an Acute Stressor's caregiver study (mean age 71 years, range 52-89; 72% women; 40% caregivers; 90% Caucasian). All participants underwent a
stressful 12-minute speech task. Blood was drawn pre- and post-task, and lymphocyte subsets were determined using flow cytometry. Results: 75% of participants were seropositive for CMV (CMV+), indicating latent infection. CMV+ serostatus was associated with elevated circulating numbers of CD62L+ CD4+ and CD62L+ CD8+ T cells at rest (+50% and +200%, respectively, p<.005), whereas CD62L+ CD8+ T cell numbers were unaffected. Further, CMV+ participants displayed a 38% higher lymphocyte beta-adrenergic receptor sensitivity compared to CMV- participants (p<.05). CMV+ participants also showed a substantially stronger stress-induced mobilization of total CD8+ T lymphocytes and CD62L+ CD8+ T lymphocytes (+300%; p<.01). CMV serostatus was unrelated to gender, age, life style (e.g., BMI, smoking), basal catecholamine levels, or caregiver status, and adjustment for these parameters did not alter the above results. Discussion: Individual differences in responses to stress are thought to be determined by genotype and life experiences that together shape physiology and psychology. Stress-lymphocyteosis as an example, the present study demonstrates that infection history can act as an additional determinant. Latent CMV infection was associated with a selective expansion of lymphocyte subsets that have greater beta-adrenergic receptor sensitivity and exhibit enhanced immunological reactivity to acute psychological stress.

Abstract 1400

SOCIAL SUPPORT BUFFERS THE EFFECTS OF ANGER ON THE SYSTEMIC PROINFLAMMATORY RESPONSE INDUCED BY ACUTE STRESS

Eli Puterman, PhD, Epel Elissa, PhD, Aojie O'Donovan, PhD, A. Janet Tomiyama, PhD, Department of Psychiatry, University of California, San Francisco, San Francisco, CA, Jean M. Harro, PhD, Psychiatry and Behavioral Science, Stanford University, Stanford, CA, Aric Prather, PhD, Kirstin Aschbacher, PhD, Nancy Adler, PhD, Margaret Kemeny, PhD, Owen Walkowitz, MD, Department of Psychiatry, University of California, San Francisco, San Francisco, CA, Firdaus S. Dhabhar, PhD, Psychiatry and Behavioral Science, Stanford University, Stanford, CA.

High levels of anger and proinflammatory cytokines have both been associated with increased risk for cardiovascular disease and early mortality. Recent work suggests that experiencing anger in response to acute stress is linked to greater proinflammatory reactivity, indexed by increased circulating interleukin-6. Identifying factors that buffer the effects of stress-related anger on IL-6 may suggest potential health-enhancing interventions. In the current study, we examined the association between stress-induced anger and IL-6 reactivity, and the buffering effect of perceived social support on this association. Forty-six healthy, postmenopausal women answered questions about their perceived support (Interpersonal Support Evaluation List; Cohen et al. 1985), and completed a modified Trier Social Stress Task. Ten minutes following the tasks, participants answered a question about how angry they were during the tasks. At baseline, 10, 30 and 70 minutes post-tasks, blood was drawn for measurement of circulating IL-6. A high sensitivity sandwich immunoassay was used to quantify IL-6. Natural log transformed changes in IL-6 from baseline to 70 minutes post task completion were used as an index of reactivity. Covarying age and BMI, regression analyses indicate that greater task-induced anger predicted increases in IL-6 at 70 minutes from baseline (b=0.23, SE=0.09, p<.01). The effect of anger was buffered by perceived support (p=.002). At one standard deviation (1 SD) below the mean of social support, anger significantly predicted IL-6 change (b=0.36, SE=0.09, p<.000) whereas at 1 SD above, anger was unrelated to IL-6 change (b=-0.06, SE=12, p=.61). Findings extend previous studies indicating a link between individual differences in state anger and inflammatory reactivity to stress, by illuminating a potential protective factor. Perceiving a supportive network seems to buffer these effects, providing evidence that support may function as a stress-buffer through reducing the effect of anger on stress-induced proinflammatory responses.

Abstract 1086

MOOD DISTURBANCE FOLLOWING EXERCISE WITHDRAWAL IS ASSOCIATED WITH GREATER INFLAMMATORY RESPONSES TO STRESS

Romano Endrighi, MSc, Epidemiology & Public Health, Psychobiology, University College London, London, England, United Kingdom, Andrew Steptoe, DPhil, Mark Hamer, PhD, Epidemiology & Public Health, Psychobiology, University College London, London, United Kingdom, England

The aim of the study was to test whether negative mood induced by forced withdrawal from habitual physical exercise is associated with inflammatory responses to mental stress. Regular exercise is thought to have beneficial effects on well-being, which might in part be explained by anti-inflammatory processes. Previous research has shown that exercise is inversely associated with stress-induced inflammatory responses but this work has been cross-sectional. Given the pivotal role of stress in promoting inflammation, and as a risk factor for depression, it is important to examine these mechanisms using an experimental paradigm. Thirty six fit and habitually active men and women (VO2 peak 46.85±8.86 age 24.28±4.98 yrs) were randomized to a 2 week exercise withdrawal condition or a 2 week exercise maintenance period (control) in a cross-over, controlled experimental design. Psychophysiological stress testing was carried out at the end of each 2 week condition. Adherence to the study protocol was monitored with accelerometers to measure physical activity, while changes in mood were assessed with the General Health Questionnaire (GHQ). Peripheral blood was sampled at baseline and 45 minutes after the stress protocol and assayed for the inflammatory cytokine interleukin-6 (IL-6). Participants reported significant increases in negative mood during the exercise withdrawal phase (GHQ 19.72±9.7 vs. 13.64±6.06; p=0.001) compared with exercise maintenance. In a stepwise multiple linear regression analysis age, gender and BMI were not associated with stress-induced IL-6 responses. After adjusting for the IL-6 stress response during exercise maintenance, negative mood change was positively associated with the IL-6 exercise withdrawal stress response (Beta=0.42, p<0.02) explaining 12% over and above the variance accounted for by IL-6 stress reactivity during control (tot R2=0.30). These preliminary data show that participants who experienced greater negative mood following withdrawal from exercise responded with larger inflammatory IL-6 release during mental stress independent of the response during control.

Abstract 1834

CIRCULATING ADIPOKINE LEVELS ARE INCREASED BY ACUTE STRESS

Dana H. Bohvisjrg, PhD, Frank J. Jenkins, PhD, Stephanie R. Land, PhD, Anna L. Marsland, PhD, Yu-Ting Weng, MA, University of Pittsburgh Cancer Institute, University of Pittsburgh, Pittsburgh, PA.

PURPOSE: Adipose tissue has endocrine functions and secretes biologically active factors, adipokines, with systemic effects on a wide range of bodily processes. One of the best-studied adipokines is leptin, a 16 kDa protein with blood levels proportional to total body fat. We explored the possibility that leptin levels, as well as two other representative adipokines, interleukin-6 (IL-6) and interleukin-1 receptor antagonist (IL-1Ra), may be affected by experimental psychosocial stress. METHODS: Healthy, nonsmoking, premenopausal women not taking prescription medication were recruited by advertisement. All were prescreened to confirm health status. The study sample (n=25) had a mean age of 37.4 yrs (range 25-49) and body mass index (BMI) of 24.7 (range 19.1-34.2). Participants were scheduled for the Trier Social Stress Test (TSST) in the follicular phase of their menstrual cycles at a consistent time of day. Blood samples were collected: 1) after a 30 rest period (baseline); 2) immediately after the TSST; 3) after a 75rest period. Plasma adipokine concentrations were assessed blind with high sensitivity ELISAs and analyzed with mixed linear models. RESULTS: Significant (p<0.05) increases in tension-anxiety (POMS), heart rate, and blood pressure were seen during the TSST. All three adipokines showed significant main effects of BMI. Supporting hypothesized effects of acute stress, leptin and IL-6 showed significant effects of time, increasing after the TSST particularly at 75 min. Leptin showed a significant interaction (BMI*time), such that the magnitude of the stress-induced increase at 75varied depending on the woman’s BMI. CONCLUSIONS: The results provide proof of principle that acute psychological stress can alter circulating levels of adipokines. Although leukocytes in adipose tissue are thought to be a major source of IL-6, leptin is primarily secreted by adipocytes themselves. These findings thus support a new pathway by which stress may influence health.
Paper Session: Somatic versus Cognitive Depressive Symptoms and Cardiac Health Risks

Abstract 1112

IMPROVEMENT IN SOMATIC AND COGNITIVE DEPRESSIVE SYMPTOMS AND ITS ASSOCIATION WITH ADVERSE OUTCOME IN THE ENHANCING RECOVERY IN CORONARY HEART DISEASE (ENRICHD) STUDY

Annelieke M. Roest, MSc, Elisabeth J. Martens, PhD, Johan Denollet, PhD, Medical Psychology, Tilburg University, Tilburg, the Netherlands, Robert M. Carney, PhD, Kenneth E. Freedland, PhD, Department of Psychiatry, Washington University School of Medicine, St. Louis, Missouri, Peter de Jonge, PhD, Department of Psychiatry, University of Groningen, Groningen, the Netherlands

Introduction: Depression is associated with morbidity and mortality in patients with myocardial infarction (MI). Several studies suggest that especially somatic symptoms of depression are related to adverse cardiac prognosis after MI. The present study is an ancillary study of the Enhancing Recovery in Coronary Heart Disease (ENRICHD) trial and assesses whether improvement in somatic or cognitive depressive symptoms was related to an improved cardiac outcome and whether this association was different for patients receiving behavior therapy compared to usual care. Methods: Patients who met DSM-IV criteria for major depression, minor depression with a history of major depression, or dysthymia after acute MI, and completed the 6th month depression assessment (n=1235) were included in this study. Measurements included demographic and clinical data and the Beck Depression Inventory. Endpoint was a composite of recurrent MI and mortality. Results: Improvement in somatic depressive symptoms (hazard ratio (HR): 0.93; 95% CI: 0.90-0.97; p=0.001) but not in cognitive depressive symptoms (HR: 0.98; 95% CI: 0.96-1.01; p=0.15) was related to a reduced risk of recurrent MI and mortality after adjustment for baseline depression scores. There was a trend for a significant interaction effect between improvement in somatic depressive symptoms and the intervention (p=0.06). After controlling for demographic and clinical variables, the association between improvement in depressive symptoms and outcome remained significant in the treatment group (HR: 0.92; 95% CI: 0.86-0.98; p=0.01). Conclusion: Improvement in somatic depressive symptoms, and not cognitive symptoms, was related to an improved cardiac outcome in the intervention group, independent of demographic and clinical variables. Close monitoring of changes in somatic depressive symptoms might be helpful to improve clinical care for these patients.

Abstract 1393

DEPRESSIVE SYMPTOM CLUSTERS AS PREDICTORS OF 5-YEAR INCIDENCE OF CORONARY ARTERY CALCIFICATION: THE CARDIA STUDY

Jesse C. Stewart, Ph.D., Desiree J. Ziemie, M.S., Misty A. Hawkins, M.S., Psychology, Indiana University-Purdue University Indianapolis, Indianapolis, IN, David R. Williams, Ph.D., Society, Human Development, and Health, Harvard University, Boston, MA, Mercedes R. Carnethon, Ph.D., Preventive Medicine, Northwestern University School of Medicine, Chicago, IL, Sarah S. Knox, Ph.D., Community Medicine, West Virginia University School of Medicine, Morgantown, WV, and A. Matthews, Ph.D., Psychiatry, University of Pittsburgh School of Medicine, Pittsburgh, PA

Background: Depression is a multidimensional construct that consists of affective, cognitive, behavioral, and somatic symptoms. Because few studies have compared the relative importance of these symptom clusters in predicting cardiovascular disease (CVD) risk, it is not known whether particular clusters are more cardiotoxic than others. We evaluated the utility of depressive symptom clusters in predicting 5-year incidence of coronary artery calcification (CAC), a measure of subclinical CVD. Methods: Participants were 2,183 middle-aged adults (58% female, 43% black, no CVD) from the CARDIA Study who completed the Center for Epidemiologic Studies Depression Scale (CES-D) in Year 15 and CAC assessments by electron beam computed tomography in Years 15 and 20. CES-D scores were converted to z-scores. Our outcome was incident CAC (Agatston score >0). Results: During the 5 years, 244 (11%) individuals developed CAC. In logistic regressions adjusting for age, sex, and race, the CES-D total (OR=1.16, p<0.03) and depressed affect subscale (OR=1.18, p<0.01) were predictors of incident CAC; however, the positive affect (OR=0.90, p=0.13), somatic symptoms (OR=1.14, p=.07), and interpersonal distress (OR=1.05, p=.44) subscales were not. Depression effects did not differ by gender or race. After controlling for education, body mass, blood pressure, cholesterol, glucose, C-reactive protein, tobacco use, physical activity, and antidepressant use, the depressed affect subscale fell short of significance (OR=1.12, p=.15). Of the covariates, tobacco use, education, and mean arterial pressure produced the greatest decrease in strength of this association (15%, 10%, and 7% reduction, respectively). Conclusions: In contrast to recent results indicating that the somatic symptoms of depression may be the most cardiotoxic, our findings suggest that the depressed affect cluster may be driving the prospective association between depressive symptoms and incident CAC. Tobacco use may be a key mediator of this relationship.

Abstract 1860

IMMUNE CELL BETA-ADRENERGIC SENSITIVITY ASSOCIATED WITH COGNITIVE VERSUS SOMATIC SYMPTOMS OF DEPRESSION

Laura S. Redwine, PhD, Suzi Hong, PhD, Psychiatry, University of California, San Diego, CA, Thomas Rutledge, PhD, Psychology Services, VA San Diego Healthcare System, La Jolla, CA, Paul J. Mills, PhD, Psychiatry, University of California, San Diego, CA

Chronic stress is associated with prolonged sympathoadrenal system over-activation resulting in down regulation of beta-adrenergic receptor sensitivity, which subsequently can reduce the regulatory effects of catecholamines on inflammation. It is unclear whether a similar pattern occurs with depression since the literature reveals inconclusive relationships between depression and sympathetic activation. Examining the subcomponents of depression, namely cognitive versus somatic symptoms, and relationships with peripheral blood mononuclear cell (PBMC) beta-adrenergic sensitivity, may yield a better understanding of depression associated somatic symptoms. To investigate the relationship between depressive symptoms and outcome remained significant in the somatic (BDI-s) and cognitive (BDI-c) symptoms. BDI scores averaged 5.4 +/- 6.1 with a range of 0-27. Beta-adrenergic receptor sensitivity was determined by quantifying intracellular cyclic-AMP accumulation after incubation with isoproterenol. Plasma levels of epinephrine were also determined. Linear regression analyses were used to determine relationships among subcomponents of depression, beta-adrenergic sensitivity, and epinephrine levels while controlling for age, gender, and race. Results: Subjects with elevated cognitive symptoms of depression had reduced beta-adrenergic sensitivity (p = .013, B = -423) and greater epinephrine levels (p = .017, B = 467). While, higher somatic symptoms of depression were related to increased beta-adrenergic sensitivity (p = .006, B = .477), and not related to epinephrine levels. Total BDI scores were neither related to beta-adrenergic sensitivity or epinephrine levels. Conclusions. Elevated cognitive depressive symptoms have a similar pattern of beta-adrenergic sensitivity and heightened catecholamine levels as chronic stress, whereas elevated somatic depressive symptoms appear to be associated with a unique pattern. Further understanding the components of depressive symptoms associated with PBMC beta-adrenergic receptor sensitivity may provide an insight into the mechanisms underlying the depression-inflammation link.

Abstract 1665

SOMATIC VERSUS COGNITIVE SYMPTOMS OF DEPRESSION ASSOCIATED WITH SPECIFIC PRO-INFLAMMATORY MARKERS IN HEART FAILURE PATIENTS

Laura S. Redwine, PhD, Suzi Hong, PhD, Psychiatry, University of California, San Diego, CA, Thomas Rutledge, PhD, Psychology Services, VA San Diego Healthcare System, La Jolla, CA, Joel Dimsdale, MD, Psychiatry, Greenberg Barry, MD, Medicine, Paul J. Mills, PhD, Psychiatry, University of California, San Diego, CA

B-111
Heart Failure (HF) affects millions in the U.S., with nearly 30% of patients exhibiting clinical levels of depression symptoms, which are related to greater morbidity and mortality. The mechanistic link between depression and worse outcomes in HF are unclear. One potential pathway links depression with heightened inflammation that is related to undesirable cardiac remodeling. However, literature connecting depression with inflammation in cardiac patients is mixed. The present study attempts to further delineate the depression-inflammation link in HF patients by differentially associating specific pro-inflammatory markers with somatic or cognitive depression symptoms. This may provide a mechanism of pin-pointing aspects of depression linked with disease prognosis. Methods. A total of 124 subjects (n = 66 NYHA II-IV HF patients and 58 healthy controls) completed the Beck Depression Inventory (BDI), sub-categorized into somatic (BDI-s) and cognitive (BDI-c) symptoms. Plasma levels of C-reactive protein (CRP), IL-1 receptor antagonist (IL-1ra), soluble Intercellular Adhesion Molecule-1 (sICAM-1) and IL-6 were measured because of their association with cardiac remodeling and mortality in HF patients. HF patients and non-HF controls were separately analyzed using linear regression analyses controlling for age, gender, and body mass index. For HF patients, B-type natriuretic peptide (associated with HF severity) was also controlled. Results. HF patients with elevated BDI-s exhibited higher levels of IL-1ra (p < .05, B = .46). Whereas, those with elevated BDI-s and heighted sICAM-1 levels (p < .01, B = .37) showed a positive trend relating BDI-c and CRP (p = .08, B = .22) in HF patients. A trend was also found positively relating IL-6 and total BDI scores (p = .076, B = .25), though neither BDI-s nor BDI-c predominated. Non-HF controls exhibited positive associations for only BDI-s and IL-1ra levels (p < .01, B = .49). Conclusions. Further understanding the components of depressive symptoms associated with specific elevated pro-inflammatory markers may provide insight into the depression-inflammation link in HF, as well as influence depression treatment approaches.

**Paper Session: Mindfulness, Meditation and Health**

**Abstract 1230**

A RANDOMIZED CONTROLLED TRIAL OF MINDFULNESS-BASED STRESS REDUCTION FOR PARKINSON’S DISEASE PATIENTS AND THEIR PARTNERS

Sandra E. Sephton, Ph.D., Samuel J. Dreesen, B.A., Megan E. Jablonski, M.A., Department of Psychological and Brain Sciences, Irene Litvan, M.D., David Houghton, M.D., Department of Neurology, University of Louisville, Louisville, KY, Janine Giese-Davis, Ph.D., Department of Oncology, University of Calgary, Calgary, Alberta, Canada, Estate Sokhadze, Ph.D., Department of Psychiatry, Rafael Fernandez-Botran, M.D., Department of Pathology, Emily A. Eismann, M.A., Scott M. Hanneman, B.S., Paul Salomon, Ph.D., Department of Psychological and Brain Sciences, University of Louisville, Louisville, KY.

Background: Parkinson’s disease (PD) is a progressive, neurodegenerative disorder associated with psychological distress and motor control loss. Data on stress-related psychoneuroimmunoeffects and potential benefits of psychosocial intervention are needed in this population. A small randomized controlled trial tested the efficacy of Mindfulness-Based Stress Reduction (MBSR) among 18 PD patient-partner dyads to evaluate feasibility for a larger-scale project. MBSR was hypothesized to increase mindfulness, reduce psychological distress and ameliorate stress-related autonomic, endocrine, and immune disruption. Methods: Demographic and medical information were obtained from medical records and interviews. Dyads were randomized after baseline data collection to MBSR treatment (N = 10) or usual clinical care (UCC; N=8). Assessments included self-reported mindfulness, perceived stress, coping, anxiety, depressive symptoms, and health-related quality of life. Psychophysiological recordings, diurnal salivary cortisol, and cytokine profiles were also collected at baseline and 2-month follow-up. Dyad scores were created for psychological and physiological measures using the mean for each patient-partner pair. Treatment efficacy was tested using linear regressions with MBSR versus UCC group assignment as the independent variable and the slope of change in dyad mean scores as the dependent variable. Results: MBSR participants exhibited a mindful observing, appraisal of support, and coping through venting/expressiveness. Treatment participants exhibited a significant reduction in respiration rate. MBSR enhanced diurnal cortisol rhythmicity and reduced evening cortisol levels. Conclusions: Results require replication, but suggest that MBSR may ameliorate disease-related distress and related physiological disruption among families contending with PD. Dyad-based interventions are worthy of further investigation among PD sufferers and partners.

**Abstract 1639**

EFFECTS OF A MEDITATION INTERVENTION ON ENDOThelial FUNCTION IN AFRICAN AMERICANS WITH METABOLIC SYNDROME: A RANDOMIZED TRIAL

Kofi A. Kondwani, PhD, National Center for Primary Care, Morehouse School of Medicine, Atlanta, Georgia, Mary E. Kelley, PhD, Biostatistics, Emory University, Atlanta, Georgia, Yuan X. Meng, MD/PhD, Family Medicine, Morehouse School of Medicine, East Point, Georgia, Arshed A. Quyyumi, MD, Medicine, Emory University School of Medicine, Atlanta, Georgia, Gary H. Gibbons, MD/PhD, Physiology, Morehouse School of Medicine, Atlanta, Georgia, Viola Vaccarino, MD/PhD, Epidemiology, Emory University, School of Public Health, Atlanta, Georgia.

The endothelium of the metabolic Syndrome (MetS) is complex but psychological stress appears to play a role, possibly through neurohumoral activation. A major consequence of MetS is endothelial dysfunction, which is also influenced by psychological stress. Meditation has been found to reduce psychological stress and improve some cardiovascular (CV) risk factors but whether it improves endothelial function in the setting of MetS is unknown. We randomized 68 African Americans (AA) to an 8-week meditation treatment (Consciously Resting Meditation (CRM) (N = 32), or to a control treatment health education program (HE) (N = 33); interventions were matched for frequency and time and lasted 12 months. The main outcome measure was endothelial function, assessed by means of brachial artery flow-mediated dilatation (% FMD), at baseline, 6 and 12 months. Arterial stiffness, measured by pulse-wave velocity (PWV), was examined as a secondary outcome. Treatment test was found with small number of changes in outcome measures and MetS risk factors across the three time points. There were no significant differences in baseline demographics and risk factors between the two randomized groups. % FMD (measured as mean difference from baseline ± SE) significantly improved in the CRM group (2.10 ± 0.79, p = 0.009), but less so in the HE group (1.36 ± 0.80, p = 0.09). Non-endothelium dependent dilation with nitroglycerin did not change in either group, and PWV was similarly unaffected. Of the MetS risk factors, diastolic blood pressure (-6.24 mm Hg ± 2.75, p = 0.03), weight (-2.52 kg ± 1.16, p = 0.03), and triglyceride levels (-32 mg/dL ± 15, p = 0.04) showed statistically significant favorable trends in the CRM group but not in the HE group. In conclusion, a CRM intervention for 12 months, but not a control intervention of health education, improved endothelial function in AA with MetS. The improvement was paralleled by favorable changes in several MetS risk factors. CRM may modulate the neurohumoral response to stress and be potentially useful to decrease CV risk in African Americans with Metabolic Syndrome.

**Abstract 1128**

EFFECTS OF MINDFULNESS-BASED STRESS REDUCTION ON PSYCHOPHYSIOLOGICAL LABORATORY STRESS RESPONSES: A RANDOMIZED CONTROLLED TRIAL

Ivan Nyklicek, PhD, Paula M.C. Mommersteeg, PhD, Sylvia van Beugen, M.Sc., Center of Research on Psychology in Somatic diseases, Tilburg University, Tilburg, Netherlands, Christian Ramakers, PhD, Department of Clinical Chemistry, St. Elisabeth Hospital, Tilburg, Netherlands, Geert van Balen, PhD, Center of Research on Psychology in Somatic diseases, Tilburg University, Tilburg, Netherlands.

Purpose: To examine the effects of a Mindfulness-Based Stress Reduction (MBSR) intervention on psychophysiological responses during a laboratory stress protocol. Methods: Eighty-seven participants were randomly assigned to the MBSR protocol or a waitlist control group. Before and after the intervention period, they participated in a laboratory stress protocol consisting of a mental arithmetic and speech task. Laboratory measurements included continuous cardiovascular...
parameters (heart rate, heart rate variability, Finapres systolic and diastolic blood pressure), salivary cortisol samples, and assessment of negative affect (distress) levels. Results: Compared to the control group and controlling for age, sex, and body mass index, the MBSR group showed larger pre-to-post intervention decreases in laboratory overall diastolic blood pressure (F[1,61] = 7.35, p = .009, partial eta2 = 0.11), diastolic blood pressure reactivity (F[2, 122] = 4.04, p = .031, partial eta2 = 0.06), and overall cortisol levels (F[1,79] = 4.17, p = .05, partial eta2 = 0.05). Similar trends were obtained for decreases in systolic blood pressure overall levels (F[1,61] = 3.28, p = .08, partial eta2 = 0.05) and reactivity (F[2, 122] = 2.73, p = .077, partial eta2 = 0.04). These effects matched a trend for a decrease in as overall distress levels in the MBSR group compared to the controls (F[1, 70] = 3.74, p = .057, partial eta2 = 0.05). No effects were obtained on time or frequency domain indices of heart rate variability. Conclusion: MBSR may be effective in reducing diastolic blood pressure levels and reactivity as well as cortisol levels in an experimental setting. These effects may reflect a more adaptive physiological activity.

Abstract 1300
WHICH ATTRIBUTES OF MINDFULNESS ARE GOOD FOR HEALTH? RELATIONSHIPS BETWEEN FACETS OF MINDFULNESS, BLOOD PRESSURE AND INTERLEUKIN-6
Lianne M. Tomfohr, MS, Psychology, SDSU/UCSD Joint Doctoral Program Clinical Psychology, La Jolla, CA, Paul J. Mills, PhD, Meredith Pung, PhD, Joel E. Dimsdale, MD, Kate M. Edwards, PhD, Psychiatry, University of California, San Diego, La Jolla, CA
Purpose: Mindfulness is a multifaceted construct. Mindfulness-based interventions have been associated with reductions in blood pressure (BP) and inflammatory biomarkers; however, the mechanisms underlying these changes have yet to be examined, including which aspects of mindfulness have strongest health associations. We examined whether independent facets of mindfulness were associated with BP and systemic inflammation. Methods: 127 healthy, young adults [M(SD) age = 21.7(2.7)] reported trait levels of mindfulness (Five Facets of Mindfulness Questionnaire) and biomarkers of BP (DBP) and inflammatory cytokines. Results: Hierarchical linear regression indicated that the subscale observing was associated with DBP (B=−2.73, p<0.05, R2 change = 0.05) and IL-6 (B=−2.73, p<0.05, R2 change = 0.05) and reactivity (B=−2.73, p<0.05, partial eta2 = 0.04). No subscales were associated with SBP. Conclusion: Observing, the act of noticing, or acting with awareness, nonjudgement and nonreactivity, had their resting diastolic BP (DBP) and systolic BP (SBP) measured and underwent a blood draw to assesses circulating interleukin-6 (IL-6) levels. Age, gender, body mass index (BMI), race/ethnicity, depression, and perceived stress were collected and used as covariates. Results: Hierarchical linear regression indicated that the subscale observing was associated with DBP (B=−2.73, p<0.05, R2 change = 0.05) and IL-6 (B=−1.5, p<0.05, R2 change = 0.03); subscale describing was associated with DBP (B=−5.55, p<0.05, R2 change= 0.04) and subscale acting with awareness was associated with SBP (B=−5.20, p<0.01, R2 change = 0.05) above and beyond aforementioned covariates. The subscales nonjudgement and nonreactivity were not associated with any outcomes. Conclusion: Results suggest that different facets of mindfulness are associated with different health outcomes. Increasing observing, the act of noticing, or paying attention to internal (e.g., bodily sensations) and external (e.g., smell) stimuli, was associated with lower DBP and IL-6. Increased describing, nonjudgmental labeling of experiences, was associated with lower SBP. Increased endorsement of acting with awareness, focusing one's undivided attention on current activities, was associated with lower SBP. Knowledge about how specific facets of mindfulness are associated with aspects of health could aid in the tailoring of interventions to target specific health outcomes.

Paper Session: Psychoneuroendocrinology
Abstract 1427
ASSOCIATION OF ATTACHMENT STYLE, CORTISOL AWAKENING RESPONSE (CAR), AND CORTISOL PROFILE ACROSS THE DAY IN HEALTHY ADULTS
Tara Kidd, PhD, Mark Hamer, PhD, Andrew Septoe, DSc, Department of Epidemiology and Public Health, University College London, London, UK
The quality of social relationships may contribute to variations in biological stress responses, thereby affecting cardiovascular disease risk. The association between an important indicator of social relationships, adult attachment style, and cortisol has been relatively unexplored. This is surprising given that early life experiences have been associated with hypothalamic-pituitary-adrenal (HPA) regulation. The present study examined adult attachment style, CAR, and cortisol profile across the day. 2666 participants from the Whitehall II study provided cortisol samples over the day and completed the adult attachment questionnaire. Participants were excluded from these analyses if the reported time between waking and taking the first cortisol sample was greater than 10 minutes, if they had any cardiovascular disease, or were on any steroid medication. The final sample size was 1605, including people with secure (678), fearful (217), preoccupied (118), or dismissing (592) attachment styles based on scores from the Relationship Questionnaire. Cortisol was sampled at 6 time points over the day, and the CAR was defined as the difference between levels on waking and 30 minutes later. Analyses were adjusted for age, gender, ethnicity, grade of employment, body mass index, and smoking behaviour. Repeated measures analysis of variance across the day confirmed a main effect of attachment style for cortisol response (p<0.05). Cortisol output was lowest in the fearful group, followed by the dismissive group, with both secure and preoccupied groups having higher levels across the day. No differences were found between attachment style and CAR. These results tentatively support the idea that attachment style may be relevant to the regulation of the HPA axis in everyday life.

Abstract 1760
ANTICIPATORY FEAR AND ANGER EXPRESSED DURING A STRESSOR, RATHER THAN RETROSPECTIVE SELF-REPORTED EMOTIONS, PREDICT CORTISOL STRESS RESPONSES
Sarah B. Lupis, BA, Thomas E. Arnott, Michelle H. Lerman, Jutta M. Wolf, PhD, Psychology, Brandeis University, Waltham, MA
When it comes to cortisol stress responses, surprisingly little is known about the differential role of emotions. Studies assessing emotional responses to stress primarily rely on retrospective self-report, which may not necessarily be related to actual emotions expressed. The current study aimed to test this hypothesis by comparing self-report measures to actual emotion expressions and, secondly, to assess which of the emotional measures best predict cortisol stress responses. We exposed 33 participants (19f; 20±3yrs) to the Trier Social Stress Test (TSST). Self-reported anger and fear was assessed by the PANAS before and after the TSST, while the Facial Action Coding System (FACS) was used to assess anger and fear expressions during the stressor. Cortisol samples were collected throughout the protocol. Controlling for gender, neither pre nor post stress self-reported anger or fear were associated with the respective emotions expressed during the TSST (anger: all p>0.26; fear: all p>0.14). Of all self-reported emotions, only pre-stress fear was correlated with cortisol increase (r=3.8; p<0.03; all other p>0.57). Facial expression analysis revealed that both frequency and length (total and average) of anger expression during the TSST predicted cortisol increases. However, this was true for males only, such that anger expressed more often (b=5.3, p=0.007) and longer (b=6.1, p=0.001; b=6.5, p=0.034, resp.) predicted stronger cortisol stress responses. Interestingly, none of the fear expression measures predicted cortisol increases for either gender (all p>0.22). In summary, we found that retrospective self-reported emotions were neither correlated with actual emotion expressions, nor did they predict cortisol stress responses. Cortisol stress responses were predicted by either anticipatory fear or, in males, by anger expressed during the stressor. Our findings emphasize the importance of considering emotions in 'real time' rather than retrospectively. Eventually, using an approach like FACS will help to specify and extend the role emotions play in current stress theories.

Abstract 1640
MEMORATIVE ASSOCIATION OF MOOD AND CORTISOL IN PREGNANCY: A FEUTAL PROGRAMMING PROOF OF CONCEPT
Gerald F. Giesbrecht, PhD, Bonnie J. Kaplan, PhD, Pediatrics, Tavis S. Campbell, PhD, Psychology, University of Calgary, Calgary, AB, Canada, Nicole Letouneau, PhD, Nursing, University of New Brunswick, Fredericton, NB, Canada

A-113
The notion that maternal experiences of psychological distress during pregnancy can exercise enduring organizational effects on child development has generated considerable scientific interest. Maternal cortisol, consequent to psychological distress, is a proposed biological mechanism; however, the responsiveness of the maternal HPA axis to psychological distress remains uncertain. Purpose: To determine whether cortisol is a plausible biological link between maternal psychological distress and infant outcomes. Method: The mood-cortisol association was evaluated in 83 pregnant women by simultaneously assessing mood disturbance and cortisol. Momentary mood disturbance was assessed via the 15-item Profile of Mood States and a PDA programmed to administer prompts at the following semi-random times throughout the day: at waking; 30 min after waking; ~11 AM; ~4 PM; and ~8 PM on 3 consecutive days. Saliva, for cortisol assay, was collected using Salivettes (Sarstedt, Germany). Samples were frozen and assayed in duplicate using a highly sensitive enzyme immunoassay (Salimetrics, PA). Results: Multilevel equations were specified at three levels to account for the nested data structure (measurement moments nested within days and days nested within persons). Participants displayed a strong awakening response, B = 4.09, p < .001, and then a gradual decrease over the course of the day, B = –2.34, p < .05, indicating preservation of the diurnal pattern. The average effect of mood disturbance on cortisol, after accounting for the diurnal effects, was substantial, B = –1.45, p < .01, resulting in an average 15.6% increase in cortisol per 1 unit increase in momentary mood disturbance. Given an average daily mood change of 2.67 units, this corresponds to an average daily change of 41.7% in cortisol that is attributable to mood. Conclusion: The strong momentary association between mood disturbance and cortisol indicates that the maternal HPA axis remains responsive to psychological distress during pregnancy. These findings support the plausibility of cortisol as a biological link between maternal distress and fetal development.

Abstract 1394

SAMPLING PRECISION OF THE AWAKENING SALIVA SAMPLE USING ACCELEROMETER IN CHILDREN AND ADOLESCENTS

Sivan Rotenberg, MA, Psychology, Concordia University, Montreal, Quebec, Canada, Jennifer J. McGrath, PhD, MPH, Psychology, Concordia University, Montreal, Quebec, Canada

Methodological recommendations for saliva sampling emphasize the importance of compliance with immediate sampling upon awakening as well as recording the awakening time. Early risers often have higher cortisol values during the awakening response and throughout the day (Edwards et al, 2000; Kudielka & Kirschbaum, 2003). Although studies examining the association between recorded awakening time and diurnal cortisol values have yielded inconsistent findings (Pruessner et al, 1997; Wust et al, 2000), researchers agree that sampling precision upon initial awakening is paramount. Traditionally, researchers have relied upon subjective self-report for awakening time or used MEMs cap technology to time-stamp samples. Unfortunately, neither method provides an objective measure of actual awakening in relation to sample collection. Further, less is known about children and adolescents’ compliance with accurately taking an awakening sample. The purpose of the current project was to examine the sampling precision of the awakening saliva sample in youth using accelerometry. Youth (N=212; M=12.74, SD=2.03 yr; 46.2% girls) participating in the Healthy Heart Project at Concordia University collected saliva on two weekdays. Participants were instructed to take their first saliva sample “as soon as you wake up, while you are still in bed” and to record the time the sample was taken; parents initiated the recorded time. Tri-axle accelerometers worn around the abdomen were used to differentiate supine from upright postures, yielding an objective measure of actual awakening time. Results revealed youth’s recorded sampling time significantly corresponded with accelerometry-derived awakening time (r=.93, p<.001); the times did not significantly differ (t (211) =30, p=.77). The findings suggest accelerometry can be used to check compliance with sampling upon initial awakening. As well, they provide evidence that children and youth are able to precisely sample upon awakening. Accurate measurement of awakening time combined with sampling precision upon awakening is critical to calculate valid indices of the cortisol awakening response.

Abstract 1399

SEX DIFFERENCES IN THE RELATIONSHIP BETWEEN MOOD DISORDERS AND C-REACTIVE PROTEIN

Jennifer L. Gordon, BSc, Psychology, McGill University, Montreal, Quebec, Canada, Kim L. Lavoie, PhD, Roxanne Pelletier, BSc, André Arsenault, M.D., Montreal Behavioural Medicine Centre, Montreal Heart Institute, Montreal, Quebec, Canada, Blaine Ditto, PhD, Psychology, McGill University, Montreal, Quebec, Canada, Simon L. Bacon, PhD, Montreal Behavioural Medicine Centre, Montreal Heart Institute, Montreal, Quebec, Canada

Purpose: Mood disorders (MDs) have been associated with increased levels of C-reactive protein (CRP), an inflammatory marker. However, few studies have examined potential sex differences in the relationship between MDs and CRP. Furthermore, the few studies that have explored sex differences have obtained inconsistent results. Subject sample and statement of methods: 291 outpatients (mean age=59) referred for an exercise stress test were recruited. MDs, including major depression, partial remission from major depression, minor depression and dysthymia, were assessed using the PRIME-MD, a diagnostic psychiatric interview. Participants completed a medical history questionnaire, waist circumference was measured and a blood sample was drawn. General linear models (GLMs) were used to assess the interaction of MD status and sex on CRP levels as well as the main effects of MD status and sex on CRP. Covariates included age, years of education, cardiovascular disease status as well as the prescription of beta-blockers, ace inhibitors, statins and anti-depressants. Summary of results: A main effect of MD status was found (F=15.22, p<.001) such that participants diagnosed with an MD had higher CRP levels than participants without an MD. A main effect of sex was also found (F=8.67, p=.004) such that women had higher CRP levels than men. Finally, a significant interaction between MD status and sex on CRP levels was found (F=4.74, p=.030) such that women with an MD (mean SE)=3.81(0.53)mg/L) had higher CRP levels than women without an MD (1.79(0.22)mg/L) whereas no difference was seen among men with (2.09(0.32)mg/L) and without (1.52(0.13)mg/L) an MD. When waist circumference, current smoking status and leisure-time physical activity were added as covariates, this interaction fell below significance but a trend remained (F=2.86, p=.092). MDs are associated with increased inflammation in women but not men. This sex difference is partially accounted for by health behaviors. These findings suggest that MDs may increase men and women’s risk of cardiovascular disease through different biological and behavioural mechanisms.
Abstract 1158

GENDER DIFFERENCES IN FACTORS ACCOUNTING FOR THE ASSOCIATION BETWEEN DEPRESSIVE MOOD AND PREMATURE MORTALITY: A 12-YEAR FOLLOW-UP POPULATION-BASED STUDY

Cédric Lemogne, MD, PhD, C-L. Psychiatry, European Georges Pompidou Hospital, Paris, France, Isabelle NIEDHAMMER, PhD, INSERM U1018, Villejuif, France, Myriam KHALI, PhD, Institut National d’Études Demographiques, Paris, France, Jean-François RAVAUD, MD, PhD, INSERM U988, CERME3, FFRH, Villejuif, Paris, Francis GUILLEMIN, MD, PhD, EA 4360 Apecam, Universités Nancy, Paris Descartes & Paul Verlaine, Nancy, France, Silla M. CONSOLI, MD, PhD, Faculté de médecine, Université Paris Descartes, Paris, France, Philippe FOSSSATI, MD, PhD, Psychiatry, Pitié-Salpêtrière Hospital, Paris, France, Neurakash CHAU, PhD, INSERM U669, Paris Sud University, Paris, France.

Purpose of study: Although depressive mood has been associated with premature mortality in both men and women, factors explaining this association may differ across gender. This prospective study examined gender differences regarding the explanatory role of education, health behaviors, and social support. Subject sample and statement of methods: A randomized population-based survey was conducted in 1996 in the north-east of France with questionnaires covering education, health behaviors (smoking status, alcohol consumption, body mass index), and perceived social support. Depressive mood was self-reported using the Duke Health Profile depression scale and defined by a score ≥ 90th percentile value. Cox regression models were used to examine its association with subsequent mortality before the age of 70 years. Summary of results: At baseline, 5,459 subjects (2,623 men and 2,836 women) were aged up to 70 years. During a follow-up of 12.5 years, 126 men and 70 women died before the age of 70 years. Adjusting for age, depressive mood predicted mortality in both men [Hazard Ratio (HR) and 95% Confidence Interval (CI) = 2.67 (1.63-4.35)], HR reduction: 8%, but was no longer significant in men (HR and 95% CI = 1.25 (0.79-1.97); HR reduction: 68%). Conclusion: Improving health behaviors and social support to reduce the increased mortality associated with depressive mood is more likely to be efficient in men than women. Future research should examine other potential confounders or mediators especially among women.

Abstract 1673

IMPACT OF MOMENTARY ASSESSED DEPRESSIVE SYMPTOMS ON CIRCADIAN HEART RATE VARIABILITY: A FOCUS ON GENDER DIFFERENCES

Bart Verkuijl, PhD, Joz F. Bresschet, PhD, Institute of Psychology, Leiden University, Leiden, The Netherlands, Andree H. Marques, Esther M. Sternberg, MD, National Institute of Mental Health, National Institute of Health, Rockville, Maryland, Julian F. Thayer, PhD, Department of Psychology, The Ohio State University, Columbus, Ohio.

OBJECTIVE: Reduced heart rate variability (HRV) is proposed to mediate the relation between depressive symptoms and cardiovascular health problems. Importantly, gender differences seem to exist, with only depressed men being at risk of cardiovascular problems. Several studies have indeed found cardio-protective, i.e. higher, HRV levels in depressed women when compared to depressed men. Yet, these studies have only examined gender differences in HRV using a single assessment. It remains unclear whether gender differences will also be observed during longer periods and are a stable phenomenon. This study aimed to test the interaction effects of gender and sadness on ambulatory assessed HRV levels. METHOD: A final sample of forty-nine (34 female) employees participated in an ambulatory study. On the measurement days, HRV levels were continuously measured for 24 hours. The mean of the absolute successive difference between normal to normal beats (MSD) and normalized high frequency power (nHF) were used as the main outcomes. During the daytime, hourly assessments of sadness and other mood states were taken. Depressive symptoms were measured at baseline with the Center for Epidemiological Studies-Depression Scale. Multilevel analyses were conducted to analyze the data. RESULTS: While controlling for biobehavioral variables and other mood states, lnMSD and nHF levels were significantly predicted by significant Gender x Sadness interactions. In women, the total amount of sadness experienced during the 24 hour period was associated with higher levels of lnMSD (r = .290, p = .011) and nHF (r = .233, p = .034). In men, these correlation coefficients were close to zero and non-significant. These effects were most pronounced in those women who had the highest levels of depressive symptoms at baseline. Interestingly, exploratory analyses showed that gender differences also existed in the effects of anger on lnMSD levels. In men, but not in women, higher levels of anger were associated with higher levels of lnMSD (r = .468, p = .009). CONCLUSION: These findings suggest that researchers need to take gender differences into account when examining the relation between negative emotions, HRV and cardiovascular problems.

Abstract 1437

COMORBIDITY OF ANXIETY AND NEUROPSYCHIATRIC DISORDERS

Tuong-Hi Nguyen, MD, Psychiatry, McGill University, Montreal, QC, Canada; Suk S. Lee, BA, Medicine, Boston University School of Medicine, Boston, California, Nancy C. Low, FRCP, Psychiatry, McGill University, Montreal, QC, Canada

Purpose of the study: Few studies to date have focused specifically on the role of family- or gender-related factors in the comorbidity between anxiety and neuropsychiatric disorders. Yet this may contribute to a better understanding of the mechanisms underlying this comorbidity. The purpose of this study is therefore to examine: (1) the comorbidity between anxiety and neuropsychiatric disorders (2) mechanisms of comorbidity by contrasting a) the familial and non-familial forms of anxiety disorders and b) gender-specific associations. Methods: Using a nationally-representative, population-based sample (n=36 984) to whom a structured psychiatric diagnostic interview [WHO-Composite International Diagnostic Interview (CIDI)] was administered, this study evaluated lifetime prevalence of mood and anxiety, epilepsy, fibromyalgia and chronic fatigue syndrome in subjects with a lifetime history of panic disorder or social phobia. The prevalence of medical disorders was then compared in a) those with and without a family history of anxiety disorders and b) separately in males and females. Chi-square testing and logistic regression models yielding odds ratios (OR) were conducted, controlling for age, sex, marital status, education and lifetime history of mood disorders (p<0.05). Results: Panic disorder was associated with migraine (OR=1.8 95%CI: 1.5-2.2), fibromyalgia (OR=1.9 95%CI: 1.2-3.0) and chronic fatigue syndrome (OR=1.9 95%CI: 1.2-3.0). Social phobia was associated with migraine (OR=1.6 95%CI: 1.4-1.9) and fibromyalgia (OR=1.5 95%CI: 1.02-2.1). Epilepsy was associated with social phobia in males (OR=2.6 95%CI: 1.1-6.2), but not in females. In males with social phobia, family history of social fear was strongly associated with epilepsy (OR=8.6 95%CI: 2.0-34.8). Conclusions: Results link multiple neuropsychiatric comorbidities with anxiety disorders, even after controlling for mood disorders and psychosocial covariates. The gender-specific association of the familial form of social phobia with epilepsy warrants further investigation. It may indicate the possibility of sex-specific transmission of a common vulnerability for both disorders.

Paper Session: Social Cardiophiology

Abstract 1724

CARDIOVASCULAR EMOTIONAL DAMPENING IS INDEPENDENT OF ALEXITHYMIA

James A. McCubbin, PhD, Psychology, Clemson University, Clemson, SC, James P. Loveless, BS, Counselor Education, Clemson University, Clemson, SC, Gabrielle A. Hall, Psychology, University of Florida, Gainesville, FL, Grace Robinson, DeWayne Moore, PhD, Psychology, Clemson University, Clemson, SC

Emerging evidence suggests that elevations in resting blood pressure (BP) are associated with subtle changes in central nervous system (CNS) function, even in normotensive young adults. For example, persons with higher BP have reduced reactions to affect laden stimuli, including
painful stimuli and photographs with emotional content. This cardiovascular emotional dampening may reflect parallel changes in autonomic and CNS function in the early stages of hypertension development. Recent studies have found a relationship between cardiovascular function and recognition of affect in faces and written narratives in older African Americans. The purpose of the present study was to extend these findings to normotensive young adults and to determine the potential role of alexithymia, a personality trait associated with difficulty in understanding, processing or describing emotions, in determining the potential role of alexithymia, a personality trait associated with cardiovascular emotional dampening. Thirty seven normotensive young adults (mean ages 23.8 +/- 6.38 years) were assessed for resting systolic (SBP) and diastolic (DBP) blood pressure using a calibrated GE Dinamap Pro100 (Medical Solutions, Minneapolis, MN). Participants were then given a Perception of Affect Test (PAT) that required recognition of positive and negative emotions in facial expressions and written narrative sentences. They were also completed the Toronto Alexithymia Scale (TAS-20). Results indicate that resting DBP significantly predicted total PAT performance after correction for both age and total TAS score (p<.001). This effect was significant for total positive emotions (p=.005), total negative emotions (p=.011), total sentences (p=.001), and marginally significant for total faces (p=.059).

The exact relationship between emotional dampening and BP elevations is not clear, but likely reflects complex interactive causal mechanisms. Cardiovascular emotional dampening and emotional response to stressful situations is by reducing the strain on emotion regulation resources. The purpose of the present study was to examine how the presence of social support during a stressor affected physiological and emotional responses from a cognitive resource availability perspective. Relative to primary emotional responses (e.g., anger) secondary emotions (e.g., hostility) require more cognitive resources so that all relevant factors can be considered prior to the emotional experience. Therefore, we hypothesized that secondary emotions are less likely to be experienced when one is in a stressful situation without social support than when provided with social support. Female participants (N = 29) performed a speech task either with or without social support from a confederate and then completed the Positive and Negative Affect Schedule - Extended form (Watson & Clark, 1994). While social support had no effect on the experience of the primary emotions (angry, happy, joyful, sad, and surprised), Fs < 2.80, ps < .05, it did affect the experience of secondary emotions, Fs > 3.84, ps < .06, where supported participants reported more joviality (M = 21.94, SD = 2.30 for supported participants; M = 18.17, SD = 5.94 for nonsupported participants) and lower hostility (M = 7.29, SD = 1.76; M = 8.83, SD = 2.48) than nonsupported participants. In addition, diastolic blood pressure reactivity was associated with the secondary emotion, hostility, in the social support condition, r(11) = .51, p < .05, but was not associated with hostility in the no support condition, r(8) = -.16, p > .05. Our findings provided preliminary evidence that social support helps free up cognitive resources, which can lead to the psychophysiological experience of more complex secondary emotions in times of stress. The implications of this effect go beyond the experience of emotions as relieved cognitive resources can also be used to better cope with the stressor.

Abstract 1353

IMPACT OF DEPRESSION AND LIFETIME TRAUMA HISTORY ON CARDIAC VAGAL CONTROL

Jill M. Cyranowski, PhD, Psychiatry, University of Pittsburgh Medical Center, Pittsburgh, PA

Purpose: Impairment in cardiac vagal control may contribute to the risk of cardiac mortality observed in depressed populations. We evaluated the impact of acute stress and relationship-focused imagery on cardiac vagal control, as indicated by levels of respiratory sinus arrhythmia (RSA), in depressed and non-depressed women. Methods: EKG and respiration were evaluated in clinically depressed yet unmedicated women and matched controls (N=30; mean age=30) during two laboratory tasks: a relationship-focused imagery designed to elicit vagal activation and a speech stress designed to invoke vagal withdrawal. Analyses evaluated the effect of Group (depressed, non-depressed) and lifetime Trauma History (high, low) in repeated measures ANOVAs for RSA outcomes obtained before, during and after each task. Follow-up analyses evaluated RSA levels controlling for within-subject fluctuations in respiration rate. Results: As expected, the relationship-focused imagery increased RSA [F(3,66)=4.36, p<.02] and the speech stress decreased RSA [F(3,66)=3.79, p=.02] across women. Depressed women, however, exhibited lower RSA during the relationship-focused imagery, and this effect was unchanged following control for respiration and trauma history [F(1,21)=5.65, p<.03]. Further, depressed women with a lifetime trauma history exhibited lower RSA during the stress task, as compared with non-depressed controls and depressed women without past trauma. However, only trauma history accounted for RSA variation during the stress task after controlling for respiration [F(1,20)=4.05, p<.05]. Conclusions: Depression is associated with lower RSA, particularly when women reflect on a close love relationship, a context expected to elicit vagal activation and hence increase RSA. In contrast, depression-related variation in stressor-evoked vagal activity covaried with women’s trauma history. Associations between vagal activity and depression are complex, and should be considered in view of the experimental conditions under which vagal function is assessed, as well as physiological and behavioral factors that may impact vagal function.

Abstract 1759

VALIDITY OF HIGH-FREQUENCY HEART RATE VARIABILITY(HF-HRV) DURING MARITAL CONFLICT

Matthew R. Cribbet, M.S., Timothy W. Smith, Ph.D., Bert N. Uchino, Ph.D., Psychology, University of Utah, Salt Lake City, Utah, Jill B. Nealy-Moore, Ph.D., Psychology, University of Puget Sound, Tacoma, Washington

Psychosocial factors influence cardiovascular disease through sympathetic and parasympathetic mechanisms. At rest, heart rate (HR) is under parasympathetic control, reflected in respiratory sinus arrhythmia (RSA). During stress, HR is influenced by parasympathetic and sympathetic processes, the latter quantified as cardiac pre-ejection period (PEP). Risk factors often involve social interaction (e.g., marital conflict), raising concerns that concurrent changes in HF-HRV as a measure of RSA reflect parasympathetic activity. We evaluated the validity of HF-HRV by examining its associations with HR at reset and during marital conflict with varying degrees of speech. In the first study, 114 couples rested quietly, and then prepared for and engaged in a disagreement task, with listening, speaking, and unstructured periods. At baseline, HF-HRV was related to HR, for husbands r = -.66, and wives r = -.62, both p <.01, independent of PEP. During preparation, husbands and wives HF-HRV change predicted change in HR, r = -.58, -47, both p <.01, independent of PEP, with similar effects across speaking, listening, and unstructured periods. In a study of 300 couples, during baseline, husbands’ and wives’ HF-HRV change, r = -.47, -.56, ps <.01, controlling respiration (rate, amplitude) and PEP. During unstructured disagreement husbands’ and wives’ HF-HRV change, r = -.44, -.37, ps <.01, predicted HR change, controlling respiratory parameters and PEP. Effects were similar during listening and speaking task periods. For all periods, no differences in associations between HF-HRV and HR occurred when respiration rate and amplitude were and were not controlled. Thus, in two studies HF-HRV but not PEP was associated with HR at baseline, and both HF-HRV and PEP were related to HR in stressful interactions across varying levels of speech. In the second study, these effects were unraveled by statistical control of respiration, supporting the validity of HF-HRV as an index of parasympathetic processes when testing physiologic effects of social interactions.

A-116
PERCEIVED SOCIAL SUPPORT AND MARKERS OF HEART FAILURE SEVERITY
Andrew J. Wastuba, Ph.D., Medical & Clinical Psychology, Kristie M. Harris, MS, Nadine S. Bekkoouche, MS, Kerry S. Whitaker, MS, Sarah M. Godoy, MS, Medical & Clinical Psychology, Uniformed Services University, Bethesda, Maryland, Willem J. Kop, Ph.D., School of Social and Behavioural Sciences, Tilburg University, Tilburg, Netherlands, Stephen S. Gottleib, M.D., Cardiology, University of Maryland School of Medicine, Baltimore, Maryland, David S. Krantz, Ph.D., Medical & Clinical Psychology, Uniformed Services University, Bethesda, Maryland

Background: Social support has been linked to better health outcomes; the role of social support in influencing heart failure (HF) symptoms has yet to be determined. We therefore assessed the relationship between functional social networks and cardiovascular symptoms through self-reports and objective measures. Methods: Eighty-seven HF patients (70 males; mean = 56.4 ± 12.2 years at baseline; ejection fraction <40%; mean Killip Class = 2.4 ± 0.8) were assessed on symptoms and subjective health status using the Kansas City Cardiomyopathy Questionnaire (KCCQ); objective functional status using the Six Minute Walk Test (6MWT); and brain natriuretic peptide (BNP), a biomarker of HF severity due to ventricular wall stretch. The Interpersonal Support Evaluation List (ISEL) measured functional aspects of social networks. Results: Only ISEL Appraisal, measuring the perceived availability of someone to talk to about one's problems, predicted health outcomes. Objectively, Appraisal did not relate to BNP, but predicted distance walked on the 6MWT (β = 0.40, p = .001) after controlling for age, gender, body mass index (BMI), and smoking status (overall model R² = 0.24, p = .004). Neither ISEL Belonging nor Tangible scores were related to BNP nor 6MWT. For the KCCQ, Symptom Frequency was predicted by ISEL Appraisal (β = 0.31, p = .007), with higher Appraisal scores relating to self-reported health (R² = 0.28, p = .001). Appraisal also predicted Symptom Burden (β = 0.31, p = .010; R² = 0.20, p = .014), Total Symptom (β = 0.32, p = .006; R² = 0.24, p = .004), Clinical Summary (β = 0.32, p = .008; R² = 0.20, p = .016), and Overall Summary (β = 0.34, p = .006; R² = 0.18, p = .032). ISEL Belonging and Tangible scales were unrelated to any of the KCCQ subscales. Conclusions: The ISEL Appraisal scale was predictive of subjective and objective HF severity. Specifically, patients with less severe HF markers were those who perceived that they had people to talk to about their problems. These findings suggest that improving social networks with people to confide in may improve HF symptoms and functional status.

UNFAIR TREATMENT AND ENDOTHELIAL FUNCTION IN BLACK AND WHITE WOMEN
Rebecca C. Thurston, PhD, Psychiatry, Kim Sutton-Tyrrell, DrPH, Epidemiology, Karen A. Matthews, PhD, Psychiatry, University of Pittsburgh, Pittsburgh, PA

Evidence consistently links unfair treatment with adverse mental health outcomes, but few findings for physical health, including cardiovascular outcomes, have been mixed. One important indicator of vascular health is endothelial function. The endothelium is the single cell layer lining the vessel that plays a key role in regulating vascular tone, blood viscosity, and inflammation. Endothelial dysfunction is an initiating event in atherosclerosis and predicts later clinical events. Our aim was to examine unfair treatment in relation to endothelial function. We hypothesized that greater unfair treatment would be associated with poorer endothelial function among midlife women. Differences by race were examined. Participants were 43 women ages 40-60 (40% Black, 60% White). All women were nonsmoking, free of known hypertension and diabetes, and not taking hormones. Measures included Williams Everyday Discrimination Scale, yielding indices of total, subtle and blatant unfair treatment, and brachial artery flow mediated dilation (FMD), an index of endothelial function. Associations were examined via linear regression controlling for factors associated with FMD (age, race, menopausal status). BMI was forced into the model. Results indicated that Black women reported higher levels of blatant unfair treatment than White women. An interaction between unfair treatment and race in relation to FMD was observed for total (p<.02) and blatant unfair treatment (p<.02), with relations between unfair treatment and poorer FMD observed among White (total: b(SE)=-1.11(.04), p=.01; subtle: b(SE)=-12.05, p=.03; blatant: b(SE)=-1.30(.53), p>.02), but not Black (total: b(SE)=-.02(.03), p=.47; subtle: b(SE)=-.05(.05), p=.38; blatant: b(SE)=-.26(.41), p=.54) women. The most common source of unfair treatment among White women were workplace factors (30%). Thus, unfair treatment was associated with poorer endothelial function among White midlife women. The findings provide a potential mechanism linking unfair treatment to health for some women. Supported by AG029216.

EVALUATIVE THREAT AND AMBULATORY BLOOD PRESSURE
Timothy W. Smith, PhD, Wendy Birmingham, MS, Bert N. Uchino, PhD, Psychology, University of Utah, Salt Lake City, Utah

Physiological effects of social evaluation are central in models of psychosocial influences on physical health. Objective measurements of evaluative threat evoke substantial cardiovascular and neuroendocrine responses in laboratory studies, but only preliminary evidence is available regarding naturally-occurring evaluative threats during daily life. In such non-experimental ambulatory studies, it is essential to distinguish effects of evaluative threat from related constructs known to alter stress, such as confidence or performance self-esteem and concerns about appearance. To examine these effects, 94 married, working couples (mean age 32 years) completed a one-day (8am to 10pm) ambulatory blood pressure (ABP) protocol with random interval-contingent measurements (range of readings, 20 to 35) using a Suntech monitor and concurrent Palm Pilot-based measures of control variables and momentary experiences. Evaluative threat was quantified with two Likert-items: “Troubled about what others think about me” and “Critical of my appearance.” In hierarchical analyses for couples and multiple measurement occasions (Proc Mixed; SAS) and controlling individual differences (BMI, age, income) and potential confounds (e.g., posture, activity), higher reports of evaluative threat were associated with higher concurrent SBP (estimate = .87; SE = .34) and DBP (estimate = 1.06; SE = .26), both p <.01. Performance self-esteem and appearance concerns were unrelated to ABP, and effects of evaluative threat remained significant when these factors were controlled. Hence, extending prior laboratory findings, naturally occurring evaluative threat during daily activity is associated with increased SBP and DBP. Given the association of cardiovascular disease, the findings support conceptual models of threats to the social self as a potentially important influence on physical health.

SOCIAL-EVALUATIVE THREAT AND HEMODYNAMIC Reactivity TO LABORATORY STRESS: THE ROLE OF INDIVIDUAL CONTROL ATTRIBUTIONS
Eanna D. O Leary, HDipPsychol, Centre for Research on Occupational and Life Stress, Jack E. James, PhD Psychology, School of Psychology, National University of Ireland, Galway, Galway, Ireland

Chronic exposure to social status threat, reflecting a lack of social value and belonging, evokes substantial cardiovascular and neuroendocrine responses in laboratory studies. In such non-experimental ambulatory studies, it is essential to distinguish effects of evaluative threat from related constructs known to alter stress, such as confidence or performance self-esteem and concerns about appearance. To examine these effects, 94 married, working couples (mean age 32 years) completed a one-day (8am to 10pm) ambulatory blood pressure (ABP) protocol with random interval-contingent measurements (range of readings, 20 to 35) using a Suntech monitor and concurrent Palm Pilot-based measures of control variables and momentary experiences. Evaluative threat was quantified with two Likert-items: “Troubled about what others think about me” and “Critical of my appearance.” In hierarchical analyses for couples and multiple measurement occasions (Proc Mixed; SAS) and controlling individual differences (BMI, age, income) and potential confounds (e.g., posture, activity), higher reports of evaluative threat were associated with higher concurrent SBP (estimate = .87; SE = .34) and DBP (estimate = 1.06; SE = .26), both p <.01. Performance self-esteem and appearance concerns were unrelated to ABP, and effects of evaluative threat remained significant when these factors were controlled. Hence, extending prior laboratory findings, naturally occurring evaluative threat during daily activity is associated with increased SBP and DBP. Given the association of cardiovascular disease, the findings support conceptual models of threats to the social self as a potentially important influence on physical health.
interactions were also examined for LOC, ranging from “internal”
(attributed to self) to external (attributed to others). Heart rate (HR),
systolic (SBP) and diastolic (DBP) blood pressure were measured in 60
university students at baseline, during SET and non-SET, while
undergoing a stressor task. Mixed ANOVAs indicated a main effect for
evaluative condition across all 3 hemodynamic indices (all ps < .01) such
that reactivity was significantly higher during SET, and a main effect for
LOC, such that participants with an internal LOC exhibited increased
DBP compared to externals (F(1,56) = 7.16, p = .010), independent of
experimental condition. A quadratic interaction was observed between
HR and LOC (F(1,56) = 5.89, p = .018) such that participants with an
internal LOC exhibited larger increases from baseline to evaluation, and
larger decreases from evaluation to non-evaluation, compared to
participants with an external LOC. These findings suggest that in a
socially evaluative environment differences in physiological responses
may occur in association with individual differences in perceptions of
control.

Paper Session: Biopsychosocial Influences on Cancer

Abstract 1204
DEPRESSIVE SYMPTOMS AND CORTISOL RHYTHMICITY PREDICT SURVIVAL IN PATIENTS WITH STAGE IV RENAL CELL CARCINOMA: ROLE OF SYSTEMIC INFLAMMATORY SIGNALING

Lorenzo Cohen, PhD, Steven W. Cole, PhD, Clemens Kirschbaum, PhD, Anil Sood, MD, Shellee Scott, PA, Nizar Tannir, MD, Eric Jonasch, MD, Laszlo Radvanyi, PhD, Luis Vence, PhD, Jesusa M. Arevalo, PhD, Louis Pisters, MD, The University of Texas MD Anderson Cancer Center, Houston, TX, USA, UCLA School of Medicine, Los Angeles, CA, USA, Technical University of Dresden, Dresden, Germany
Depression and blunted diurnal cortisol patterns have been associated with cancer survival. We examined if psychosocial factors and cortisol slope predicted survival in patients with metastatic renal cell carcinoma (mRCC) and examined activation of pro-inflammatory transcription factors with newly diagnosed mRCC (average age 59.3; 77% men) completed psychosocial measures for symptoms of depression (CES-D); QOL (SF-36); social support (Duke Social Support Index); coping (COPE); religiosity/spirituality (organized/non-organized/intrinsic religiosity). Saliva samples (5/day) were collected for 3 consecutive days to determine diurnal cortisol slope. Whole-genome transcriptional profiling was determined on a subset of 31 participants displaying the highest (n=15) and lowest (n=16) CES-D scores matched on: sex, age, smoking history, and disease risk group (low, intermediate, high). Separate Cox regression models, controlling for risk group, showed that CES-D scores (p=0.05, HR=1.5) and cortisol slope (p=0.002; HR=1.9) were associated with overall survival. No other psychosocial variables were associated with survival. Examining CES-D scores and cortisol slope in the same model showed only cortisol and risk group remained associated with survival. There were 116 transcripts upregulated by 50% or more in patients reporting high symptoms of depression. Promoter-based bioinformatics analyses indicated increased activity of the pro-inflammatory NF-kB (p=0.002) and STAT1 transcription factors (p=0.045), as well as increased activity of multiple factors involved in myeloid cell differentiation and activation (EGR1, EGR2, EGR3, MEK2, MZF1; all p<0.01). The clinical significance of the link between levels of depressive symptoms, hormonal regulation, pro-inflammatory transcription factors, and survival still needs further evaluation; however, it is reasonable to conclude that both the level of depression that patients experience and their hormonal functioning may influence systemic inflammatory processes that subsequently contribute to survival.

Abstract 1236
TUMOR-PROMOTING BIOLOGICAL FACTORS ARE ASSOCIATED WITH CIRCADIAN AND ENDOCRINE DISRUPTION, BUT NOT SOCIAL SUPPORT, IN PRE-SURGICAL BREAST CANCER PATIENTS

Elizabeth Lash, M.S., Psychological & Brain Sciences, University of Louisville, Louisville, KY, Firduus S. Dhabhar, Ph.D., Psych & Behav Sci; Inst for Immun, Trans & Infect, Stanford Cancer Center; Stanford School of Medicine, Stanford, CA, Anees Chagpar, MD, Surgery, Yale School of Medicine, New Haven, CT, Eric Deterd, Ph.D., Durham Veterans Affairs, Duke University Medical Centers, Durham, NC, Meagan Daup, M.A., Psychological & Brain Sciences, Ehab Dayyat, M.D., School of Medicine, University of Louisville, Louisville, KY, David Spiegel, MD, Psychiatry & Behavioral Sciences, Stanford University School of Medicine, Stanford, CA, Kelly McMasters, MD/PhD, Surgery, University of Louisville, Louisville, KY, Jean M. Titulaer, BS, Psychiatry & Behavioral Sciences, Stanford Cancer Center; Stanford School of Medicine, Stanford, CA, Sandra E. Sephton, PhD, Psychological & Brain Sciences, University of Louisville, Louisville, KY
Social support may benefit breast cancer patients via indirect (stress buffering) and direct effects on adjustment and physiology. We have previously observed associations of distress with circadian and endocrine disruption during the stressful period between diagnosis and treatment for breast cancer. Both endocrine and endocrine factors have immunomodulatory capabilities. We hypothesized that social support would be associated with strong circadian rhythmicity, attenuated endocrine stress responses, and stronger anti-tumor immunity. We also posited that circadian and endocrine associations would mediate relationships between social support and immune function. Newly-diagnosed breast cancer patients (n=55) reported on demographics and social support (marital status, depression, and social support) and provided 3-day saliva samples, and completed diaries on rest-activity rhythm (actigraphy) and salivary cortisol mean, slope, and awakening response (CAR). Serum concentrations of cytokines were analyzed and grouped by exploratory factor analysis, yielding three tumor-promoting factors: 1 (VEGF, MMP-9, TGF-beta), 2 (IL-1beta, IL-6, TNF-alpha), 3 (IL-8, IL-6R, MCP-1); and one factor related to inflammation, adiposity and metabolism: 4 (CRP, adiponectin, leptin). To reduce the number of cytokine outcomes, we used factor scores as the dependent variable in hierarchical linear regressions adjusted for age, cancer stage and SES. Social support was not significantly related to circadian, endocrine or immune outcomes. However, patients with uncoordinated rest-activity rhythms had higher serum concentrations of tumor-promoting agents (Factor 1; R2=0.172, p=0.047). Similarly, the CAR was positively associated with tumor-promoting agents (Factor 1; R2=0.378, p=0.001) and with uncoordinated CAR (N=8). Moreover, higher levels of social support were associated with lower CAR with tumor-promoting cytokines suggests a biological mechanism that may underlie the prognostic value of circadian disruption in cancer survival: Circadian and endocrine factors may modulate tumor-promoting immunity. (Support: DCRA, Stanford Cancer Center)

Abstract 1316
DISTRESS AND SOCIAL SUPPORT PREDICT IMMUNE RECOVERY FOLLOWING HEMATOPOIETIC STEM CELL TRANSPLANTATION

Erin S. Costanzo, PhD, Psychiatry, Mark B. Juckett, MD, Hematology/Oncology; Dagda Sheeear, BS, Carbone Cancer Center Flow Cytometry Facility, Tara L. Becker, PhD, Bio statistics and Medical Informatics, Ashley M. Nelson, BA, Psychiatry, Kathleen Schell, MS, Carbone Cancer Center Flow Cytometry Facility, Peiman Hematti, MD, Hematology/Oncology, Christopher L. Cote, PhD, Psychology, University of Wisconsin-Madison, Madison, WI
For cancer patients undergoing hematopoietic stem cell transplantation (H SCT), timely immune recovery is critical to prevent disease recurrence and protect against bacterial and viral pathogens that cause complications. We examined the effects of psychological distress and social support on reconstitution of innate and adaptive immunity following HSCT. Participants were 96 adults receiving autologous HSCT for lymphoma or multiple myeloma. Measures of depression and anxiety symptoms (IDAS), cancer-related distress (IES), and social support (SFS) were obtained prior to HSCT. Lymphocyte profiles were assessed 30 and 100 days post-HSCT. Lymphocytes (NK, T cell subsets), monocytes (Mo), and plasmacytoid and myeloid dendritic cells (pDC and mDC) were immunophenotyped and analyzed by multicolor flow cytometry in a subsample of 36 participants. Generalized estimating equation linear regression models covarying for treatment regimen, diagnosis, and age tested relationships between psychosocial measures and changes in leukocytes. Depression predicted poorer recovery of lymphocytes and dendritic cells, including lower B cell (z=-2.1, p=0.04), CD4+ T cell (z=-1.9, p=0.05), pDC (z=-2.0, p=0.04), and
mDC (z=-2.8, p=.006) counts 30 and 100 days post-HSCT. Anxiety was also associated with lower numbers of lymphocytes and dendritic cells, including NK cells (z=-3.1, p=.002), CD4+ T cells (z=-2.5, p=.01), and pDC (z=-2.9, p=.003). Indices of cancer-related distress predicted lower B cell (z=-2.7, p=.007) and Mo counts (z=-2.3, p=.02), particularly for more mature Mo. In contrast, supportive social relationships were associated with higher NK cell (z=3.1; p=.002) and CD4+ T cell numbers (z=3.1, p=.002) but lower B cell counts (z=-2.1, p=.04). Greater perceived support also predicted better recovery of pDC (z=-2.4, p=.02) and mDC (z=2.9, p=.003). Our findings suggest that psychological distress may delay immune reconstitution post-HSCT while social support has a protective influence. The pre-transplant period may be a window of opportunity during which psychosocial interventions can meaningfully improve recovery.

Abstract 1003
PSYCHOSOCIAL FACTORS PREDICT NEUTROPHIL RECOVERY AND CYTOKINE LEVELS FOLLOWING HEMATOPOIETIC STEM CELL TRANSPLANTATION
Jennifer M. Knight, MD, Jan A. MoyNIHAN, PhD, Jeffrey M. Lyness, MD, Benjamin P. CHAPMAN, PhD, Psychiatry, YingLin XIA, PhD, Xin Tu, PhD, Biostatistics, University of Rochester, Rochester, NY, Bryan C. Hunter, PhD, Music, Nazareth College, Rochester, NY, Li-Shan Huang, PhD, Biostatistics, Rosemary Oliva, MS, Pediatrics, D'Arcy Gaiser, NP, Cardiology, Jane L. Liesveld, MD, Hematology/Oncology, Olle Jane Z. Sahler, MD, Pediatrics, Psychiatry, Medical Humanities, Oncology, University of Rochester Medical Center, Rochester, NY

Multiple psychosocial factors have been shown to affect cancer progression in various populations; however, research investigating this relationship following hematopoietic stem cell transplantation (HSCT) is much less well established. Subject to unique and severe immunological and psychological conditions, HSCT patients are especially vulnerable to adverse psychosomatic health sequelae. Our study purpose was threefold: to examine 1) whether baseline psychometric data would predict time to neutrophil recovery (measured by days to engraftment, or DTE); 2) whether psychosocial factors would be associated with cytokine levels; 3) whether lower cytokine levels would be associated with fewer DTE. 65 adults undergoing HSCT for any reason participated in this study. Pre-transplant measures included perceived locus of control, coping styles, social support, optimism, anxiety, and religiousness/spirituality. Interleukin (IL)-1a, IL-6, and tumor necrosis factor (TNF)-a levels over the first 14 days post-transplant, and DTE were assessed. The COPE-S emotional support (p<.05) and substance abuse (p<.001) subscales were negatively associated with DTE while religiousness (p=.05) was positively associated. For the Perceived Social Support scale, tangible support (p<.001) was negatively associated and emotional support (p<.001) positively associated with DTE. Participants who placed a greater locus of control in their physician had significantly fewer DTE (p<.001) whereas those who placed more control in other people took longer to engraft (p<.001). Higher levels of optimism were associated with shorter engraftment time (p<.01). Substance abuse predicted lower levels of IL-1a (p<.05), IL-6 (p<.001), and TNF-a (p<.001). Those who endorsed less tangible support also had higher levels of IL-1a (p<.05), IL-6 (p<.001) and TNF-a (p<.001). Those reporting more emotional support also had lower IL-6 levels (p<.001). Cytokine levels were not predictive of DTE. Our findings pointed to the first step in identifying psychosocial factors that predict time to neutrophil recovery and cytokine levels in HSCT recipients.

Abstract 1239
RANDOMIZED, CONTROLLED TRIAL OF YOGA FOR WOMEN WITH BREAST CANCER UNDERGOING RADIOThERAPY
Robin Haddad, MPH, Kavita Chandwani, MD, George Perkins, MD, Amy Spelman, PhD, Kayla Johnson, BS, Adonlea Fortier, BS, HR Nagendra, PhD, R Nagarathna, MD, NY RahguRam, PhD, Bainu Arun, MD, Qi Wei, MS, Clemens Kirchbaum, PhD, Lorenzo Cohen, PhD, The University of Texas MD Anderson Cancer Center, Houston, TX, USA, SYJASA, Bangalore, India, Technical University of Dresden, Dresden, Germany

Radiotherapy can decrease QOL and disrupt the circadian nature of cortisol. We examined the effects of yoga on buffering changes in QOL and cortisol slope in women with breast cancer undergoing radiotherapy. Patients with stage 0-II disease (mean age: 51.9 years) were recruited prior to radiotherapy and randomized to one of three groups: Yoga (YG-n=53) or Stretching programs (STR-n=56) 3 times a week for 6 weeks or waitlist control (WLC-n=54). Self-report measures of fatigue (BF), depression (CESD), QOL (SF-36), benefit finding (BF), and spirituality (FACT-SP) were completed, and saliva was collected, at baseline, end of treatment, and 1, 3, and 6 months later. We examined change from baseline for the questionnaire data and slope analyses for cortisol. By the end of treatment, the YG and STR groups had a reduction in fatigue while the WLC had an increase (-0.23, -0.45, 0.52; p-values<.05). At 1, 3, and 6 months after treatment, the YG group had greater increases in SF-36 physical functioning compared to both STR and WLC (1 month: 5.8, 2.0, 0.8; 3 months: 6.5, 3.4, -0.2; 6 months: 6.1, 3.4, 1.1; p-values<.05), with differences between STR and WLC at 3 months (p<.02). SF-36 general health scores increased more in the YG group than STR and WLC at 1 and 3 months (p-values<.02), with no differences between the STR and WLC (1 month: 3.5, -1.5, -0.5; 3 months: 4.1, 0.1, -1.1). By 3 and 6 months, there were significant increases in BF for the YG group with decreases in the other two groups (3 months: 3.1, -2.5, -2.5; 6 months: 3.1, -2.9, -2.5; p-values<.05). There were no differences for spirituality and depression. Examination of
correlation slope revealed the YG group had the steepest slope by the end of treatment and 1 month later compared to the STR and WLC groups, which did not differ from each other (1 month: -0.12, -0.08, -0.08; 3 months: -0.12, -0.08, -0.07; p-values<.01). While stretching improved fatigue and physical functioning, yoga buffered changes associated with radiotherapy in terms of fatigue, QOL, and benefit finding, and resulted in steeper cortisol slopes than stretching exercises or usual care.

Abstract 1604
THE RAISED TRIAL: EFFECTS OF COPING SKILLS TRAINING AND WRITTEN EMOTIONAL DISCLOSURE ON DAILY DIARY OUTCOMES FOR PATIENTS WITH RHEUMATOID ARTHRITIS
Mark A. Lumley, PhD, Psychology, Wayne State University, Detroit, MI, Francis J. Keele, PhD, Psychiatry, Duke University Medical Center, Durham, NC, Richard Slater, PhD, Psychology, Wayne State University, Detroit, MI, Angelia Mosley-Williams, MD, Medicine, John D. Dingell Veteran's Affairs Medical Center, Detroit, MI, John Rice, MD, Medicine, Duke University Medical Center, Durham, NC, Ainoa Mayo, MSW, Anita Kalaj, MA, Jennifer Carty, BA, Psychology, Wayne State University, Detroit, MI, Daphne McKee, PhD, Mark Connelly, PhD, Sandra Waters, PhD, Psychiatry, Duke University Medical Center, Durham, NC, Jay Cohen, PhD, Lynn Neely, PhD, Jennifer Stevenson, MSW, Psychology, Wayne State University, Detroit, MI
Two psychological interventions for rheumatoid arthritis (RA) are pain coping skills training (CST) and written emotional disclosure (WED). Their effects on pain, fatigue, and mood are ideally assessed prospectively, as with daily diaries, rather than with retrospective questionnaires. We randomized 264 adults with RA (81% female; age M=55.1 years; 68% European American, 28% African American) in a 2x2 design to 1 of 2 writing conditions: 4 days of at-home writing (WED v. control writing about time management, diet, exercise, sleep) followed by 1 of 2, 8-session classes: (CST v. arthritis education control) held individually with a therapist. Diaries were completed each evening for 30 days at pre-treatment and at post-treatment, 4-month, and 1-year follow-up. Diaries assessed daily pain intensity, fatigue, stiffness, and negative and positive affect. Hierarchical linear modeling (days nested in assessments nested in persons) tested the effects of each intervention and their interaction on diary outcomes. CST led to significantly (p < .05) lower pain, fatigue, and stiffness across the 1-year follow-up than did education control. WED, however, had a significantly different pattern than control writing. Both WED and control writing led to improvements on these outcomes post-treatment, but WED then increased in pain over time, whereas control writing maintained a lower pain level. Neither intervention changed affect, and there were no interactions between the two interventions on outcomes. These diary analyses confirm the benefits of CST that we obtained earlier with traditional questionnaires in this sample; CST improves subjective health of people with RA. Although prior analyses found no effect of WED on pain questionnaires, the current more sensitive diary analyses indicated that WED had less pain benefit than control writing. We do not know if this is an iatrogenic effect of WED or an unexpected benefit of our control writing condition, but results raise caution about the effect of WED on subjective health outcomes for RA. Funding: NIH AR049059

Abstract 1661
EFFECTS OF ANGER AWARENESS AND EXPRESSION TRAINING AND RELAXATION TRAINING ON CHRONIC HEADACHES: A RANDOMIZED TRIAL
Chronic headaches (HA) are often triggered or exacerbated by emotional stress. Most empirically-supported psychological treatments for HA directed to reduce stress and arousal, typically by including some relaxation training (RT). Stress, however, often results from emotional suppression, and anger inhibition is particularly noxious for chronic pain conditions. We developed a brief anger awareness and expression training (AAET) intervention that involves experiential exercises and assertive training. In this study, 73 young adults (87.7% female, age M = 21.5 years, 35.6% European American, 24.7% African American, 12.3% Middle Eastern, 12.3% Asian) with chronic HA were randomized to 1 of 3 conditions: AAET, RT, or a no-treatment control group. The two treatments had three, 1-hour, protocol-guided, small group sessions led by a therapist. Health variables (headache frequency, pain severity, physical symptoms, headache management self-efficacy, positive and negative affect, and general psychological symptoms) were assessed at pre-treatment and 6-week follow-up. Analyses of covariance compared groups on follow-up measures, controlling for baseline. Compared with controls, both treatments substantially improved general physical symptoms (AAET: p < .001; RT: p = .04) and headache management self-efficacy (both p < .001). Compared with controls, AAET significantly improved positive affect (p = .002) and marginally improved pain severity (p = .07); whereas RT improved both positive affect (p = .047) and headache frequency (p = .01). The only difference between the two active treatments was that AAET led to a greater reduction in physical symptoms than RT (p = .04). These findings suggest that an intervention that encourages the awareness and expression of anger is generally as effective as an approach that reduces anger arousal (RT) for chronic headaches, and may be more effective than RT for some outcomes. Research should identify subgroups of patients who are most likely to benefit from emotion activation vs. emotion reduction approaches to stress and chronic pain.

Abstract 1736
DEPRESSION, ANTIDEPRESSANT TREATMENT AND INFLAMMATION
Brenda W. Penninx, PhD, Psychiatry, VU University Medical Center, Amsterdam, NH, Netherlands, Peter de Jonge, PhD, Psychiatry, University Medical Center Groningen, Groningen, GR, Netherlands, Hester E. Duivis, Tilburg University, Tilburg, NB, Netherlands, Nicole Vogelzangs, Psychiatry, VU University Medical Center, Amsterdam, NH, Netherlands
Background: Inflammatory markers have been found to be increased in depression. However, the role of clinical characteristics and antidepressant treatment remains unclear. We examined inflammatory markers in a large cohort of depressed patients and controls, including patients treated with antidepressants and with different antidepressants, using hematocrit (HA), CRP, and IL-6. Results: Compared with controls, depressed cases had higher CRP (b=0.097, p = .04) and IL-6 (b=0.089, p = .02) and CRP (b=0.097, p = .005) than controls after adjustment for sociodemographic, lifestyle and health characteristics. High inflammatory levels tended to be especially present among men with the highest depressive symptom severity and persons with a late age of depression onset. Treatment with antidepressants was associated with inflammation: IL-6 level was significantly decreased among users of selective serotonin reuptake inhibitors, whereas serotonin-norepinephrine-acting antidepressant users had significantly higher CRP and IL-6 levels. Conclusion: Within a large psychiatric cohort, depressive disorder was associated with higher inflammatory levels in men but not in women. Different types of antidepressants seem to have differential effects on inflammation.

Abstract 1592
IMPACT OF COLLABORATIVE CARE FOR DEPRESSION FOLLOWING CORONARY ARTERY BYPASS GRAFT (CABG) SURGERY BY BASELINE MOOD SYMPTOM SEVERITY
Bruce L. Rollman, MD, BEA Herbert Belsnap, Dr Biol Hum, Department of Medicine, Fanyin He, BS, Sati Mazumdar, PhD, Department of Biostatistics, University of Pittsburgh, Pittsburgh, PA, Herbert C. Schulberg, PhD, Department of Psychiatry, Weill Cornell Medical College. White Plains, NY, Charles F. Reynolds III, MD, Department of Psychiatry, University of Pittsburgh, Pittsburgh, PA
PURPOSE: We recently reported that telephone-delivered collaborative care (CC) for post-CABG depression improved mood symptoms and a variety of other outcomes at 8-months follow-up compared to physicians’ usual care (UC). As CC for less severe forms of depression possibly produces little benefit, we analyzed our intervention’s impact by baseline mood symptom severity so as to guide future practice.

METHODS: From 3/04-9/07 we enrolled 302 post-CABG patients who screened positive for depression on the PHQ-2 prior to hospital discharge and had at least a moderate level of mood symptoms two weeks later (PHQ-9 > 9). They were randomized to either an 8-month course of CC or to UC for depression. Intervention care managers assessed patients’ treatment preferences (pharmacotherapy, counseling, or specialty referral), and provided feedback and treatment recommendations to patients’ PCPs. We assessed sociodemographic and clinical characteristics at baseline, and mood symptoms with the Hamilton Rating Scale for Depression (HRS-D); mental health-related quality of life (HRQoL) with the SF-36 MCS; and physical functioning with the Duke Activity Status Index (DASI). We classified a PHQ-9 score of 10-14 as "moderate" and > 14 as "severe" levels of mood symptoms. RESULTS: Of the 302 study patients, 33% (99) reported severe mood symptoms. Compared to those with a moderate level of mood symptoms, they tended to report lower levels of HRQoL (SF-36 MCS 36.6 vs. 46.1) and functional status (DASI 5.3 vs. 8.4) (both p < 0.001), but were otherwise similar (e.g., mean age 64 years, 42% diabetes, 79% on beta-blockers, 25% past history of depression). At 8-months, 48% of CC vs. 29% of UC patients with severe mood symptoms reported a ≥ 50% decline in HRS-D score from baseline (effect size (ES) 0.40; p=0.05), compared to 51% of CC vs. 30% of UC patients reporting moderate baseline symptom severity (ES 0.43; p=0.002). CC also produced similar improvements on continuous HRS-D scores regardless of initial mood symptom level (baseline ES 0.39 for both groups). CONCLUSIONS: CC is effective for patients reporting either moderate or severe levels of mood symptoms following CABG surgery.

Abstract 1382
LONGITUDINAL EVIDENCE THAT ANTIDEPRESSANTS RATHER THAN PSYCHOPATHOLOGY AFFECT HEART RATE VARIABILITY
Brenda Penninx, PhD, Carmilla M. Licht, PhD, Psychiatry, VU University Medical Center, Amsterdam, NH, The Netherlands, Ego de Geus, PhD, Biological Psychology, VU University, Amsterdam, NH, The Netherlands

BACKGROUND: Cross-sectional indications exist that antidepressants result in unfavourable autonomic nervous system effects such as diminished vagal control over the heart. These effects exceed the effects of psychopathology itself. Longitudinal studies are needed to test the causality of these associations further. This 2-year longitudinal study compares change in autonomic nervous system function across antidepressant treatment and psychopathology status. METHODS: Data were collected from 2,114 respondents (mean age=42; 66% female) of the Netherlands Study of Depression and Anxiety were used. At baseline and at 2-year follow-up, CIDI diagnoses of anxiety and depression disorders were assessed, and heart rate (HR) and cardiac vagal control as indexed by respiratory sinus arrhythmia (RSA) were measured. Linear mixed-model analyses adjusted for demographics, health, and lifestyle factors compared 2-year changes in HR and RSA across groups of psychopathology status (not affected, newly affected, remitted, chronic depressed/anxious) and across antidepressant groups (antidepressant-naive, starters of antidepressants, those who stopped antidepressants and persistent users). RESULTS: Psychopathology status was not associated with HR or RSA patterns over time. Compared with continuous nonusers, subjects who started the use of a tricyclic antidepressant or a serotonergic and noradrenergic antidepressant showed significantly greater HR increases and RSA decreases over 2 years. Subjects who started the use of selective serotonin reuptake inhibitors also showed a RSA decrease but no HR increase. Discontinuing antidepressants systematically caused opposite effects; levels returned in the direction of those observed among nonusers. CONCLUSIONS: These 2-year longitudinal results confirm previous cross-sectional findings that depression and anxiety status itself are not associated with autonomic nervous system function, whereas antidepressants cause a decrease in cardiac vagal control. After discontinuing antidepressants, autonomic function recovers suggesting that the unfavorable effects are (partly) reversible.

Abstract 1591
ENHANCED DEPRESSION CARE DOES NOT IMPROVE ADHERENCE IN POST-ACUTE CORONARY SYNDROME PATIENTS
Ian M. Kronish, MD, Internal Medicine, Mount Sinai School of Medicine, New York, New York, Nina Rieckmann, PhD, Public Health, Charite University Medical Center, Berlin, Germany, Donald Edmondson, PhD, Matthew Burg, PhD, Karina W. Davidson, PhD, Internal Medicine, Columbia University Medical Center, New York, New York

Background: The presence of depression after acute coronary syndromes (unstable angina, myocardial infarction; ACS) is associated with worse prognosis and lower adherence to risk reducing health behaviors. We reported earlier that enhanced depression care in post-ACS patients significantly reduces depression symptoms (standardized effect size = 0.59). We aimed to test the impact of the enhanced depression intervention on adherence to risk reducing behaviors. Methods: Between 2005 and 2008, 157 patients who remained persistently depressed 3-months after ACS were recruited from 5 hospitals and randomized to an enhanced depression care intervention (initial patient preference for problem-solving therapy and/or pharmacotherapy, then a stepped care approach; 80 patients) or to usual care (77 patients). At randomization, and then 2-mo, 4-mo, and 6-mo later, patients were asked 1) how many times they missed taking aspirin at the prior week (patients who reported missing aspirin at least once were considered non-adherent); 2) whether they were exercising regularly (Y/N); and 3) whether they were following a low fat, low cholesterol diet (Y/N). When a self-report was missing, the last recorded value was carried forward. Results: The mean age was 62 years; 55% were women, 18% Hispanic, and 37% African American. At randomization, 13% were non-adherent to aspirin, 63% were non-adherent to exercise, and 33% non-adherent to diet. Repeated measures ANOVA was used to compare the proportion of patients in the intervention and usual care groups who were non-adherent. During the 6-mo intervention period, enhanced depression care (group x time interaction) was not associated with higher adherence to aspirin (p=.32), to exercise (p=.33), or to a heart healthy diet (p=.98). Similarly, there were no significant differences in adherence at randomization or at 6-mo. Conclusion: Despite improved depression, enhanced depression care did not result in any clinically significant differences in adherence to risk reducing behaviors after ACS. Future research is needed to determine whether, in addition to enhanced depression care, targeted adherence interventions are needed to optimize outcomes in depressed post-ACS patients.

Paper Session: Biopsychosocial Links between Appetite, Eating and Obesity
Abstract 1746
STRESS AND TASTE: POTENTIAL MECHANISMS LINKING AFFECT AND APPETITE REGULATION
Mustafa Al-Abi, Ph.D, Behavioral Sciences, University of Minnesota Medical School, Duluth, MN, Motohiro Nakajima, Ph.D., Behavioral Sciences, University of Minnesota Medical School, Duluth, MN, Stephanie Hooker, B.S., Behavioral Sciences, Tiffany Craig, M.S., Medical School, Univ of Minnesota, Duluth, MN

The quality and intensity of taste has a strong influence on appetite and food intake. Previous studies have shown that stress affects taste perception, but the mechanisms behind this relationship are not well understood. The purpose of this study was to examine effects of acute stress on taste perception and the extent to which depressed mood moderates these effects. Thirty-eight (21 female) participants completed two laboratory sessions (stress and rest). Each session included a baseline (15 min), a stress or rest period (30 min), a taste perception test (15 min), and a recovery period (50 min). Participants completed questionnaires assessing negative mood (depression, anxiety, anger). The stress tasks were public speaking, mental arithmetic, and the cold pressor test. During the taste perception, participants rated the intensity and pleasantness of sweet, salty, sour, and savory (MSG) solutions at suprathreshold concentrations. Cardiovascular, hormonal (cortisol), and affect measures were assessed.
during each session. Participants exhibited greater cardiovascular and cortisol responses and reported increased distress on the stress day than on the rest day (p < .05). Intensity of the sweet solution was lower on the stress day than the rest day (p < .01). Multiple regression analysis showed that distress reported after the acute stressors predicted intensity of sweet as well as intensity of sour, MSG, and pleasantness of salt taste (ps < .05). In addition, a depression by distress interaction was found (p < .05) reflecting stronger associations between distress and attenuated sweet taste among participants with high depressive mood. Similarly, associations between systolic and diastolic BP during stress and attenuated sweet intensity was stronger among those with high level of anxiety (p < .05). None of these results were significant during the rest day. These novel findings demonstrate that acute stress attenuates sweet taste sensitivity, and this appears to be particularly the case among those high in negative affect. The results have implications in terms of identifying potential mechanisms of how stress may lead to increased food intake.

Abstract 1814

STRESS AND APPETITE REGULATION IN THE CONTEXT OF NICOTINE DEPENDENCE
Mustafa al’Absi, Ph.D., Behavioral Sciences, University of Minnesota Medical School, Duluth, MN

Weight gain after smoking abstinence increases reluctance to attempt cessation, especially among women. In addition, smoking abstinence is associated with symptoms such as anxiety, irritability, depression, and craving that are intensified under stressful conditions. Both stress and changes in appetite and dietary behaviors may contribute to weight gain. The precise mechanisms by which stress and weight changes contribute to smoking relapse are not entirely clear. In light of recent evidence suggesting the role of the appetite hormone leptin in craving for alcohol, we recently conducted a series of studies to examine the extent to which leptin levels predict craving for cigarettes and smoking relapse. Circulating leptin levels were measured in smokers interested in cessation who attended a laboratory session after their first day of certainty. Measures of withdrawal symptoms, affect, physical symptoms, as well as neuroendocrine and cardiovascular measures were collected before and after performing two stress tasks (public speaking and mental arithmetic). Data from 32 smokers showed that high circulating leptin levels were associated with increased craving, withdrawal symptoms, negative affect, and reduced positive affect (p < .05). In addition, high circulating leptin levels were associated with greater physical symptoms (p < .01). Cardiovascular and hormonal responses to stress were not related to leptin levels. Circulating leptin levels did not predict time to relapse, although the small sample size may have limited the power of the prediction model. The results confirm a previous study in 60 smokers by our team showing a significant positive association between nicotine craving and leptin and a negative correlation between orexin plasma levels and nicotine craving. In conclusion, these data indicate that circulating biological marker of craving for smoking and warrant further investigation of the links between appetite regulation and nicotine dependence.

Abstract 1856

MENTAL STRESS REACTIVITY PROVIDES EVIDENCE OF PATHWAYS IN THE NATRIURETIC PEPTIDE HANDICAP WITH OBESITY
Sari D. Holmes, PhD, Cardiac Surgery Research, Inova Heart and Vascular Institute, Falls Church, VA. Kerry S. Whitaker, MS, Kristie M. Harris, MS, Medical and Clinical Psychology, Patricia A. Deuster, PhD, Department of Military and Emergency Medicine, David S. Krantz, PhD, Medical and Clinical Psychology, Uniformed Services University, Bethesda, MD

Purpose: Obesity has been linked to lower circulating levels of B-type natriuretic peptide (BNP) and this phenomenon has been termed natriuretic peptide handicap. Two main theories have been proposed to explain the handicap: dysfunctional BNP synthesis/secretion or adipose tissue removal of BNP from circulation. The objective of this study was to examine these theories of the natriuretic peptide handicap by inducing mental stress (MS).

Methods: In this study, 33 participants (ages 18-40) underwent testing with math/speech combined and mirror trace stressors. Weight, height, waist, hip, body mass index (BMI) and body fat measures were obtained at baseline. Plasma BNP levels were also measured before and after MS. Because of strong positive skew, BNP data were log transformed.

Results: BMI was not related to any measures of BNP. Waist to hip ratio (WHR) was negatively correlated with baseline (r = -0.48, p < 0.01) and MS (r = -0.44, p < 0.01) levels of BNP, whereas body fat percentage was positively correlated with baseline (r = 0.36, p < 0.05) and MS (r = 0.41, p < 0.02) levels of BNP. Body fat percentage and WHR differ by sex in the general population and in this sample, such that females have lower WHR (t = 4.17, p < 0.001) and higher body fat percentages (t = 3.69, p < 0.002). Separate analyses were conducted and found no significant associations with BNP for males. For females, WHR remained negatively correlated with BNP at baseline (r = -0.44, p < 0.04), but body fat percentage was not correlated with any BNP measures. Change in BNP from rest to MS was similar across all body composition measures.

Conclusions: Lower baseline levels of BNP were found for those with higher WHR, particularly in females, but no changes in BNP reactivity were observed. These results provide initial support for the adiposity theory of the natriuretic peptide handicap, but not dysfunctional synthesis/secretion. Future research into the natriuretic peptide handicap with obesity should emphasize various measures of body composition in order to fully understand the mechanisms involved in this phenomenon.

Abstract 1831

ROLE OF LEPTIN IN OBESITY-INFLAMMATION LINK AND BEHAVIORAL INTERVENTIONS IN HYPERTENSION
Suzi Hong, PhD, Julie Sadja, MA, Kathleen Wilson, MS, Paul J. Mills, PhD, Psychiatry, University of California San Diego, La Jolla, California

Obesity has been linked to low-grade inflammation. Evidence points to the inflammatory role of leptin, which could provide insight into obesity-inflammation underpinnings. We examined circulating levels of IL-6, CRP and leptin in 48 men and women [age 45±10 years, BMI 31±4 kg/m2] with elevated blood pressure [BP; 142±10 mm Hg], before and after behavioral interventions (12-week exercise, exercise plus diet or control) to investigate the mediating role of leptin in the obesity-inflammation link. Associations of adiposity and leptin to pre-to-post intervention inflammation changes were also examined. IL-6 and leptin were assessed by immunoassays, CRP by Denka Seiken assay, and adiposity by DEXA. A series of regression analyses were performed to examine the effect of: % trunk fat (TF) on IL-6 or CRP, % TF on leptin, and leptin on IL-6 or CRP. Finally, associations of % TF (step 3) with IL-6 or CRP were assessed after controlling for demographic variables (step 1: age, gender, BP) and leptin (step 2). At baseline, % TF was associated with IL-6 (B = 0.48, p < .05), CRP (B = 0.39, p < .05) and leptin levels (B = 0.60, p < .001). Leptin was associated with IL-6 (B = 0.48, p < .05) and marginally with CRP (B = 0.30, p = .12). % TF (B = 0.31, p < .16) was no longer associated with IL-6 or CRP after controlling for leptin levels. Both interventions led to decreased obesity and increased fitness compared to control (p's < .05). Post intervention, % TF was associated with IL-6 (B = 0.60, p < .001), CRP (B = 0.44, p < .05) and leptin levels (B = 0.71, p < .01). Leptin levels were associated with CRP (B = 0.57, p < .05), but not with IL-6 (B = 0.30, p = .18). After controlling for leptin levels, % TF remained associated with IL-6 (B = 0.48, p < .05) but was no longer associated with CRP (B = 0.09, p = .80). In spite of the mediating role of leptin in the adiposity-inflammation link, no associations were evident between changes in adiposity or leptin and IL-6 or CRP levels post intervention. Results indicate an inflammatory role of regulatory adipokine leptin, yet its short-term changes in relation to inflammation post intervention remain to be investigated.

Paper Session: Psycho-oncology

Abstract 1347
PRETREATMENT PSYCHOSOCIAL FACTORS PREDICT QUALITY OF LIFE (QOL) AFTER BRIEF PRESURGICAL STRESS MANAGEMENT

Chelsea D. Gilts, B.A, Clinical Psychology, University of Houston, Houston, Texas, Patricia A. Parker, PhD, Behavioral Science, Curtis A. Petteway, MD, Urology, Lorenzo Cohen, PhD, Behavioral Science, The University of Texas MD Anderson Cancer Center, Houston, Texas

It is important to identify factors that predict who will benefit the most from psychosocial interventions in cancer populations. This study examined the association between pretreatment psychosocial factors and the benefits derived from a brief cognitive-behavioral stress management program. This three-arm randomized clinical trial investigated the effects of a brief presurgical stress management intervention (SM; n=53) compared to supportive attention (SA; n=54) and standard care (SC; n=52) on QOL in men with early stage prostate cancer scheduled for radical prostatectomy. The SM intervention consisted of two 90-minute sessions of diaphragmatic breathing, guided imagery, imagined exposure to the day of surgery, and cognitive therapy/coping skills. The SA intervention consisted of two 90-minute sessions of reflection and empathy. We previously reported improved QOL 1 year after surgery in the SM and SA groups compared to the SC group. Here we investigated the moderating effects of baseline social support (MOS SS), and social distress (Brief Symptom Inventory: general severity index: anxiety and depression subscales), on physical (PCS) and mental (MCS) component scores of the SF-36 1 year after surgery. There was an interaction between baseline SS and group in predicting PCS (p=0.04). Men who reported low baseline SS and were in SM had increased PCS 1 year after surgery compared to men with low SS in the SC group (beta=-.36, p=0.01), with SA having a nonsignificant intermediate effect. There was an interaction between baseline anxiety level and group in predicting PCS (p=0.05). Men who reported high anxiety at baseline and were in SA had increased PCS 1 year after surgery compared to those in SM (beta=1.14, p=0.03), with SC having an intermediate nonsignificant effect. High general distress and depression followed a similar non-significant trend. No baseline measures significantly predicted MCS. These findings suggest that distressed individuals may benefit more from unstructured discussion of distress whereas those low in social support may benefit more from a structured approach to learning coping skills.

Abstract 1388
IMPACT OF CARdiovascular COMORBIDITY ON OVARian CANcer OUTCOME

Eileen H. Shinn, Ph.D., Behavioral Science, University of Texas M. D. Anderson Cancer Center, Houston, Texas, Daniel J. Lenthal, M.D., Division of Cardiovascular Medicine, Vanderbilt University Medical Center, Nashville, Tennessee, Diana L. Urbauer, M.S., Quantitative Sciences, Myrsbia L. Woods, P.A., Cardiology, Alpa M. Nick, M.D., Gynecologic Oncology, Karen Basen-Engquist, Ph.D., Behavioral Science, Anil K. Sood, M.D., Gynecologic Oncology, University of Texas M. D. Anderson Cancer Center, Houston, TX

Background The role of stress and depression in the development of cardiovascular disease has been extensively documented. However, relationships between stress, depression and cardiovascular disease in patients with cancer are not as well-understood. This observational study examines potential links between depression, cardiovascular (CV) events, and survival in a cohort of 271 newly diagnosed ovarian cancer patients. Methods Participants were newly-diagnosed ovarian cancer patients who were followed until time of death or truncation of study period (median follow-up = 3.53 years). Incidence of cardiovascular events during the study period was abstracted and confirmed via medical records. Baseline disease characteristics, cardiovascular risk factors, depression level, and demographic variables (all at cancer diagnosis) were collected and recorded. Cox proportional hazards regression was used to analyze the relationship between depression status, stress, and cardiovascular disease events in ovarian cancer patients. Results Cox regression model revealed that baseline depression severity (HR=1.03, p=0.04) and increased heart rate (HR; OR=1.03, p=0.04) were independently associated with an increased risk for PE or DVT after controlling for CVD risk factors. Depression and heart rate were also independently associated with an increased risk of pericardial disease (OR=1.05, p=0.00 and OR=6.40, p=0.00, respective). For pulmonary hypertension or COPD, baseline age (OR=1.06, p=0.02), family history of CVD (OR=3.0, p=0.01) and marital/partner status (OR=3.29, p=0.01) were independently associated. Conclusion Cardiovascular events such as PE/DVT and pulmonary hypertension are associated with decreased survival in women with ovarian cancer. Our findings point to indicators of increased sympathetic activity, such as distress and elevated heart rate as being significant predictors of survival in women with ovarian cancer.

Abstract 1113
FATIGUE IS ASSOCIATED WITH LOWER PARASYMPATHETIC TONE IN BREAST CANCER SURVIVORS

Christopher P. Fagundes, Ph.D., Institute for Behavioral Medicine Research, The Ohio State University, Columbus, OH, David M. Murray, Ph.D., Epidemiology and Biostatistics, The Ohio State University, Columbus, Ohio, Beom Senk Hwang, M.S., Statistics, Jean-Phillipe Gouin, M.A., Institute for Behavioral Medicine Research, The Ohio State University, Columbus, Ohio, John J. Sollers III, Ph.D., Psychological Medicine, University of Auckland, Auckland, New Zealand, Charles L. Shapiro, M.D., Internal Medicine, The Ohio State University, Columbus, OH, William B. Malarkey, M.D., Internal Medicine, The Ohio State University, Columbus, OH, Janice K. Kiecolt-Glaser, Ph.D., Institute for Behavioral Medicine Research, The Ohio State University, Columbus, OH

Fatigue is a notable clinical problem in cancer survivors, and understanding its pathophysiology is very important. The autonomic nervous system may play a role in cancer related fatigue. This study evaluated relationships between fatigue and heart rate variability (HRV), a measure of parasympathetic tone, in breast cancer survivors. HRV was evaluated at rest, as well as before and after a short task requiring speech and mental arithmetic stressor in 84 women who had completed treatment for Stage 0-IIIA breast cancer within the past two years; all women were at least two months post surgery, radiation or chemotherapy, whichever occurred last. Fatigue was assessed with both the RAND SF-36 vigor/vitality scale (a measure that categorized fatigued and non-fatigued individuals) and the Multidimensional Fatigue Symptom Inventory-Short Form (a continuous measure of fatigue severity). We adjusted for age, BMI, physical activity, smoking status, and the use of cardiovascular medication. Mean HRV was significantly lower in fatigued women compared to the nonfatigued women both before (95% CI: -0.592 to -0.053, p = 0.020) and after (95% CI: -0.604 to -0.048, p = 0.022) the stressor based on scores from the SF-36. HRV was also lower among more fatigued women compared to those who were less fatigued before (95% CI: -0.592 to -0.053, p = 0.020) and after (95% CI: -0.604 to -0.048, p = 0.022) the stressor based on scores from the MFSI-SF. Neither fatigue nor HRV was associated with cancer stage or treatment variables. The reliable relationships observed between fatigue and HRV suggest that HRV may be a useful biomarker for cancer-related fatigue. These HRV data have mechanistic implications; cancer-related fatigue has been related to higher levels of inflammation, and lower parasympathetic tone can prime the inflammatory responses that promote fatigue. In addition, lower HRV has been associated with a number of adverse health outcomes, particularly cardiovascular risks, in noncancer samples. Accordingly, fatigue may signal the need for increased vigilance to cardiovascular and other health threats.

Paper Session: Immune Function and Depression

Abstract 1651
A GENETIC PREDISPOSITION TO PRODUCE LOW LEVELS OF IL-10 IMPACTS DEPRESSIVE SYMPTOMS: A PILOT STUDY OF PATIENTS WITH END STAGE RENAL DISEASE

Susan Holtzman, Ph.D., Psychology, University of British Columbia, Kelowna, BC, Canada, Susan E. Abbey, M.D., Psychiatry, University of Toronto, Toronto, ON, Canada, Joanne M. Bargman, M.D., Christopher
Repetitive experience of depressive symptoms and white blood cell count in patients with coronary heart disease: data from the heart and soul study

Hester E. Daivis, MSc, Center of Research on Psychology in Somatic diseases, Tilburg, Noord Brabant, The Netherlands, Peter de Jonge, PhD, Department of Psychiatry, University Medical Center Groningen, Groningen, Groningen, The Netherlands, Brenda W. Penninx, PhD, Department of Psychiatry, VU University Medical Center, Amsterdam, Noord Holland, The Netherlands, Bee Ya Na, MPH, VA Medical Center, San Francisco, California, Nina Kupper, PhD, Center of Research on Psychology in Somatic diseases, Tilburg University, Tilburg, Noord Brabant, The Netherlands, Mary J. Wholey, MD, Department of Medicine, University of California, San Francisco, San Francisco, California

Background: Depression has been associated with elevated white blood cell (WBC) count in cross-sectional studies, but no longitudinal study has evaluated whether depressive symptoms predict subsequent WBC count or vice versa. We sought to evaluate the association between depressive symptoms and WBC count in patients with coronary heart disease (CHD). Methods: We assessed depressive symptoms annually for 5 years in 667 outpatients with stable CHD from the Heart and Soul Study. The presence of significant depressive symptoms was determined by a score of 10 or more on the Patient Health Questionnaire (PHQ-9). WBC was measured in blood samples collected at baseline and after 5 years. Generalized linear models adjusted for covariates, determined the association between depressive symptoms and WBC count, controlling for baseline WBC. Results: Of 667 participants, 257 (38%) had depressive symptoms at baseline, 96 (14%) had depressive symptoms at 1 year, and 90 (13%) had depressive symptoms at 2 years. After adjustment for baseline WBC, age, gender, race, education, history of myocardial infarction, diabetes, heart failure, aspirin use, corticosteroid use, physical activity, smoking, body mass index, and waist-to-hip ratio, depressive symptoms at baseline were associated with subsequent WBC count (β = 0.07, p < 0.01). Conclusions: These findings support the hypothesis that depression may lead to inflammation.
The influence of patient and caregiver catastrophizing on patient depressive symptoms in the context of organ transplantation

Susan B. Holtzman, PhD, Psychology, University of British Columbia, Kelowna, BC, Canada, Lianne G. Singer, M.D., Respiriology, Donna E. Stewart, M.D., Psychiatry, Women's Health, Heather J. Ross, M.D., Cardiology, Susan E. Abbey, M.D., Psychiatry, Multi Organ Transplant, University Health Network, University of Toronto, Toronto, ON, Canada.

Purpose: Although much attention has been given to identifying adaptive and maladaptive ways of coping with chronic health problems, much less attention has been given to how family caregivers cope with the stresses of providing care to medically ill loved ones, and how this may in turn influence patient well-being. In a sample of organ transplant candidates and their family caregivers, the goal of this study was to investigate the impact of patient and caregiver catastrophizing on levels of patient depressive symptoms. The concept of catastrophizing has been examined primarily in the pain literature, and includes three dimensions: rumination, magnification, and perceived helplessness. Given the high level of uncertainty associated with waiting for an organ transplant, and the life-threatening nature of this situation, it is surprising that past studies have not examined catastrophizing in this population. Method: 93 patients on the waitlist for a heart or lung transplant and their family caregivers (n=186) completed written questionnaires assessing depressive symptoms, physical functioning, and disease and demographic factors. Patients reported the extent to which they catastrophize about their current health, and caregivers reported the extent to which they catastrophize about the patient’s health. A subsample of 45 patient-caregiver dyads completed a similar set of measures post-transplant. Results: Over half of patients (58%) reported clinically significant depressive symptoms pre-transplant. Interestingly, caregivers reported significantly higher levels of catastrophizing about patients’ health than patients did themselves (t(92)=2.27, p=.026). Findings from multiple linear regression models indicated that higher levels of catastrophizing by patients (B=-.83, SE=.43, p=.001) as well as caregiver catastrophizing (B=1.48, SE=.50, p=.004) were associated with greater levels of patient depressive symptoms, even after controlling for relevant covariates. The trajectory of pre-transplant and catastrophizing post-transplant will also be discussed. Conclusions: Findings suggest the importance of addressing how both patients and caregivers cope with organ transplantation, particularly given that patient depression has been found to predict poor transplant outcomes, including poor physical functioning and a greater risk of mortality.

Paper Session: Sleep and Cardiovascular Health

Abstract 1693

SLEEP PREDICTORS OF DEPRESSION, FATIGUE, AND QUALITY OF LIFE IN HEART FAILURE PATIENTS: A LONGITUDINAL STUDY

Shamini Jain, Ph.D., Brain, Mind, and Healing, Samuels Institute, Corona Del Mar, CA, Lavinia Fiorentino, Ph.D., Psychiatry & Behavioral Medicine, Jessica Jimenez, M.A., Psychology, Merideth Pung, Ph.D., Paul J. Mills, Ph.D., Psychiatry & Behavioral Medicine, UCSD, San Diego, CA.

Heart failure (HF) patients often report increased depression, fatigue, and poorer quality of life (QOL); however, little is known about potential predictors of these negative symptoms in HF. We examined sleep indices (via polysomnography; Total Sleep Time (TST), Stage 1 (S1), Stage 2 (S2), Slow Wave Sleep (SWS), Rapid Eye Movement (REM), Sleep Onset Latency (SOL), Wake after Sleep Onset (WASO), and number of Apneic Events (AE)) as predictors of depressed mood (Beck Depression Inventory (BDI)), fatigue (Multidimensional Fatigue Symptom Inventory short form (MFsi-4)), and QOL (Minnesota Living with Heart Failure Questionnaire (MLHFQ)) in 37 stable HF patients (mean age 58 years, range = 31-83; NYHA II and III). Sleep was assessed at intake; depression, fatigue and QOL were measured every 3 months over an 18 month time period. Data were analyzed via Hierarchical Linear Modeling (HLM). Several demographic and disease characteristics were examined; of these ethnicity, body mass index (BMI), and age were significant covariates and entered into HLM model. Results indicated that short SOL, greater number of S2 sleep predicted greater depressed mood over time (p<.05 in all cases);

Abstract 1857

Recovery. The dependent variable was high frequency HRV (HF-HRV), a robust indicator of vagal tone. Summary of Results: There was a significant phase effect (F(2,106)=8.84, p<.0001), with HF-HRV decreasing significantly during task and increasing significantly during recovery. There were no effects of disease status [F(1,50)=1.31, p=.26] or anxiety group [F(1,50)=0.02, p=.89] on HF-HRV, but there was a significant three-way interaction of phase x disease status x anxiety group [F(2, 106)=3.78, p<.03]. Among COPD-ANX and HEA-ANX participants, HF-HRV did not change between baseline and task, thus reflecting a blunted response to the stressor, which is consistent with past studies indicating that anxious individuals tend to have more anticipatory anxiety at baseline. Evidence of inflexible autonomic response in COPD patients with anxiety may suggest the need for therapeutic interventions to ameliorate autonomic imbalance, which may be effective in addressing anxiety symptoms to reduce psychological distress.

Abstract 1193

CHRONIC RESPIRATORY DISEASE AND MENTAL HEALTH: THE GUANGZHOU BIOBANK COHORT STUDY

Adrian Loebrooks, PhD, Mannheim Institute of Public Health, Heidelberg University, Mannheim, Germany, Liangliang Yang, MD, Guangzhou No.12 People’s Hospital, Guangzhou, Guangzhou, People’s Republic of China, Kin-hong H. Lam, PhD, Institute of Occupational and Environmental Medicine, Jos A. Bosch, PhD, School of Sport and Exercise Sciences, G N. Thomas, PhD, Public Health, Epidemiology, and Biostatistics, University of Birmingham, Birmingham, UK, WeiSen Zhang, MD, PhD, Guangzhou No.12 People's Hospital, Guangzhou, Guangzhou, Peoples Republic of China, Kar Keung Cheng, PhD, Public Health, Epidemiology, and Biostatistics, University of Birmingham, Birmingham, UK, Tai Hing Lam, MD, School of Public Health, University of Hong Kong, Hong Kong, Hong Kong, Peymane Adab, MD, Public Health, Epidemiology, and Biostatistics, University of Birmingham, Birmingham, UK.

Background: Respiratory diseases have been linked to poor mental health in Western populations. Since the experience and expression of mental ill-health is partly culturally determined, it is of interest to examine if similar associations are found in other cultural settings. In that regard, very little is known about the association between respiratory disease and mental health in Asian countries, such as China, which we investigated in the current study. Methods: We used data from Phase 3 recruitment of the Guangzhou Biobank Cohort Study (n=186). Respiratory diseases included asthma (physician-diagnosed self-reports) and chronic obstructive pulmonary disease (COPD), which was assessed by spirometry (FEV1:FVC < the lower limit of normal) and self-reported pulmonary disease (COPD), which was assessed by spirometry (FEV1:FVC < the lower limit of normal) and self-reported respiratory symptoms (chronic cough, phlegm, dyspnea). Mental health measures included the 15-item Geriatric Depression Scale (GDS) and the mental health score of the SF-12. Depression was defined as a GDS score of 6 or higher, while poor mental health was defined as score more than 1 SD below the mean SF-12 score. Depression was defined as a GDS score of 6 or higher, while poor mental health was defined as score more than 1 SD below the mean SF-12 score. Results: Asthma was associated with both depression (OR=2.75, 95%CI=1.78 -4.26) and poor mental health (OR=2.16, 95%CI=1.89-2.47, respectively). Conclusions: We found depression=1.62, 95%=1.02-2.55; OR poor mental health=1.26, 95%=0.82-1.93; OR poor mental health=1.86, 95%=1.26-2.73) or normal (OR=2.29, 95%CI=1.95-2.69; and OR=2.16,95%CI=1.89-2.47, respectively). Conclusions: We found asthma to be associated with both depression and poor mental health in a large sample of adults from China. With regard to chronic obstructive pulmonary disease participants, HF-HRV did not change between baseline and task, thus reflecting a blunted response to the stressor, which is consistent with past studies indicating that anxious individuals tend to have more anticipatory anxiety at baseline. Evidence of inflexible autonomic response in COPD patients with anxiety may suggest the need for therapeutic interventions to ameliorate autonomic imbalance, which may be effective in addressing anxiety symptoms to reduce psychological distress.
however, when AE was entered as a predictor, SOL and WASO were no longer significant. This pattern was consistent for the BDI cognitive subscale, whereas the BDI somatic subscale was predicted by shorter SOL and less REM (p < .02 in both cases). Similar to depressed mood, poorer QOL over time was predicted by shorter SOL, greater WASO, and less S2, even when controlling for AE (p < .02 in all cases). Unlike depression and QOL, fatigue over time was not predicted by sleep. Results suggest that certain aspects of sleep and sleep disruption predict subsequent negative symptomatology in HF patients, while also suggesting that processes underlying these symptoms are not always redundant. While sleep disruption and sleepiness may be salient in predicting ongoing depressed mood and QOL, sleep disordered breathing may play a larger role in sleep disruption's effects on depressed mood. Sleep disruption may play a less predictive role in ongoing fatigue in HF patients.

Abstract 1440
INDIVIDUAL DIFFERENCES IN IMPACT OF SLEEP LOSS ON CARDIOVASCULAR ADAPTATION TO STRESS
Brian M. Hughes, PhD, Jack E. James, PhD, Siobhán Howard, PhD, Centre for Research on Occupational and Life Stress, National University of Ireland, Galway, Ireland
While chronic sleep loss predicts cardiovascular mortality and morbidity, the underlying mechanisms are unclear: research suggests little impact of sleep loss on either resting blood pressure or acute cardiovascular reactivity (CVR). Two potentially relevant sequelae of sleep loss are emotional lability and reduced tolerance for sustained stress. In a repeated-measures study, we examined the effect of sleep loss and trait emotionality (neuroticism) on cardiovascular adaption to stress. After psychometric screening, 17 men and 45 women (aged 17-24) underwent sleep-restriction and control protocols for two nights one week apart, in a counterbalanced order. For sleep-restriction, participants wore motion-sensitive alarms that limited sleep to 40% of normal duration. In the control protocol, participants slept normally. After each night, participants presented for CVR assessment using a beat-to-beat hemodynamic measurement. Analyses revealed a condition-neuroticism interaction for SBP across an 8-minute vigilance task, F(1,60) = 5.46, p = .023, suggesting that sleep loss impeded stress habituation to varying degrees contingent on neuroticism. In the control condition, participants exhibited declines in SBP across time, indicative of adaptation. In the sleep-restriction condition, adaptation did not occur; rather, low-neurotic participants exhibited stable SBP and high-neurotic participants showed increases in SBP. Neuroticism also appeared to influence the effect of sleep loss on ascending aortic impedance, F(1,60) = 7.99, p = .006, and total arterial compliance, F(1,60) = 6.10, p = .016, both of which reflect arterial stiffness. The present study suggests that sleep loss may contribute to cardiovascular risk by affecting tolerance for sustained stress. Further, the data imply that emotional lability exacerbates the adverse effects of sleep loss, thereby presenting a possible target for intervention.

Abstract 1338
SHORTER AND MORE VARIABLE SLEEP DURATION ARE RELATED TO ELEVATED AMBULATORY BLOOD PRESSURE IN ADOLESCENTS
Elizabeth J. Mezick, M.S., Psychology, University of Pittsburgh, Pittsburgh, PA, Martica Hall, PhD, Karen A. Mathews, PhD, Psychiatry, University of Pittsburgh School of Medicine, Pittsburgh, PA
Shorter sleep is linked to higher daytime blood pressure (BP) in adults, and at least one study has reported a similar association in adolescents. No studies have examined sleep and BP dipping (the ratio of sleep BP to waking BP) in adolescents, despite the fact that dipping status is an independent predictor of cardiovascular outcomes. We tested whether actigraphy-measured sleep duration was related to daytime mean arterial blood pressure (MAP) and sleep-wake MAP ratios in 176 Black and White adolescents (mean age 15.8; 56% female; 54% Black). Wrist actigraphy and sleep diaries were used to assess sleep for 7 nights, and ambulatory BP was monitored for 48 hours. Mean actigraphy-measured sleep duration, defined as time spent asleep, was 6.46 hours (SD= .79). The average within-person variability in sleep duration, as measured by each individual's standard deviation across 7 nights, was 1.5 hours (SD= .55). Linear regression models adjusted for age, race, sex, body mass index, and depressive symptoms showed that shorter mean sleep duration was related to higher daytime MAP (B= -.20, p=.009). Mean sleep duration was not related to sleep-wake MAP ratios (B= -.03, p=.66); however, greater within-person variability in sleep duration was related to higher sleep-wake MAP ratios (B= .20, p=.009). In analyses stratified by race, more variable sleep duration was related to higher sleep-wake ratios in Black (B= -.26, p=.02) but not White adolescents (B= .12, p=.30). Effects of mean sleep and variable sleep were independent of the other, and the pattern of results was similar when examining systolic and diastolic BP as separate outcomes. These data suggest that the link between short sleep and high daytime BP is present in adolescence. Greater within-person variability, or inconsistency, in sleep duration may be related to an attenuation of the nocturnal BP dipping response, particularly in Blacks. The cardiovascular health consequences of short and variable sleep may begin as early as adolescence; however, longitudinal and experimental data are needed to support causality. Supported by HL025767.

Abstract 1879
INSomnia SYMPTOMS PreditC INCIDENT CARDIOMETABOLIC DISEASE
Martica H. Hall, PhD, Psychiatry and Psychology, University of Pittsburgh, School of Medicine, Pittsburgh, PA, Noora Sjösten, PhD, Unit of Excellence for Psychosocial Factors, Finnish Institute of Occupational Health, Turku, Finland, Mika Kivi-Mäki, PhD, Epidemiology and Public Health, University College London, London, England, Paulo Sato, PhD, Unit of Excellence for Psychosocial Factors, Finnish Institute of Occupational Health, Turku, Finland, Jussi Valteria, MD, PhD, Public Health, University of Turku, Turku, Finland
Accumulating evidence suggests that short sleep duration is linked to cardiometabolic risk and disease course. Fewer studies have evaluated the cardiometabolic health consequences of insomnia, which is the most common primary sleep disorder and differs functionally from short sleep duration. This study utilized prospective data from the FinnDiasym study of insomnia symptoms and three indices of cardiometabolic disease: hypertension (HTN), diabetes and ischemic heart disease (IHD). Participants were drawn from the longitudinal, 10 town, Finnish Public Sector Study (FPSS) of local government and hospital employees (n=39,724, mean age 44.7±9.4 yrs, 18.5% male). Insomnia symptoms were measured by self-report according to diagnostic criteria, including a minimum symptom duration of GE 1 month. Participants were categorized as follows: No Insomnia (symptoms LE 1 night/week), Moderate Insomnia (symptoms 2-4 nights/week) or Severe Insomnia (symptoms GE 5 nights/week). National register and medical records were used to identify incident cases of HTN, diabetes and IHD subsequent to the insomnia assessment (mean follow-up duration = 4.4 ±0.6 yrs). Only participants with a negative history of all 3 cardiometabolic outcomes at baseline were included in the analyses. Logistic regression was used to predict the odds of incident disease according to insomnia symptom categories, after adjusting for age, sex and occupational status. Moderate insomnia was associated an increased risk for HTN (OR=1.15, CI: 1.05-1.25). In contrast, severe insomnia was associated with an increased risk for all 3 outcomes (HTN OR=1.35, CI: 1.24-1.48; diabetes OR=1.47, CI: 1.10-1.97; IHD OR=1.44, CI: 1.02-2.03). These results suggest that insomnia may be a novel biobehavioral risk factor for cardiometabolic disease. If this relationship is shown to be causal, effective treatment of insomnia may represent a promising therapeutic target for primary prevention of cardiometabolic disease.

Paper Session: The Influences of Early Life Experiences and SES on Health
Abstract 1664
LOW SOCIO-ECONOMIC STATUS AND JOB STRESS AMPLIFY THE EFFECTS OF LATENT CYTOMEGALOVIRUS INFECTION ON T CELL SENESCENCE
Jodi A. Bosch, PhD, SPORTEX, University of Birmingham, Birmingham, United Kingdom, Adrian Loerbroks, PhD, MIPH, University of

A-126
Distress prone children had significantly elevated CRP as adults when also from low (b=3.14, SE=1.27, p<0.05) and middle (b=3.52, SE=1.46, p<0.05) income households, compared to distress prone children from high income households. Results were similar for other measure of CES and stratified models. Conclusion. The relation between child emotional functioning and CRP was modified by CSES such that the greatest adulthood inflammatory risk was observed for children with emotional problems who were also exposed to low CSES. This study suggests elevated CRP may have developmental origins in childhood adversity, and describes one way in which adverse psychosocial environments may “get inside the body” and harm health.

Abstract 1632

IMPLIED MEASURES OF EARLY-LIFE FAMILY CONDITIONS: IMPLICIT MEASURES OF EARLY-LIFE FAMILY CONDITIONS: RELATIONSHIP TO ADULT PSYCHOSOCIAL AND CARDIOVASCULAR CHARACTERISTICS

Meanne Chan, BA, Gregory E. Miller, PhD, Nandini Maharaj, William Lee, BA, Edith Chen, PhD, Psychology, University of British Columbia, Vancouver, BC, Canada

Early adversity has been closely linked to chronic diseases in adulthood, and the family environment provides a background for development that has long-term implications for mental and physical outcomes later in life. However, one prevailing issue is whether the characteristics of early-life family environments can be accurately assessed retrospectively in adults. The present 2 studies introduced attribution of affect as an indirect measure of early-life family conditions and examined its implications for health research. An initial 3-wave study (N=94) examined reliability and validity of the affect attribution paradigm. Affect attribution was measured via a computer-based implicit affect assessment tool. This paradigm was validated against self-reports of childhood family environments and parenting styles. Study 2 (N=122) examined affect attribution and associated adult psychosocial profiles (current perceived social support, depressive symptoms, heightened vigilance) and cardiovascular risk factors (resting blood pressure). Affect attribution was stable over a 6 month period (r's=.458, p's<.001) and associated with self-reports of childhood family environments and parenting styles, (B's=.124, p's<.05). Greater attributed negative affect towards early-life family conditions predicted lower levels of current perceived social support (B=−.191, p=.026) and heightened vigilance in adulthood (B=.217, p=.018). Implicitly measured feelings about childhood interacted with objectively measured early-life circumstances (socioeconomic status, SES) to predict resting systolic blood pressure (B=.210, p=.089), such that those individuals high in early-life SES but who attributed negative affect towards their early-life family had SBP levels that were similarly high as those low in early-life SES. These findings highlight the importance of incorporating implicit measures together with objective measures when assessing early-life factors. This index can be used as a submeasure of some of the prevailing issues surrounding retrospective assessments of early-life circumstances, thus providing a practical method for further exploring the implications of early-life environments on later life health.

Abstract 1209

EARLY LIFE EXPERIENCES, MENACRAL AGE, AND CARDIOVASCULAR RISK

Maria E. Bleil, PhD, Nancy E. Adler, PhD, Psychiatry, University of California San Francisco, San Francisco, CA, Barbara Sternfeld, PhD, Division of Research, Kaiser Permanente, Oakland, CA, Renee A. Reijo-Pera, PhD, Obstetrics and Gynecology, Stanford University, Stanford, CA, Marcella I. Cedars, MD, Obstetrics, Gynecology, and Reproductive Sciences, University of California San Francisco, San Francisco, CA

In separate literatures, adverse early life experiences have been linked prospectively to earlier onset puberty; and earlier onset puberty has been linked prospectively to CVD risk. The current study is the first investigation to integrate these literatures through the concurrent examination of early life experiences, menarcheal age, and CVD risk. In cross-sectional structural equation modeling analyses of a sample derived from the OVA Study, an investigation of ovarian aging, relations...
between early life experiences, menarcheal age, and CVD risk were evaluated among 300 women (ages 25-45 [35.8 ± 5.6]; 59% Caucasian). Early life experiences were measured by 2 latent constructs: Parental SES and Family Environment. Parental SES was modeled using 2 indicators: father and mother education. Family Environment was modeled using 5 indicators: childhood disruption events, childhood abuse events, and dimensions of family conflict, expressiveness, and cohesion derived from the Family Environment Scale. CVD risk was measured by a third latent construct modeled using 1 indicators: total cholesterol, total HDL, HDL, LDL, triglycerides, fasting glucose, insulin, waist circumference, waist:hip, BMI, and hypertensive status. Independently of age, education, smoking, parity, and oral contraceptive use, higher parental SES was related to older menarcheal age (r = .24, p < .05) which, in turn, was related to lower CVD risk (r = .22, p < .01). Findings were supported in the Caucasian (chi-square = 366.6, df = 225, p < .001; RMSEA = .06, 90% CI = .048-.071, p = .08; CFI = .94) but not in the African-American women. In subsequent analyses in which body composition measures were modeled as covariates rather than as CVD risk indicators, the relation between older menarcheal age and lower CVD risk attenuated to a non-significant level (r = .22, p < .01 to r = .04, p > .05). Findings, although cross-sectional, suggest higher parental SES may play a protective role in slowing reproductive maturation among adolescent girls which, in turn, relates to reduced CVD risk in adulthood. Additionally, adulthood body sizes may account for the relation between menarcheal age and CVD risk.

Paper Session: Acute Stress Psychophysiology

Abstract 1870

OXOTOCIN RECEPTOR POLYMORPHISM AND THE CARDIOVASCULAR STRESS RESPONSE

Sarah Pressman, PhD, Omri Gillath, PhD, Lora Black, MA, Yevgeny Botanov, MA, Psychology, Jackob Moskovitz, DSc, Pharmacology & Toxicology, Dean Stetler, PhD, Molecular Biosciences, University of Kansas, Lawrence, KS

Recent studies have shown that variations in the oxytocin receptor (OXTR) rs53576 are associated with lower social competence in those without the G allele. Given the importance of social relationships to the stress response and the proposed associations between oxytocin levels and stress, we were interested in whether OXTR variations would be associated with cardiovascular reactivity and recovery. We hypothesized that those subjects without the G allele (A, A) would have the more elevated stress responses. We also explored whether these OXTR related differences were due to parasympathetic or sympathetic nervous system (PNS or SNS) activity. One hundred and fifteen undergraduates (55% female, 83% Caucasian, mean age = 19) were monitored over the course of two hours as part of a study on psychosocial priming. Here we focus on assessments of mean heart rate and heart rate variability, including respiratory sinus arrhythmia (RSA). Measures were recorded continuously and averaged over each minute. Analyses included measures of baseline (10 minute), speech (5 minutes) and stress recovery (13 minutes). Baseline salivary samples were assessed via commercially available genotyping assays for variations in OXTR. Ninety-eight individuals had the G allele and 17 did not. After controlling for baseline cardiovascular function, sex, age, and race, individuals with the G allele were found to have lower heart rate levels during the recovery period (b = -1.26, p < .05). OXTR was not associated with RSA or HFP during stress task or recovery, but was associated with LFP during the stress task (b = .188, p < .05) indicating a possible role of the SNS in mediating the influence of OXTR on cardiovascular responding. Our findings are consistent with past research connecting intranasal oxytocin to stress reactivity and the first to show links between variations in OXTR and SNS versus PNS activity. Data analyses on pre-ejection period and cardiac output are underway, which will clarify the role of the SNS in these associations.

Abstract 1350

ARE THREAT AND CHALLENGE APPRAISALS OF ACUTE STRESS ASSOCIATED WITH LEUKOCYTE TELOMERE LENGTH?

Aiofe O'Donovan, PhD, Janet Tomiyama, PhD, Psychiatry, Joe Lin, PhD, Biochemistry and Biophysics, Eli Puterman, PhD, Margaret Kemeny, PhD, Owen Vollkow, MD, Alunie Luzaro, BA, Michael B. Rankin, BA, Nancy E. Adler, PhD, Psychiatry, Elizabeth H. Blackburn, PhD, Biochemistry and Biophysics, Elibsa S. Epel, PhD, Psychiatry, University of California, San Francisco, San Francisco, CA

Purpose: Chronic psychological stress has been associated with short leukocyte telomere length (LTL), a marker of biological age associated with increased risk for age-related diseases and early mortality. Cognitive appraisals can influence degree and type of physiological responses to psychological stress, and thereby the extent to which such stress influences leukocyte telomere shortening. However, little is known about the relationship between cognitive stress appraisals and LTL. In the present research, we examine if threat and challenge appraisals of a standardized acute stressor are associated with LTL. Methods: A sample of 54 postmenopausal women (28 caregiving for a relative with dementia and 26 age- and sex-matched controls) with a mean age of 62 years (SD = 6) participated in a modified Trier Social Stress Task that included speech and math tasks. Pre- and post-task threat and challenge appraisals were assessed by self-report. Quantitative polymerase chain reaction was used to measure mean LTL. Results: Shorter LTL was associated with higher pre-task (b = -.31, p = .02) threat appraisals, and there was a trend towards an association with higher post-task threat appraisals (b = -.27, p = .11). In contrast, challenge appraisals were not associated with LTL. Controlling for age, BMI, education and caregiver status, odds of short LTL (< median LTL) were significantly higher in women with higher pre-task (OR = 3.40, Wald = 6.58, p = .01) or post-task (OR = 3.40, Wald = 3.68, p = .05) threat appraisals. With pre- and post-task threat appraisals in a single model, only higher pre-task threat appraisals were associated with significantly increased odds of short LTL (OR = 3.40, Wald = 6.58, p = .01). Conclusion: Our data extend previous research showing an association between pessimism and short LTL. Specifically, results indicate that postmenopausal women who anticipate greater threat in relation to a standardized acute stressor have significantly increased odds of short LTL. Thus, anticipated threat appraisals in everyday life may threaten health and longevity.

Abstract 1794

A NOVEL APPROACH TO ASSESS PSYCHO-PHYSIOPHLOGICAL RESPONSES TO STRESS

Motohiro Nakajima, PHD, Mustafa a'Albi, PhD, Behavioral Sciences, University of Minnesota Medical School Duluth, Duluth, MN, Andrew Raji, PhD, Santosh Kumar, PhD, Computer Science, University of Memphis, Memphis, TN, Nathan Stohs,, Computer Science and Engineering, Emre Ertin, PHD, Electrical Engineering, The Ohio State University, Columbus, OH, Patrick Blitz,, Asim Smailagic, PHD, Institute for Complex Engineered Systems, Carnegie Mellon University, Pittsburgh, PA, Thomas Kamarck, PHD, Psychology, University of Pittsburgh, Pittsburgh, PA, Scott, PHD, Division of Epidemiology and Prevention Research, National Institute on Alcohol Abuse and Alcoholism, Bethesda, MD

The purpose of the current study was to demonstrate the feasibility of using a novel wireless ambulatory system (a wireless chest band and a mobile phone) that is able to collect time-synchronized measurement of multiple psychophysiological parameters associated with stress. We also examined whether machine-learning learning programs could predict stress responses in the real world. Twenty-two participants (11 women) were asked to wear the AutoSense device during a laboratory session. First, psychophysiological responses to stress tasks were collected. Then, a stress inferring algorithm was created based on the data from the laboratory and was loaded on the mobile phone. Participants wore the device and went about their normal activity during the two one-day field sessions. When the participant's physiological activity matched stress profile observed during the laboratory session, the phone requested the participant to complete a mood questionnaire. For each physiological variable, a mean of 5 minutes prior to each prompt was calculated and used for data analysis. Subjective responses were obtained from the phone. The results indicated that, during the laboratory session, HR, LF of HRV, and GSR increased from baseline to stress period (p < .05) and distress increased after stress tasks (p < .05). Also, HR assessed by the chest band significantly correlated with HR assessed by the traditional method (p < .001). During the second field study day, HR, LF, and skin
temperature were higher when participants reported subjective distress on the phone than when they were not stressed (p<.05). Also, higher LF/HF ratio and lower GSR, temperature, and respiration rate observed when prompts were activated by the stress inferencing algorithm than when they were activated on hourly basis during the first field day (ps < .05). The results indicate that the system captured psychophysiological responses to laboratory stress that are very similar to those obtained using conventional methods. Also, subjective stress was associated with increased cardiovascular activity. While preliminary, this method could be useful for assessing stress in the natural environment.

Abstract 1616

STRESS-INDUCED CHANGES IN BLOOD COAGULATION AND HEMOCONECENTRATION

Anthony W. Austin, MA, Psychology, Ohio University, Athens, OH, Petra H. Wirtz, PhD, Clinical Psychology and Psychotherapy, Psychological Institute, University of Zürich, Zürich, Switzerland, Stephen M. Patterson, PhD, Psychology, Ohio University, Athens, OH, Monika Stutz, Thrombosis Research Laboratory, Roland von Känel, MD, General Internal Medicine, Inselspital, Bern University Hospital, Bern, Switzerland

Background: When examining the effects of acute psychological stress on coagulation activity, the Dill & Costill equation has been used to arithmetically correct for stress-hemoconcentration, which may have limitations. This study compared arithmetic correction to a lab bench reconstitution technique designed to correct for plasma volume (PV) shifts during acute stress. Methods: Blood was collected from 32 healthy men immediately before (baseline) and after (stress) the Trier Social Stress Test. For the reconstitution technique, stress plasma was reconstituted with baseline plasma and physiological saline equal to the amount of plasma lost during stress. Prothrombin time (PT), activated partial thromboplastin time (APTT), fibrinogen, clotting factor VIII activity (FVIII) and D-dimer were determined at baseline and for each plasma manipulation after stress. Results: Paired t-tests showed that PV decreased significantly from baseline to stress (p < .05). Repeated measures ANOVAs showed that APTT was significantly faster at stress than at baseline. Stress APTT became significantly faster than uncorrected APTT when correcting arithmetically, but was not different from baseline APTT with saline reconstitution. D-dimer concentration was significantly greater at stress than at baseline. Arithmetic correction and saline reconstitution resulted in D-dimer no different than baseline. After plasma reconstitution, APTT and D-dimer were no different than uncorrected values. No effects were observed for PT, FVIII or fibrinogen. Conclusions: Mathematical adjustment may be viable when examining stress-hemoconcentration effects on D-dimer concentration, but may over-correct when examining clotting time of the intrinsic pathway (i.e., APTT). The findings suggest that the observed changes in APTT and D-dimer are a consequence of stress-hemoconcentration, but the traditional arithmetic correction may not always be appropriate. Additionally, for plasma volume shifts with the saline line, a stress reconstitution technique used in this study may be a more biologically relevant method when examining stress-hemoconcentration effects on coagulation.

Paper Session: Pain

Abstract 1635

DIFFERENTIAL COMORBIDITY OF MIGRAINE WITH SUBTYPES OF MOOD DISORDERS

Tuong-Vi Nguyen, MD, Psychiatry, McGill University, Montreal, QC, Canada, Sok S. Lee, BA, Medicine, Boston University School of Medicine, Boston, MA, Nancy C. Low, FRCP, Psychiatry, McGill University, Montreal, QC, Canada

Purpose of the study: Migraine has been found to be comorbid with bipolar disorder and major depressive disorder in previous studies. However, variability in findings across studies suggests that examining mood episodes separately, as (1) manic episodes alone (2) depressive episodes alone (3) manic and depressive episodes, may be fruitful in determining which of these mood episodes are specifically associated with migraine. Methods: Using a population-based sample (n=36984), the Canadian Community Health Survey 1.2, this study examined lifetime prevalence of migraine in subjects with lifetime history of manic episodes alone, depressive episodes alone and both manic and depressive episodes. Differences in demographic and clinical variables were tested using chi-square tests, T-tests and ANOVAs (p<.05). Logistic regression models yielding adjusted odds ratios (adjOR, p<.05) controlling for age, sex and education level were conducted: (1) comparing rates of migraine between each subtype of mood disorder versus controls, and (2) comparing rates of migraine directly between subtypes of mood disorders. Results: Subjects with both manic and depressive episodes were found to have different demographic and clinical characteristics when compared to unipolar subtypes. Compared to controls, the adjOR of having migraine was 2.0 (95%CI 1.4-2.8) for subjects with manic episodes alone, 1.9 (95%CI 1.6-2.1) for subjects with depressive episodes alone, and 3.0 (95%CI 2.3-3.9) for subjects with both manic and depressive episodes. Compared to unipolar subtypes, the odds of having migraine were significantly increased when subjects had both manic and depressive episodes. Conclusions: Differential comorbidity of migraine with the manic-depressive subtype of bipolar disorder, when compared to unipolar subtypes supports the examination of mood disorders by specific type of mood episode and argues for differential phenomenology underlying migraine comorbidity with mood disorders. Differences in demographic/clinical correlates between unipolar mania and the manic-depressive subtype further support the existence of specific bipolar syndromes.

Abstract 1211

IS REDUCTION IN PAIN CATASTROPHIZING A THERAPEUTIC MECHANISM SPECIFIC TO CBT FOR CHRONIC PAIN?

John W. Burns, PhD, Behavioral Sciences, Rush University Medical Center, Chicago, IL, Beverly Thorn, PhD, Melissa Day, MS, Psychology, University of Alabama, Tuscaloosa, Alabama

Psychosocial interventions for chronic pain treatment are widely used, and evidence supports their efficacy. Whereas evidence suggests that psychosocial intervention is more effective than usual care, it is still unclear by what mechanisms these approaches cause favorable outcomes. Theory suggests that changes in maladaptive cognitions (eg, pain catastrophizing) represent therapeutic mechanisms specific to CBT. We conducted an RCT of 60 rural residents using a CBT-based intervention and a pain education (active placebo) control group, with all procedures modified for low-literacy participants. We expected: a) that catastrophizing changes would predict changes in outcomes to a greater extent in CBT than in education; and the Pain Catastrophizing Scale (PCS) x PCS change score interaction was significant only for QOL changes. PCS changes were related significantly to QOL changes in CBT (beta=.56) but not in education (beta=.03). PCS changes were related significantly to all other outcome changes irrespective of Treatment Group (bets > .40). On one hand, pain catastrophizing predicted QOL changes in the CBT group only, hinting that such changes represent a therapeutic mechanism unique to CBT, as expected. However, catastrophizing changed equally in both CBT and education (which was not a treatment designed to address this construct), and catastrophizing changes predicted 4 of 5 outcomes to the same degree across treatments. Thus, the bulk of findings suggest that a feature common to both CBT and education produced catastrophizing changes AND that these changes may represent an active therapeutic ingredient in predicting treatment gains that is not specific to CBT.

Abstract 1778

SENSITIVITY TO PHYSICAL AND EMOTIONAL PAIN IN WOMEN WITH ABUSE HISTORIES

Diana S. Fleischman, PHD, Psychiatry, University of North Carolina, Chapel Hill, Chapel Hill, North Carolina, Jane Leserman, PHD, Susan
A history of abuse is a well established risk factor for dysregulation in clinical pain mechanisms. However, research on the biological and psychological correlates of differences in pain sensitivity under controlled laboratory conditions is scant. In our on-going study, medically healthy, pain-free premenopausal women, not taking psychotropic medications and without current Axis 1 disorders are recruited based on abuse histories (yes:no) determined by clinical interview. During the confirmed luteal phase women are tested for voluntary pain threshold (onset) and pain tolerance to a cold pressor pain test and a forearm tourniquet ischemic test and also for plasma cortisol and norepinephrine (NE) following an extended rest period. As a measure of emotional pain, women complete daily ratings of sensitivity to interpersonal rejection. To date, 27 women have completed testing, 11 with a sexual or physical abuse history and 16 never abused women. Women with an abuse history had higher tolerance levels to the ischemic pain test ($t = 3.03$, $p<.01$), consistent with observations for increased pain thresholds in IBS patients with abuse histories. The abused women also had lower baseline NE levels ($t = 2.1$, $p=.05$). This effect in combination with their higher pain tolerance is a pattern consistent with the reverse (i.e., hyper) sensitivity to NE that is seen in chronic pain patients. Abused women also reported higher sensitivity to interpersonal rejection ($t = 3.0$, $p<.01$). In the full sample, greater sensitivity to interpersonal rejection was associated with lower baseline plasma NE levels ($r = -0.33$, $p=.10$) and with greater ischemic pain tolerance levels ($r = +0.53$, $p<.01$). These results suggest alterations in pain modulatory mechanisms in women with abuse histories that may involve noradrenergic mechanisms. Moreover, there appears to be a dissociation between physical pain (lower) and emotional pain sensitivity (greater) in women with an abuse history.
How to Cite your Abstract

The April 2011 (volume 73, number 3) on-line issue of *Psychosomatic Medicine* contains the 2011 meeting abstracts. The on-line journal is *Psychosomatic Medicine*’s journal of record for indexing purposes. To cite a meeting abstract in one’s vita, use Volume 73, Number 3 and the page number in which your abstract appears. Note each page number appears with the letter A in front of the page number.