The abstracts are grouped by symposia, followed by all of the poster presentations, and conclude with all of the paper presentations.

**Wednesday, March 4**
- **9:00-12:00** Half Day Preconference Workshop
- **1:00-4:30** Half Day Preconference Workshop
- **1:30-4:30** Half Day Preconference Workshop
- **5:00-6:30** Welcome, Special Presentation, Data Blitz and Awards
- **6:30-8:30** Citation Poster Session (p. A15 – A28) and Reception

**Thursday, March 5**
- **7:00-8:00** Breakfast Roundtables
- **8:00-9:45** Herbert Weiner Early Career Award Lecture and President’s Address
- **10:00-11:30** Invited Plenary Symposium: Developmental Processes from Early Life into Adulthood
- **11:30-12:45** Lunch on your own/Roundtable Lunches/Committee Meetings
- **12:45-2:00** Symposium 1260: Couple Interaction and Stress (p. A2-A3)
- **12:45-2:00** Symposium 1212: Sleep, Health and Functioning (p. A3-A4)
- **12:45-2:00** Symposium 1038: SYNOPSIS: Early-Life SES and Health in Adulthood (p. A4-A5)
- **12:45-2:00** Paper Session: Psychosocial Predictors of Risk and Mortality (p. A112-A113)
- **2:15-4:00** Paper Session: Effects of Psychosocial Factors on Immunity and Inflammation (p. A113-A115)
- **2:15-4:00** Paper Session: Depression & Heart (p. A115- A117)
- **2:15-4:00** Paper Session: Biopsychosocial Outcomes of Cancer Patients: Risk and Protective Factors (p. A117- A119)
- **2:15-4:00** Paper Session: Health Risk Behaviors Across the Life Course (p. A119-A121)
- **4:15-5:15** Symposium 1158: The Bypassing the Blues Trial (p. A6-A7)
- **4:15-5:15** Symposium 1492: Women's Health across the Menopausal Transition (p. A8-A9)
- **5:15-6:30** Poster Session 1 (p. A29-A56)
- **6:30-7:30** Mentor / Mentee Reception
- **7:30** Past Leaders Dinner
- **8:00** Student Dinner

**Friday, March 6**
- **7:00-8:00** Breakfast Roundtables
- **8:00-8:50** Paper Session: Asthma, Stress and Inflammation (p. A121-A122)
- **8:00-8:50** Paper Session: Functional Somatic Syndromes (p. A122-A123)
- **9:00-9:45** Patricia R. Barchas Award Lecture
- **10:00-11:30** Invited Plenary Symposium: Midlife: A New Beginning or the Beginning of the End?
- **11:30-12:45** Lunch on your own/Roundtable Lunches/Committee Meetings
- **12:45-2:15** Symposium 1718: Race, Psychosocial Stress and Inflammatory Markers (p. A9-A10)
- **12:45-2:15** Symposium 1025: Putting GI back into APS! (p. A10-A12)
- **12:45-2:15** Symposium 1025: Putting GI back into APS! (p. A10-A12)
- **12:45-2:15** Paper Session: Sleep (p. A124-A126)
- **2:30-4:00** NCI Cancer Symposium
- **2:30-4:00** Paper Session: Hypertension (p. A126-A128)
- **2:30-4:00** Paper Session: Pain (p. A128-A129)
- **2:30-4:00** Panel Session: You Got the Grant, Now What?
- **4:15-5:15** Town Hall Identity Discussion
- **5:15-6:30** Poster Session 2 (p. A57-A85)
- **6:30-8:00** Special Interest Get-Togethers

**Saturday, March 7**
- **7:30-8:00** Committee Meeting
- **8:00-9:00** Committee Meetings
- **9:00-10:00** Business Meeting
- **10:00-10:45** Alvin P. Shapiro Award Lecture
- **11:00-12:30** Invited Plenary Symposium: Processes of Aging and Health: From Mechanisms to Interventions
- **12:30-1:45** Lunch on your own/Roundtable Lunches
- **1:45-3:30** Paper Session: The Bi-directional Nature of Psychological Factors and Heart Disease (p. A130- A132)
- **1:45-3:30** Paper Session: Stress & Heart (p. A132- A134)
- **1:45-3:30** Paper Session: HPA Axis II (p. A134- A135)
- **3:45-5:00** Symposium 1288: Mindfulness-Based Intervention for Chronic Disorders Comes of Age (p. A12- 13)
- **3:45-5:00** Symposium 1074: Psychosomatic Sequelae of Exposure to War (p. A13- A14)
- **3:45-5:00** Invited Symposium: Developmental Approaches to Health Disparities
- **5:00- 6:15** Poster Session 3 (p. A86-A111)
- **7:00** Dinner and Entertainment
Social isolation increases morbidity and mortality, with statistical effect sizes comparable to those of well-established medical health risk factors, such as smoking, high blood pressure, obesity and sedentary lifestyles. In contrast, couple relationships promote individual wellbeing, health and longevity. The psychobiological mechanism underlying this effect is not known, and is suggested in the stress buffering effect of affiliation and social support. In addition, it remains to be established whether this effect is mediated through specific cognitions and changes at a neural and behavioral level, or whether couple interaction in the laboratory and in couples’ everyday life in different age groups with particular emphasis on cognitive and psychobiological mechanisms linking close relationships to wellbeing and health.

Individual Abstract Number: 1548

EFFECTS OF COUPLE CONFLICT IN THE LABORATORY ON SALIVARY ALPHA AMYLASE

Beate Ditzen, Ph.D., Psychology, Clinical Psychology and Psychotherapy, University of Zurich, Zurich, Switzerland, Markus Heinrichs, Ph.D., Psychology, Clinical Psychology and Psychotherapy, Markus Heinrichs, Ph.D., Psychology, Clinical Psychology and Psychotherapy, Markus Heinrichs, Ph.D., Psychology, Clinical Psychology and Psychotherapy, Ulrike Elbert, Ph.D., Psychology, Clinical Psychology and Psychotherapy, University of Zurich, Zurich, Switzerland, Switzerland

The health-beneficial effect of couple relationships is supposed to be mediated through reduced psychobiological stress responses. On a neural level, affiliation was related to the central activity of the neuropeptide oxytocin (1, 2). In contrast, couple conflicts were interpreted as chronic stressors which stimulate psychobiological stress systems, such as the hypothalamic pituitary adrenal (HPA) axis and the autonomous nervous system (ANS). However in the laboratory, surprisingly few studies have found cortisol increases, as markers of HPA axis reactivity to couple conflict. This suggests an additional, possibly ANS-mediated pathway linking marital discord to long-term health outcomes. Recent studies have identified salivary alpha amylase as parameter of sympathetic activation and thereby ANS involvement. We were interested if standard couple conflict might increase salivary cortisol and salivary alpha amylase. In addition, we tested if this effect might be modulated through administration of intranasal oxytocin and through social support and communication patterns, assessed with the Dyadic Coping Inventory (3). Salivary cortisol and salivary amylase responses to standard instructed couple conflict in the laboratory were measured in 48 couples (total N= 96). Prior to the conflict, couples received either oxytocin or placebo according to a randomized sequence. Hierarchical linear modeling was used for data analyses. Results show significantly increased amylase levels following the couple conflict (time effect: t = 2.86, p = .005), but no cortisol increases. Intranasal oxytocin compared to placebo significantly reduced cortisol (t = -2.52, p = .012) but not amylase following the couple conflict. Dyadic coping was associated with significantly reduced amylase (t = -2.60, p = .011), and cortisol levels reduced on a trend level (t = -1.86, p = .065). These results suggest an important role of ANS-mediated responses to couple conflict in the relationship of couple interaction and health. References: 1) Young & Wang, 2004, Nat Neurosci 2) Ditzen et al., in press, Biol Psychiatry 3) Bodenmann et al., 2007, Hogrefe, Bern

Individual Abstract Number: 1455

OXYTOCIN (OT), CARdioVASCular AND SYMPATHetic (SNS) BENEFITS OF WARM PARTNER CONTACT IN BOTH HUSBANDS AND WIVES

Kathleen C. Light, Ph.D., Psychiatry, Pain Research Center, University of Utah School of Medicine, Salt Lake City, Utah, Julianne .. Holt-Lunstad, Ph.D., Wendy A. Birmingham, B.S., Psychology, Brigham Young University, Provo, Utah, Karen M. Grewe, Ph.D., Psychology, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina

Animal research indicates that warm contact with mates or siblings has cardiovascular benefits involving enhanced OT activity. To extend this to humans, we first examined 38 couples before and after 10 minutes of warm contact. Higher plasma OT levels were seen before (anticipating) and at 3 time points after warm contact in both spouses if one or both reported high partner support. In women only, OT levels increased after this single brief warm contact, and higher OT levels were correlated with lower resting BP and plasma norepinephrine. In a second study in 59 wives, women with high vs. low OT when anticipating warm partner contact had lower BP levels before, during and after a speech stressor and lower resting HR, but not reduced reactivity. Next we examined effects of training couples in ways to use touch to express loving support and having them practice at home for 4 weeks. Couples were randomized to Intervention (20 couples) vs. monitoring-only Control conditions (14 couples). Intervention couples first learned Rosen listening touch (week 1), then head and neck massage (week 2), and both gave and received loving touch at home for 30 minutes 3 times/week. In-clinic plasma OT, 24-hour ambulatory BP and 5-sample diurnal profiles of salivary cortisol and SNS marker alpha amylase (AA) were obtained pre- and post-intervention. Saliva for post-practice home OT was obtained in weeks 1 and 4. Intervention husbands and wives had higher saliva OT than Controls as early as week 1 with greater differences in week 4, and lower post-intervention AA but not cortisol or in-clinic OT. Intervention husbands had greater decreases in 24-hour systolic BP than Control husbands after 4 weeks, and no longer had higher BP than the wives (who started with lower BP). Future research should evaluate if multiple or longer warm touch periods are more effective, if giving and receiving warm touch are equally effective and if similar interventions may help couples under chronic stress.

Individual Abstract Number: 1410

HUSBANDS’ RESPONSES TO JOB STRESS IN MARITAL INTERACTIONS ARE MODERATED BY EMOTIONAL AND MARITAL DISTRESS

Shu-wen Wang, M.A., Rena L. Repetti, Ph.D., Psychology, University of California, Los Angeles (UCLA), Los Angeles, CA

Research has indicated that experiences in the workplace can influence marital relationships through their impact on workers’ psychological resources and subsequent social behavior. Using unique naturalistic observational data, this study examined the associations between workers’ job stress and their marital behavior at home, focusing on the moderating role of emotional and marital distress on these associations. Data were collected by the UCLA Center on Everyday Lives of Families on 30 middle-class families headed by dual-earner heterosexual couples with children between the ages of 7 and 12. The couples self-reported on their emotional distress, marital distress, and job stressors (workload and negative social interactions) on two weekdays. In addition, naturalistic videotaped observations were collected in the couples’ homes on the two weekdays after work. A coding system was developed for the video data that assessed level of behavioral involvement and negative emotion expression when the couples were together. The two days of data were aggregated to represent typical work and marital experiences for these couples using between subject analyses. We found limited support for overall associations between self-reported job stress and observed social behavior in the first hour couples were together at home after work. However, moderator analyses incorporating the emotional and marital distress variables revealed robust effects for the men (9 out of 12 interaction terms significant at the p < .05 and p < .10 levels). Specifically, the more distressed husbands who experienced greater job stress showed a negative spillover response, showing more behavioral involvement of a negative quality in their marital interactions. Unusually distressed husbands who experienced greater job stress showed a social...
withdrawal response, showing less behavioral involvement and emotion expression with spouse. These findings suggest that individual distress factors greatly influence how individuals respond to job stress in the context of their marital relationships.

Individual Abstract Number: 1552

GOAL PURSUIT IN ELDERLY COUPLES: ON THE ROLE OF GOAL-DISENGAGEMENT STRATEGIES

Christiane Hoppmann, Ph.D., Psychology, University of British Columbia, Vancouver, British Columbia, Canada, Fredda Blanchard-Fields, Ph.D., School of Psychology, Georgia Institute of Technology, Atlanta, GA

Purpose: Individuals actively influence their own development through the setting and pursuit of personal goals. Goals can contribute to health and wellbeing but they can also turn into sources of stress if they become unachievable. In addition, goals are rarely pursued in isolation and can involve conflicts with significant others such as spouses. The present study examines the association between spousal goal conflicts, goal disengagement, and well being in elderly couples. Methods: This study uses one-week time-sampling information from 49 couples aged 60 to 85 years (mean age = 72 years, mean relationship duration = 42 years). At baseline, both spouses reported their goals and provided goal conflict ratings. Ratings were collected the time-sampling in the social network simultaneously beeped and asked about their current affect quality, daily goal pursuits, and goal-related obstacles. In an exit session, both spouses rated their goal-disengagement. Results: Results from multilevel models point to pronounced gender differences in the observed associations. In husbands, spousal goal conflict ratings were linked to increased disengagements from goals (p < .01). In wives, spousal goal conflict ratings were associated with the experience of many daily goal obstacles (p < .05). Interestingly, disengaging from social goals under conditions of high spousal goal conflict contributed to husbands’ wellbeing, only (p < .01). These findings are in line with an interactive minds perspective, which proposes that goal pursuit is linked in social relationships but they also show that social interdependencies in goal pursuit may affect women and men differently.

Symposium 1212

SLEEP, HEALTH AND FUNCTIONING: NEW PERSPECTIVES ACROSS THE ADULT LIFESPAN

Martica H. Hall, Ph.D., Psychiatry, Psychology, Wendy M. Traxel, PhD, Psychiatry, University of Pittsburgh, Pittsburgh, PA, Margaret D. Hanson, MA, Psychology, University of British Columbia, Vancouver, BC, Canada, Hyong Jin Cho, MD, PhD, Psychiatry, UCLA, Los Angeles, California, Michele L. Okun, Ph.D., Psychiatry, University of Pittsburgh School of Medicine, Pittsburgh, PA

This symposium will present new research on various dimensions of the sleep-health relationship across the adult lifespan, from undergraduate students to late-life. The first presentation addresses a significant methodological question: How important is it to accurately capture wake time in the assessment of the cortisol awakening response (CAR)? Results soberingly suggest that large discrepancies between actual wake time and the first cortisol sample significantly blunts CAR values. The second presentation focuses on the prospective relationship between inflammation and symptoms of fatigue. It is reported that elevated C-Reactive Protein (CRP) levels are associated with increased reports of fatigue, an understudied dimension of health and functioning. The third presentation evaluates temporal relationships among stress, sleep and health symptoms across a 7-day period in young adults. These data suggest that sleep is a significant predictor of stress and health symptoms the following day. Results also suggest moderation of the stress-health relationship by childhood SES. The final presentation tests the hypothesis that social isolation, measured by social network diversity (SND), may play a role in blunted nocturnal blood pressure dipping. These data indicate that SND is an important correlate on nocturnal mean arterial pressure (MAP) dipping and is moderated by race. Increased social isolation was associated with lower nocturnal MAP dipping in blacks, but not in whites. These presentations are consistent with current biobehavioral models of disease which suggest that emotion and cognition are important contributory factors.

Individual Abstract Number: 1268

ASSOCIATION BETWEEN C-REACTIVE PROTEIN AND FATIGUE FIVE YEARS LATER - THE CORONARY ARTERY RISK DEVELOPMENT IN YOUNG ADULTS (CARDIA) STUDY

Hyong Jin Cho, MD, PhD, Psychiatry, Teresa E. Seeman, PhD, Epidemiology, Julienne E. Bower, PhD, Psychiatry, UCLA, Los Angeles, CA, Catarina I. Kiefe, MD, PhD, Preventive Medicine, University of Alabama at Birmingham, Birmingham, AL, Michael R. Irwin, MD, Psychiatry, UCLA, Los Angeles, CA

Background: Fatigue is highly prevalent and poses a major public health burden. Whether fatigue is a stand-alone symptom or associated with other morbidity, the underlying biological mechanism is unclear. Objective: To examine whether C-reactive protein (CRP), a biomarker of inflammatory processes, predicts fatigue five years later. Design: Population-based prospective cohort study Setting: Four urban communities in the United States Participants: 3022 African-American and white adults who were seen at both year 15 (2000-2001, ages 33-45 years) and year 20 examinations (2005-2006) of the CARDIA study Measurements: Highly sensitive CRP concentration and fatigue were measured at both Year 15 and Year 20. Fatigue was assessed using the (reverse-coded) Vitality Subscale of the 12-item Short Form Health Survey. Results: Plasma CRP concentration at baseline (i.e. CARDIA Year 15) was a significant predictor of fatigue level five years later (unadjusted regression coefficient, 0.07; P=0.001). After adjustment for potential confounders and baseline fatigue score, this prospective association remained significant (adjusted regression coefficient, 0.38; P=0.009). In addition, baseline CRP concentration independently predicted fatigue five years later in the subgroup of participants with no comorbid medical disorders (adjusted regression coefficient, 0.56; P=0.008). Persistently high CRP at both Year 15 and Year 20 was more strongly associated with fatigue (P=0.05) compared to high CRP for both elevated values in either Year 15 or Year 20 but not both
African American and Caucasian men and women (N = 187). In network diversity and nocturnal BP in a diverse, community sample of moderated the relation between stress and health (interaction B = -.18, p < .05) such that among subjects whose parents were higher SES, on the next 7 days they completed online surveys regarding daily stress and health symptoms. They also wore an actwatch (an accelerometer worn on the wrist to measure motor movement) for 1 week to measure sleep (minutes, efficiency). Data was analyzed using hierarchical linear modeling techniques to determine the temporal relations between daily stress, sleep, and health symptoms, as well as whether these relationships vary as a function of SES. In terms of temporal ordering, we found that sleep efficiency at night predicted the number of stressors the next day (B = -.02, p < .01) as well as the number of health symptoms the next day (B = .19, p < .01). In contrast, neither stressors nor health symptoms during the day predicted sleep at night (B = .25, n.s., B = .00, n.s., respectively). Second, we found that SES moderated the relation between stress and health (interaction B = .18, p < .05) such that among subjects whose parents were higher SES, on days that they experienced more severe stress, they also experienced greater health symptoms. In contrast, there was no relation between daily stress and health symptoms among subjects from lower SES backgrounds. Findings indicate that the relation between stress and health may not be uniform across individuals, but may vary according to SES upbringings. People from higher SES backgrounds may be more reactive to daily stress than lower SES people due to fewer experiences with stress in their lifetime.

Individual Abstract Number: 1213

SOCIAl ISOLATIon, BLOOD PRESSURE DIPPING, AND NOCTURAL PATHWAYS IN AFRICAN AMERICAN AND CAUCASIAN MEN AND WOMEN

Wendy M. Travel, PhD, Psychiatry, University of Pittsburgh, Pittsburgh, PA; Daniel J. Buysse, MD, Psychiatry, University of Pittsburgh, Pittsburgh, PA; Martica Hall, PhD, Psychiatry, University of Pittsburgh, Pgh, PA; Thomas Kamarck, PhD, Psychology, Patrick J. Strollo, MD, Medicine, Jane F. Owens, PhD, Psychiatry, University of Pittsburgh, Pgh, PA; Steven E. Reis, MD, Medicine, Karen A. Matthews, PhD, Psychiatry, Psychology, and Epidemiology, University of Pittsburgh, Pittsburgh, PA.

Social isolation is a risk factor for traditional cardiovascular (CV) risk factors, including elevated daytime blood pressure (BP). Limited evidence suggests that it may also be associated with blunted nocturnal BP -- an emerging risk factor for CV morbidity and mortality. However, the mechanisms underlying these associations are poorly understood. The current study examined the association between social network diversity and nocturnal BP in a diverse, community sample of African American and Caucasian men and women (N = 187). In addition, we examined the degree to which observed associations were accounted for by putative nocturnal pathways, including sleep-disordered breathing (apnea/ hypopnea index; AHl), restless sleep (actigraphy-assessed sleep fragmentation), and nocturnal catecholamines (norepinephrine and epinephrine). In models that adjusted for age, body mass index, race, and community status, there was a significant inverse relationship between SND and the ratio of night to day mean arterial pressure (MAP), indicating that socially isolated individuals had a blunted nocturnal BP dipping profile (Beta = -.44; p < .01). There was also a significant interaction between race and SND (Beta = .59; p < .05). Race-stratified analyses revealed that the significant, inverse relationship between SND and night to day MAP ratio was evident in African Americans (Beta = -.32; p = .005), but there was no association in Caucasians (Beta = -.05; p = .65). With further adjustment for AHl, restless sleep, and nocturnal catecholamines, the significant association between SND and night to day MAP ratio was unchanged (Beta = -.32; p = .002), suggesting that these factors do not explain the relationship between SND and nocturnal BP in African Americans. These findings suggest that for African Americans, social isolation may be a risk factor for blunted nocturnal blood pressure patterns; and this risk is not attributable to putative nocturnal physiological pathways. Supported by HL076369 and Pennsylvania Department of Health (contract ME-02-384).

Individual Abstract Number: 1259

EXAMINING THE EFFECTS OF SOCIOECONOMIC STATUS ON DAILY STRESS, SLEEP, AND HEALTH SYMPTOMS

Margaret D. Hanson, MA, Edith Chen, PhD, Psychology, University of British Columbia, Vancouver, BC, Canada

Much research has been conducted on links between stress and health, yet less is known about the temporal relation between stress and health over time. As well, less is known about factors that moderate this relationship. Previous studies have found that adverse social environments in childhood such as SES have important implications for adult health. The purpose of this study is to explore 1) the temporal relations between daily stress, sleep, and health symptoms, and 2) whether SES moderates the relation between daily stress and health. 86 healthy undergrads, ages 19-25 (M=21.51, 33% male) provided data on the SES of their parents (occupation, education) during a lab visit. For the next 7 days they completed online surveys regarding daily stress and health symptoms. They also wore an actwatch (an accelerometer worn on the wrist to measure motor movement) for 1 week to measure sleep (minutes, efficiency). Data was analyzed using hierarchical linear modeling techniques to determine the temporal relations between daily stress, sleep, and health symptoms, as well as whether these relationships vary as a function of SES. In terms of temporal ordering, we found that sleep efficiency at night predicted the number of stressors the next day (B = -.02, p < .01) as well as the number of health symptoms the next day (B = .19, p < .01). In contrast, neither stressors nor health symptoms during the day predicted sleep at night (B = .25, n.s., B = .00, n.s., respectively). Second, we found that SES moderated the relation between stress and health (interaction B = .18, p < .05) such that among subjects whose parents were higher SES, on days that they experienced more severe stress, they also experienced greater health symptoms. In contrast, there was no relation between daily stress and health symptoms among subjects from lower SES backgrounds. Findings indicate that the relation between stress and health may not be uniform across individuals, but may vary according to SES upbringings. People from higher SES backgrounds may be more reactive to daily stress than lower SES people due to fewer experiences with stress in their lifetime.

Individual Abstract Number: 1213

SOCIAL ISOLATION, BLOOD PRESSURE DIPPING, AND NOCTURNAL PATHWAYS IN AFRICAN AMERICAN AND CAUCASIAN MEN AND WOMEN

Wendy M. Travel, PhD, Psychiatry, University of Pittsburgh, Pittsburgh, PA; Daniel J. Buysse, MD, Psychiatry, University of Pittsburgh, Pittsburgh, PA; Martica Hall, PhD, Psychiatry, University of Pittsburgh, Pgh, PA; Thomas Kamarck, PhD, Psychology, Patrick J. Strollo, MD, Medicine, Jane F. Owens, PhD, Psychiatry, University of Pittsburgh, Pgh, PA; Steven E. Reis, MD, Medicine, Karen A. Matthews, PhD, Psychiatry, Psychology, and Epidemiology, University of Pittsburgh, Pittsburgh, PA.

Social isolation is a risk factor for traditional cardiovascular (CV) risk factors, including elevated daytime blood pressure (BP). Limited evidence suggests that it may also be associated with blunted nocturnal BP -- an emerging risk factor for CV morbidity and mortality. However, the mechanisms underlying these associations are poorly understood. The current study examined the association between social network diversity and nocturnal BP in a diverse, community sample of African American and Caucasian men and women (N = 187). In addition, we examined the degree to which observed associations were accounted for by putative nocturnal pathways, including sleep-disordered breathing (apnea/ hypopnea index; AHl), restless sleep (actigraphy-assessed sleep fragmentation), and nocturnal catecholamines (norepinephrine and epinephrine). In models that adjusted for age, body mass index, race, and community status, there was a significant inverse relationship between SND and the ratio of night to day mean arterial pressure (MAP), indicating that socially isolated individuals had a blunted nocturnal BP dipping profile (Beta = -.44; p < .01). There was also a significant interaction between race and SND (Beta = .59; p < .05). Race-stratified analyses revealed that the significant, inverse relationship between SND and night to day MAP ratio was evident in African Americans (Beta = -.32; p = .005), but there was no association in Caucasians (Beta = -.05; p = .65). With further adjustment for AHl, restless sleep, and nocturnal catecholamines, the significant association between SND and night to day MAP ratio was unchanged (Beta = -.32; p = .002), suggesting that these factors do not explain the relationship between SND and nocturnal BP in African Americans. These findings suggest that for African Americans, social isolation may be a risk factor for blunted nocturnal blood pressure patterns; and this risk is not attributable to putative nocturnal physiological pathways. Supported by HL076369 and Pennsylvania Department of Health (contract ME-02-384).

Symposium 1038

SYNOPSIS: EARLY-LIFE SES AND HEALTH IN ADULTHOOD: PSYCHOBIOLOGIC MECHANISMS

Gregory E. Miller, Ph.D., Psychology, University of British Columbia, Vancouver, BC, Canada; Evanston, IL, Amy DeSantis, MSW, and Policy, Northwestern University, Evanston, IL, Christopher Kuzawa, PhD, Anthropology, Northwestern University, Evanston, IL, Claus Bode, MD, Medicine, University of British Columbia, Vancouver, BC, Canada; Edith Chen, PhD, Psychology, University of British Columbia, Vancouver, BC, Canada; Christoph Gerdes, PhD, Psychology, University of British Columbia, Vancouver, BC, Canada; Emma K. Adam, Ph.D., Program on Human Development and Social Policy, Northwestern University, Evanston, IL, Gregory E. Miller, PhD, Psychology, University of British Columbia, Vancouver, BC, Canada, Thomas McDade, Ph.D., Anthropology, Northwestern University, Evanston, IL.

There is robust evidence linking early-life socioeconomic circumstances with morbidity and mortality from chronic diseases of adulthood. These findings raise some important but challenging questions for psychosomatic researchers: How does early SES "get inside the body" to influence the development and expression of disease? And once it gets inside the body, how does it stay there for decades in a manner that eventually manifests as disease? The goals of this symposium are to (a) showcase state-of-the-art work being done to answer these questions, and (b) to draw attention to its implications for research and practice in psychosomatic medicine, where the role of early-life experiences on later disease are not often considered. The symposium will feature four empirical presentations and a conceptual overview by a renowned discussant. The first speaker, Dr. Emma Adam, will discuss findings from a large 20-year longitudinal study showing that low SES during specific periods of development is associated with a flattened diurnal rhythm of cortisol output in adulthood. Dr. Gregory Miller will then discuss evidence that such effects may be mediated through epigenetic mechanisms, such as methylation of cytosine residues in the promoter of the glucocorticoid receptor, and what implications this may have for systemic inflammation and metabolic function. Dr. Edith Chen will then present evidence that low-SES teens show increasing output of cortisol over two-years, and do so because they make threatening interpretations of benign stimuli and have home lives that are more chaotic. The fourth speaker, Dr. Karen Matthews, will present evidence the effects of low SES in adolescence extend beyond HPA indices to subclinical indicators of heart disease including carotid atherosclerosis and arterial stiffness. Finally, Dr. Thomas McDade, a renowned scientist in the area of developmental origins of disease, will integrate findings from the empirical presentations into the broader literature and highlight their implications for the field of psychosomatic medicine more broadly.

Individual Abstract Number: 1060

EARLY DEVELOPMENTAL INFLUENCES ASSOCIATED WITH HPA-AXIS ACTIVITY IN YOUNG ADULTHOOD

Emma K. Adam, Ph.D., Program on Human Development and Social Policy, Northwestern University, Evanston, IL, Amy DeSantis, MSW, Human Development and Social Policy, Amy DeSantis, Evanston, IL, Christopher Kuzawa, PhD, Anthropology, Northwestern University, Evanston, IL, and Sarah F. Buka, PhD, Epidemiology, University of British Columbia, Vancouver, BC, Canada.

Background: In explaining socioeconomic status (SES) disparities in health, researchers have suggested that higher levels of psychosocial stress and alterations in the hypothalamic-pituitary-adrenal (HPA) axis,
as a potential explanation. In particular, flatter diurnal cortisol rhythms are associated with lower SES and a variety of adverse health conditions in adults. The current study aims to identify the developmental origins of flatter diurnal origins of flatter cortisol rhythms. Methods: Participants include 1378 (764 male) adults born in 1983-84 in the Philippines who are participants of a longitudinal birth cohort. Prospective longitudinal data on parental assets and income, household crowding and hygiene, home ownership, and quality of housing were collected over 19 waves between the prenatal period and young adulthood. Data on these variables were aggregated within the specific developmental periods to create stage-specific measures of SES (prenatal, early childhood, school-age, adolescent, and early adulthood). Slopes represent the difference between wakeup and bedtime cortisol levels. Results: Analyzed individually, lower SES for each developmental period each significantly predicted flatter cortisol rhythms in young adulthood. Using multiple regression to analyze prenatal SES and changes in SES, we find that lower SES of the mother during pregnancy, relative decreases in SES between the prenatal period and age 3 and between age 3 and ages 8-12, all independently contribute to flatter diurnal cortisol rhythms in young adulthood (p's<.05). Premature birth, being male, and waking up later also predicted flatter cortisol rhythms (p's<.05). Analyses adjust for waketime and nicotine use. In future analyses, the relative contributions of the separate SES factors, as well as additional psychosocial and nutritional variables, will be examined. Conclusions: SES indicators from the prenatal and early childhood periods are prospectively related to diurnal cortisol rhythms in young adults and provide evidence that SES in early childhood may influence later health via altered HPA axis activity.

Individual Abstract Number: 1106

CHILDHOOD SES ASSOCIATED WITH EPIGENETIC MODIFICATIONS TO GLUCOCORTICOID RECEPTOR EXON 1C IN ADULTHOOD
Gregory E. Miller, PhD, Psychology, University of British Columbia, Vancouver, BC, Canada

Purpose: Mounting evidence indicates that low socioeconomic status (SES) during the early years of life is associated with risk for cardiovascular disease in adulthood. Identifying the mechanisms responsible for this association has proven difficult, however, because it remains unclear how low SES gets inside the body in a manner that persists across decades. This study draws on animal research showing that poor maternal care in early life can program a stress-responsive, pro-inflammatory phenotype via epigenetic mechanisms. Methods: 100 healthy adults aged 25-50 were enrolled. Subjects varied in early (low vs. high) and current (low vs. high) SES, creating a four-cell design with L-L, L-H, H-L, and H-H groups. Early parental warmth was measured via retrospective self-report on the Parental Bonding Inventory (alpha = .87). Salivary cortisol was assessed during 3 days of ambulatory monitoring, and blood was drawn to conduct genome-wide expression arrays and measure stimulated production of the inflammatory cytokine interleukin-6. Bisulfite conversion and sequencing of PBMC DNA was used to quantify cytosine methylation in exon 1C of the glucocorticoid receptor (GR). Results: Across outcomes there was evidence of dose-response effect for SES (L-L > L-H, H-L > H-H). To the extent they had spent time in a low-SES household, subjects reported less parental warmth and had greater cortisol output (p < .04) and interleukin-6 production (p < .01). On microarray they showed heightened expression of genes activated by the inflammatory phenotype via transcription factors NF-kB, and dimethylated expression of genes regulated through signaling of GR (p's<.02). Low SES was also associated with greater cytosine methylation in GR exon 1C (p < .05). Early parental warmth correlated inversely with most of these outcomes (r's > .25, p's<.05), and covariance analyses were consistent it acting as a partial mediator. Conclusions: These findings suggest the possibility that early family life shapes the developing organism through epigenetic mechanisms. These patterns may explain how childhood SES affects adult disease.

Individual Abstract Number: 1040

FAMILY SOCIOECONOMIC STATUS PREDICTS LONGITUDINAL TRAJECTORIES OF CORTISOL IN CHILDREN
Edith Chen, Ph.D., Psychology, University of British Columbia, Vancouver, BC, Canada

Early life social environment factors play an important role in later health. For example, disparities by socioeconomic status (SES) are seen for numerous mental and physical illnesses, even early in life. Nonetheless, our understanding of both the psychosocial and biological pathways to health disparities is limited. One physiological system that has been implicated in the SES and health relationship is the hypothalamic-pituitary-adrenal axis, with its hormonal output of cortisol. In the present study, we tested whether childhood SES alters longitudinal trajectories of cortisol output, and if so, what types of psychosocial factors could account for these links. 50 healthy children collected saliva samples (4 times/day for 2 days) every 6 months for 2 years. At baseline, families were interviewed about SES and psychosocial factors. Lower SES children displayed greater 2-year increases in daily cortisol output compared to higher SES children (p's<.05). These effects were partially mediated by children's perceptions of threat and by family chaos, which reduced SES-cortisol relationships by 25-40%. These findings may help explain low SES children's vulnerability to health problems later in life by identifying the tendency to perceive threat in ambiguous situations and experiences of chaos in the family as factors that link low SES to 2-year hormonal trajectories.

Individual Abstract Number: 1039

SOCIOECONOMIC STATUS AND SUBCLINICAL CARDIOVASCULAR DISEASE IN ADOLESCENCE: DO PSYCHOLOGICAL FACTORS MATTER?
Karen A. Matthews, Ph.D., Psychiatry, Rebecca C. Thurston, Ph.D., Psychiatry and Epidemiology, Aimee J. Midei, B.A., Psychology, University of Pittsburgh, Pittsburgh, PA

Socioeconomic Status and associated Cardi erectile Cardiovascular We evaluated the association between socioeconomic status (SES) and carotid intima media thickness (IMT) and pulse wave velocity (PWV), a measure of vascular stiffness, in black and white healthy adolescents. To the extent associations were obtained, we then tested whether psychological factors mediated the associations. 81 African American and 78 Caucasian adolescents (aged 14-16) participated in a study of cardiovascular risk factors and were followed for 3.3 years (average age = 17.8). At baseline, negative emotions, attitudes, and resources were measured by questionnaire and SES was measured by parental education, family income and assets, and neighborhood characteristics based on census tract data. At follow-up, carotid IMT and PWV were measured by ultrasound and CV reactivity to stress by impedance cardiography. Our results were adjusted for race, age, and gender, and other covariates as appropriate. We found that lower family assets were associated with greater IMT, p = .05; lower parental education, family income, and neighborhood SES were associated with higher PWV, p<.05. The only variable that reduced the association between assets and IMT was total peripheral resistance reactivity to psychological tasks. High Cook-Medley Hostility and Anxious Attachment and low Supportive Relationships scores were associated with high PWV, p<.05, but did not mediate the association between SES and PWV. These are the first data to our knowledge showing that SES indicators are robust predictors of IMT and PWV in black and white adolescents. Cardiovascular reactivity to stress, negative emotions, and social support by and large do not mediate the associations. Search for mediators should extend to nontraditional measures in adolescence or to variables measured earlier in the life course. Supported by HL25767.

Symposium 1096

NEW STATISTICAL TECHNIQUES AND RESEARCH DESIGNS DEALING WITH TIME SERIES DATA IN PSYCHOSOMATIC RESEARCH
Christian Schuber, MD, PhD, Clin. Dept. of Medical Psychology and Psychotherapy, Innsbruck Medical University, Innsbruck, Austria, Beate Wild, PhD, Dept. of Psychosomatic and General Internal Medicine, Medical University Hospital Heidelberg, Heidelberg, Germany, Beate Wild, PhD, Dept. of Psychosomatic and General Internal Medicine, Medical University Hospital Heidelberg, Heidelberg, Hessen, Germany, Christian Schuber, MD, PhD, Medical Psychology and Psychotherapy, Innsbruck Medical University, Innsbruck, Tirol, Austria, Beate Wild, PhD, Dept. of Psychosomatic
studies have been carried out in psychosomatic research using regression, and related statistical techniques in order to learn more on how to deal adequately with serial dependencies in time series data. Next, extensive single-case studies will be presented in which ARMA modelling and adjusted cross-correlational analyses are applied for gathering evidence on direction of effects, time lag of effects, and complexity of response patterns between psychological and immunno-/endocrinological data under real-life conditions. A further presentation will deal with the analysis of time series data at the group level. The objective of the presented study is to determine and differentiate the temporal relationships between eating behaviour and emotional symptoms in 35 obese patients with and without binge eating disorder (BED). In order to reveal the pattern of temporal relationships, a new structural modelling approach for vector autoregressive models is employed.

**Individual Abstract Number: 1097**

**TIME-SERIES ANALYSIS IN PSYCHOSOMATIC RESEARCH**

Beate Wild, PhD, Dept. of Psychosomatic and General Internal Medicine, Medical University Hospital of Heidelberg, Heidelberg, Baden-Württemberg, Germany, Christian Schubert, MD, PhD, Medical Psychology and Psychotherapy, Innsbruck Medical University, Innsbruck, Tirol, Austria

In the psychosomatic research, analysis of longitudinal data for the investigation of change is particularly interesting. For instance, longitudinal diary data can be used for a comprehensive and sophisticated analysis of developmental processes of patients over a certain time period. On a single-subject basis, the interdependencies between variables can be analyzed in terms of temporal lags, direction of effects and response patterns. However, to date, few empirical studies have have been carried out in psychosomatic research frequently and equidistantly collected data over a sufficiently expansive period of one. One of the reasons for this lack of time series studies may be that the adequate analysis of time series is complex and requires a profound statistical knowledge on different methodological approaches. Time series approaches account for the fact that data points taken over time may have an internal dependency structure, such as autocorrelation. Therefore, within time series may lead to an overestimation of the cross-correlation between two different time series. With respect to the analysis of single cases, the assumptions for the application of regression modelling in time series are explained: check of stationarity, transforming a time series to a stationary series, prewhitening of time series using ARMA-models, and check of the final regression model. For the analysis of group data (panel data), a method combining multivariate time series analysis and structural modeling is presented.

**Individual Abstract Number: 1098**

**THE USE OF INTEGRATIVE SINGLE-CASE STUDIES IN RESEARCH ON PSYCHOSOMATIC COMPLEXITY**

Christian Schubert, MD, PhD, Clin. Dept. of Medical Psychology and Psychotherapy, Innsbruck Medical University, Innsbruck, Tirol, Austria, Kurt Fritzsche, MD, Dept. of Psychosomatic Medicine and Psychotherapy, University Hospital Freiburg, Freiburg, Baden-Württemberg, Germany, Gerhard Schmid-Ott, MD, Department of Psychosomatic Medicine, Hannover Medical School, Hannover, Niedersachsen, Germany, Dietmar Fuchs, PhD, Division of Biological Chemistry, Biocentre, Innsbruck Medical University, Innsbruck, Tirol, Austria, Willi Geier, PhD, Institute of Psychology, University of Innsbruck, Innsbruck, Tirol, Austria

Regarding the effect of everyday incidents on immune and endocrine systems, surprisingly little is known on i) direction of effects (psychobiological and/or bio-psychological cause-effect relation), ii) time lag of effects (e.g., delay between daily stressor and physiological reaction), and iii) complexity of response patterns (e.g., biphasic or cyclic physiological pattern). We have developed an integrative research approach that uses extensive single-case or within-patient analyses with a specific focus on: i) time series analysis based on a large number of equidistant serial measurements of psychological and physiological data in order to properly deal with time series' serial dependencies; and ii) hermeneutic analysis of in-depth interviews in order to determine the emotional meaning of daily incidents. In our studies on healthy probands, patients with systemic lupus erythematosus (SLE) and breast cancer patients, adjusted cross-correlational analyses consistently showed that alterations in urinary cortisol and neopterin (cellular immune parameter) in response to emotionally meaningful everyday incidents were biphasic and occurred with time delays up to 84 hours. Moreover, in patients with prior breast cancer and cancer-related fatigue neopterin levels were differentially related to mood and fatigue in terms of directions of effect. Finally, in a patient with SLE, we were able to disentangle the contribution of different emotional reactions (e.g. negative/positive, anticipated/not anticipated) to one category of everyday incidents on cortisol release. Our findings so far validate the idea that approaches permitting a realistic description of the natural interrelationships among variables should be applied in order to avoid inconsistencies in research on psychosomatic complexity.

**Individual Abstract Number: 1108**

**TEMPORAL RELATIONSHIPS OF EATING BEHAVIOUR AND EMOTIONAL SYMPTOMS IN OBSESE PATIENTS WITH AND WITHOUT BINGE EATING DISORDER**

Beate Wild, PhD, Dept. of Psychosomatic and General Internal Medicine, Medical University Hospital Heidelberg, Heidelberg, Baden-Württemberg, Germany, Michael Eichler, PhD, Department of Quantitative Economics, University of Maastricht, Maastricht, Limburg, Netherlands, Christoph Evers, MD, Christoph Evers, MD, Michael Harmann, PhD, Dept. of Psychosomatic and General Internal Medicine, Medical University Hospital of Heidelberg, Heidelberg, Baden-Württemberg, Germany, Wolfgang Herzog, MD, Dept. of Psychosomatic and General Internal Medicine, Medical University Hospital of Tübingen, Heidelberg, Baden-Württemberg, Germany, Stephan Zipfel, MD, Dept. of Psychosomatic Medicine and Psychotherapy, Medical University Hospital of Tübingen, Tübingen, Baden-Württemberg, Germany

The aim of the study was to determine and differentiate the temporal relationships between eating behaviour and emotional symptoms in obese patients with and without binge eating disorder (BED). The analysis is based on data gathered from 35 patients who participated in a multi-modal intervention program at the Medical University Hospital of Heidelberg, Germany. Throughout the course of the treatment period, the patients answered questions daily about their eating behaviour, sense of control over eating, levels of depression and levels of anxiety on a handeld computer. Diary data were analysed using a structural modelling approach for vector autoregressive models; results are visualized in path diagrams. The two subgroups of obese patients with and without BED did not differ in either cross-sectional or pre/post comparisons. The dynamic analysis, however, revealed that the temporal relationships of the variables are distinct for both subgroups. In particular, for obese patients with BED, higher depression on any one day predicts a higher level of eating for the next day. In contrast, for obese patients without BED, a high level of eating on any one day is followed by higher depression on the next day. The findings of this study expand upon the evidence of previous cross-sectional studies. The distinct temporal relationship between eating behaviour and depression could be considered in the treatment of obese patients with and without BED.

**Symposium 1158**

**THE BYPASSING THE BLUES TRIAL: TELEPHONE-DELIVERED COLLABORATIVE CARE FOR TREATING POST-CABG DEPRESSION**

Bruce L. Rollman, MD, MPH, Medicine, University of Pittsburgh School of Medicine, Pittsburgh, PA, Kenneth E. Freedland, Ph.D., Psychiatry, Washington University School of Medicine, St. Louis, MO, Bruce L. Rollman, MD, MPH, Bruce L. Rollman, MD, MPH, Bea Herbeck Belnap, PhD, Medicine, University of Pittsburgh School of Medicine, Pittsburgh, PA

Depressive symptoms are common following coronary artery bypass graft (CABG) surgery and associated with worse clinical outcomes. Yet
it is unknown whether screening post-CABG patients for depression and then treating the disorder when present improves outcomes. Collaborative care (CC), based on Wagner's Chronic Care Model, includes active follow-up by a nurse or other non-physician who adheres to an evidence-based treatment protocol and works under the supervision of a primary care physician (PCP) with specialty back-up when necessary. Proven effective at treating major depression in primary care, an NHLBI working group recently endorsed CC as a promising approach for treating depression in cardiac patients. Yet it has never before been tested among depressed patients with cardiac disease. "Bypassing the Blues" is an NHLBI-funded trial that hypothesized nurse-led, telephone-delivered CC for treating depression following CABG could improve a broad variety of clinical outcomes of importance to patients, providers, and payers compared to patients who received their clinicians' usual care for depression.

Methods: We screened post-CABG patients for depression prior to hospital discharge at 7 Pittsburgh-area hospitals with the two-item Patient Health Questionnaire (PHQ-2). If a patient endorsed either or both PHQ-2 items (screen-positive), then we administered the 9-item Patient Health Questionnaire (PHQ-9) via telephone 2-weeks after hospitalization. We randomized those who scored PHQ-9 >9 to either their PCPs' "usual care" (UC) or to 8-months of telephone-delivered CC for depression provided by study nurses who met weekly with the investigators and communicated treatment recommendations back to patients and their PCPs. To facilitate study comparisons, we randomly selected a cohort of non-depressed post-CABG subjects (PHQ-2 screen-negative/PHQ-9 <5). We collected sociodemographic and clinical data at baseline, and conducted blinded telephone assessments to monitor outcomes. Results: From 3/04-9/07, 2,486 patients completed the PHQ-2; 1,387 (56%) screened positive; 1,100 (79%) were protocol-eligible and completed the PHQ-9; 337 (31%) scored >9; and 302 (90%) were randomized (CC=150; UC=152). Their mean age was 64 (range: 35-87), 41% were female, 10% non-White, and mean HRS-D score was 16. Compared to non-depressed controls (N=151), depressed subject were younger (64 vs. 66 years), and reported lower mental health-related quality-of-life (HRQoL) (SF-36 MCS: 43.1 vs. 61.6), physical HRQoL (SF-36 PCS: 30.3 vs. 37.2), and cardiac functioning (Duke Activity Status Index (DASI): 7.4 vs. 13.2) (all p<0.001). Post-CABG patients reported lower mental health-related quality of life (HRQoL), worse functional status, health service utilization, and on various process measures of care. This symposium will be the first major public presentation of outcomes data from the Bypassing the Blues trial.

**The Bypassing the Blues Trial: Methods and Main Outcomes**

Bruce L. Rollman, MD, MPH, Medicine, University of Pittsburgh School of Medicine, Pittsburgh, PA

**Methods:** We screened post-CABG patients for depression prior to hospital discharge at 7 Pittsburgh-area hospitals with the two-item Patient Health Questionnaire (PHQ-2). If a patient endorsed either or both PHQ-2 items (screen-positive), then we administered the 9-item Patient Health Questionnaire (PHQ-9) via telephone 2-weeks after hospitalization. We randomized those who scored PHQ-9 >9 to either their PCPs' "usual care" (UC) or to 8-months of telephone-delivered CC for depression provided by study nurses who met weekly with the investigators and communicated treatment recommendations back to patients and their PCPs. To facilitate study comparisons, we randomly selected a cohort of non-depressed post-CABG subjects (PHQ-2 screen-negative/PHQ-9 <5). We collected sociodemographic and clinical data at baseline, and conducted blinded telephone assessments to monitor outcomes. Results: From 3/04-9/07, 2,486 patients completed the PHQ-2; 1,387 (56%) screened positive; 1,100 (79%) were protocol-eligible and completed the PHQ-9; 337 (31%) scored >9; and 302 (90%) were randomized (CC=150; UC=152). Their mean age was 64 (range: 35-87), 41% were female, 10% non-White, and mean HRS-D score was 16. Compared to non-depressed controls (N=151), depressed subject were younger (64 vs. 66 years), and reported lower mental health-related quality-of-life (HRQoL) (SF-36 MCS: 43.1 vs. 61.6), physical HRQoL (SF-36 PCS: 30.3 vs. 37.2), and cardiac functioning (Duke Activity Status Index (DASI): 7.4 vs. 13.2) (all p<0.001). Post-CABG patients reported lower mental health-related quality of life (HRQoL), worse functional status, health service utilization, and on various process measures of care. This symposium will be the first major public presentation of outcomes data from the Bypassing the Blues trial.
Symposium 1492

WOMEN’S HEALTH ACROSS THE MENOPAUSAL TRANSITION: BRAINS, SEX, AND HOT FLASHES
Rebecca C. Thurston, PhD, Psychiatry, University of Pittsburgh, Pittsburgh, PA; Susan A. Everson-Rose, PhD, Medicine, University of Minnesota, Minneapolis, MN; Rebecca C. Thurston, PhD, Isabella Soreca, MD, Psychiatry, Rachel Hess, MD, Medicine, University of Pittsburgh, Pittsburgh, PA

Although traditionally characterized as a time of relative stasis, midlife is increasingly being appreciated as a time of dynamic change. One particularly dynamic period for midlife women is the menopausal transition. Multiple psychophysiological changes characterize the menopausal transition, including hot flashes, weight gain, and for many women, declines in sexual functioning. The etiology, consequences, and mitigating factors against these adverse changes are not well-understood. This symposium has two main objectives: 1) to orient basic and clinical researchers to menopause as a midlife transition and 2) to feature interdisciplinary research on three key health issues facing menopausal women. Each speaker in this symposium will address one of these substantive health issues. The first speaker will focus on menopausal hot flashes, the etiology of which is poorly understood. This speaker will examine whether declines in cardiac vagal control are observed during and after hot flashes in postmenopausal women to emerging evidence linking hot flashes to cardiovascular disease. The second speaker will examine weight gain over the menopausal transition, a common phenomenon among midlife women, and its relation to loss of brain volume over time. The third speaker will examine sexual functioning over the menopausal transition, while highlighting the potential promise of behavioral strategies in maintaining optimal sexual functioning during midlife. The discussant will address the importance of these findings in the context of issues of vitality and aging among women. This symposium will integrate both laboratory and population-based epidemiologic findings addressing cognitive, vasomotor, and sexual functioning - three important health issues facing midlife women.

Individual Abstract Number: 1493

HOT FLASHES AND CARDIAC VAGAL CONTROL: A LINK TO CARDIOVASCULAR RISK?
Rebecca C. Thurston, PhD, Israel C. Christie, PhD, Karen A. Matthews, PhD, Psychiatry, University of Pittsburgh, Pittsburgh, PA

Most women report hot flashes during menopause. Although hot flashes are believed to be important due to their impact on quality of life, new evidence indicates their potential importance for cardiovascular disease (CVD) risk. The mechanisms underlying this link are poorly understood, due in part to the limited understanding of hot flash physiology. The autonomic nervous system may play a role in hot flashes, but it is unknown whether hot flashes are associated with changes in parasympathetic outflow, as indexed by vagally mediated heart rate variability (HRV). Reductions in HRV are linked to CVD morbidity and mortality. We hypothesized that decreases in HRV would occur during hot flashes relative to control periods. 30 peri- and postmenopausal women ages 40-60 reporting 4+ hot flashes/day and free of hormone therapy and antidepressant use underwent laboratory hot flash provocation testing, with sternal skin conductance measurement and electrocardiogram. Hot flashes were identified physiologically from sternal skin conductance via validated methods and HRV estimation using spectral analysis of the heart rate time series during the 5 minutes surrounding a hot flash and two 5-minute non-flash periods 10 minutes prior to and after the hot flash. Hypotheses were evaluated with generalized estimating equations with an autoregressive covariance matrix and identity link, covarying age, race, menopausal status, hypertension or diabetes status, anti-hypertensive medication use, body mass index, smoking, and task condition. Results indicated that HRV was significantly decreased during hot flashes relative to control periods prior to (b=0.23, SE=0.08, p=0.003) and after (b=0.17, SE=0.08, p=0.04) hot flashes. Findings were unchanged considering reported hot flashes only. The significant transient decrease in cardiac vagal control observed in our laboratory study may help shed light on the physiology of hot flashes. Given associations between cardiac vagal control and CVD, the autonomic nervous system may play a role in understanding the mechanisms linking hot flashes to CVD risk. Funded by HL076522/076858.

Individual Abstract Number: 1494

GAINS IN BODY MASS INDEX OVER THE MENOPAUSAL TRANSITION ARE ASSOCIATED WITH REDUCED GRAY MATTER VOLUME
Isabella Soreca, MD, Psychiatry, Caterina Rosano, MD, Epidemiology, J. Richard Jennings, PhD, Lei K. Sheu, PhD, Psychiatry, Lewis H. Kuller, MD, Epidemiology, Karen A. Matthews, PhD, Howard J. Aizenstein, MD, Peter J. Gianaros, PhD, Psychiatry, University of Pittsburgh, Pittsburgh, PA

Objective: The aging brain loses volume over time. However, the determinants of the degree of this volume loss are still largely unknown. There is some indication from cross-sectional studies that excess body weight is associated with reduced gray matter volume (GMV). It is unknown how weight gain, common over the menopausal transition, is associated with GMV. This study examined how longitudinal changes in body mass index (BMI) from pre- to postmenopause was associated with GMV among otherwise healthy women. Methods: Demographic, BMI, and behavioral measures were obtained from 50 women participating in the Pittsburgh Healthy Women Study, a longitudinal epidemiologic investigation initiated in 1983-1984 of initially premenopausal women ages 42-50. In 2005-2006, women underwent assessments including a brain imaging protocol. BMI was assessed at both time points to relate these changes to emerging evidence linking hot flashes to cardiovascular disease. The second speaker will examine weight gain over the menopausal transition, a common phenomenon among midlife women, and its relation to loss of brain volume over time. The third speaker will examine sexual functioning over the menopausal transition, while highlighting the potential promise of behavioral strategies in maintaining optimal sexual functioning during midlife. The second step, post-menopausal BMI was entered and R-square change calculated. Results: Pre-menopausal BMI and covariates explained ~22% of variance in total gray matter volume. An additional 15% of the variance in GMV was uniquely explained by the post-menopausal BMI, such that higher post-menopausal BMI was associated with significantly lower GMV (b = 0.592, SE = 2033.64 p =.004) after considering pre-menopausal BMI and covariates.

Conclusions: Weight gain commonly observed over the menopausal transition was associated with reduced GMV among otherwise healthy postmenopausal women.

Individual Abstract Number: 1495

ASSOCIATION OF LIFESTYLE AND RELATIONSHIP FACTORS WITH SEXUAL FUNCTIONING IN MIDLIFE WOMEN
Rachel Hess, MD, Molly B. Conroy, MD, Medicine, Roberta Ness, MD, Epidemiology, Cindy L. Bryce, PhD, Stacey Dillon, MS, Chung-Chou H. Chang, PhD, Medicine, Karen A. Matthews, PhD, Psychiatry, University of Pittsburgh, Pittsburgh, PA

Objective: Over the menopause, many women report declines in sexual functioning. Correlates of and mitigating factors against this decline are not understood. Our aim was to examine physical activity, sleep difficulties, and social support in relation to sexual activity and sexual functioning in women at varying menopausal stages. Methods: As part of a longitudinal study of midlife women, we conducted a cross-sectional analysis of sexual functioning. Multivariable logistic and linear regression models were estimated to examine predictors of sexual activity, and among sexually active women, sexual functioning (engagement in and enjoyment of sexual activities). Results: Among 67 respondents aged 41-68 years, being sexually active with a partner. Reasons for inactivity included lack of partner (70%), lack of interest in sex (12%) or in their partner (5%), and physical problems (4%). In multivariable analyses, sexually active subjects were younger (52 vs. 55 years, p<.001), married (75% vs. 22%, p<.001), college educated (27% vs. 16%, p<.001), had higher social support (44% vs. 28%, p=.03), fewer medical illnesses (33% vs. 13% none, p=.02), and, unexpectedly, a higher prevalence of vaginal dryness (15% vs. 6%, p=.002). Among sexually active subjects, sexual engagement was greater if they were physically active (b=.2, SE=.07, p=.02), had more social support (b=.5, SE=.1, p<.001), and lacked sleep difficulties (b=-.2, SE=.07, p=.02). Sexual enjoyment was higher if they were physically active (OR=1.5, CI:5.2-5.2, p=.04), had more social support (OR=6.1, CI:3.2-11.4, p=.001), and lacked vaginal dryness (OR=3, CI:.2-.6, p=.001). Sexual engagement and enjoyment were not associated by menopausal stage or marital status. Conclusions: In midlife women,
having high social support and being physically active are associated with greater sexual engagement and enjoyment. Lacking sleep problems are associated with higher sexual engagement. These relations were independent of menopausal stage. If replicated in longitudinal studies, these factors may serve as targets for intervention to maintain sexual functioning during midlife.

Symposium 1718

RACE, PSYCHOSOCIAL STRESS AND INFLAMMATORY MARKERS

Tené T. Lewis, PhD, Epidemiology & Public Health, Yale University School of Medicine, New Haven, CT
David R. Williams, PhD, Department of Society, Human Development and Health, Harvard School of Public Health, Boston, MA
Tené T. Lewis, PhD, Epidemiology & Public Health, Yale University School of Medicine, New Haven, CT
Natalie Slopen, MA, Mahasin S. Mujahid, PhD, Department of Society, Human Development and Health, Harvard School of Public Health, Boston, MA
Carol Ryff, PhD, Psychology, University of Wisconsin, Madison, Madison, Wisconsin

Psychosocial stressors have been linked to inflammatory processes, but few studies have examined whether observed associations differ for African-Americans compared to whites. Our purpose was to examine whether stressors that have been reported to be more prevalent among African-Americans (e.g., discrimination, neighborhood stress, early-life stress) relate to a range of inflammatory markers in a sample of African-Americans and whites. The first presentation will describe the distribution of various types of stressors in the cohort, with an emphasis on differences in psychosocial stress exposure by race and age. The second presentation will detail how various types of psychosocial stressors relate to one specific inflammatory marker, E-selectin, and how these associations vary for African-Americans, compared to whites. The final presentation will investigate how specific psychosocial stressors, early life stress, relates to a range of inflammatory markers, and how associations vary for African-Americans, compared to whites. The final presentation will be a within-group analysis of African-Americans, focused on examining how neighborhood socioeconomic status relates to inflammatory markers and the potential mediating role of neighborhood stressors. Together these presentations offer promising new evidence for understanding how race and psychosocial factors might interact to influence inflammation in middle-aged African-American and white adults.

Individual Abstract Number: 1721

SOCIAL CORRELATES OF PSYCHOSOCIAL STRESS: THE INTERSECTION OF RACE AND AGE

David R. Williams, PhD, Mahasin S. Mujahid, PhD, Natalie Slopen, MA, Department of Society, Human Development and Health, Harvard School of Public Health, Boston, MA
Tené T. Lewis, PhD, Epidemiology & Public Health, Yale University School of Medicine, New Haven, CT
Carol D. Ryff, PhD, Psychology, University of Wisconsin, Madison, Wisconsin, Madison, Burton H. Singer, PhD, Demography and Public Affairs, Princeton, Princeton, New Jersey

Psychosocial stress variables have been linked to mortality and may be a cause of racial differences in health. However, few studies have examined the distribution of stressors across racial groups or have considered how social factors such as age may modify such distributions. Additionally, most studies have not characterized psychosocial stressors as a multi-dimensional and multi-level construct. Thus, we investigated the social patterning of a comprehensive set of psychosocial stressor dimensions across the intersection of race and age. For each stressor, we used factor analysis to aggregate across the items and standardized. Results from multivariable models suggest that younger aged individuals (<54 years) experienced more stressors across all dimensions (excluding stressful events in adulthood, all p-values <0.001), compared to older individuals (>54 years), independent of race, education, and gender. Compared to whites, African-Americans experienced more stressors across seven of the ten dimensions (financial strain, perceived inequality, p<0.05; recent problems in family, discrimination, neighborhood stressors, stress in adulthood, p<0.001), independent of age, education, and gender. A significant interaction between race and age was present for work stress and work-family balance by which there were significant differences in work stress by race for younger individuals (<54 years, p<0.003) but not older individuals (p>0.01). Alternatively, the opposite pattern was observed for work-family balance by which racial differences existed only in older individuals (>54 years). These results suggest that there is strong racial and age patterning of psychosocial stressors.

Individual Abstract Number: 1723

PSYCHOSOCIAL STRESSORS AND E-SELECTIN: ARE ASSOCIATIONS STRONGER IN AFRICAN-AMERICANS COMPARED TO WHITES?

Tené T. Lewis, PhD, Epidemiology & Public Health, Yale University School of Medicine, New Haven, CT
Tara Gruenewald, PhD, Medicine, UCLA
Los Angeles, CA
Natalie Slopen, MA, Mahasin S. Mujahid, PhD, Department of Society, Human Development and Health, Harvard School of Public Health, Boston, MA
Carol D. Ryff, PhD, Psychology, University of Wisconsin, Madison, Madison, Wisconsin
Burton H. Singer, PhD, Demography and Public Affairs, Princeton, Princeton, New Jersey
David R. Williams, PhD, Department of Society, Human Development and Health, Harvard School of Public Health, Boston, MA

E-selectin is a marker of inflammation that has been linked to diabetes and other risk factors for cardiovascular disease (CVD). As an index of endothelial dysfunction, it may also be important in identifying early atherosclerotic disease. Despite its potential importance, there have been few studies examining the association between psychosocial stressors and E-selectin. The current study examined the association between psychosocial stressors and how overall stress burden relates to inflammation in middle-aged African-Americans and 822 Whites, aged 35 to 86. Given known differences in psychosocial risk profiles and the prevalence of CVD by race, we were particularly interested in examining racial differences in these associations. Data were from a subset of participants in the Survey of Midlife in the United States (MIDUS). We assessed multiple psychosocial stressors: early life stress, adult life stressors, work stressors, relationship stressors, recent problems with family, financial stress, and neighborhood stressors. These stressors were combined into an overall stress burden index. Serum samples of E-selectin were obtained. African-Americans had higher overall stress burden scores, higher scores on most psychosocial stressors, and higher levels of E-selectin (all p-values <0.05). In linear regression models adjusted for age, sex, race, education, smoking, BMI and chronic health conditions, overall stress burden was associated with higher levels of E-Selectin in African-Americans (B= 5.4, p< 0.01), but not Whites (B= 2.9, p=0.89), p for race X overall stress interaction = .02. Psychosocial stress variables that emerged as significant in individual analyses for African-Americans were: 1) early life stress (B= 3.4, p<0.05); 2) relationship stress (B= 3.4, p<0.05); 3) recent problems in family (B= 3.6, p<0.05); and 4) neighborhood stressors (B= 5.5, p<.01). The interaction between race and E-selectin was significant for race X overall stress interaction = .02. Psychosocial stress variables that emerged as significant in individual analyses for African-Americans were: 1) early life stress (B= 3.4, p<0.05); 2) relationship stress (B= 3.4, p<0.05); 3) recent problems in family (B= 3.6, p<0.05); and 4) neighborhood stressors (B= 5.5, p<.01). The interaction between race and E-selectin was significant for race X overall stress interaction = .02. Findings suggest that E-selectin may be a unique stress biomarker for African-Americans, compared to Whites.

Individual Abstract Number: 1733

EARLY LIFE STRESSORS AND INFLAMMATION: ARE ASSOCIATIONS STRONGER IN AFRICAN-AMERICANS COMPARED TO WHITES?

Natalie Slopen, MA, Department of Society, Human Development and Health, Harvard School of Public Health, Boston, MA
Tené T. Lewis, PhD, Epidemiology & Public Health, Yale University School of Medicine, New Haven, CT
Tara Gruenewald, PhD, Medicine, UCLA
Los Angeles, CA
Mahasin S. Mujahid, PhD, Department of Society, Human Development and Health, Harvard School of Public Health, Boston, MA
Carol D. Ryff, PhD, Psychology, University of Wisconsin, Madison, Madison, Wisconsin
Research indicates that childhood adversity is associated with an increased risk for a broad range of diseases including those associated with inflammation. However, little research has assessed the impact of early life stress on inflammation, and the role of mediating variables and co-occurring risk factors. We hypothesized that early life stress would predict inflammation burden in adulthood, and that race would modify this association. Data were analyzed from 177 African Americans and 822 Whites aged 35 to 86 in the Survey of Midlife in the United States. A measure of early life stress was constructed from retrospective reports of childhood events, parental relationships, and abuse. Five biomarkers of inflammation were obtained: C-Reactive Protein (CRP), interleukin-6 (IL-6), fibrinogen, E-selectin, and soluble intercellular adhesion molecule-1 (sICAM-1). Linear regression models were constructed sequentially: all models were adjusted for age, gender, and medication use. Significant interactions between early life stress and race were observed for 4 of the 5 biomarkers (marginal significance: E-selectin, p=0.06). Models stratified by race revealed that early life stress predicted higher levels of fibrinogen (b=17.22), log IL-6 (b=0.12), E-selectin (b=3.46), and sICAM-1 (b=28.56) among African Americans (p-values <.05), but the pattern was maintained when including BMI, smoking, and education covariates. The effect of early life stress on inflammation in the African American sample was independent of adult stress events for log IL-6 (b=0.12), fibrinogen (b=14.49), and sICAM-1 (b=31.62) (p-values <.05). However, after adjustment for co-occurring health conditions only the association between early life stress and levels of sICAM-1 remained significant. Our findings suggest that early life stress has a differential impact on several markers of inflammation later in life for African American participants relative to White participants. This research emphasizes the importance of a life course perspective in studies of adult diseases and racial disparities in health.

Individual Abstract Number: 1734

NEIGHBORHOOD SOCIOECONOMIC STATUS AND INFLAMMATORY PROCESSES IN AFRICAN-AMERICANS
Mahasin S. Mujahid, PhD, David R. Williams, PhD, Department of Society, Human Development and Health, Harvard School of Public Health, Boston, MA, Tené T. Lewis, PhD, Epidemiology & Public Health, Yale University School of Medicine, New Haven, CT, Natalie Slapin, MA, Department of Society, Human Development and Health, Harvard School of Public Health, Boston, MA, Carol D. Ryff, PhD, Psychology, University of Wisconsin, Madison, Madison, Wisconsin, Burton H. Singer, PhD, Demography and Public Affairs, Princeton, Princeton, New Jersey

A growing body of literature suggests that living in disadvantaged neighborhoods is associated with cardiovascular disease (CVD) risk factors and outcomes. However, less is understood about the relation between neighborhood environments and systematic inflammation, an emerging risk factor for CVD. We hypothesized that neighborhood socioeconomic status (SES) would be associated with inflammatory biomarkers, independent of individual-level factors, and that neighborhood stress may mediate these associations. We used data on 150 African Americans (35-82 years) as part of the Survey of Midlife in the United States (MIDUS), Milwaukee Sample, Serum samples were collected from Department of Society, Human Development and Health, Harvard School of Public Health, Boston, MA, Carol D. Ryff, PhD, Psychology, University of Wisconsin, Madison, Madison, Wisconsin, Burton H. Singer, PhD, Demography and Public Affairs, Princeton, Princeton, New Jersey.

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Individual Abstract Number: 1263

EFFECT OF PSYCHOSOCIAL FACTORS ON REFERRALS FOR AND ADHERENCE TO COLORECTAL CANCER SCREENING
Maida J. Sewitch, PhD, Medicine, Martin Dawes, MD, Mark Yaffe, MD, Mark Roper, MD, Family Medicine, McGill University, Montreal, Quebec, Canada

Delivery of colorectal cancer (CRC) screening commonly occurs in primary care. The purpose of this study was to identify patient characteristics associated with 1) physician delivery of CRC screening referrals for patients with Inflammatory Bowel Disease. A doctor will then present preliminary data from a NIH-funded clinical trial comparing hypnotherapy to standard care to prevent relapse in patients with UC. Finally a doctor will summarize the presentations and talk about where our field is going. We believe these talks address the primary and secondary goals of the symposium. The primary goal being to present exciting psychosomatic research projects in GI disorders and the secondary goal of attracting more researchers and/or clinicians who are interested in these topics to this and future APS meetings. In other words, putting GI back into APS!

Individual Abstract Number: 1734

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Mahasin S. Mujahid, PhD, David R. Williams, PhD, Department of Society, Human Development and Health, Harvard School of Public Health, Boston, MA, Tené T. Lewis, PhD, Epidemiology & Public Health, Yale University School of Medicine, New Haven, CT, Natalie Slapin, MA, Department of Society, Human Development and Health, Harvard School of Public Health, Boston, MA, Carol D. Ryff, PhD, Psychology, University of Wisconsin, Madison, Madison, Wisconsin, Burton H. Singer, PhD, Demography and Public Affairs, Princeton, Princeton, New Jersey

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The effects of early life stress on inflammation in the African American sample was independent of adult stress events for log IL-6 (b=0.12), fibrinogen (b=14.49), and sICAM-1 (b=31.62) (p-values <.05). However, adjustment for co-occurring health conditions only the association between early life stress and levels of sICAM-1 remained significant. Our findings suggest that early life stress has a differential impact on several markers of inflammation later in life for African American participants relative to White participants. This research emphasizes the importance of a life course perspective in studies of adult diseases and racial disparities in health.
TEMPORAL RELATIONSHIP BETWEEN SELF-REPORTED STRESS AND SYMPTOMS IN PATIENTS WITH CROHN'S DISEASE (CD) UNDERGOING REMICADE TREATMENT
Leighann Litcher-Kelly, Ph.D., Psychiatry and Behavioral Sciences, Stony Brook University, Stony Brook, NY

Purpose: Literature has shown the temporal relationship between stress and symptoms in CD has reported equivocal results, however interest remains because of animal studies and anecdotal reports from physicians and patients. Past studies have focused on long time periods (months). The current study examines this relationship within a day and across days/weeks in adults with CD undergoing Remicade treatments. Participants were trained to use an electronic diary to complete 6 assessments of stress and symptoms per day from the time of their initial Remicade treatment until their subsequent treatment approximately 8 weeks later. Stress was measured using the 4-item Perceived Stress Scale, and symptoms were assessed using the 3 self-report items from the Crohn's Disease Activity Index: abdominal pain, well-being, and loose/very liquid stools. The primary hypothesis is that daily reports of stress and symptoms are correlated. The secondary and exploratory goal of this study is to understand the temporal relationships; thus 3 lagged models were examined: 1) morning stress predicts afternoon symptoms, 2) previous day's stress predicts next day's symptoms, 3) previous week's stress predicts next week's symptoms. Twenty-five people were enrolled in this study, however due to compliance issues and hardware problems, data from 20 is presented below. Using multilevel modeling to analyze this nested data, we found that showed that men who were matched on modality and were women who had been previously screened were more likely to adhere to the physician referral. Psychosocial factors did not influence adherence to CRC screening. In conclusion, psychosocial factors influenced receipt of a CRC screening referral (in younger patients only) but failed to influence patient adherence to screening.

INTERPERSONAL DETERMINANTS OF THE COURSE OF ULCERATIVE COLITIS: THE IMPACT OF ATTACHMENT INSECURITY ON SYMPTOMS OF COLITIS AND ILLNESS INTRUSIVENESS
Robert G. Maunner, MD, Psychiatry, Mount Sinai Hospital, University of Toronto, Toronto, Ontario, Canada, A H. Steinhardt, MD, G R. Greenberg, MD, M Silverberg, MD, Medicine, Mount Sinai Hospital and University of Toronto, Toronto, Ontario, Canada

Interpersonal factors are highly relevant in inflammatory bowel disease and attachment theory is a useful paradigm for understanding interpersonal traits. Our research group has studied how interpersonal variables affect both psychobiological processes and qualitative outcomes for patients with ulcerative colitis (UC). The purpose of this study was to determine the impact of attachment insecurity on UC symptom scores and on illness intrusiveness (a construct that contributes directly to health-related quality of life). Methods and Sample: In a cross-sectional study of 172 outpatients with UC, attachment avoidance and attachment anxiety were measured using the ECR-R. Since attachment avoidance and attachment anxiety were moderately correlated (R = .48), insecurity was determined along a single dimension (the maximum score on either dimension). UC disease activity was determined by sigmoidoscopy and with a standard symptom scale. Illness intrusiveness was measured by self-report (IIRS). Results. Using regression analyses, after accounting for age and socioeconomic status, which were inversely associated with both UC symptom severity and illness intrusiveness, we found that both attachment insecurity (beta = .15, p = .04) and visible inflammation on sigmoidoscopic exam (beta = .38, p < .001) explained variance in UC symptom scores (Model R-squared = .28). Attachment insecurity (beta = .28, p < .001) explained more of the variance in illness intrusiveness than was explained by visible inflammation (beta = .20, p = .006, Model R-squared = .29). Conclusions. Interpersonal variables, such as attachment insecurity, may influence both the clinical presentation (symptom scores) and the personal impact (illness intrusiveness) of chronic gastrointestinal illness and are part of a biopsychosocial understanding of ulcerative colitis.
MINDFULNESS-BASED STRESS REDUCTION FOR MULTIPLE SCLEROSIS PATIENTS

Paul Grossman, Ph.D., Claudia Steiner, M.A., Psychosomatic Medicine, Division of Internal Med., Henrik Gensich, M.D., Neurology, Division of Internal Medicine, University of Basel Hospital, Basel, Basel, Switzerland, Iris Penner, Ph.D., Psychology, University of Basel, Basel, Switzerland, Marcus D’Souza, M.D., Neurology, Division of Internal Medicine, Ludwig Kappos, M.D., Neurology, Division of Internal Med., University of Basel Hospital, Basel, Basel, Switzerland

Purpose of study: Quality of life (QoL) is often greatly reduced among individuals with multiple sclerosis (MS), and incidences of depression and fatigue are high. Although drug interventions have been shown to retard disease progress, they appear not to improve QoL or psychological adjustment. Our investigation is a randomized controlled trial of mindfulness-based stress reduction (MBSR) to improve health-related QoL, psychological adjustment and fatigue among patients (pts) with MS. We hypothesized that in comparison to a control condition, pts randomized to MBSR will begin to show increases in QoL, psychological function and perceived control over health, stress and general health at the time of the symposium.

Individual Abstract Number: 1310
Participants recorded meditation practice times by diary. General linear model and mixed model analyses with covariates for stratification variables and wait-list service were conducted in an intent-to-treat (ITT) sample and a per-protocol sample (patients who attended >1 class). Summary of Results: One-hundred-fifty patients were randomized. Of these, 138 were randomized to MBSR (n= 72) or HE (n= 66) initially or after serving in the wait-list. In the ITT sample, MBSR and HE groups significantly differed only with regard to sleep outcomes (better in the MBSR group, p=.03). In the per protocol sample (n= 127), the MBSR group reported significantly more benefits to sleep (p=.02) and anxiety (p=.04) than the HE group. Compared to the wait-list, MBSR improved sleep, anxiety and mental health at 8 weeks (p<.05, all). Although initial treatment effects attenuated by 6 months, significant differences were still evident at 1 year. Meditation practice time significantly predicted symptom improvements for MBSR participants. Conclusions: This RCT provides new evidence that MBSR has specific and enduring benefits to sleep and anxiety. Overlap in other benefits between MBSR and a standard health program suggests non-specific therapeutic elements contribute to MBSR's impact.

Individual Abstract Number: 1342

THE EFFECTS OF MINDFULNESS BASED STRESS REDUCTION ON PERCEIVED COPING SKILLS IN PATIENTS WITH CORONARY ARTERY DISEASE
Gina T. Eubanks, BA, Department of Medicine, Division of Cardiology, Emory University, Decatur, Georgia, Mustafa Hassan, MD, Qin Li, MS, Medicine, University of Florida, Gainesville, FL, David S. Sheps, MD, MSPH, Medicine, Division of Cardiology, Emory University, Decatur, Georgia, Georgia

Purpose of Study: Psychological stress accounts for > 30% of the population attributable risk for future myocardial infarctions in patients with coronary artery disease (CAD) and has been shown to induce ischemia as well as increase susceptibility to other cardiac events, including death. Risk factors associated with stress in CAD patients can be reduced through stress reduction, such as with the techniques taught in the Mindfulness Based Stress Reduction (MBSR) program. The purpose of this study was to measure the efficacy of the MBSR program in reducing stress in CAD patients while increasing the patients' perceived coping skills and decreasing perceived anger, tension, stress, frustration and sadness when compared to the patients in one of the two control groups. Subject Sample and Methods: Participants were at least 18 years of age with a documented clinical diagnosis of CAD. Patients who had unstable angina or an acute MI within 2 months prior to enrollment, a life expectancy of less than 5 years, weighed over 400 lbs., or were pregnant were excluded from the study. Participants were randomized to one of three groups, MBSR, cardiac education, or usual care, each of which lasted for a duration of 8 weeks. Coping skills, anger, tension, stress, frustration and sadness were measured with visual analog scales on a daily basis for 14 days pre-, post-, and three months post-intervention. Summary of Results: A repeated measures analysis with 3 time points was conducted on the daily diaries and a linear time trend was tested to measure the difference between groups. Participants randomized to the MBSR group had a significant increase in perceived coping skills (P = 0.0380) when compared to the two control groups. However, there were no significant differences between groups for the other measures (stress, P = 0.2247; anger, P = 0.8098; tension, P = 0.7823; frustration, P = 0.4787; sadness, P = 0.5629). In conclusion, the MBSR program may be a useful intervention for increasing a CAD patient's ability to cope with stress, thereby potentially reducing the risk of future cardiac events.

Individual Abstract Number: 1405

MINDFULNESS FOR MEN LIVING WITH HIV
Bill Gayner, MSW, Social Work, Mary Jane Esplen, PhD, Nursing and Psychiatry, Peter DeRoche, MD, Scott Bishop, PhD, Psychiatry, University of Toronto, Toronto, Ontario, Canada, Lynn Kavanagh, MSc, Psychiatry, Mount Sinai Hospital, Toronto, Ontario, Canada, Kate Butler, MA, Behavioral Sciences and Health Research Division, University Health Network, University of Toronto, Toronto, Ontario, Canada

Purpose of study: The aim of our study was to determine whether mindfulness-based stress reduction (MBSR) groups would help men living with HIV (1) improve psychosocial outcomes and (2) improve stress reactivity as predictors of symptoms and physical health. Methods: A total of 117 participants were randomized 2:1 to MBSR (a manualized 8-week group) or TAU in a psychiatric clinic specializing in psychotherapy for people living with HIV. TAU required no new psychosocial or psychopharmacological interventions within 2 months of starting the study. A standardized battery of questionnaires was administered pre-, post-intervention and at 6 months. Summary of results: An intent-to-treat analysis found no significant changes post-group on measures of anxiety, depression or affectivity, however, when group drop-outs were excluded from the analysis, positive affect increased and negative affect decreased for MBSR group participants compared to controls (Positive and Negative Affect Scale; PA: F=7.353, p=.008; NA: F=4.065, p=.047). At 6 months, intent-to-treat analysis found HIV-related distress decreased compared to controls according to the Impact of Event Scale (IES) (F=3.173, p=.046) and the IES avoidance subscale (F=5.104, p=.008). MBSR group participants did not experience greater decreases in rumination and worry compared to controls. As predicted, the intent-to-treat analysis showed MBSR participants developed more mindfulness as measured by the Toronto Mindfulness Scale (TMS) (F=10.801, p=.001), including both TMS subscales, curiosity (F=13.243; p=.001) and decentering (F=5.652; p=.019) at 8-week follow-up, and, at 6 month follow-up, on the total TMS score and curiosity subscale (F=5.466, p=.005; F=6.63, p=.002). Conclusion: The study indicates that mindfulness interventions may have specific and clinically meaningful effects in this population. Within the context of the array of services provided by a psychiatric clinic and its referral network, MBSR has a significant role to play in the overall treatment of gay men living with HIV.

Symposium 1074

PSYCHOSOMATIC SEQUELAE OF EXPOSURE TO WAR
Scott C. Matthews, MD, Psychiatry, University of California San Diego and VASDHS, San Diego, CA, Scott C. Matthews, MD, Psychiatry, University of California San Diego and Veterans Affia, San Diego, CA, Douglas L. Delahunty, PhD, Psychology, Kent State University, Kent, OH, Maria M. Llabre, PhD, Psychology, University of Miami, Coral Gables, FL, Karen S. Quigley, Ph.D., Psychiatry, New Jersey Medical School - University of Medicine a, East Orange, NJ

War is an extreme stressor. Both soldiers and civilians in the war zone are at high risk of violent physical injuries and death. Exposure to such stress increases risk of mental health problems such as posttraumatic stress disorder (PTSD) and major depressive disorder (MDD). The objective of this symposium is to review what is known about the psychosomatic sequelae of war by describing the psychological and health effects of war exposure, presenting evidence regarding the brain basis of combat-related stress disorders and elaborating on the biology of resilience. To achieve this objective, longitudinal data on the manifestations of PTSD across the life course will be reviewed, and unique evidence regarding the psychosomatic consequences of war experiences in childhood will be described. The results of two studies conducted in the Middle East, which document the deleterious psychological and health consequences of war exposure in childhood will be presented. In addition, we will discuss the brain basis of MDD in individuals who have experienced blast-related concussion during combat. New data will be presented which suggest that functional neuroimaging may be used to investigate the degree to which alterations in brain activity associated with blast-related concussion may increase risk of MDD. Finally, the concept of resilience will be defined and applied to suggest reasons why some individuals are less prone to combat-related morbidity. Unique data from an ongoing longitudinal study of soldiers deploying to Iraq or Afghanistan will be presented, which speaks to the role of unit cohesion and physiological stress reactivity as predictors of symptoms and physical health immediately after deployment.
Individual Abstract Number: 1075

EFFECTS BLAST-RELATED CONCUSSION ON BRAIN ACTIVITY DURING EMOTION PROCESSING AND COGNITIVE CONTROL IN YOUNG ADULTS
Scott C. Matthews, MD, Psychiatry, University of California San Diego and VASDHS, San Diego, CA, Irina A. Strigo, PhD, Alan N. Simmons, PhD, Psychiatry, University of California San Diego, San Diego, CA

Improvised explosive devices, blasts, landmines, and explosive fragments cause the majority of combat injuries sustained by soldiers in the wars in Iraq and Afghanistan. These blast injuries result commonly in mild traumatic brain injury (i.e. concussion), which is defined as a blow or jolt to the head that disrupts brain function. Although the mechanism is incompletely understood, there is compelling evidence that concussion increases risk of major depressive disorder (MDD) and other major psychiatric problems. Cognitive control (CC), a set of higher-order cognitive functions by which the individual regulates his or her movements, actions, thoughts and emotions according to current goals and environmental conditions. Prior evidence indicates that MDD is associated with hyperactivity of an emotion processing structures such as the amygdala and subgenual cingulate, and with hypoactivity of the CC network, which includes the supragenual cingulate and inferior frontal gyrus. Although little is known about the effects of blast-related concussions on these brain regions, prior evidence suggests that concussions (i.e. motor vehicle accidents, etc.) disrupt the functioning of the CC network. Taken together, this evidence led to the hypothesis that concussion increases risk of MDD and other major psychiatric problems. The present talk will present a developmental model that brings together the findings in adults and children and addresses risk and resilience for PTSD from a developmental approach. Based on this model, data from two secondary pharmacological interventions will also be presented, one in children and one in adults. Preliminary fMRI results suggest that functional activity in these neural structures is altered in individuals exposed to blasts, suggesting a mechanism whereby blast-related concussions increase risk of MDD. Support of these preliminary findings would suggest a therapeutic target for psychotherapeutic, psychopharmacologic and other interventions.

Individual Abstract Number: 1201

UNIT COHESION AND PRE-WAR STRESS REACTIVITY: WHAT MAKES SOLDIERS MORE RESILIENT AFTER DEPLOYMENT TO IRAQ OR AFGHANISTAN?

We will present data from an ongoing longitudinal prospective cohort study of 700 Army Reserve and National Guard soldiers deploying to Iraq or Afghanistan (Healthy Resilience after Operational and Environmental Stressors or HEROES Project). The overall goal of the project is to determine pre- and immediate post-deployment predictors of later post-deployment non-specific physical symptoms, self-reported health (from the SF-36 Veteran version), and health care utilization. Participants are recruited during pre-deployment processing at Fort Dix or Fort Campbell, KY. Psychosocial, health, and physiological stress-reactivity measures are recorded at Phase 1 (pre-deployment). Physiological measures (blood pressure, ECG, respiratory sinus arrhythmia, pre-ejection period, and salivary cortisol) are recorded before, during and after a heterotypic laboratory stressor consisting of a role played confrontational task, serial subtraction and a hand cold pressor task. Psychosocial measures are made at all phases and include personality (e.g., negative emotionality and absorption), social support, coping style, prior stressful life events, and current distress. Health measures are made at all phases and include the Physical Component Summary and Mental Component Summary scores from the SF-36, non-specific symptoms from the Patient Health Questionnaire-15, and health care utilization. Combat and deployment-related measures are taken after deployment (including unit cohesion). Data to be presented are from the larger sample that consists of both Phase 1 and 2 assessments. We will present models showing that some aspects of physiological stress reactivity to a laboratory stressor presented pre-deployment predicts self-reported physical health at Phase 2. Another model indicates that unit cohesion predicts non-specific physical symptoms at Phase 2. These data suggest that measures taken pre-deployment and early after deployment (in this case, before soldiers have returned home) may be potentially useful indicators of post-war negative health outcomes.

Individual Abstract Number: 1114

THE PSYCHOBIOLOGY OF PTSD ACROSS THE LIFESPAN
Douglas L. Delahanty, Ph.D, Psychology, Kent State University, Kent, OH, Sarah A. Ostrowski, Ph.D, The National Center for Child Traumatic Stress, Duke University School of Medicine, Durham, NC, Leah Irish, MA, Psychology, Kent State University, Kent, OH

Recent research has consistently demonstrated that traumatic childhood experiences confer risk for posttraumatic stress disorder (PTSD) and other major psychiatric problems in adulthood. We previously reported that stress hormone levels assessed within hours post-traumatic injury are associated with subsequent PTSD symptoms in adults while high levels of catecholamines and cortisol predicted PTSD symptoms in children. However, children with a prior trauma history demonstrate results consistent with the adult findings, suggesting that prior traumatic experiences may alter stress hormone responses to a subsequent trauma. The present talk will present a developmental model that brings together the findings in adults and children and addresses risk and resilience for PTSD from a developmental approach. Based on this model, data from two secondary pharmacological interventions will also be presented, one in children and one in adults. Preliminary fMRI results suggest that functional activity in these neural structures is altered in individuals exposed to blasts, suggesting a mechanism whereby blast-related concussions increase risk of MDD. Support of these preliminary findings would suggest a therapeutic target for psychotherapeutic, psychopharmacologic and other interventions.

Individual Abstract Number: 1128

PSYCHOLOGICAL AND HEALTH CONSEQUENCES OF WAR-RELATED EXPOSURES IN CHILDREN AND ADOLESCENTS
Maria M. Llabre, PhD, Psychology, University of Miami, Coral Gables, FL, Fawzyiah Hadi, PhD, Educational Psychology, Kuwait University, Kuwait City, Safat, Kuwait

In the past two decades millions of children have been affected by wars and comprise over 45% of war casualties (Bellamy, 2004). We report the results of two studies conducted in the Middle East. The first is a study of 151 Kuwaiti children who were 7-10 years old during the first Gulf war, selected for participation based on their level of exposure to war-related events. Participants were assessed two years after the war and again as young adults (19-23 years old). As adults they reported on their general health, medical diagnoses, and sleep habits. At both assessments they reported on symptoms of posttraumatic stress, depression, and anxiety. A logistic model of exposure as predictor of a diagnosis of heart disease, hypertension, diabetes, or high cholesterol showed one standard deviation unit on a measure of exposure was associated with 2.27 (95% CI 1.21, 4.24) higher odds of reporting a diagnosis. A structural model of the role of psychological distress as a mediator of the effect of exposure supported the notion with respect to self-rated health. Exposure predicted the quality and duration of sleep, and body mass index. The second study, conducted in Lebanon after the Lebanese-Israeli war in the summer of 2006, included a population-based sample of over 6000 children in grades 1 through 12 assessed for multiple exposures, prior exposure, sociodemographic characteristics, and symptoms of posttraumatic stress (PTS). For children in grades 1 to 5 the prevalence of PTS symptoms was estimated at 27.7% and for children and adolescents in grades 6 to 12 the prevalence was estimated at 26.4%. Specific symptoms were reported with greater frequency. Between 41-53% (depending on age) reported difficulty in falling and staying asleep. Older age was associated with increased symptoms. Past and concurrent exposures to war-related events were the strongest predictors of PTS symptoms (present at the time of the study) and comprised over 45% of war casualties (Bellamy, 2004). We report the results of two studies conducted in the Middle East. The first is a study of 151 Kuwaiti children who were 7-10 years old during the first Gulf war, selected for participation based on their level of exposure to war-related events. Participants were assessed two years after the war and again as young adults (19-23 years old). As adults they reported on their general health, medical diagnoses, and sleep habits. At both assessments they reported on symptoms of posttraumatic stress, depression, and anxiety. A logistic model of exposure as predictor of a diagnosis of heart disease, hypertension, diabetes, or high cholesterol showed one standard deviation unit on a measure of exposure was associated with 2.27 (95% CI 1.21, 4.24) higher odds of reporting a diagnosis. A structural model of the role of psychological distress as a mediator of the effect of exposure supported the notion with respect to self-rated health. Exposure predicted the quality and duration of sleep, and body mass index. The second study, conducted in Lebanon after the Lebanese-Israeli war in the summer of 2006, included a population-based sample of over 6000 children in grades 1 through 12 assessed for multiple exposures, prior exposure, sociodemographic characteristics, and symptoms of posttraumatic stress (PTS). For children in grades 1 to 5 the prevalence of PTS symptoms was estimated at 27.7% and for children and adolescents in grades 6 to 12 the prevalence was estimated at 26.4%. Specific symptoms were reported with greater frequency. Between 41-53% (depending on age) reported difficulty in falling and staying asleep. Older age was associated with increased symptoms. Past and concurrent exposures to war-related events were the strongest predictors of PTS symptoms (present at the time of the study) and comprised over 45% of war casualties (Bellamy, 2004).
1) Abstract 1003

DEPRESSION IS A RISK FACTOR FOR INCIDENT HEART DISEASE IN A GENETICALLY INFORMATIVE TWIN DESIGN

Jeffrey F. Scherrer, PhD, Research Service and Psychiatry, Hong Xian., Internal Medicine, St. Louis FAMC and Washington University, St. Louis, MO; Carol E. Franz, Psychiatriy, University of California San Diego, La Jolla, CA 92039, CA, Michael J. Lyons, PhD, Psychology, Boston University, Boston, MA; Kristen C. Jacobson, PhD, Psychiatry, University of Chicago, Chicago, IL; Seth A. Eisen, MD, Health Services Research and Development, Department of Veterans Affairs, Washington, DC; William S. Kremen, PhD, Psychiatry, University of California San Diego, La Jolla, CA.

Purpose of the Study: Determine the contribution of depression to incident heart disease after accounting for genetic and environmental factors associated with depression. Subject Sample and Statement of Methods: Data to derive DSM-III-R diagnoses of psychiatric disorders, including, depression were collected from male-male twins in 1992 and merged with prospective health data from 1,237 individual twins who participated in the 2005 Vietnam Era Twin Registry Study of Aging (VETRAS). Incidence of depression was defined as a diagnosis of major depression between 1993 and 2005. Co-twin multiple logistic regression models were used to adjust for genetic and family environmental factors and for potential confounding from sociodemographics, smoking, body mass index (BMI), hypertension and diabetes. Summary of Results: After adjusting for potential confounders twins with a history of major depression on or before 1992 were at significantly greater risk of developing heart disease between 1993 and 2005 (OR=1.97; 95% CI: 1.05-3.70). Monozygotic and dizygotic non-depressed twins who had a twin brother with depression were not at increased risk for heart disease as compared to those at low genetic and environmental risk. These results suggest that depression is a risk factor for incident heart disease even after controlling for genetic vulnerability in common with heart disease. Twins at high and medium risk for external environmental factors were not at increased risk of incident heart disease. There are additional environmental risk factors associated with a history of major depression that contribute to incident heart disease beyond the risk due to familial vulnerability, physical health status and sociodemographics.

2) Abstract 1013

THE EFFECT OF OXYTOCIN ON ADIPOSE TISSUE INFLAMMATION AND ATHEROSCLEROSIS IN APOE-/- MICE

Daniel A. Nation, M.S., Angela Szeto, Ph.D., Psychology, University of Miami, Coral Gables, FL; Armando J. Mendez, Ph.D., Medicine, University of Miami, Miller School of Medicine, Miami, FL; Larry G. Brooks, M.A., Psychology, University of Miami, Coral Gables, FL; Julia Zaias, DVM, Ph.D., Pathology, University of Miami, Miller School of Medicine, Miami, FL; Neil Schneiderman, Ph.D., Philip M. McCabe, Ph.D., Psychology, University of Miami, Coral Gables, FL.

Purpose: Multiple studies have found that hyperlipidemic animals housed in social isolation display more extensive atherosclerosis than those housed in an affiliative social environment. Other lines of research have indicated that chronic administration of oxytocin (OT) may be involved in both affiliative social behavior and cardiovascular homeostasis. The present study sought to determine the effect of exogenous OT administration on atherosclerosis in socially isolated apoE-/- mice. Methods: Forty-six, 12 week old, apoE-/- mice, were surgically implanted with osmotic mini-pumps containing either oxytocin or vehicle. Blood was collected at baseline and endpoint. After 12 weeks of treatment animals were sacrificed and samples of adipose tissue were dissected from a subset of OT (n=12) and vehicle (n=12) treated animals and incubated in culture media for 6 hours. Media samples were analyzed for IL-6 concentration corrected by sample dry-weight. Aortas were dissected, formalin fixed, and stained with oil-red O for en face quantification of lesion area. T-tests were used to compare group means on measures of percent lesion area, lipids, and IL-6 concentrations. Results: There were no group differences in total cholesterol or triglycerides at baseline or endpoint. Lesion area showed a bimodal distribution, with most disease occurring in the aortic arch and thoracic aorta. Analysis of group differences in atherosclerotic lesion area demonstrated atherosclerotic lesion area decreased with OT treatment and there was no significant difference in lesion area with OT and control treatment. Conclusion: These findings indicate that increased peripheral OT levels can inhibit lesion development. Decreased constitutive release of IL-6 in adipose tissue from OT treated animals suggests that OT may be impacting lesion progression through anti-inflammatory mechanisms.

3) Abstract 1063

IMPACT OF BEHAVIORAL STRESS REDUCTION PROGRAMS UPON AMBULATORY HEMODYNAMIC FUNCTION AND SODIUM HANDLING AMONG AFRICAN AMERICAN ADOLESCENTS

Matthew J. Gregoski, MS, Kinesiology, University of Georgia, Athens, GA; Vernon A. Barnes, PhD, Martha S. Tingen, PhD, Pediatrics, Frank A. Treiber, PhD, Administration, Medical College of Georgia, Augusta, GA.

Previous research has established linkages between behavioral stress, sodium retention, and essential hypertension. However, few studies have examined effectiveness of behavioral stress reduction interventions upon related phenotypic predictors among youth. This study evaluated the impact of Breathing Awareness Meditation (BAM), LifeSkills Training (LS), and Health Education (HE) on ambulatory blood pressure and sodium handling in African American (AA) adolescents with high-normal systolic blood pressure (SBP) levels. 181 eligible participants were randomly assigned by school to either B (n=52), L (n=58), H (n=59), or BAM and LS combined (Combo, n=12) groups. Participants engaged in weekly intervention sessions administered at respective schools across 3 months. Before and after the intervention, overnight urinary sodium excretion (UNaV) and 24 hour ambulatory systolic BP (SBP), diastolic BP (DBP), and heart rate (HR) were obtained. ANCOVA models examined post-intervention SBP, DBP, HR, and UNaV across treatment conditions covarying pre-intervention values. Significant group differences were found for changes in daytime, nighttime and 24 hour SBP with BAM or the combination of BAM and LS exhibiting greatest overall decreases (all p<.05). Similar results were obtained for nighttime and 24 hr DBP, daytime HR during school hours, and UNaV (all p<.05). Based on the results BAM appears to be a suitable intervention for improving hemodynamic function among AA adolescents at risk for essential hypertension. The associated decrease in overnight UNaV excretion suggests the possibility that decreases in sympathetic nervous system arousal resulted in decreased sodium appetite. BAM, because of ease of implementation is a suitable primary prevention program for dissemination into various settings such as home environments, schools, etc.

4) Abstract 1103

PSYCHOLOGICAL DISTRESS AND INFLAMMATION IN HEALTHY YOUNG ADULTS

Sidra J. Goldman, MPH, Epidemiology, U.C. Berkeley, School of Public Health, Berkeley, CA; Lena Brydon, PhD., Epidemiology and Public Health, Andrew Steptoe, DPhil, DSc., Department of Epidemiology and Public Health, University College London, London, United Kingdom.

Background. While a substantial body of research points to a link between psychological distress and inflammatory responses in middle-aged and older adults, particularly those with cardiovascular disease, the relationship between inflammation and distress in young, healthy individuals has not been established. This study was designed to investigate the cross-sectional association between psychological distress and inflammatory proteins in a nationally representative sample of young, healthy British adults. Study Sample and Methods. Participants were 1268 men and women aged 16-32 years from the 2006 Health Survey for England. Information on current psychological distress (using the General Health Questionnaire-12 item scale), plasma fibrinogen, and C-reactive protein (CRP), as well as standard covariates, was gathered during home nurse visits. We used multivariate linear regression to assess the association of GHQ-12 score.
with fibrinogen and CRP. Results. Nearly 13% of participants had a GHIQ-12 score of 4 or greater, indicating a significant level of distress. Higher self-rated psychological distress positively and significantly predicted current plasma fibrinogen level, even after adjusting for age, sex, ethnicity, body mass index, high density lipoprotein cholesterol, smoking, and alcohol and medication use (ß=0.02, p<0.01).

Psychological distress was not related to C-reactive protein in either bivariate or multivariate analyses (p=0.588). Conclusions. Psychological distress may negatively impact inflammatory processes in young adulthood, before the onset of chronic health problems such as hypertension and cardiovascular disease, and possibly play a role in their development. Longitudinal research is needed to elucidate the relationship between distress and inflammation in young adults and its significance for later disease states.

5) Abstract 1161

PSYCHOLOGICAL PREDICTORS OF SLEEP QUALITY AMONG CANCER PATIENTS RECOVERING FROM STEM CELL TRANSPLANTATION

Ashley M. Nelson, Erin S. Costanzo, PhD, Christopher L. Coe, PhD, Psychology, Mark B. Juckett, MD, Hematology/Oncology, University of Wisconsin-Madison, Madison, WI

Individuals with cancer undergoing hematopoietic stem cell transplantation (HSCT) experience decrements in a number of dimensions of quality of life during the recovery from transplant, but little is known about their sleep quality. The present study investigated changes in sleep quality following transplant and examined potential risk and protective psychological factors. Individuals with hematologic cancers undergoing HSCT (N=73) completed measures of sleep quality (PSQI), mental health (IDAS), and mood (PANAS) prior to transplant and follow-up assessments of sleep quality at 1 and 3 months post-transplant. The results revealed significant changes in global sleep quality, F(2, 110) = 4.42, p = .02, as well as in specific domains including sleep efficiency, F(2, 110) = 5.88, p < .01, and sleep medication use, F(2, 110) = 5.55, p < .01. Follow-up contrasts clarified that sleep quality declined from pre-transplant to 1 month post-transplant and improved in 3 months post-transplant, but scores at all time points were much poorer than population norms. Hierarchical multiple regression models adjusting for pre-transplant sleep quality, age, and graft type indicated that depression and negative affect prior to transplant predicted poorer sleep quality at 1 month post-transplant (ß = .27, p = .04; ß = .27, p = .02), while traumatic intrusions predicted poorer sleep quality 3 months post-transplant (ß = .28, p = .02). In contrast, pre-transplant psychological wellbeing predicted better sleep quality at both 1 and 3 months post-transplant (ß = .24, p = .02; ß = -.24, p = .04). In sum, cancer patients undergoing HSCT experience significant impairments in sleep quality, particularly in sleep efficiency, following transplant. Individuals who experience depression and anxiety prior to transplant are most at risk for declines in sleep quality, while a better sense of psychological wellbeing before transplant may be protective.

6) Abstract 1164

A GENE-ENVIRONMENT INTERACTION MODEL FOR PREMENSTRUAL AND POSTPARTUM MOOD CHANGES

Lisa V. Hantsoo, M.L.A., Psychology, The Ohio State University, Columbus, Ohio; Daniel Birmingham, Ph.D., Internal Medicine, Carrie Hidaka-Holmes; L.S., Psychology, Ronald Glasser, Biology, Immunology and Medical Genetics, The Ohio State University, Columbus, OH, David Beversdorf, M.D., Neurology, University of Missouri, Columbia, MO; William Malarkey, M.D., Internal Medicine, Janice K. Kiecolt-Glaser, Ph.D., Psychiatry, The Ohio State University, Columbus, OH

Gene-environment interaction models suggest that the short (s) allele of the serotonin transporter gene is associated with depression when combined with stressors, particularly childhood maltreatment. This relationship has held for depression in women. However, studies have not examined this gene x environment interaction model for premenstrual syndrome or postpartum depression, forms of depression specific to women. The purpose of this study was to examine interactions among the serotonin transporter gene length polymorphism, childhood maltreatment, and self-reported mood changes in the premenstrum, pregnancy, and postpartum. Subjects were 117 community-dwelling women, genotyped as s/s, s/l, or l/l; s carriers were combined into one group for analysis. Childhood maltreatment was assessed via Childhood Trauma Questionnaire (CTQ); a history of regular mood changes during the premenstrum, or severe emotional problems during pregnancy or postpartum, was assessed via the Diagnostic Interview for Genetic Studies (DIGS). Genotyping revealed 72 s-carriers and 45 l/l homozygotes; CTQ cutoff scores indicated 44 women reporting 1 or more forms of moderate or severe childhood maltreatment (emotional abuse, emotional neglect, physical abuse, physical neglect, or sexual abuse). Genotype alone was not associated with a history of mood changes in the premenstrum, pregnancy, or postpartum, nor was childhood maltreatment. However, women who reported childhood maltreatment and carried the s allele were more likely to have a history of mood or emotional disturbances during pregnancy or postpartum, indicating a gene x environment interaction (p = 0.04). This gene x environment interaction did not hold for mood changes during the premenstrum. These findings support a putative genetic vulnerability, moderated by childhood maltreatment, toward mood changes during pregnancy and postpartum. Such mood disturbances during pregnancy and postpartum may have detrimental health outcomes for both mother and offspring. Supported by NIA grant AG025752.

7) Abstract 1190

DEPRESSION AND OXIDATIVE DAMAGE TO LIPIDS: LINKING PSYCHOLOGY TO BIOLOGY

Sarah S. Yager, BA Honours, Psychology, University of British Columbia, Vancouver; British Columbia, Canada, Michael J. Forlenza, PhD, MPH, MPhil, MPH, School of Leadership and Professional Development, Duquesne University, Pittsburgh, Pennsylvania, Greg E. Miller, PhD, Psychology, University of British Columbia, Vancouver, British Columbia, Canada

Objective. Depression is associated with increased morbidity and mortality from cardiovascular and cerebrovascular diseases. Oxidative damage to lipids is one of the key early events in the etiology of atherosclerosis, the pathologic condition that underlies these diseases. In current study we aimed to further our understanding of the pathophysiological consequences of depression by examining its association with 8-isoprostaglandin-F2α (8-iso-PGF2α), a biomarker of oxidative damage to lipids. Methods. The sample included 143 participants (80.5% female, mean age = 28.7 years): 72 met criteria for clinical depression and 71 were age, race, and sex-matched controls. All participants were free of acute and chronic medical illness, and without current medication regimens including anti-depressants. Serum levels of 8-iso-PGF2α were measured using a commercially available enzyme linked immunosorbent assay (ELISA). Analysis of covariance (ANCOVA) was used to assess group differences in 8-iso-PGF2α concentration. Age, gender, race, years of education, daily smoking, average number of alcoholic drinks per week, average amount of physical activity per week, and body mass index (BMI) were entered as covariates. Summary of results. The mean (standard error) 8-iso-PGF2α concentration of the depressed group was 51.35 ng/mL (5.34). The control group had a mean 8-iso-PGF2α concentration of 24.77 ng/mL (5.38). This difference was statistically significant in the ANCOVA, F(1)=11.61, p=0.001 and further analyses indicated that the effect size was large, d = 0.87. Analyses using interviewer ratings on the Hamilton Scale revealed that, within the depressed cohort, there was no significant association between the severity of symptoms and levels of 8-iso-PGF2α (r=0.05, p=0.90) suggesting this is a threshold rather than a dose-response relationship. Conclusion. Results contribute to our knowledge of depression and oxidative damage by extending these findings to oxidative damage to lipids. Findings suggest that oxidative damage may represent a common pathophysiological mechanism by which depressed individuals become more vulnerable to atherosclerosis and its clinical sequelae.

8) Abstract 1217

OBJECTIVE AND SUBJECTIVE SOCIAL STATUS AND INFLAMMATION IN MEXICAN-AMERICAN WOMEN

Linda C. Gallo, PhD, Psychology, Karla Espinosa de los Monteros, BA, SDSU/UCSD JDP in Clinical Psychology, San Diego State University, San Diego, CA; Karen A. Matthews, PhD, Psychiatry, Epidemiology, and Psychology, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania, USA

Epidemiology, and Psychology, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania, USA

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In the current study we aimed to further our knowledge of depression and oxidative damage by extending these findings to oxidative damage to lipids. Findings suggest that oxidative damage may represent a common pathophysiological mechanism by which depressed individuals become more vulnerable to atherosclerosis and its clinical sequelae.
A growing body of research suggests that subjective social status (SSS) predicts health beyond the influence of objective indicators of socioeconomic status (SES) (e.g., income, education). However, the health implications of SSS have seldom been evaluated in ethnic minority populations. We examined the relationships of SSS and SES with inflammatory and coagulability biomarkers of cardiovascular disease (CVD) risk, and explored whether SSS had unique predictive utility. Participants were 158 middle-aged, Mexican-American women drawn from a community near the US/Mexico border. Women reported their educational attainment, household income, and SSS relative to others in the US (based on traditional SES indicators) and in their communities, and underwent a physical exam with blood draw. On average the sample was 49.35 years old, 70% were born in Mexico, and 51% were post-menopausal. After controlling for age, nativity, and menopausal status, SES (composite income & education) related significantly and inversely to C-Reactive Protein (CRP) \( B (\beta) = -0.15, R^2 = 0.02, p < 0.08 \), Interleukin-6 (IL-6) \( B = -0.20, R^2 = 0.03, p < 0.05 \), and Tumor-Necrosis Factor-alpha (TNF-a) \( B = -0.26, R^2 = 0.05, p < 0.01 \), but not to D-dimer, \( B = -0.10 \) (ns). Statistical control for waist circumference, body pressure, lipids, smoking reduced these effects to \( B = -0.10 \) (ns) for CRP and \( B = -0.15, p < 0.08, \) for IL-6, seemingly due to a shared association with abdominal obesity. Results for TNF-a were not altered. After accounting for SES, community SSS related inversely to D-dimer \( B = -0.17, R^2 = 0.02, p < 0.05 \); controlled, \( B = -0.15, p < 0.05 \). There were no other significant effects for community or US SSS (with or without control for SES). The current study provides additional evidence of an association between SSS and CVD risk, related to CVD risk, in Mexican-American women. Measures of SSS had limited predictive utility beyond the effects of typical SES indicators. Further research is needed to better understand ethnic differences in perceptions of social status, and how they shape health.

9) Abstract 1224
MEDIATORS OF THE RELATIONSHIP BETWEEN SOCIOECONOMIC STATUS AND ALLOSTATIC LOAD IN THE CHICAGO HEALTH, AGING AND SOCIAL RELATIONS STUDY
Leah A. Lavelle, BA, Louise C. Hawkley, PhD, John T. Cacioppo, PhD, Psychology, University of Chicago, Chicago, IL
Socioeconomic status (SES) has been negatively associated with allostatic load (AL), a measure of cumulative physiological dysregulation. Prior research has suggested that differences in psychosocial variables, stress, social network, and health behaviors may partially explain this association. The current study examined relationships between SES, AL, and the posited explanatory variables to determine which of these variables mediate the relationship between SES and AL. Data were collected from a population-based sample of 208 White, Black, and Hispanic men and women aged 51 through 69. SES was computed as a composite measure of education and household income. AL was computed as a continuous composite measure of 10 markers of cardiovascular, metabolic, endocrine, and inflammatory dysregulation. In our sample, psychosocial variables (hostility, depression, and social support), stress (perceived stress), and health behaviors (caloric intake) were associated in the posited directions with both SES and AL. These variables were tested in a multiple mediation model as suggested by Preacher and Hayes (2008). Results of the multiple mediation analysis indicated that the set of variables explained 39% of the effect of SES on AL \( b = -0.146; 95\% \text{ BCA CI: -0.276,-0.0027} \). Analysis of the specific indirect effects indicated mediation through hostility \( b = -0.0097; 95\% \text{ BCA CI: -0.0238,-0.0023} \) and caloric intake \( b = -0.0046; 95\% \text{ BCA CI: -0.0150,-0.0003} \) such that low SES was associated with higher levels of hostility and greater caloric consumption, each of which was associated with higher AL. These findings suggest that of the psychosocial, stress, social network, and behavioral variables posited to explain the relationship between SES and AL, hostility and caloric intake partially mediate the association in a population-based sample of middle-aged adults.

10) Abstract 1232
FLEXIBILITY IN RESPONDING TO INTERPERSONAL CONFLICT PREDICTS CORTISOL AND EMOTIONAL REACTIVITY
Danielle S. Roubinov, B.A., Melissa Hagan, M.P.H., Linda J. Luecken, Ph.D., Psychology, Arizona State University, Tempe, Arizona
It is generally accepted that adaptive coping involves the ability to flexibly vary response strategies to match the contextual demands of each unique situation. It is unclear, however, if it is adaptive to vary response strategies during (within) an acute stressor. The current study explored this issue in the context of an interpersonal interaction requiring negotiation with an uncooperative confederate. Relations between the flexible use of verbal response strategies (VRS; e.g., attempt compromise, argue), facial expressions of emotion, and cortisol responses were examined among young adults who engaged in a 10-minute, role-played conflict task (\( n = 65 \), 38% Caucasian, 6% Hispanic, 6% Other, 52% female, mean age 20). Salivary cortisol samples were collected at baseline and 3 time points after the task, and facial expressions and the types of VRS employed were coded every 30 seconds during the task. Multilevel models predicted the patterns of cortisol responses and facial displays of emotion from the total number of different VRS. Results indicated that individuals who employed a greater variety of VRS in the 10-minute task and smoking reduced these to \( B = -0.17, R^2 = 0.026, p < 0.05 \); controlled, \( B = -0.15, p < 0.05 \). There were no other significant effects for community or US SSS (with or without control for SES). The current study provides additional evidence of an association between SSS and AL, hostility and caloric intake partially mediate the association in a population-based sample of middle-aged adults. 

11) Abstract 1239
INACTIVITY, DEPRESSIVE SYMPTOMS, AND SOCIAL ISOLATION INCREASE THE RISK OF DEMENTIA: A POPULATION-BASED STUDY
Anna Karp, PhD, Martt G. Parker, PhD, Anna-Karin Berger, PhD, Hui-Xin Wang, PhD, Bengt Winblad, PhD, Laura Fratiglioni, PhD, Aging Research Center, Karolinska Institutet, Stockholm, Sweden
Objectives: This study aimed at investigating the combined effect of inactivity, depressive symptoms, and social isolation on dementia development. Methods: Data come from the Kungsholmen Project, a longitudinal population-based study of elderly subjects, 75+, living in Stockholm, Sweden. Since reduced activity participation as well as depressive symptoms may be consequences and not causes of cognitive decline in the pre-clinical phase of dementia, we included only subjects who were cognitively intact at baseline and still non-demented three years later (n=776). These subjects were followed for three more years to detect incident dementia. Diagnoses were made according to the DSM-III-R criteria at each examination. Activities, depressive symptoms, and social network were assessed at baseline. Cox proportional hazards models were used to estimate the relative risks (RR) and 95% confidence intervals (CI) of dementia, adjusting for age, gender, education, baseline MMSE, comorbidity, and physical functioning. Results: After on average 6.4 years of follow-up, 123 subjects developed clinical dementia. Inactivity, depressive symptoms were independently associated with increased dementia risk. Moreover, to be both inactive and have depressive symptoms and simultaneously have a limited/poor social network compared to having none of these risks showed the strongest association to dementia (RR=5.4, 95% CI: 2.1-13.9). A dose response relation to dementia was found for having one (RR=1.9, 95% CI: 1.2-2.8), two (RR=2.1 95% CI: 1.2-3.6), or three (RR=5.3, 95% CI: 2.1-13.8) of the risk factors. Conclusions: Dementia risk is higher among people who are inactive and/or depressed. If they also have a poor social network, the risk is even higher. The study emphasizes the importance of all three risk factors independently as well as in combination.
HEALTH-RELATED QUALITY OF LIFE AS A PREDICTOR OF CYTOKINE LEVELS AT 12 MONTHS IN PATIENTS WITH CHRONIC HEART FAILURE
Paula M.C. Mommersteeg, PhD, Nina H.M. Kupper, PhD, Douanya Schoormans, MSc, Susanne S. Pedersen, PhD, Center of Research on Psychology in Somatic diseases, Tilburg University, Tilburg, the Netherlands

Chronic heart failure (CHF) is a condition with a high mortality risk. Besides traditional risk factors, poor health-related quality of life (HRQOL) is also associated with poor prognosis in CHF. Immunological functioning might serve as a biological pathway underlying this association, since pro- and anti-inflammatory cytokines are independent predictors of prognosis. The aim of this study was to examine: 1) the possible association between HRQOL and cytokine levels at baseline, and 2) the predictive value of HRQOL for 12-month cytokine levels. A total of 165 CHF outpatients (LVEF<40%) completed the SF36, a generic, and the Minnesota Living with Heart failure questionnaire (MLHF), a disease specific HRQOL questionnaire at baseline. Serum cytokine levels were measured at baseline and 12 months (IL1ra, IL6, IL10, TNFalpha, sTNFR1 and sTNFR2). Results for the cross-sectional analysis were based on 111 patients and the prospective part was based on 125 patients. We examined control for confounders (age, gender, standard risk factors, disease severity, comorbidity, medication) a significant relation remained between the mental component summary (MCS) of the SF36 and TNFalpha at baseline (F1,99=5.15, p<.03), and a predictive value of the MCS for sTNFR1 (beta=-.21, t=-2.18, p=.03) and sTNFR2 (beta=-.19, t=-1.98, p<.05) levels at 12 months. Individuals with a lower mental HRQOL showed higher baseline levels of TNF alpha and higher soluble TNF receptors at 12 months. Patients with diabetes and lower HRQOL (MCS) predicted increased cytokine levels at 12 months, indicating the possibility of an immunological pro-inflammatory pathway underlying the relation between HRQOL and prognosis in CHF patients.

TESTING NEURAL ACTIVATION PREDICTIONS FROM A MODEL OF NEUROVISCERAL INTEGRATION
Victoria B. Egizio, M.S., Psychology, University of Pittsburgh, Pittsburgh, PA, Israel C. Christie, PhD, Peter J. Gianaros, PhD, J. Richard Jennings, PhD, Psychiatry, University of Pittsburgh School of Medicine, Pittsburgh, PA, Julian F. Thayer, PhD, Psychology, The Ohio State University, Columbus, OH

A conceptual model of Neurovisceral Integration (Thayer & Lane, 2008) predicts that greater high frequency heart rate variability (HF-HRV) is commonly related to better cognitive functioning, better affective regulation, and more efficient functionality in prefrontal and cingulate brain systems. Supporting this prediction, associations between HF-HRV and event-related potentials from the medial frontal and cingulate cortex have been reported (Capuana et al 2007). To extend these electrophysiological associations, we examined resting HF-HRV, cognitive functioning, depressive symptoms, and positron emission tomography (PET)-derived changes in prefrontal and cingulate blood flow in association with cognitive task performance in 127 adults. Cognitive functioning was assessed by neuropsychological tests of working memory, interference, and inhibition. Affective symptoms of depression were assessed by the Beck Depression Inventory II. Neural activation was assessed by PET during 2-back task performance. Hypothesis 1 was that greater resting HF-HRV would covary with better cognitive functioning and lesser task-related neural activation. However, we found no significant associations between these variables or interactions between HF-HRV and cognitive functioning in the prediction of neural activation. But, a supplemental ANOVA trend interaction: F(1, 81)=4.13, p<.05) Hypothesis 2 was that depressive symptoms would covary with lesser HF-HRV, poorer cognitive functioning, and greater task-related neural activation. However, we only found an expected inverse association between depression and performance (r=-.28, p<.05). Our findings offer minimal support for the neurovisceral model. Future research should clarify the factors (e.g., age, gender, and method differences) accounting for the mixed findings revealed by electrophysiological and neuroimaging studies of neurovisceral integration.

LONGITUDINAL ASSOCIATIONS OF FAMILY ASTHMA MANAGEMENT WITH BIOLOGICAL OUTCOMES IN CHILDREN WITH ASTHMA
Hope A. Walker, BS, Edith Chen, PhD, Psychology, University of British Columbia, Vancouver, BC, Canada

Childhood asthma is a chronic inflammatory disease, with symptoms likely affected by physical, environmental and social factors. With regard to social factors, previous research has linked asthma management to morbidity outcomes in children with asthma. We tested whether beliefs about and management of one's illness would predict biological outcomes longitudinally over 18 months in a sample of children physician-diagnosed with asthma. Seventy-four children with asthma and their parents were interviewed using the Family Asthma Management System Scale. Children were also asked about their beliefs about asthma - whether they believed that asthma was present all of the time, or only when they had symptoms. Those children who endorsed the latter were classified as the "no symptoms, no asthma" group. Asthma outcomes included spirometry, airway hyperresponsiveness (FEV1%), eosinophil counts; and cortisol measured over two days of saliva collection at home. Children with the "no symptoms, no asthma" conceptualization had poorer asthma knowledge (t = -1.99, p<.10); poorer family responses to asthma exacerbations (t = -2.25, p<.05); poorer child response to exacerbations (t = -2.69, p<.05); and poorer adherence to medications (t = -1.85, p<.05). Further, children with the "no symptoms, no asthma" conceptualization showed increased lung function counts that increased over time, controlling for baseline levels (F(1, 38)
Children from families reporting poorer collaboration with their physician displayed worsening lung function over time, controlling for baseline levels (FEV1%, r = .35, p < .05). Finally, children with poorer approaches to managing asthma exacerbations showed cortisol output that declined over time, controlling for baseline output (r = .48, p < .05). These declines in cortisol could lead to decrements in controlling inflammatory processes in diseases such as asthma. Overall, our results suggest that targeting cognitive conceptualizations of asthma in children, as well as family asthma management domains, may have important implications for asthma biological profiles in children with asthma.

16) Abstract 1278

DECREASED GRAY MATTER DENSITY IN THE POSTERIOR CEREBELLUM OF TRAUMA SURVIVORS

Jung Hyun Lee, MD, Jeon Kim, MD, Jaseok Hwang, MD, In Kyeon Lyoo, MD, PhD, Do-Un Jeong, MD, PhD, Psychiatry, Seoul National University Hospital, Seoul, South Korea

Background: Structural deficits of various cerebral regions have been reported in patients with posttraumatic stress disorder (PTSD) compared to those of healthy comparison subjects. However, there has been relative paucity of the studies on structural abnormalities of cerebellum in patients with PTSD. To the best of our knowledge, there is only one study which was conducted in pediatric patients with PTSD. Since recent studies of cerebellar function indicate that cerebellum may contribute not only to motor function but also to non-motor function including emotion and cognition, we hypothesized that PTSD patients would have decreased cerebellar gray matter density compared to healthy comparison subjects. Methods: Brain magnetic resonance imaging scans were acquired from two hundred and ninety-six subjects in two separate samples. Evidences from anecdotal reports on subjects with tumors in the posterior fossa or with olivoponto cerebellar atrophy indicate that abnormalities in the posterior lobe of cerebellum may play an important role in the regulation of emotion and cognition. In light of these literatures, the current finding may be interpreted that affective symptoms of PTSD is in part explained by structural abnormalities of the posterior cerebellum.

17) Abstract 1311

HOSTILITY NOW, DEPRESSION LATER: LONGITUDINAL ASSOCIATIONS AMONG HOSTILITY, ANGER, AND DEPRESSIVE SYMPTOMS

Jesse C. Stewart, Ph.D., Griffin J. Fitzgerald, B.S., Psychology, Indiana University-Purdue University Indianapolis, Indianapolis, IN, Thomas W. Kamarck, Ph.D., Psychology, University of Pittsburgh, Pittsburgh, PA

Although it has been established that emotional risk factors for coronary artery disease (CAD) tend to cluster within individuals, surprisingly little is known about the directionality of the relationships involving these factors. Therefore, we examined the longitudinal associations among depressive symptoms, hostility, and anger using the Pittsburgh Healthy Heart Study cohort. Participants were 296 healthy, older adults (53% female, 84% white, mean age=61 years) who completed the Beck Depression Inventory-II (BDI-II), Cook-Medley Hostility (Ho) Scale, and Anger-In and Anger-Out subscales of the State-Trait Anger Expression Inventory at baseline and 6-year follow-up. To evaluate the directionality of the relationships of interest, we constructed a series of path analytic models. The first model included only the emotional variables and showed close fit to the data, chi-square (2, N = 296) = 1.62 (p = .44), RMSEA = .00. Results revealed that baseline Ho Scale was a predictor of BDI-II change (beta = .15, p = .004) and explained 2.3% of the variance beyond that accounted for by the other emotional variables. Baseline Ho Scale also predicted change in Anger-In (beta = .14, p = .002) and Anger-Out (beta = .11, p = .01), explaining an additional 2.0% and 1.2% variance, respectively. In contrast, baseline BDI-II, Anger-In, and Anger out did not predict 6-year change in any of the emotional variables. Additional path analytic models revealed that the pattern of relationships was not altered after controlling for (a) demographic, bioclinical, and behavioral covariates, (b) anxiety symptoms, and (c) potential mediators, such as social support, self-reported sleep quality, and incident disease. Combined, our results indicate that hostility precedes and independently predicts future changes in depressive symptoms and anger but not vice versa. Because hostility may lead to future increases in depressive symptoms, the potency of depression interventions designed to reduce CAD development or progression might be enhanced by incorporating modules addressing this potentially precipitating and maintaining factor. This research was supported by NIH HL56346, HL040962, HL076852, and HL076858.

18) Abstract 1330

PHYSICAL FUNCTION AND QUALITY OF LIFE IN AMYOTROPHIC LATERAL SCROSIS

Abby R. Roach, M.S., Psychology, University of Kentucky, Lexington, Kentucky, Alyssa J. Avrell, Ph.D., Psychology, University of Kentucky, Lexington, KY, Suzanne C. Segerstrom, Ph.D., Psychology, Edward J. Kasarskis, M.D., Ph.D., Department of Neurology, University of Kentucky, Lexington, Kentucky

Purpose: Patients with Amyotrophic Lateral Scrosis (ALS), a neurodegenerative disease causing paralysis and death, report that psychological factors (e.g., social support) are more important to their subjective well-being, or Quality of Life (QOL), than physical status. Research indicates that patients maintain psychological and existential QOL despite the inevitable decline of physical function. However, the same may not be true of patients' spouses who often provide in-home care for patients until their death. Methods: A series of path analytic models were calculated in caregivers of ALS patients who be more likely to decline as the patient's physical status deteriorates. Sample and Methods: This study examined the longitudinal trajectory of QOL in ALS patients and their spouses over the course of the illness. Patients(N=55) and spouses(N=53) independently completed the MQOL Questionnaire and ALS-Functional Rating Scale(ALS-FRS) up to 11 times at 6-month intervals(Median= 2). Multiple Regression analyses were performed on caregiver reports for QOL domains of social support, psychological, and existential well-being. Results: Patients maintained high QOL in all domains despite simultaneous decreases in functional status (gamma= -.28 (SE= .07), F(1,34)= 17.91, p <.05). However, their spouses reported significant decreases in Total QOL (gamma= -.70 (SE= .01), F(1,36)= 8.92, p <.05) and the physical symptoms domain(gamma= -.24 (SE= .02), F(1,38)= 6.08, p <.05). Thus, for patients may result in decreased well-being over time. Notably, a non-linear pattern emerged in which patients' and spouses' existential well-being, their sense of having a meaningful existence, increased even as functional status declined. Patients(gamma= .0004 (SE= .00), F(1,34)= 5.22, p <.05) and spouses(gamma= .0003 (SE= .01), F(1,38)= 3.49, p <.10) tended to report decreased existential well-being after diagnosis, but eventually exceeded baseline levels of existential well-being. Thus, although spouses' Total QOL declined as patients' illness progressed, both groups gained meaning in life, suggesting that those most profoundly affected by ALS may gain meaning from this experience, consistent with theory that distress and growth can and do co-exist.

19) Abstract 1343

CHOLINE TRANSPORTER GENE VARIANTS INTERACT WITH SES TO PREDICT SYMPTOMATOLOGICAL REACTIVITY TO LABORATORY STRESSORS

Kari F. Baer, M.S., Psychology and Human Development, Vanderbilt University, Nashville, TN, Serina A. Neumann, Ph.D., Psychiatry & Behavioral Sciences, Eastern Virginia Medical School, Norfolk, VA, Matthew F. Muldoon, MD, MPH, Clinical Pharmacology, J. Richard Jennings, Ph.D., Psychiatry, Robert E. Ferrell, Ph.D., Human Genetics, Stephen B. Manuck, Ph.D., Psychology, University of Pittsburgh, Pittsburgh, PA

Cardiovascular disease (CVD) risk is correlated with cardiovascular reactivity to stress, which, in turn, is related to variability in genes that modulate autonomic functioning (e.g., choline transporter gene; CHT1). CVD risk also is influenced by environmental factors like socioeconomic status (SES). To clarify relations of genetic, psychological, and behavioral factors in children with asthma, as well as family asthma management domains may have important implications for asthma biological profiles in children with asthma.
physiologic, and environmental factors in predicting CVD risk, we investigated interactive effects of variation in CHT1 and childhood SES on sympathovagal reactivity to cognitively challenging tasks ("stressors"). Subjects were 255 apparently healthy adults of European ancestry, aged 30 to 54 (M = 45 years; 51% men). They completed 3, 6-minute, standardized stressors, each following a 10-minute rest. Spectral power analyses performed on interbeat interval data collected by electrocardiograph estimated high frequency (HF) (respiration frequency [Hz] ± 0.015) and low frequency (LF) power (0.09-0.12 Hz) and respiratory sinus arrhythmia (RSA). Baseline-to-task change scores calculated for LF, HF, and RSA were aggregated across stressors to form reactivity indices. Sympathovagal balance was represented by natural log transformed LF/HF and LF/RSA ratios. Genotyping of CHT1 (G/T: rs333229) was completed. SES was measured as the highest grade completed by any parent in the home. Neither independent nor interaction effects of SES and CHT1 predicted LF/HF. Linear regression analyses showed the interaction of CHT1 (GG vs. GT/TT) and SES significantly predicted sympathovagal reactivity indicated by the LF/RSA ratio (B = -.76, t = 2.56, p = .01), covarying for body mass, smoking, sex, age, alcohol intake, and physical activity. LF/RSA ratio was highest for GG homozygotes with lower SES and lowest for persons with a T allele and higher SES. This finding supports the proposal that genetic predisposition toward CVD is modulated by SES.

20) Abstract 1369

ARE POSITIVE AND NEGATIVE AFFECT INDEPENDENTLY ASSOCIATED WITH HEALTH IN A REPRESENTATIVE SAMPLE OF THE WORLD?
Sarah D. Pressman, PhD, Matthew Gallagher, Psychology, University of Kansas, Lawrence, KS, Shane Lopez, The Gallup Organization, Omaha, NE

INTRODUCTION: It is well established that positive and negative affect (PA and NA) are associated with perceptions of physical health. However, the majority of research testing this relationship has been conducted in nations where basic needs are easily met. It remains to be seen whether another aspect of well-being associated with those who have more pressing health determinants such as a lack of clean water or food. This study examines whether the affect-health correlation persists in a representative sample of the world, even after accounting for the influence of basic physiological and safety needs. A secondary goal was to determine whether the associations of PA and NA with health were independent of one another. METHOD: Participants were 150,048 individuals surveyed by Gallup in more than 140 countries (1000 individuals per country), representing 95% of the world's adult population, using nationally representative samples. Self-Report scales assessing PA and NA (10 items) and Health (4 items) were administered. Individuals were also asked whether, over the last year, they had access to clean water, and enough money for food and shelter (physiological needs). They also reported whether they felt safe walking alone at night in the area where they live, if they had had money or property stolen, and whether they had been assaulted or mugged (safety needs). RESULTS: PA was correlated with better health, even after accounting for the effects of basic needs (R = .25, p < .001) and NA. Likewise, NA was inversely correlated with health after controlling for PA and basic needs (R = -.29, p < .001). When examining only those individuals who had gone hungry over the last year (N=21,029) or those who did not have shelter (N=25,986), these associations persisted and PA and NA and the heart rate were independent with health (ps < .001). CONCLUSIONS: PA and NA were associated with self-reported health in a representative sample of the world, even in those whose most basic needs were not being met. This not only indicates the strength of the emotion-health correlation, but provides further evidence that PA and NA are independently associated with well-being and are thus not simply opposite ends of the same continuum.

21) Abstract 1372

OMEGA-3 FATTY ACID INTAKE AND PHYSICAL ACTIVITY - INDEPENDENT AND INTERACTIVE ASSOCIATIONS WITH AUTONOMIC CARDIAC CONTROL
Matthew F. Gallagher, BS, School of Medicine, Peter Gianaros, PhD, Psychiatry, University of Pittsburgh School of Medicine, Pittsburgh, PA, J Richard Jennings, PhD, Psychiatry, University of Pittsburgh, Pittsburgh, PA, Jeffrey Tao, PhD, Pharmacy, University of Pittsburgh School of Pharmacy, Pittsburgh, PA, Sarah Conklin, PhD, Psychology, Allegheny College, Meadville, PA, Stephen B. Manuck, PhD, Psychology, University of Pittsburgh, Pittsburgh, PA, Matthew F. Muldoon, MD, Department of Medicine, University of Pittsburgh School of Medicine, Pittsburgh, PA, United States

Dietary intake of omega-3 polyunsaturated fatty acids (PUFAs) and exercise may plausibly reduce cardiovascular disease risk by modulating autonomic control of the heart. It is unknown, however, whether dietary omega-3 PUFA intake or exercise relate to autonomic cardiac control interactively or independently among healthy individuals. This study examined 272 generally healthy adults (51% women; all aged 30-54 years) who were free of cardiovascular disease and diabetes, and were not on cardiac or psychotropic medications or fish oil supplements. Fasting serum phospholipid omega-3 PUFAs content served as a biomarker of dietary consumption. Habitual physical activity was assessed by the Paffenbarger inventory. Autonomic cardiac control was assessed quantitatively by measurement of the root mean squared of successive differences (RMSSD) in heart period observed during a 10-minute resting ECG recording. In a linear regression model controlling for age, sex, BMI and race, serum levels of omega-3 PUFAs predicted RMSSD (Beta = .19, p = .007). In an analogous model, a weak, positive and non-significant relationship was observed between exercise and RMSSD (Beta = .11, p = .069). Using the median values as cut-points, subjects were categorized as having low or high omega-3 PUFAs concentration and as being physically inactive vs. active. Physically active individuals with high omega-3 levels had greater RMSSD than all other subjects (p = .001). Similarly, omega-3 PUFAs concentration predicted RMSSD in physically active subjects (Beta = .20, p = .006) but not in those who were physically inactive (Beta = .07, p = .38). These findings suggest that omega-3 PUFA intake is correlated with autonomic cardiac control-as reflected by RMSSD-in healthy adults and that this correlation may be dependent on concurrent levels of physical activity.

22) Abstract 1387

DISTINCT ROLES OF STAT1 TRANSCRIPTION FACTOR IN THE PATHOGENESIS OF DEPRESSION
Thomas Meyer, MD, PhD, Cardiology, University of Marburg, Marburg, Germany, Christoph Herrmann-Lingen, MD, Psychosomatic Medicine and Psychotherapy, University of Goettingen, Goettingen, Germany

Eleven serum levels of cytokines and altered gene expression profiles are associated with major depression. Cytokines exhibit their pleiotropic effects on brain function through the activation of intracellular transcription factors termed signal transducers and activators of transcription (STAT). Upon stimulation of cells with cytokines, STAT proteins are phosphorylated on a signature tyrosine residue and transiently accumulate in the nucleus, where they modulate the expression of responsive target genes. Here we used antibody microinjection assays to demonstrate the rapid translocation of STAT1 protein between the cytoplasm and the nucleus, both in resting and interferon-stimulated cells. Microinjection of a STAT1-specific antibody, which did not cross the nuclear envelope, triggered the retention of its intracellular antigen in the injected compartment, thus revealing the high exchange rate of STAT1 between the cytosol and nucleus. Next, we examined the effect of STAT1 nuclear import on cytokine-induced gene expression. Exchange of two native leucine residues with alanines or threonines in positions 407 and 409 significantly affected the subcellular distribution of STAT1 and prevented cytokine-induced nuclear accumulation, demonstrating that these residues are part of a nuclear localization signal (NLS). Mutation of the dimer-specific NLS suppressed cytokine-induced gene activation. However when we tested for constitutive functions, we found that an intact dimer-specific NLS is dispensable for the STAT1-mediated induction of apoptosis by tumor necrosis factor alpha. This finding points to distinct roles of STAT1 that are involved in the execution of different biological programs. Taken together, nucleocytoplasmic shuttling of STAT1 dimers is a hallmark in interferon-induced signal transduction that links tyrosine dephosphorylation to the activation of cytokine-responsive genes. Thus, it is important to distinguish between cytokine-induced and constitutive functions of STAT1, which may be clinically relevant in the context of interferon-induced depression.
ACUTE SUPPLEMENTATION OF LONG-CHAIN OMEGA-3 FATTY ACIDS ON PARIELT ASYMMETRY IN HEALTHY YOUNG ADULTS: A DOUBLE-BLIND PLACEBO CONTROLLED STUDY
Siera M. Goodnight, Josh Sesek, Mia Symoniak, Sarah M. Conklin, PhD, Psychology and Neuroscience, Allegheny College, Meadville, PA
Objective: Previous studies have suggested that low levels of long-chain omega-3 polyunsaturated fatty acids (LCPUFAs) are related to affective disorders and show improvement with supplementation. The aim of the current study was to investigate the effects of acute supplementation of LCPUFAs on cerebral asymmetry of EEG alpha power, previously shown to be associated with dispositional affect.
Methods: Participants (N=37, age=20.16, range=18-24) were randomly assigned to either 1.4 grams LCPUFAs or corn oil (placebo) for 21 days. Resting EEG was recorded at baseline and day 21. Alpha power (8-13 Hz) was computed, log transformed, and hemispheric asymmetry was evaluated at homologous electrode sites using non-parametric Wilcoxon Signed Ranks Test analysis (alpha was set at .05).
Results: Those receiving LCPUFAs showed a significant increase in left parietal activation (p=.048) along with decreased anxiety symptoms (p=.03), while those receiving the placebo showed no change from baseline (p=.ns). Conclusion: These findings suggest that acute, low dose supplementation of LCPUFAs increase left hemisphere activation and reduce anxiety symptoms, in healthy young adults.

24) Abstract 1432
MINDFULNESS MEDITATION-INDUCED CHANGES IN RESTING-STATE NETWORKS AND RESPONSE TO PAIN: AN FMRI STUDY
Lisa A. Kilpatrick, PhD, Brandall Y. Sayenobu, PhD, Center for Neurobiology of Stress, University of California, Los Angeles, Los Angeles, CA, J. David Creswell, PhD, Psychology, Carnegie Mellon University, Pittsburgh, PA, Suzanne R. Smith, NP, Joshua A. Bueller, BMA, Emeran A. Mayer, MD, Center for Neurobiology of Stress, University of California, Los Angeles, Los Angeles, CA, Bruce D. Naliboff, PhD, Center for Neurobiology of Stress, UCLA; VA Greater Los Angeles Healthcare System, Los Angeles, CA
Background. Mindfulness meditation reduces stress and improves general well-being presumably through changes in underlying brain processes. As an important step towards validating mindfulness meditation as a therapeutic strategy for stress and pain management, we aimed to determine if mindfulness meditation training is effective in altering resting-state functional connectivity among brain regions involved in regulating emotions and stress responsiveness and in altering brain responses to anticipation of a pain stressor. Method: 16 healthy women were randomly assigned to participate in an 8 week Mindfulness-Based Stress Reduction (MBSR) training course or to an 8 week Mindfulness-Based Training (MBT) control group. Resting-state functional magnetic resonance imaging (fMRI) was acquired in the resting state and during anticipation of pain (93 brief, 10-second shocks). Results: Those receiving MBSR showed a significant increase in left mid-cingulate, posterior insula, thalamus; p's <.02). Multidimensional models suggest greater cortical control over limbic regions in the emotional and cortical modulatory regions of interest. The resultant scaling characterized resting-state functional connectivity among emotional and cortical modulatory regions of interest. The resultant scaling characterized resting-state functional connectivity among emotional and cortical modulatory regions of interest. The resultant scaling characterized resting-state functional connectivity among emotional and cortical modulatory regions of interest.

FEAR OF PAIN MEDIATES THE RELATIONSHIP BETWEEN OPIOID USE AND PAIN SEVERITY IN CHRONIC PAIN PATIENTS
Tiffany A. Brakefield, M.A., Kristin L. Somar, M.A., John W. Burns, PhD, Department of Psychology, Rosalind Franklin University of Medicine and Science, North Chicago, IL
Chronic pain and analgesic drug use are strongly linked. Several authors have suggested that abnormalities in the endogenous opiate system may be related to pain symptomatology and subsequent self-medication. Chronic pain patients using opioid-based medications often paradoxically report higher pain levels than non-opioid users. Other characteristics of opioid medication users, such as maladaptive appraisals of pain and fear of pain, may partly account for these effects.
In this study, we examined whether pain catastrophizing and fear of pain mediated the relationship between opioid medication use and chronic pain severity. Two hundred and forty nine chronic pain patients completed the Pain Catastrophizing Scale (PCS), the Pain Anxiety Symptomology Scale (PASS) and the Pain Severity (PS) subscale of the Multidimensional Pain Inventory. Opioid-based medication use was significantly correlated with PS (r=.25, p<.001), PASS (r=.18, p<.008), but not with PCS (r=.12, p=.08) scores. Thus, pain catastrophizing did not appear to mediate the relationship between opioid medication use and pain severity in this sample. Regressions showed that PASS scores were significant predictors of PS scores with opioid use controlled (beta=.22, p<.001), thus making it a possible mediator. However, opioid medication use still accounted for unique variance in PS scores with PASS scores controlled (R2 change = .05, p<.001), yet the degree of mediation was also significant (Sobel=2.03, p=.04). Chronic pain patients who use opioid based medications may report higher pain severity despite the use of such substances. Their report of higher pain severity may be due to other factors that affect chronic pain experience and govern analgesic use. High levels of fear of pain among opioid medication users may be such a factor.

OLDER ADULTS' AGING ATTITUDES PREDICT AUTONOMIC, VASCULAR, AND INFLAMMATORY RESPONSES TO A MEMORY CHALLENGE
Kathi L. Heffner, Ph.D., Psychiatry, University of Rochester Medical Center, Rochester, NY; Julie A. Suhr, Ph.D., Huey M. Ng, M.S., Christopher R. France, Ph.D., Psychology, Ohio University, Athens, OH; Gailen D. Marshall, M.D., Ph.D., Medicine/Clinical Immunology and Allergy, University of Mississippi Medical Center, Jackson, MS
Individuals with more negative attitudes toward their own aging experience reduced longevity. We suggest that negative aging self-attitudes are linked to health through their effects on physiological responses to hassles (for example, losing one's keys) that are stereotypically associated with aging (in this example, poor memory).
Our aim was to examine whether older adults' aging self-attitudes predicted physiological reactivity to a memory challenge. Adults 50 and older (N=50) reported their aging self-attitudes, global perceived stress and depressive symptoms, sat for a 30-minute rest period, engaged in a challenging memory task, and then sat for a 60-minute recovery period. We measured high frequency heart rate variability (HF-HRV) to index parasympathetic tone, total peripheral resistance (TPR) to index vasoconstriction, salivary cortisol, and plasma levels of the inflammatory cytokine interleukin-6 (IL-6) at rest and in response to the memory challenge. Analyses revealed a quadratic association for IL-6 (p<.05). Older adults with positive aging attitudes had lower IL-6 increases at 60-minutes post-memory challenge compared to those with moderately and highly negative attitudes; those with moderately negative attitudes evidenced higher IL-6 increases compared to those with highly negative aging attitudes. Aging self-attitudes were also associated with HF-HRV reactivity (p<.05), and moderately associated with TPR reactivity (p=.08), suggesting that those with more negative aging self-attitudes had reduced parasympathetic tone and greater vasoconstriction during the memory challenge. Aging attitudes were not associated with cortisol response. Although more negative aging self-attitudes were associated with higher perceived stress (p<.01) and depressive symptomatology (p<.01), stress and depressive symptoms were unrelated to HF-HRV and TPR and thus do not explain relationships among attitudes and reactivity. Negative aging
A RANDOMIZED CONTROLLED TRIAL OF COGNITIVE BEHAVIOR THERAPY TAILORED TO ADAPTATION ISSUES IN PATIENTS WITH AN IMPLANTABLE CARDIOVERTER DEFIBRILLATOR

Jane Irvine, D. PHIL., Jill Firestone, PhD, Lephuong Ong, PhD, Robert Cribbie, PhD, Sabine Johnson, MA, Ana Bilanovic, BA, Psychology, York University, Toronto, ON, Canada, Paul Dorian, MD, Susan O’Donnell, RN, Medicine, St. Michael’s Hospital, University of Toronto, Toronto, ON, Canada, Louise Harris, MD, Doug Cameron, MD, Ann Hill, RN, Medicine, Toronto General Hospital, University of Toronto, Toronto, ON, Canada, Paul River, PhD, School of Kinesiology & Health Sciences, York University, Toronto, ON, Canada, David Newman, MD, Medicine, Sunnybrook Health Sciences Centre, Toronto, ON, Canada, Samuel F. Sears Jr, PhD, Psychology, East Carolina University, Greenville, NC, Canada

An implantable cardioverter defibrillator (ICD) decreases mortality in patients with malignant arrhythmias; however about 50% of patients are non-compliant about receiving ICD shocks. Moreover, anxiety and depression can predispose to arrhythmias necessitating ICD therapy. AIMS: to evaluate an 8-session cognitive-behavioral therapy intervention (CBT) tailored to adaptation issues in ICD patients. Secondly to test for treatment group by sex interaction effects. METHODS: Of 292 patients receiving their first ICD and who were fluent in English, 193 consented to be randomized to usual cardiac care (UCC) (n=97) or CBT (n=96). Primary outcomes were symptoms of anxiety and depression measured by the Hospital Anxiety and Depression Scale (HADS) and stress measured by the Impact of Events Scale-revised (IES-R). Secondary outcome was quality of life (QL) assessed by generic (SF-36) and disease specific (University of Toronto Symptom Interference (UT_SI) and Activity Limitations (UT_AL)) measures. RESULTS: Eighty percent were male, mean age was 69 years, (for SF-36) 54% had marriage and 70% received an ICD for secondary prevention of SCD. No baseline differences were observed between groups. Follow-up data were completed on 83%. Repeated measures analyses of variance revealed significant improvements from baseline to 6 and 12-months follow-up in both groups on most measures. Within-subject contrasts revealed time by treatment group linear interaction effects on HADS-depression, IES-R-sympathetic arousal stress symptoms, and UT_SI and UT_AL scales (ps < 0.05) with greater improvement occurring with CBT than UCC. Sex by treatment group linear interaction effects were observed with HADS-depression, SF-36 Mental Component Summary score, and UT_SI and UT_AL scales (ps < 0.05) such that women improved more with CBT than UCC whereas no treatment group differences were observed for men on these measures. CONCLUSION: CBT tailored to adaptation issues in patients with an ICD is associated with greater improvement in symptoms of depression and QL (for women) and stress.

EPIPHRINE LEVELS INTERACT WITH CENTRAL ADIPOSY IN DETERMINING FASTING GLUCOSE IN AFRICAN AMERICAN WOMEN

Anastasia Georgiades, PhD, Redford B. Williams, MD, James D. Lake, PhD, Stephen H. Boyle, PhD, Beverly H. Brunnerman, PhD, Ilene C. Siegler, PhD, John C. Barefoot, PhD, Cynthia M. Kuhn, PhD, Richard S. Survit, PhD, Psychiatry and Behavioral Sciences, Duke University School of Medicine, Durham, NC

There is increasing epidemiological support for the particular importance of central adiposity in the development of type 2 diabetes. Recently, sympathetic nervous system activity has also been implicated in the development of glucose dysregulation. The model suggests that sympathetically stimulated non-esterified free fatty acid release from central adipose tissue is a determinant of fasting glucose. African American (AA) women are at especially high risk for obesity and type 2 diabetes, and were chosen as the focus of this analysis. The present study tested the hypothesis that epinephrine release in response to central adipose tissue to determine fasting glucose levels. Methods: 60 healthy AA women (mean age 33±9 yrs) underwent a fasting and non-fasting plasma glucose assessment, plasma EPI, and a dual energy X-ray absorptiometry (DEXA) scan. Regression models were applied to test relationships of fasting and non-fasting plasma glucose with measures of plasma EPI concentration and percent trunk fat, controlling for age. Results: Tests revealed a significant interaction of EPI and trunk fat for fasting glucose (p = .04), but not for non-fasting glucose (p = .92). A median split analysis revealed that the high EPI (>23 pg/ml) and high trunk fat (>30%) group had significantly higher fasting glucose (97.4 ± 10.0 mg/dl) than the other groups (high EPI/low trunk fat = 82.2 ± 8.2 mg/dl; low EPI/high trunk fat = 87.4 ± 7.1 mg/dl; low EPI/low trunk fat = 84.4 ± 7.2 mg/dl). Conclusions: These results suggest that both sympathetic nervous system activity and central adiposity may be implicated in the development of type 2 diabetes. AA women with both a high percentage of central adipose tissue and high plasma EPI concentrations appear less able to maintain euglycemia in the fasting state. Future studies should examine the mechanism of this interaction. Behavioral/pharmacological treatments that reduce sympathetic arousal might be successful in reducing fasting glucose levels in AA women with high central adiposity, thereby reducing long-term risks for type 2 diabetes and cardiovascular disease.

THE ORBITOFRONTAL CORTEX MODULATES PERIPHERAL IMMUNE FUNCTION ACCORDING TO CONTROLLABILITY OF ACUTE STRESS

Hideki Ohira, PhD, Psychology, Nagoya University, Nagoya, Aichi, Japan, Tokiko Isowa, PhD, Nursing, Mie University, Tsu, Mie, Japan, Michio Nomura, PhD, Psychology, Hiroshima University, Hiroshima, Japan, Naoko Ichikawa, MA, Psychology, Nagoya University, Nagoya, Aichi, Japan, Kenta Kimura, PhD, Psychology, The University of Tokyo, Tokyo, Tokyo, Japan

The most rapid immune responses to acute stress are the stress responses of lymphocytes; an increase of natural killer (NK) cells and a decrease of helper T cells. We have reported previously that the redistribution of lymphocytes is attenuated when a stressor is uncontrollable, and that subsets of the peripheral blood lymphocytes might be involved in such stress modulation (Kimura et al., 2007, Brain, Behavior, and Immunity; Ohira et al., 2008, NeuroImage). Here, we will study on this evidence, we conducted simultaneous recording of brain activity using 15O-positron emission tomography (PET), as well as measurement of cardiovascular parameters and the numbers of subsets of lymphocytes during performance of a stochastic learning task during which controllability was manipulated. Specifically, we set a 70 % reinforcement (controllable) condition where participants could get monetary rewards with a probability of 70 % and a 50 % random reinforcement (uncontrollable) condition where participants could get rewards in a completely random way. Consistent with our previous studies, physiological responses including redistribution of lymphocytes were enhanced in the 70 % reinforcement condition and attenuated in the 50 % reinforcement condition. The orbitofrontal and dorsolateral prefrontal cortices were more activated in the 50 % reinforcement condition, probably reflecting more necessity for monitoring and evaluation of contingency between stimuli, actions, and outcomes. More importantly, correlation analyses between brain activation revealed by PET and numbers of lymphocytes indicated that activation in the orbitofrontal cortex correlated with redistribution of lymphocytes, especially NK cells, only in the situation of uncontrollable acute stress. In conclusion, the new evidence that the orbitofrontal cortex can modulate peripheral immune function on the basis of evaluation of controllability of acute stress.

THE INFLUENCE OF SOMATIC COMORBIDITY ON BRAIN RESPONSES TO NOXIOUS VISCERAL STIMULATION IN IRRITABLE BOWEL SYNDROME (IBS)

Gregory S. Sayuk, MD, Gastroenterology, Rebecca S. Coalson, Neurology and Radiology, Rodney D. Newberry, MD, Gastroenterology, Billy D. Nix, Patrick J. Lustman, Ph.D., Psychiatry, Yvette I. Shelton, MD, Psychiatry, Radiology, and Neurology, Washington University School of Medicine, Saint Louis, MO

Background: Brain activation differences in response to painful visceral stimuli have been reported in IBS compared to healthy controls. These
In this large prospective population-based study, increased expression of positive emotions is protective against 10-year incident CHD, suggesting that preventive strategies may be enhanced by not only reducing depression but also by increasing positive emotion.

32) Abstract 1576

MODERATING EFFECTS OF SELF DECEPTION ON PSYCHOLOGICAL TREATMENT OUTCOMES IN ICD PATIENTS
Sabine N. Johnson, M.Sc., Kinesiology and Health Sciences, Jane Irvine, Ph.D., Jill Firestone, Ph.D., Le-phuong Ong, Ph.D., Robert Cribbie, Ph.D., Ana Bilanovic, B.Sc., Psychology, York University, Toronto, Ontario, Canada, Paul Dorian, M.D., Susan O’Donnell, M.A., Cardiology, St. Michael’s Hospital, Toronto, Ontario, Canada, Louise Harris, M.D., Doug Cameron, M.D., Ann Hill, R.N., Electrophysiology, Toronto General Hospital, Toronto, Ontario, Canada, Paul Ritvo, Ph.D., Kinesiology and Health Science, York University, Toronto, Ontario, Canada, David Newman, M.D., Cardiology, Sunnybrook Health Sciences Center, Toronto, Ontario, Canada, Samuel Sears, Ph.D., Department of Psychology, East Carolina University, Greenville, North Carolina

Research suggests that coping processes may moderate psychological treatment in cardiac patients, such that depressive coping is associated with poorer outcomes. AIM: To determine if self-deception (SDE) moderates the effects of cognitive behavioral therapy (CBT) in patients with an implantable cardioverter defibrillator (ICD). METHOD: Of 292 patients receiving their first ICD, 193 consented to be randomized to usual care (UC) (n=97) or UC plus CBT (n=96). Primary outcomes assessed at 6 & 12-month follow-up were anxiety and depression symptoms (Hospital Anxiety and Depression Scale) and stress (Impact of Events Scale-revised). Secondary outcomes were quality of life (QL) assessed by generic (SF-36) and disease specific (University of Toronto Symptom Interference (SI) and Activity Limitations) measures. SDE was defined by median split on the Pauhlus Self-Deceptive Enhancement sub-scale (measured at 12-months). RESULTS: The sample (80% male), had a mean age of 64.4 (SD=14.3) years, and 54% had > high school education. Follow-up was completed on 83%. Repeated measures ANOVA identified main effects for SDE on most outcome measures (ps < 0.05) such that high SDE patients endorsed fewer symptoms. Within subject contrasts revealed significant time x treatment x sex x SDE effects, where low SDE females showed greater improvement with CBT versus high SDE females or UC patients on IES-R avoidance symptoms and SI (ps < 0.01). There was also a significant time x treatment x SDE quadratic trend on the SF-36 Physical Component Score (p < 0.02) which showed that low SDE patients in CBT improved by 6-months but the improvement lessened by 12-months. CONCLUSION: High SDE was associated with overall better psychological status and QL. There was limited evidence of a SDE moderating effect on CBT, most evident in low SDE women in CBT who showed greater improvement over time on some measures. Contrary to the poorer outcomes associated with a "repressive" coping style, these findings suggest that high SDE masks the assessment of psychological treatment effects due to under-reported symptoms.

33) Abstract 1578

TRANSIENT RESPONSES OF INFLAMMATORY CYTOKINES IN ACUTE STRESS
Kohei Yamakawa, Tatsuro Nonaka, Anna Matsumoto, Neurology, Nagoya University, Nagoya, Japan, Masahiro Matsunaga, Neurology, Meiji University, Tokyo, Japan

Psychological stress can influence the immune function, and cytokines might be important mediators of various stress-related modulations on the immune function. Previous studies have revealed that concentrations of inflammatory cytokines which are secreted in the periphery by a variety of cell types elevated by laboratory acute stress tasks (e.g., Coe & Mark, 2007; Steptoe et al., 2007). However, only little has been known about characteristics of temporal variations of inflammatory cytokines according to acute psychological stress. Thus, in the present study, we examined time course responses of inflammatory cytokines and their possible linkages in disease (e.g., CHD) to immune parameters and endocrine parameters to the cytokines, under acute stress. For the purpose, 16
male participants experienced the Trier Social Stress Test (TSST), a widely used standardized stress protocol for 20 min, or resting as a control for 20 min. Blood samples were collected at baseline, immediately after TSST or resting, 30 min, 60 min, and 90 min after the termination of the TSST or resting. The TSST elicited a typical battery of stress responses, that is, robust elevation of heart rate, concentration of cortisol, the number of NK cells, whereas resting produced none of the responses. Interestingly, IL-1beta significantly increased just after the TSST and recovery to the baseline level after 30 min, whereas other inflammatory cytokines did not show such reactivity. The surprising increase of IL-1beta in such a short time might be caused by transient increases of immune cells such as monocytes. Furthermore, there was an association between the level of IL-1beta and IL-6 in the TSST period (r = 0.649, p < 0.1). In addition, subjective stress was associated with the increase of IL-1beta (r = 0.566, p < 0.05), and IL-6 (r = 0.508, p < 0.05) after the TSST. These results suggested that the circulating level of inflammatory cytokines may mediate not only physiological but also psychological acute stress responses.

34) Abstract 1585
SYMPTOMS OF DEPRESSION AND AUTONOMIC DYSFUNCTION - RESULTS FROM THE STOCKHOLM FEMALE CORONARY RISK STUDY
Frank Zimmermann-Viehoff, MD, Hans-Christian Deter, MD, Cora S. Weber, MD, Kristina Orth-Gomer, MD, Psychosomatic Medicine, Charité Campus Benjamin Franklin, Berlin, Germany
Introduction: Depressive symptomatology is associated with increased risk for coronary heart disease (CHD) and unfavourable outcome in patients with established CHD. Autonomic dysfunction is believed to be closely linked to negative affective cardiovascular reactivity. Measurement of heart rate variability (HRV) provides a non-invasive tool to estimate vagal control of the heart. Reduced HRV has been shown to be a predictor of mortality. Additionally, there is evidence for associations of reduced HRV with major physical and psychological cardiovascular risk factors. Aim of the present study was to investigate possible associations between depression and HRV in women with CHD. Methods: A total of 284 women (mean age 56.9±7.7 y) with a confirmed diagnosis of CHD from the Stockholm Female Coronary Risk (FemCorRisk) study were enrolled in the analysis. Depression was assessed by means of a 9-item questionnaire derived from Pearl et al. (1981). For our analysis, subjects were divided into groups using median split. Women with less than four depressive symptoms were classified as low depression subjects (LDS), those with four or more depressive symptoms as high depression subjects (HDS). HRV data were obtained from 24h-ECG recordings. The standard deviation of R-R-intervals (SDNN) was defined as primary outcome. Values were log-transformed before analysis to achieve normal distribution. Results: LDS and HDS did not significantly differ with regard to age, Body Mass Index, resting blood pressure, disease severity (NYHA classification), marital status and menopausal status. HDS showed reduced SDNN compared to LDS (mean ± standard deviation 3.73±1.39 ln ms2 vs. 3.82±0.36 ln ms2, p=0.04). Discussion: The data confirmed our hypothesis of reduced HRV in female CHD patients with symptoms of depression. This was true even if a comparatively soft criterion of depression (median split) was applied. The clinical meaning of this finding is underlined by the fact that reduced SDNN was associated with mortality in middle-aged women with CHD (Jansz et al. 2004).

35) Abstract 1589
DEPRESSION IN STOCKHOLM WOMEN - ORIGINS, PROGNOSIS AND PREVENTION
Kristina Orth-Gomer, MD, Public Health Sciences, Karolinska Institute, Stockholm, Sweden, Frank Zimmermann-Viehoff, MD, Cora S. Weber, MD, Melanie Merswolken, Dipl.Psych., Hans-Christian Deter, MD, Psychosomatic Medicine, Charité Campus Benjamin Franklin, Berlin, Germany
The Stockholm Female Coronary Risk (FemCorRisk) study was planned, financed and conceptualized along with the Womens Health Initiative (WHI) at the National Heart Lung and Blood Institute Bethesda. Whereas the WHI was centered around estrogen replacement, the FemCorRisk had a focus on psychosocial risk factors for CHD in women of productive ages and opportunities for psychosocial prevention. Method: The FemCorRisk recruited all female patients, 65 years or younger who were hospitalized for myocardial infarction (n=110) and underwent angiography in Stockholm during a 3 year period. Age matched controls were obtained from the Stockholm census register. Among the total of 584 women only 2 home makers were found. As almost all were employed outside home and 2/3 had family with children, job stress and family stress could be compared in terms of generating depression. Results: Depressive symptoms, assessed according to Pearl (range of score from 0 to 9), were most frequent in patients with high marital stress (mean score 5.2; 95% CI 3.1-7.2). They were least frequent in healthy women without stress (0.9, 0.1-1.8). Patients and controls with job stress were intermediate with a mean depression score of 3.2(1.2-5.2) and 2.0(0.7-3.2) resp. Five year follow-up confirmed that depression due to the combination of marital and job stress carried the greatest risk of a recurrent cardiac event (cardiovascular death, re-infarction, revascularization). In a recently evaluated cognitive behavioral intervention trial, we focussed on depression, due to family and job stress. The intervention saved lives. Women receiving usual care had 3 times the mortality of intervention women (p=0.001). These results began to show after 3 and were distinct after 5 years: Conclusion: In the WHI the treatment with estrogen had to be stopped because of negative side effects. In Stockholm women, psychosocial stress intervention for women was based on scientific evidence and was safe and suited for prevention. In ongoing collaborations between Stockholm and Berlin the psychosocial intervention methods are being further developed, implemented and evaluated.

36) Abstract 1609
SOCIAL SUPPORT IS RELATED TO INFLAMMATORY MARKERS IN HOSPITALIZED PATIENTS WITH ACUTE CORONARY SYNDROME
Heather L. Rogers, Ph.D., Medical and Clinical Psychology, Uniformed Services University of the Health Sciences, Bethesda, MD, Gayle G. Page, D.N.Sc., School of Nursing, Johns Hopkins University, Baltimore, MD, Marlene S. Williams, M.D., Roy C. Ziegelstein, M.D., Cardiology, Johns Hopkins Bayview Medical Center, Baltimore, MD, David S. Krantz, Ph.D., Medical and Clinical Psychology, Uniformed Services University of the Health Sciences, Bethesda, MD
In individuals with acute coronary syndrome (ACS), structural (e.g., social network) and functional (e.g., support/resources provided by network) components of social support predict cardiac morbidity and mortality. Inflammatory processes play a role in ACS pathophysiology. We therefore examined the associations of social support with systemic levels of inflammatory markers in cardiac patients with ACS. Psychosocial questionnaires were administered to 46 patients within two days of hospitalization for ACS. Functional social support was measured via the Interpersonal Support Evaluation List - 12 (ISEL). Structural social support was primarily measured via an adapted Social Network Index (SNI). Additional structural social support elements assessed included marital status, number of people in household, number of visitors during hospitalization, and amount of time visitors accompanied the patient during his/her stay. Blood was drawn and assayed for levels of C-reactive protein (CRP) and the proinflammatory cytokines tumor necrosis factor - alpha (TNF-alpha) and interleukin-6 (IL-6). The ISEL Belonging sub-scale was inversely associated with CRP levels (rho = -0.32, p < 0.05) and the ISEL Tangible sub-scale was inversely associated with IL-6 (rho = -0.30, p < 0.05). SNI sub-scales were related to inflammatory markers. In married patients, the number of people in patient's household was inversely associated with IL-6 (rho = -0.31, p < 0.05). Number of people in household predicted IL-6 levels, independent of Tangible Social Support and marital status (p < 0.05). These findings suggest that social support components are differentially associated with aspects of the cytokine cascade in ACS patients. Structural measures have a stronger relationship with upstream markers of inflammation such as TNF-alpha, while functional measures related to downstream CRP in patients recently hospitalized for ACS. Confirmation of these relationships in larger samples of cardiac patients is warranted.
CORRELATES OF NOREPINEPHRINE AND PREDICTORS OF DISEASE PROGRESSION IN HIV
Elizabeth Balbin, MA, Gail Ironson, MD, PhD, Psychology & Behavioral Medicine, University of Miami, Coral Gables, FL

Purpose: We have recently reported that high levels of the stress hormone Norepinephrine, predicts viral load response to Protease Inhibitors in people with HIV who initiate treatment. We have also previously reported several psychosocial predictors of disease progression in HIV. The purpose of this study was to determine whether norepinephrine (NE) correlates with any of the previously reported predictors. Design: A diverse group of HIV infected men and women (n=343) were assessed over 4 time points six months apart for several psychosocial variables including: stressful life events, affective depression (BDI), avoidant coping (COPE behavioral disengagement and emotional subscales), optimism (LOT) and spirituality (Ironson-Woods SR Index; baseline only). Norepinephrine concentration was assessed at baseline by 15 hour urine collection. The study selected people in the mid-range of illness at baseline (100 < CD4 < 600), and excluded individuals with other active systemic diseases and/or with current alcohol or substance dependence. Results: Higher norepinephrine concentration was significantly correlated with higher depression, affective subscale (r = .18, p < .05, n=343). Higher spirituality behavioral subscale was significantly correlated with lower norepinephrine (r = -.33). Norepinephrine was not significantly correlated with stressful life events, avoidant coping, or optimism. Conclusions: Higher spirituality (behaviors) and lower depression were significantly associated with lower norepinephrine. Both of these are changeable and could potentially impact HIV through lower NE. Future intervention studies should investigate whether treatment of depression or increasing spiritual behaviors might impact on norepinephrine and disease progression.

DEPRESSIVE SYMPTOMS AND CHANGE IN COGNITIVE FUNCTION IN COMMUNITY DWELLING OLDER ADULTS
Gerard J. Molloy, PhD, Mark Hamer, PhD, Cesar M. de Oliveira, PhD, Panayotes Demakakos, PhD. Department of Epidemiology & Public Health, University College London, London, England, United Kingdom

Depression has been associated with poorer levels of cognitive function and increased levels of age-related cognitive decline, however this association has not been observed consistently and there is a lack of clarity about the temporal nature of the relationship. We examined if depressive symptoms predicted subsequent change in a range of cognitive measures in a large sample of community dwelling older adults in the English Longitudinal Study of Ageing (ELSA). Participants were 7610 men and women (aged 62.9 ± 10.2yrs, 56.9% female). Standard measures of verbal recall (immediate and delayed recall of a list of 10 common words) and verbal fluency (number of animals named in a minute) were assessed at baseline and 4 years later. Depression was measured using the 8-item Centre of Epidemiological Studies Depression (CES-D) scale. In comparison with participants reporting no depression at baseline, cognitive function at follow up, as measured by verbal recall immediate (beta=-.34, 95% CI, -.44, -.24, P<.001) and delayed (beta=-.40, 95%CI, -.51, -.29, P<.001) and fluency (beta=-.08, 95%CI, -.14, -.043, P<.001) was lower in participants that scored ≥10 on the CES-D at baseline. After adjustment for cognitive function scores at baseline, age, gender, social position, smoking, alcohol, physical activity, and long standing illness. Cognitive functioning at baseline did not predict depression at follow-up. These data suggest that the observed associations can be better explained by depression preceding cognitive decline rather than vice versa.

SLEEP DURATION, SLEEP STRUCTURE, AND SLEEP FRAGMENTATION ARE ASSOCIATED WITH OBESITY IN YOUTH
Denise C. Jarrin, Masters, Jennifer J. McGrath, PhD, MPH, Psychology, Concordia University, Montreal, Quebec, Canada

The prevalence of childhood obesity has increased almost threefold over the past two decades. Mirroring these trends, sleep duration has decreased among youth, largely due to increasingly later bedtime, but unchanged wake time across decades. Recent cross-sectional studies have found a link between childhood obesity and sleep duration. Further, prospective studies suggest a causal component linking sleep and eventual weight status. However, a majority of studies have focused on sleep duration, measured by self- or parent-report. Few studies have considered whether sleep structure (sleep stages) and sleep fragmentation (arousals), both markers of sleep quality, differ based on weight status. The aim of the current study was to examine the relation between sleep duration, sleep structure, and sleep fragmentation with childhood obesity. Participants were part of the Healthy Heart Project and included 78 youth (57.7% females) aged 8-18 years (M=13.10, SD=2.26). Anthropometric measures (weight, waist circumference, percent body fat) were collected by trained research assistants. Sleep measures were derived from an unattended overnight polysomnogram conducted in the home of the child. The recording montage included a single channel EEG (Fpz, A1, ground), and one electrooculogram electrode on the right temple. Total sleep duration was the difference between sleep onset and wakefulness. Sleep structure was the time spent in rapid eye movement (REM) and Non-REM (NREM). Polysomnograph data coded for REM and NREM sleep stages were scored using the Rechtschaffen and Kales (1968) criteria. Sleep fragmentation was the mean number of arousals lasting at least 15 seconds of sleep. Consistent with past findings, shorter sleep duration was negatively associated with weight (r=-.27, p<.01) and waist circumference (r=-.28, p<.01), suggesting that heavier youth sleep fewer hours than lean counterparts. Greater obesity indices were associated with less time spent in NREM (ravg=-.30, p<.01), more time spent in REM (ravg=.16, ns), and more fragmented sleep (ravg=-.26, p<.05). Results indicate that heavier youth obtain less sleep, but also fragmented and poorer quality sleep, compared to counterparts. Future studies may play a crucial role in the development and maintenance of obesity. Future research should aim to elucidate the mechanisms underlying the link between sleep and obesity.
higher OT plasma levels (p<0.032). There was a trend (0.085) for slower tumor growth in group vs. single housing at 60 days. Discussion: Continuous oxytocin administration over 29 days produced increased oxytocin plasma levels and both were associated with reduced MCF7 xenograft growth rate in SCID mice. Our next step will be to test whether breast tumor oxytocin receptor density moderates the association between plasma oxytocin and tumor growth rate.

41) Abstract 1675

CENTRAL NERVOUS SYSTEM SEROTONIN, HOSTILITY AND GLUCOSE METABOLISM IN AFRICAN AMERICAN WOMEN
S H. Boyle, PhD, Psychiatry, Duke University Medical Center, Durham, NC, L Wang, MA, Bioinformatics Research Center, NCSU, Raleigh, NC, R S. Surwit, PhD, Psychiatry, DUMC, Durham, NC, Z Zeng, PhD, Bioinformatics Research Center, NCSU, Raleigh, NC, W Matson, PhD, Department of Systems Biology, Bedford VA Research Corp. Inc, Bedford, MA, A Georgiades, B H. Brunnert, PhD, Psychiatry, C M. Kuhn, PhD, Pharmacology and Cancer Biology, R B. Williams, MD, Psychiatry, R Kaddur-Daouk, PhD, Biological Psychiatry, DUMC, Durham, NC

We have shown that the major serotonin (5HT) metabolite 5-hydroxyindoleacetic acid (5HIAA) in cerebrospinal fluid (CSF) is positively associated with hostility and fasting glucose in African American women only (APS, Baltimore, 2008), suggesting that central nervous system (CNS) 5-HT may be an important contributor to both hostility and glucose metabolism in this group. However, interpretation of 5HIAA is complicated because a given level of the metabolite could reflect different patterns of degradation and synthesis making it difficult to say that hostility is related to glucose metabolism. To more completely define the role of CNS 5-HT in hostility and glucose metabolism, we assayed other key elements in the tryptophan pathway – tryptophan (TRYP, the amino acid substrate) and 5-OH-tryptophan (5HTP, formation of which is the rate-limiting step in 5HT formation) – in CSF obtained by lumbar puncture from 36 African American women, 26 Caucasian women, 34 African American men and 27 Caucasian men. The 27-item modified Cook-Medley Hostility Scale was used to assess hostility. Partial correlations, controlling for age, showed that 5HTP correlated with hostility (r = .43, p < .02), fasting glucose (r = .41, p < .02), and fasting insulin (r = .56, p < .0005) in African American women only. TRYP was not significantly associated with hostility of any of these variables. A common factor analysis on hostility scores, fasting insulin and glucose, 5HTP, and 5HIAA yielded a single factor (Eigenvalue = 2.31) in which all variables loaded above .55. This analysis suggests that hostility, fasting insulin and glucose, 5HTP, and 5HIAA share significant variance and also suggests that elevated serotonin production (indexed by higher CSF 5HTP) may be a biological underpinning of the hostility-glucose metabolism associations seen among African American women. Supported by NHLBI (grant P01-HL036587)

42) Abstract 1681

HIGH TRAIT ANGER IS ASSOCIATED WITH INCREASED LEVELS OF OXIDATIVE STRESS IN HEALTHY ADULTS
Leah B. Rosenberg, BA, Juan Carlos Osorio, MD, Medicine, Sally W. Ahoela, Ph.D., Nursing, Sujith Kuruvilla, MD, Matthew M. Burg, Ph.D., Daidichi Shimbo, MD, Medicine, Columbia University Medical Center, New York, NY

Background: Trait anger and hostility are associated with increased risk of incident cardiovascular disease (CVD) events. The biological mechanism(s) linking these traits with CVD events remains unknown. Oxidative stress plays a major role in atherosclerosis development by inducing endothelial cell injury, thrombosis, and a pro-inflammatory response. Preliminary studies have shown a relation between chronic stress and markers of oxidative stress. The relations between trait anger and hostility with oxidative stress have not been explored. Methods: 33 healthy adults (mean age = 33 +/- 11, 42.4% female) completed the 10 item Spielberger Trait Anger Scale and 50-item Cook-Medley Hostility Scale (Ho), and gave a fasting blood sample. Plasma content of 8-epi-PGF2alpha, a stable product of arachidon acid formed on nonenzymatic oxidation and a gold standard measure of oxidative stress, was assayed by ELISA. Results: The relations of TAS and Ho with 8-epi-PGF2alpha were estimated by multiple linear regression. Univariate analysis demonstrated a positive and significant relationship (beta= 5.6, p=0.021) between TAS and 8-epi-PGF2alpha. These results (betas= 5.4 and p=0.031) remained after adjusting for age and sex, possible confounders of the anger-oxidative stress link. In contrast, there was no relation between Ho or the 27-item Barefoot subscale, and plasma 8-epi-PGF2alpha. Conclusions: Our findings provide support for exaggerated oxidative stress as one potential link between trait anger and incident CVD. The absence of a finding for hostility raises the possibility that other pathways link this construct to CVD. Future investigations should confirm our findings and examine whether acute anger provocation increases oxidative stress levels.

43) Abstract 1687

HEALTHY PEOPLE ARE HARD TO FIND: DYSPESIA SYMPTOMS AMONG ALLEGEDLY HEALTHY INDIVIDUALS AND THEIR GASTRIC MYOELECTRICAL RESPONSES TO A WATER-LOAD TEST
Max E. Levine, PhD, Psychology, Siena College, Loudonville, NY, Kenneth L. Koch, MD, Sara Yanchis Koch, BS, Internal Medicine, Wake Forest University School of Medicine, Winston-Salem, NC

Background: Functional dyspepsia is a gastrointestinal disorder for which there is no identified organic cause; psychological factors such as stress are believed to contribute to the disorder's development. To conduct research on the etiology and effective treatment of functional dyspepsia, healthy participants are often needed to serve as controls; however, identifying individuals who meet the criteria for “healthy” is seldom easy. The purpose of this study was to evaluate the dyspepsia symptoms experienced by a sample of self-described healthy individuals, and examine their subjective and gastric myoelectrical responses to a water-load test. Method: Methods for the recruitment of healthy volunteers for a study of functional dyspepsia. The 24 respondents (9 female; mean age = 34.5 yrs) completed a Visual Analog Scale (VAS) concerning "stomach problems" over the past week, and the Dyspepsia Symptom Severity Index (DSSI). During a water-load test, participants consumed water until full over a 5 min period. Electrogastrograms were recorded to assess gastric myoelectrical activity. Results: Many of the healthy participants reported dyspepsia symptoms. To explore the sample further, groups of the highest and lowest VAS responders were formed. Group A consisted of the 10 participants with VAS scores of 4 or higher (mean= 11.1); Group B consisted of the 12 participants with VAS scores below 2 (mean= 1.1). DSSI scores were significantly higher in Group A than Group B (means= 6.7 and 2.3, respectively, p<.05). A typical DSSI response of Group A participants was moderate nausea experienced after meals. Group A drank less than Group B during the water-load test (means= 523 and 729 ml, respectively, p<.05). Effects of the water-load on gastric myoelectrical activity varied widely; however, Groups A and B did not differ significantly. Conclusions: Many participants who considered themselves "healthy" evidenced a wide spectrum of dyspepsia symptoms, gastric myoelectrical responses, and ingested water-load volumes. Within a cohort of healthy volunteers, meaningful differences in symptoms and gastric physiology were detected. The results of this study demonstrate the need for care and diligence in identifying a healthy control group for studies of functional gastrointestinal disorders.

44) Abstract 1691

INCREASED INTIMA-MEDIA THICKNESS IN WOMEN WITH BORDERLINE PERSONALITY DISORDER: IMPACT OF ADVERSE CHILDHOOD EXPERIENCES
Wiebke Greggersen, MD, Kai Kahl, MD, Sebastian Rudolf, MD, Eva Fassbinder, MD, Psychiatry, Beate M. Stoeckelhuber, MD, Radiology, Ulrich Schweiger, MD, Psychiatry, Luebeck University Medical School, Luebeck, Germany

Purpose of study: Advence childhood conditions in patients with borderline personality disorder (BPD) may increase the risk of developing cardiovascular disease by altering endocrine, metabolic and inflammatory parameters. Increased intima-media thickness (IMT) is considered an early marker of atherosclerosis and is associated with the majority of cardiovascular risk factors. Subject sample and statement of methods: Mean IMT of the common carotid arteries was assessed by B-mode ultrasound in 48 women with BPD and 28 age-matched healthy women (mean age 31 ± 11 years). Underweight patients or patients
with any major medical disorder were excluded. All subjects were asked for adverse childhood experiences (ACE) in 10 categories. Thirty-two patients reported more than 3 forms of ACE, 16 patients and all healthy subjects reported 3 or less ACE. ATP III criteria for metabolic syndrome, markers of inflammation and hormones were measured. Summary of results: Higher IMT was observed in patients with more than 3 ACE than in patients with 3 or less ACE or healthy women (0.43 ± 0.11 mm vs. 0.37 ± 0.09 mm vs. 0.35 ± 0.11 mm; ANOVA: F = 5.5; p= .006). Differences remained significant after adjustment for BMI, smoking and exercise. IMT correlated positively with ACE (p= .008) and Fibrinogen (p= .045). The data suggests that otherwise healthy women with BPD and a history of multiple adverse childhood experiences are at increased risk for subsequent cardiovascular disease.

45) Abstract 1694

ACUTE LONG-CHAIN OMEGA-3 POLYUNSATURATED FATTY ACID SUPPLEMENTATION MAY DECREASE NEUROTICISM, DEPRESSION, AND ANXIETY IN HEALTHY YOUNG ADULTS

Emilia D. Symoniak,, Psychology, Siera M. Goodnight,, Psychology

Summary of results: Higher IMT was observed in patients with more than 3 ACE than in patients with 3 or less ACE or healthy women (0.43 ± 0.11 mm vs. 0.37 ± 0.09 mm vs. 0.35 ± 0.11 mm; ANOVA: F = 5.5; p= .006). Differences remained significant after adjustment for BMI, smoking and exercise. IMT correlated positively with ACE (p= .008) and Fibrinogen (p= .045). The data suggests that otherwise healthy women with BPD and a history of multiple adverse childhood experiences are at increased risk for subsequent cardiovascular disease.

46) Abstract 1715

VASOVAGAL SYNCOPE: A VOXEL-BASED MORPHOMETRY STUDY

Felix D. Beacher, PhD, Marcus A. Gray, PhD, Hugo D. Critchley, PhD, Psychiatry, University of Sussex, Brighton, East Sussex, UK

RESULTS: Individuals with a history of VVS had significantly reduced gray matter volume within medulla (t=3.14, p=0.007), and the Beck Anxiety Inventory total score (p=0.033). The placebo group showed no difference between baseline and day 21. These findings suggest that LCPUFAs may reduce neuroticism, and symptoms of depression and anxiety in healthy young adults.

47) Abstract 1725

INFANT PERCEPTION OF EXPRESSIONS OF EMOTION
Glenda C. Prkachin, Ph.D., Psychology, University of Northern British Columbia, Prince George, British Columbia, Canada

Faces that convey different emotions are differentiated and even treated as special by infants around 6 months of age. They appear to be capable of perceiving some of these important expressions before 6 months of age but, the research evidence is mixed and findings often contrary. We used split screen video presentations of six different emotion expressions (EE) on one side of the screen and a nonsense expression (NE) presentation on the other side of the screen. A young girl was trained to make the six facial EE and the NE contained facial movement similar to that of emotions but does not convey affective information. These are morphed movements of different facial movements by the same girl. Infants responses were video taped and amount of time spent looking at the NE and EE or away were evaluated. Assessment of behaviors that the infants directed at the model were also assessed. The infants spent the majority of their time examining the facial expressions of emotion F(1, 9) = 9.73, p < .01. There was no significant difference between the expression compared to the other expressions of emotion F(9) = 3.3, p < .01 (Prkachin, 2008). The sample size was small; however, the results were consistent. The behavioral analysis revealed consistent responses to the anger and fear expressions that support an interpretation of very early perception of these emotional expressions. These findings and others that assess the development of the perception processes may be useful for understanding the development of temperament and emotional disorders.

48) Abstract 1744

ADIPOSITY, DEPRESSIVE SYMPTOMS, AND CARDIOVASCULAR RESPONSES TO MENTAL STRESS
Andrew J. Wawrzyniak, MA, MS, PhD, Mark Hamer, MSc, PhD, Romano Endrighi, MS, Katie O'Donnell, MS, Andrew Septoe, MA, MPhil, DSc, Epidemiology and Public Health, University College London, London, United Kingdom

Previous research examining the association between adiposity and cardiovascular reactivity to acute mental stress have produced conflicting findings. Adiposity has been associated with depressive symptoms, although the interaction effect of these two risk factors for cardiovascular disease has gained little attention. We therefore examined the association between adiposity, depressive symptoms and cardiovascular reactivity in 515 healthy men and women (62.8 ± 5.6 yrs) drawn from the Whitehall II epidemiological cohort. Various cardiovascular measures (blood pressure [BP], heart rate [HR], heart rate variability [HRV]) were assessed during two mental stressors consisting of a 5-min Stroop task and a 5-min mirror tracing task. Adiposity measures included BMI (kg/m2), waist size index, and waist-to-hip ratio (WHR). Depressive symptoms were assessed using the Centre for Epidemiological Studies Depression Scale (CES-D), employing a cut point of 16 or more. In multiple linear regression analyses, adjusted for age, gender, employment grade, and baseline cardiovascular measures, both BMI (standardised β = -0.12, p<0.01) and CES-D (β = -0.14, p=0.002) were independently and inversely associated with systolic BP reactivity; only BMI was inversely associated with HRV (β = -0.18, p=0.001) and high frequency HRV reactivity (β = -0.10, p=0.02). The CVD, depressive symptoms and catastrophic reactivity appeared to be additive; in comparison with normal weight (BMI<25 kg/m2) non-depressed (CES-D=0) participants, systolic BP reactivity was lower in those that were overweight/none-depressed (adjusted β = -2.71, 95% CI, -5.49 to 0.07, p<0.05), and overweight/ depressed (CES-D=16) participants, systolic BP reactivity was lower in those that were overweight/none-depressed (adjusted β = 1.67, p<0.001). These findings demonstrate that adiposity and depressive symptoms are associated with lower
CARDIOVASCULAR RESPONSIVITY TO AN ACUTE MENTAL CHALLENGE, DESPITE SIMILAR LEVELS OF SELF REPORTED TASK ENGAGEMENT AMONG ALL PARTICIPANTS. ATTENUATED CARDIOVASCULAR REACTIVITY MIGHT BE REFLECTIVE OF SUSTAINED ALLOSTATIC LOAD AMONG OVERWEIGHT PARTICIPANTS WITH DEPRESSIVE SYMPTOMS.

49) Abstract 1745
THE EFFECT OF PSYCHOLOGICAL INTERVENTIONS ON GLYCEMIC CONTROL IN DIabetICS: A META-ANALYSIS
Cathy A. Bykowski, M.A., William P. Sacco, Ph.D., Laura Mayhew, B.A., Department of Psychology, University of South Florida, Tampa, FL
Individuals with diabetes report high rates of psychological distress, which is related to poor glycemic control. It has been hypothesized that decreasing distress may improve glycemic control. This meta-analysis evaluated the effect of psychological interventions on glycemic control in people with diabetes. Psychosocial and psycho-pharmacological interventions were examined. Possible studies were identified through keyword searches of relevant databases (i.e., PsycInfo, PubMed, and MedLine) and through reference lists of identified articles. Inclusion criteria were: a) randomized control trial; b) tested an intervention designed to reduce psychological distress (e.g., depression, anxiety, stress, etc.); c) participants diagnosed with Type 1 or Type 2 Diabetes Mellitus; d) measured glycemic control via hemoglobin A1c; e) reported adequate statistical information to calculate an effect size; f) were available in English. Interventions that focused on improving diabetes management or increasing diabetes knowledge were excluded. Initial examination of titles and abstracts yielded 129 articles that were obtained for closer inspection, 26 of which met all inclusion criteria and were included in the final analysis. All studies were coded by two independent raters. The standardized mean difference (d) was used to compare the treatment and control groups. The analysis indicated a small effect of intervention on glycemic control (mean d=0.23; 95% CI: 0.04, 0.41) with a significant difference between the treatment and control groups (z=-2.41, p<.05). A mixed moderator analysis of intervention type did not find a significant difference between studies that employed psychopharmacological medication (M=0.19), psychosocial interventions (M=0.27) or a combination of intervention types (M=0.05; QB(2)=0.72, p>.05). Another mixed moderator analysis suggested that the effect of interventions on glycemic control was not significantly different for Type 1 (M=0.23) and Type 2 diabetes (M=0.51; QB(1)=1.62, p>.05). These results suggest that psychopharmacological medication and psychosocial interventions for improving mental health can improve glycemic control in those with Type 1 and Type 2 diabetes.

50) Abstract 1772
ADULT ATTACHMENT AND RESPONSES TO DAILY POSITIVITY IN ROMANTIC RELATIONSHIPS
Angela M. Hicks, Ph.D., Psychology, Westminster College, Salt Lake City, UT, Lisa J. Diamond, Ph.D., Psychology, University of Utah, Salt Lake City, UT
This study examined attachment and emotional and physiological responses to day to day positivity between romantic partners. For 10 days, 48 couples reported positive and negative affect (PA, NA), and level of closeness in their most important interaction of the day. Attachment anxiety and avoidance were assessed prior. To more fully examine the time-course of the links between affect and physiology, PA and NA were modeled at three time points, a) the same evening on which interaction quality was reported, b) the next morning, and c) the following evening. To assess daily HPA axis functioning, one member of each dyad provided 5 saliva samples per day on 2 consecutive days (the current study focuses on morning challenge [MC] and total daily cortisol output, or area under the curve [AUC] as indexes of HPA functioning). As is appropriate with nested datasets (i.e., 2 reports of affect and multiple cortisol samples nested within individuals), hierarchical linear modeling (i.e., HLM, Bryk & Raudenbush, 1992) was used in all analyses. Level 1 models included the dependent variable modeled as a function of the days closeness (controlling for the total positivity of the day). Level 2 models predicted the slope of the closeness effect as a function of gender, anxiety, and their interactions. Models predicting cortisol also controlled for age, gender, and weight. For those high in attachment anxiety, greater closeness in the most important interaction with the partner was associated with lower positive (t = -2.48, p = .01) and greater negative (t = 2.76, p = .008) same day affect. While the affective effects dissipated by the next morning, high anxious females experienced lower AUC the next day (t = -3.97, p = .000). For those high in attachment avoidance, greater closeness was not associated with same day affect, however the next day avoidant individuals reported greater NA (t = 1.85, p = .06) and lower PA (t = -2.64, p = .01) and lower AUC (t = -2.64, p = .01). Discussion focuses on the specific characteristics of attachment anxiety and avoidance that may lead to a different time course of and pairing between emotional and physiological dysregulation after positive interactions with one s romantic partner.

51) Abstract 1781
SINGLE NUCLEOTIDE POLYMORPHISM ASSOCIATIONS WITH TYPE-D PERSONALITY IN THE GENERAL POPULATION; FINDINGS FROM THE KORA K-500-SUBSTUDY
Karl-Heinz Ladwig, MD/PhD, Rebecca T. Emeny, PhD, Christian Gieger, PhD, Esther Ruf, PhD, Norman Klopp, PhD, Thomas Illig, PhD, Institute of Epidemiology, Thomas Meitinger, PhD, Institute of Human Genetics, Heinz-Erich Wichmann, MD/PhD, Institute of Epidemiology, Heinz Hofer Center Munich, Neuberger, Germany
Background: Individuals typically experiencing a combination of negative affectivity and social inhibition qualify for being Type-D personalities, which is considered to be a heritable construct. Type-D is relevant as an independent prognostic risk factor for cardiovascular disease. While genetic associations with many psychological traits are now well described, this information is not yet available for the Type-D personality. Methods: A genome wide association study (GWAS), the KORA (Kooperative Gesundheitsforschung in der Region Augsburg) F3 500K study, was performed in a representative, genetically defined population where over 300,000 single nucleotide polymorphisms (SNPs) were screened for associations with Type-D. SNPs with P-values below 0.00015 (n=120) were considered for associations with Type-D phenotyped individuals. Results: Of 1405 adults, 27.7% were classified with Type-D. Both SNPs and clusters of SNPs in specific gene regions were identified as contributing factors for Type-D. Of the 39 most significant SNP associations, many occurred in or near genetic regions important for immune function and neuronal plasticity such as endo/exocytosis, intracellular signaling, cytoskeletal organization and cellular adhesion. Additionally, seven genetic loci were identified that also have reported associations with bipolar disorder, autism, chronic fatigue, hypertension, diabetes and inflammation; an indication that common pathways may be involved in several psycho-somatic pathologies. Conclusions: The observed SNP associations with a Type-D status support an underlying genetic propensity for Type-D personality. Novel genetic associations in Type-D populations may improve our understanding of the molecular pathways that trigger prevalent psychological traits that contribute to health burden.
Topic: Cancer

52) Abstract 1420

WAIST CIRCUMFERENCE AND BODY MASS INDEX ARE DIFFERENTIALLY ASSOCIATED WITH DEPRESSION AND INFLAMMATION IN PATIENTS WITH ADVANCED PROSTATE CANCER

William Arguelles, B.S., Catherine Benedict, B.S., Lara Traeger, M.S., Psychology, University of Miami, Coral Gables, FL; Jason Dahn, Ph.D., Psychology, Miami VAMC, Miami, FL; Mikal Rasheed, M.S., Eric Zhou, M.S., Natalie Escobio, B.S., Psychology, University of Miami, Coral Gables, FL; Bruce Kava, M.D., Mark Soloway, M.D., Bron Daniel, B.S., Jennifer J. Hu, Ph.D., Sylvester Comprehensive Cancer Center, University of Miami Miller School of Medicine, Miami, FL, Frank J. Penedo, Ph.D., Psychology, University of Miami, Coral Gables, FL

Obesity has been linked to recurrence and poor prognosis in cancer patients. Obesity has also been associated with psychological (i.e., depression) and physiological (i.e., inflammation) processes that may influence disease activity. While body mass index (BMI) is commonly used as a broad measure of obesity, waist circumference (WC) is a more direct measure of central adiposity. Central adipocytes, in contrast to peripheral adipocytes, have been shown to act as endocrine cells that secrete inflammatory markers, which may also increase risk for depression. This study examined whether WC and BMI were differentially related to depressed affect and markers of inflammation in men with advanced prostate cancer (N = 72; Mean age = 70.38 years, SD = 9.71; Mean time since diagnosis = 38.14 months, SD = 33.63; Mean length of hormone treatment = 19.42 months, SD = 17.88). Depressed affect was measured using the Center for Epidemiology Studies Depression scale. The inflammatory markers interleukin-6 (IL-6) and tumor necrosis factor-alpha (TNF-a) were measured via blood assays on a subsample of participants (N = 25). Results showed WC was significantly correlated with depressed affect (r = .291, p = .019) while BMI was not (r = .142, p = .250). WC remained a significant correlate of depressed affect (β = .433, p = .026) controlling for age, ethnicity, income, time since diagnosis, length of hormone treatment, comorbid medical conditions, physical activity, and BMI. In addition, WC was significantly correlated with TNF-a (r = .420, p = .046) while BMI was not (r = .218, p = .306). Neither WC nor BMI were correlated with IL-6. Results suggest that WC is a stronger correlate than BMI of depressed affect and inflammatory processes in an older male patient population. Future studies should differentiate between WC and BMI when examining associations among obesity and psychological and physiological processes related to disease activity and cancer prognosis.

53) Abstract 1194

LONG-TERM CANCER SURVIVORS EXPERIENCE WORK CHANGES AFTER DIAGNOSIS: RESULTS OF A POPULATION-BASED STUDY

Floottie Mols, PhD, Medical Psychology, Tilburg University, Tilburg, The Netherlands, Melissa S. Thong, Eindhoven Cancer Registry, Comprehensive Cancer Centre South, Eindhoven, The Netherlands, Gerard Freudenthal, PhD, Department of Intensive Medicine, Máxima Medical Centre, Veldhoven, The Netherlands, Lonneke V. van de Poll-Franse, PhD, Eindhoven Cancer Registry, Comprehensive Cancer Centre South, Eindhoven, The Netherlands

BACKGROUND: Although cancer survivorship is increasing with improved diagnosis and treatment, few studies have explored employment changes and the factors related to these changes among cancer survivors. Therefore, we aim to explore the prevalence of employment problems in long-term cancer survivors. In addition, we explored what patient or tumour characteristics predicted employment changes.

METHODS: All 1893 long-term survivors of prostate cancer, endometrial cancer, non-Hodgkin's lymphoma and Hodgkin's lymphoma diagnosed between 1989 and 1998 in the area of the Comprehensive Cancer Centre South, the Netherlands were included in a population-based cross-sectional survey.

RESULTS: Response rate was 80% (n=1511). After excluding survivors without a job before diagnosis, 403 survivors remained; 197 (49%) experienced no changes in their work situation following cancer diagnosis, 69 (17%) were working fewer hours, and 137 (34%) stopped working or retired. A medium educational level was significant in reducing the risk of work changes. Being older, having more than one comorbid condition, being treated with chemotherapy, and disease progression were significant independent predictors of work changes after cancer. Experiencing work changes was associated with lower physical functioning but positively associated with social wellbeing.

CONCLUSION: Long-term cancer survivors experience work changes after diagnosis and treatment, and clinical factors significantly predicted work change after cancer. As such, our study underscores the importance of rehabilitation programs in improving the return to work after cancer.

54) Abstract 1276

PRE-SURGICAL PSYCHONEUROIMMUNOLOGIC PREDICTORS OF POST-SURGICAL PAIN IN WOMEN WITH ENDOMETRIAL CANCER

Sally E. Jensen, M.S., Center on Outcomes, Research and Education, NorthShore University HealthSystem, Evanston, IL, Stacy M. Dodd, M.S., Timothy Sannes, B.A., Clinical and Health Psychology, Linda Morgan, MD, Obstetrics and Gynecology, Deidre B. Pereira, Ph.D., Clinical and Health Psychology, Michelle Ye Duke, MD in Female Pelvic Medicine & Reconstruction.

Purpose: Endometrial cancer (EC) is the most common gynecologic cancer in the U.S. and is associated with risk for post-surgical complications due to high rates of comorbid obesity and diabetes. Post-surgical pain is an important index of surgical outcome, given its relationship with psychosocial and physical well-being. Greater pre-surgical distress is associated with greater post-surgical pain among women undergoing gynecologic surgery (Cohen et al., 2005; Kain et al., 2000). Little research has examined predictors of post-surgical pain in gynecologic oncologic surgery. The present study investigated psychoneuroimmunologic predictors of post-surgical pain in women with EC. Methods: 75 women (M age = 60.71, SD = 9.65) undergoing surgery for EC completed a pre-surgical psychosocial interview assessing stress and emotional support and collected pre-surgical saliva samples for analysis of cortisol. Pain ratings were abstracted from inpatient medical records. Results: Participants reported a mean post-surgical pain rating of 2.45 (SD = 1.52). Greater perceived stress was marginally associated with greater post-surgical pain (r = .22, p = .08), while greater perceived emotional support from a primary support person was significantly associated with lower post-surgical pain (r = -.25, p < .05). Cortisol area under the curve with respect to increase (AUCI) significantly predicted post-surgical pain ratings above and beyond the effects of perceived stress (ß = -.31, p < .05), and marginally above the effects of emotional support (ß = -.24, p = .08), such that greater AUCI was associated with lower post-surgical pain. Conclusion: The findings provide support for the relationships among pre-surgical stress, coping, and post-surgical pain. The results extend previous research results via the finding that greater pre-surgical AUCI was a significant predictor of lower post-surgical pain.

55) Abstract 1017

STRESS/BEHAVIORAL CORRELATES OF EARLY AGE AT INITIAL DIAGNOSIS OF CHRONIC LYMPHOCYTIC LEUKEMIA

Mark W. Ketterer, PhD, C/L Psychiatry, Bernd Barthel, MD, Hematology/Oncology, Emily Ketterer, BA, C/L Psychiatry, Phillip Kuriakose, MD, Amer Hanbali, MD, Yue Guo, MD, Hematology/Oncology, Walter Kayz, MD, C/L Psychiatry, Henry Ford Hospital/WSU, Detroit, MI

Patients (N = 182) with Chronic Lymphocytic Leukemia (CLL) were recruited from the computerized records at Henry Ford Hospital or via internet sites devoted to patient support. An initial phone interview was semi-structured and covered clinical/demographic data, while a followup mailing obtained both self-reported (Symptom Checklist 90 Revised) and spouse or friend reported (Ketterer Stress Symptom Frequency Checklist) emotional distress. Using univariate tests, reported a mean post-surgical pain rating of 2.45 (SD = 1.52). Greater perceived stress was marginally associated with greater post-surgical pain (r = .22, p = .08), while greater perceived emotional support from a primary support person was significantly associated with lower post-surgical pain (r = -.25, p < .05). Cortisol area under the curve with respect to increase (AUCI) significantly predicted post-surgical pain ratings above and beyond the effects of perceived stress (ß = -.31, p < .05), and marginally above the effects of emotional support (ß = -.24, p = .08), such that greater AUCI was associated with lower post-surgical pain. Conclusion: The findings provide support for the relationships among pre-surgical stress, coping, and post-surgical pain. The results extend previous research results via the finding that greater pre-surgical AUCI was a significant predictor of lower post-surgical pain.
at initial diagnosis included: Living Alone (p = .039); having always been Fit (p = .048); and taking a daily aspirin (p = .018). Questionnaire scales that were negatively associated with AAID of CLL included self-reported Interpersonal Sensitivity (p = .006), Depression (p = .033), Anxiety (p = .006), Hostility (p = .005) and Paranoia (p = .023), and spouse/friend reported AIAI (p = .003), Depression (p = .016) and Anxiety (p = .053). Present results replicate previous studies in finding that regular aspirin use may have beneficial effects for the course of CLL, and farming/pesticide exposure may have deleterious effects. These results also raise the possibility that physical fitness may help delay onset of CLL. We suspect our finding regarding educational attainment is an artifact of earlier detection in the educated patient. The negative association of multiple measures of emotional distress with AAID for CLL may only suggest that patients diagnosed early with CLL are more distressed than patients diagnosed later. However, they are also consistent with a possible role for psychosocial/emotional distress in the early onset of CLL. The neuroendocrine/ immunological pathways that might account for such a finding include stress-related: immunosuppression; or increased cellular aging. Future work might benefit from testing these variables as prospective predictors of CLL onset/progression, OR intervention studies testing outcomes for CLL patients as a result of interventions for physical fitness, ASA use or emotional distress.

56) Abstract 1250

RELATIONSHIPS BETWEEN PERSONALITY VARIABLES AND DEPRESSIVE SYMPTOMS IN WOMEN WITH ENDOMETRIAL CANCER

Stephanie L. Garey, BS, Deidre B. Pereira, Ph.D., Stacy M. Dodd, M.A., Clinical Psychology, University of Florida, Gainesville, FL; Sally E. Jensen, Ph.D., Center on Outcomes, Research and Education & Kellogg, NorthShore University HealthSystem, Evanston, IL; Timothy S. Sannes, BA, Clinical and Health Psychology, Linda S. Morgan, MD, Obstetrics and Gynecology, University of Florida, Gainesville, FL

Purpose: Endometrial cancer (EC) is the most common gynecologic cancer in the United States. Negative psychological adjustment to cancer, particularly depression, can have a significant impact on disease progression and long-term survival rates (Brown et al., 2003). Global personality traits, including neuroticism, have been associated with depression in non-medical populations (Roelofs et al., 2008; Wolfenstein & Trull, 1997). However, few studies have looked at personality factors as risk factors for or buffers of depression in a medical population. The present study examined the association between neuroticism and depression, as well as moderators of this relationship, among women with EC. Methods: 35 women (M age = 59.59, SD = 9.69) with benign endometrial disease (n = 2) or Stage I (n = 22), Stage II (n = 6), or Stage III (n = 4) endometrial cancer completed measures of personality (NEO-FFI: Neuroticism and Openness to Experience subscales; Millon Behavioral Medicine Diagnostic [MBMD]; Illness Apprehension subscale) and mood (Beck Depression Inventory-II [BDI-II]; Structured Clinical Interview for the Hamilton Anxiety and Depression Scales [SIGH-AD]) prior to undergoing surgery for suspected endometrial cancer. Results: Results revealed that Openness to Experience and Illness Apprehension significantly moderated the relationship between Neuroticism and BDI-II depressive symptomatology. Specifically, greater Neuroticism was associated with greater depression but only among women low on Openness, r(21) = -.45, p = .024. Higher levels of Illness Apprehension, b = 0.64, t(19) = 3.89, p<.001. Low Openness also moderated the relationship between greater Neuroticism and greater SIGH-AD depressive symptoms, b = .31, t(31) = 2.74, p<.01; however, there was no interaction between Neuroticism and Illness Apprehension on SIGH-AD depressive symptoms. Discussion: The findings suggest that openness to experience may buffer the relationship between neuroticism and depression, while illness apprehension may exacerbate the relationship between neuroticism and depression among women undergoing surgery for suspected endometrial cancer. Women undergoing diagnosis/treatment for suspected cancer who are high in neuroticism may experience mood benefits through interventions that may enhance openness and/or reduce illness apprehension.

57) Abstract 1325

PILOT STUDY: RETREAT EXPERIENCE LINKED TO IMPROVED QUALITY OF LIFE AND REDUCED PSYCHOLOGICAL DISTRESS AMONG BREAST CANCER PATIENTS

Elizabeth J. Vella, Ph.D., Psychology, University of Southern Maine, Portland, ME; Matthew Budd, M.D., Medicine, Harvard Medical School, Cambridge, MA

Fifteen breast cancer patients at various stages of disease progression participated in a within subjects longitudinal study to improve quality of life via a week-long retreat experience. Retreat participation included group therapy, art therapy, and training in meditation, yoga, and relaxation at the F. Holland Day Retreat Center in Georgetown, Maine. All retreat activities were done within a Jungian Psychology framework. Dependent variable (DV) assessments involved completing the following scales: Functional Assessment of Cancer Therapy-General Population (FACT-G); Brief Symptom Inventory (BSI); Functional Assessment of Chronic Illness Therapy-Spiritual Well Being (FACTIT); Grindler Body Attitude Scale (BAS); Mini-Mental Adjustment to Cancer (MINI-MAC); Perceived Stress Scale (PSS), the Pittsburgh Sleep Quality Inventory (PSQI), and the Positive and Negative Affect Schedule (PANAS). All participants completed 4 assessments of the DV’s, at a pre-retreat baseline (BL), days 1 and 7 of the retreat, and a 6 week follow-up. Repeated measures ANOVA’s were significant for all the DV’s (p’s < .05; effect sizes: .21-.56). Bonferroni post hoc analyses revealed day 7 to be linked to lower PSS scores relative to BL and day 1, as well as lower MINI-MAC scores relative to day 1. Day 7 and follow up scores for FACT-G, BAS and FACTIT were significantly higher relative to BL, whereas BSI scores showed a significant reduction at day 7 and follow up compared to BL. PSQI scores were significantly lower at follow up relative to BL and day 7. PA scores showed a significant increase at follow up and day 7 relative to BL, whereas a significant reduction in NA scores was observed from BL to day 7. The current results suggest that the retreat intervention may be effective at improving body image, quality of life, illness adjustment, mood, and sleep quality, while diminishing psychological distress, among breast cancer patients. Future studies may include a larger sample size and a waiting list control group to further elucidate the strength of these effects.

58) Abstract 1748

LEARNING ABOUT CANCER: PROS AND CONS

Sue v. Petzel, PhD, Melissa A. Geller, MD, OB-GYN & Women's Health, Rachael Iaksson, MS, Biostatistics and Informatics, Cancer Center, University of Minnesota, Minneapolis, Minnesota

BACKGROUND. Ovarian cancer, the 4th cause of cancer death in women, occurs with little warning or disease knowledge. Women report being uniformly informed about diagnosis, treatment, nonmedical topics and emotional reactions. The Transactional Model of Coping was used to design/evaluate an educational video. METHODS. At initial surgery, women were randomized to cancer or placebo video. A pre/post-intervention survey included ovarian cancer information; affective outcomes [State-anxiety (STAI); Distress Thermometer (DT)]; Impact of Event Scale (IES)]; learning attitudes; demographic data and seriousness of cancer threat. RESULTS. Of 58 subjects (mean age=60 yrs) randomized to 2 groups, 43 completed a pre-video survey. The majority were stage III-IV, caucasian, >high school educated, employed, assessed themselves as 'high'. Baseline anxiety, cancer-specific distress, general distress were high (STAI mean=99; IES; DT mean=5.5, SD=3.3). Pre-post intervention video there was no change in distress between groups; cancer video subjects were more likely to answer information items correctly (p=0.0006) and change learning attitudes (p=0.04) to less positive: women had difficulty concentrating and were upset about learning about cancer. Within the cancer video group, there was no correlation between distress and information. However, women with (58%) vs without more negative attitudes post-video had more intrusive thoughts (p=0.0458). CONCLUSIONS. Improved learning resulted using a specifically designed video vs standard care. More positive attitudes about learning likely were associated with coping style: a monitoring style is related to increased preference for information under stress. Identifying/tailoring information to individual characteristics AND situational variables (e.g., cancer type, treatment) may strengthen informational interventions under conditions of high threat.
59) Abstract 1180

AMBIENT SOCIAL SUPPORT, MOOD, AND VEGF IN WOMEN UNDERGOING SURGERY FOR SUSPECTED ENDOMETRIAL CANCER

Stacy M. Dodd, M.S., Deidre B. Pereira, Ph.D., Timothy Sannes, B.A., Clinical and Health Psychology, University of Florida, Gainesville, Florida, Sally J. Jensen, Ph.D., Center on Outcomes, Research, and Education, NorthShore University HealthSystem, Evanston, IL, Linda S. Morgan, M.D., Obstetrics and Gynecology, University of Florida College of Medicine, Gainesville, Florida, Edward Chan, Ph.D., Department of Oral Biology, University of Florida, Gainesville, Florida

Purpose: Research has demonstrated that social support (SS) may have beneficial effects on psychosocial functioning and health outcomes. Recently, the negative aspects of social relationships have been shown to have a detrimental impact on both psychological functioning and clinical outcomes for cancer patients. No research to date has investigated the impact of ambivalent SS (characterized by high levels of both positive and negative aspects of SS) on outcomes in a cancer population. This study investigated associations among ambivalent SS from a partner, depressive and anxious symptoms, and levels of vascular endothelial growth factor (VEGF) (a proangiogenic cytokine associated with poor outcomes) in a sample of women undergoing surgery for suspected endometrial cancer. Sample and Methods: This cross-sectional study included 47 partnered women (mean age = 60.96 yrs, SD = 9.73 yrs) undergoing surgery for suspected endometrial cancer. Prior to surgery, subjects provided demographic information, completed the Sources of Social Support Survey (S4SS) and the Structured Interview for the Hamilton Depression and Anxiety Scales (SDS, SAD). Participants underwent a blood draw for quantification of serum VEGF. Ambivalent SS was composed of two factors: high magnitude of positive SS and negative SS and low magnitude of discrepancy between the two types of SS. Both factors were used in analyses. Results: Regression analyses demonstrated that less discrepancy between positive and negative SS from a partner was associated with greater depressive (beta = -.49, p = .001) and anxious symptoms (beta = .49, p = .002) greater magnitude of positive and negative SS was unrelated to depressive and anxious symptoms. Results also revealed that greater magnitude of positive and negative SS from a partner was associated with greater VEGF (beta = .35, p = .042); however VEGF was not associated with the discrepancy between positive and negative SS. These findings suggest that ambivalent SS is associated with both psychosocial distress and proangiogenic cytokine levels in women with suspected endometrial cancer.

60) Abstract 1756

PRE-OPERATIVE ANXIETY, CORTISOL AND HEAT SHOCK PROTEINS IN WOMEN UNDERGOING SURGERY FOR SUSPECTED ENDOMETRIAL CANCER

Timothy S. Sannes, B.A., Clinical and Health Psychology, University of Florida, Gainesville, FL, Sally Jensen, Ph.D., Kelley Cancer Care Center, NorthShore University Health System, Evanston, IL, Stacy M. Dodd, M.A., Clinical and Health Psychology, Linda Morgan, M.D., Department of Obstetrics and Gynecology, Edward Chan, Ph.D., Department of Oral Biology, Shawn Kneipp, Ph.D., College of Nursing, Deidre B. Pereira, Ph.D., Clinical and Health Psychology, University of Florida, Gainesville, FL

Purpose: Heat shock proteins (HSPs) are a class of chaperone proteins that have been shown to be overexpressed in cancer cells and in the peripheral circulation of cancer patients. Recent research has shown that stress is associated with greater HSP expression in animal and human models. Recently, we reported that anxiety is associated with greater serum anti-HSP70 antibody concentrations in women undergoing surgery for endometrial cancer (ECa). In the present study, we examined if hypothalamic-pituitary-adrenal (HPA) functioning (i.e. salivary cortisol, area under the curve analysis [AUCg]) may mediate this relationship. Sample and Methods: Given constraints due to a modest no. of subjects (Ss) with full psychosocial, cortisol, and HSP70 data (n=25), we began by examining the direct effects of anxiety on cortisol and HSP70, then examined the direct effects of cortisol on HSP70. Ss were women presenting to a Gynecologic Oncology clinic for evaluation of ECa. Ss collected salivary samples within 5 days prior to surgery. Anxiety was assessed using a modified Structured Interview Guide for the Hamilton Anxiety/Depression Scales. Serum HSP70 antibody and salivary cortisol concentrations were assessed using ELISA. Ss were 47 women (M age=63 yrs, SD age=11 yrs) with benign endometrial disease (7%) or ECa (Stage: I=64%, II=18%, III=14%) providing psychosocial and cortisol data; a subset of these Ss were also assessed for serum HSP70. Results: When controlling for biobehavioral confounds associated with HSP70 (age, body mass index), greater anxiety was associated with both greater HSP70, n=33, beta=.37, p=.047, and greater cortisol AUCg, n=47, beta =.31, p=.035. Furthermore, greater cortisol AUCg was associated with greater HSP70, n=25, beta =.35, p=.041. These findings suggest HPA functioning may mediate the relationship between anxiety and serum HSP70 antibody concentrations in women undergoing ECa surgery, a possibility that will be formally tested in a larger sample. If this emerges, interventions that reduce anxiety and HPA reactivity may have beneficial effects on HSP70 and carcinogenesis.

61) Abstract 1253

INTROVERSION AND IL12 AMONG RECIPIENTS OF ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANT (HSCT)

Seema M. Patidar, BS, Deidre B. Pereira, PhD, Clinical and Health Psychology, University of Florida, Gainesville, FL, Lisa Christian, PhD, Psychiatry, The Ohio State University, Columbus, OH, Stacy M. Dodd, MS, Michelle M. Bishop, PhD, Jason Craggs, PhD, Clinical and Health Psychology, University of Florida, Gainesville, FL, John R. Wingard, MD, Medicine, University of Florida Shands Cancer Center, Gainesville, FL, Vijay S. Reddy, MD, Hematology/Oncology, Florida Hospital, Orlando, FL

Purpose: High IL12 may predict lower disease relapse rates following HSCT. Introspection has been associated with negative health outcomes in medical populations. However, no research has investigated relations between Introspection and cytokine patterns in HSCT. The present study examined relations between Introspection and IL12 over time in HSCT. Methods: Subjects (Ss) were 35 adults (Mage=48 yrs, SD=12 yrs) undergoing allogeneic HSCT for hematologic cancers. Prior to HSCT, Ss completed the Millon Behavior Styles Instrument Diagnostic (MBID) to assess Introspection. IL12 was measured on the day of HSCT (Day0), Day4, and Day7. Linear Mixed Model analysis was used to examine relations between Introspection and IL12 across days. Three models were fit: A-Unconditional Means Model; B-Unconditional Growth Model; C-Fixed Effects=Intercept, Time, Introspection, Time*Introspection; Random Effects=Intercept, Time. Introspection was centered at the grand mean (Prevalence Score=36.12). IL12 values were natural log transformed. Results and Discussion: In Model A, significant within-subjects (WS) and between-subjects (BS) variability in IL12 existed, ps <.001. Model B revealed 50% of WS variability in IL12 was associated with Time, p<.001. Significant BS variability in IL12 at Day0 and rate of change remained. In Model C, for every unit deviation from the Introspection mean, the difference in IL12 at Day0 was 0.42 pg/mL, p<.001; rate of change in IL12 for Ss at the Introspection mean was 0.42 pg/mL, p<.001. There was no significant differential in IL12 rate of change among Ss per unit deviation from the Introspection mean. Contrary to our hypothesis, HSCT Ss with greater Introspection had significantly higher IL12 at Day0. Introspection may be associated with Day0 IL12 and associated clinical outcomes via behavioral factors that reduce risk for environmental pathogen exposure prior to HSCT. IL12 rates of change were not associated with differences in Introspection, suggesting the need to examine other BS factors on IL12 change trajectory.

Topic: Cardiac Disease

62) Abstract 1489

EFFECTS OF MENTAL STRESS INDUCED MYOCARDIAL ISCHEMIA ON BRAIN FUNCTION IN PATIENTS WITH DEPRESSION

James D. Brenner, MD, Psychiatry and Radiology, Negar Fani, M.S., Faiz Cheema, MD, Psychiatry, Emory University School of Medicine, Atlanta, GA, Ali Ashraf, MD, psychiatry, emory, atlanta, GA, Viola Vaccarino, MD PhD, Cardiology, Emory University, Atlanta, GA
Objective: Coronary heart disease (CHD) patients with co-morbid depression show an increase in mortality compared to equally ill cardiac patients without depression. However, the mechanisms mediating this effect remain obscure. One possibility is an increased vulnerability to stress in depressed patients with CHD. The purpose of this study was to assess the effects of stress and depression on brain function and the relationship with myocardial ischemia in CHD patients. Methods: Patients with CHD and depression (N=13) and CHD without depression (N=15) underwent imaging of the brain with positron emission tomography and [Tc-99m] sestamibi a mental arithmetic task and control conditions. Results: Depressed patients who became ischemic had greater decreases in anterior cingulate relative to non-ischemic depressed patients. Conclusions: These findings are consistent with dysfunction in a network of brain regions involved in the stress response in patients with CHD and depression that has direct and indirect links to the heart, suggesting a pathway by which stress and depression could lead to increased risk of heart disease related morbidity and mortality.

63) Abstract 1028
RACIAL, GENDER, AND AGE DISPARITIES IN PATIENT PREFERENCES FOR RECEIVING SUPPORT AND EDUCATION AMONG THOSE WITH IMPLANTABLE CARDIOVERTER DEFIBRILLATORS
Eva R. Serber, Ph.D., Centers for Behavioral and Preventive Medicine, The Miriam Hospital and Brown Medical School, Providence, RI, Nancy J. Finch, Ph.D., Transplant Center, Robert B. Leman, M.D., Division of Cardiology, Medical University of South Carolina, Charleston, SC, Lucy Sturdivant, M.D., Division of Cardiology, Medical University of South Carolina, Providence, SC, Tommy Barnes, M.S.N., FNP-C, Elizabeth Clarke, RN, Jennifer Garry, RN, Michael R. Gold, M.D./Ph.D., Division of Cardiology, Medical University of South Carolina, Charleston, SC
Purpose of study: We know that there are disparities in utilization rates for implantable cardioverter defibrillators (ICD). However, little is known regarding patient preferences in support and educational materials that they receive once owning with an ICD. The purpose of this study was to examine race, gender, and age differences in preferred modality (e.g., written, verbal) for receiving support and education. Subject sample and statement of methods: Participants (N=108; 79% White/Caucasian, 21% Black/African American; 74% male; mean age=65±11 years) completed a research team-designed survey at a regularly scheduled clinic visit with the cardiac electrophysiologist at an academic medical center or off-site clinic. To determine group differences, Pearson chi-squares and independent t-tests were conducted depending on whether outcome variables were categorical or continuous, respectively. Summary of results: Overall, the majority of participants (71%) reported receiving adequate support (71%) and information/education about the ICD (84%). Yet, disparities were seen that they receive once owning with an ICD. Among Black/African American participants, preference for support via an Internet chat room with other ICD patients (p=.006) and a phone call with the cardiologist (p=.036) more often than did White/Caucasians. Women preferred to receive support via a support group with other ICD patients (p=.023), phone call with the device nurse (p=.027), and a professional counselor (p=.049) more often than did men. Women's choice to receive information one-on-one with their cardiologist (p=.055) more than men was marginally significant. Younger patients (21-67 years of age range: 21-87 years; mean age = 57 years; 63% Female) average length of stay in the U.S. was 22 years and 25% reported having hypertension. Hierarchical multiple regression analyses revealed that a higher level of emotional focused coping predicted a lower systolic blood pressure(SBP) during baseline among males, ß = -.50, t = -2.33, p = .03, and females, ß = -.28, t = -2.33, p = .02, as well as during recovery among males, ß = -.50, t = -2.3, p = .03, Avoidance coping styles predicted a higher SBP during baseline among females, ß = .25, t = 2.06, p = .04, and reappraising coping style predicted a higher heart rate recovery among males, ß = .47, t = 2.20, p < .04. Conclusion: The study suggested that coping styles differentially affected cardiovascular reactivity to stress among Chinese male and female immigrants.

65) Abstract 1352
RELATIONSHIP BETWEEN OBJECTIVE AND SUBJECTIVE SLEEP QUALITY AND BIOMARKERS OF ATHEROSCLEROSIS IN ALZHEIMER CAREGIVERS AND NON-CAREGIVING CONTROLS
Roland von Känel, MD, General Internal Medicine, University Hospital, Bern, Switzerland, Sonia Ancoli-Israel, Joel E. Dimsdale, Paul J. Mills, Brent T. Mausbach, Psychiatry, Michael G. Ziegler, Medicine, Thomas L. Patterson, Igor Grant, Psychiatry, University of California, San Diego
Background: Perturbed sleep might contribute to cardiovascular disease by accelerating atherosclerosis. Sleep is particularly poor in Alzheimer caregivers who are also a group at increased cardiovascular risk. We hypothesized that impaired sleep quality relates to elevated levels of biomarkers of atherosclerosis in community-dwelling elderly and that this association would possibly be stronger in caregivers than in non-caregiving controls. Methods: We studied 97 Alzheimer caregivers and 48 non-caregiving controls (mean 71±8 years, 72% women) who underwent wrist actigraphy at their homes. Measures of objective sleep quality were averaged across three consecutive nights. The Pittsburgh Sleep Quality Index was interviewer-administered to rate subjective sleep quality. Morning fasting blood samples were collected to determine measures of inflammation, coagulation, and endothelial dysfunction. Results: There were independent associations between decreased subjective sleep quality and increased levels of fibrin D-dimer (ß = .022, delta R2=0.029) and of von Willebrand factor antigen (ß = 0.029, delta R2=0.034) in all participants. Percent sleep (ß = .025) and subjective sleep quality (ß = 0.017) were lower in caregivers than in controls. Significantly different from controls (p<0.05), decreased percent sleep correlated with elevated levels of interleukin-6 (ß = 0.042, delta R2 = 0.039) and C-reactive protein (ß = 0.10, delta R2 = 0.027) in caregivers independent of covariates. Conclusions: Perceived sleep impairment in sleep quality related to increased coagulation activity and endothelial dysfunction in all participants, whereas objectively impaired sleep quality related to inflammation activity in caregivers. The findings provide one explanation for the increased cardiovascular risk in elderly poor sleepers and dementia caregivers in particular. Supported by grants AG 15301, AG 08415, and M01 RR00827 from the National Institutes of Health.
AGE PREDICTS FASTER HEART RATE RECOVERY FOLLOWING EXPOSURE TO COGNITIVE CHALLENGE.

Olga V. Shcheslavskaya, Ph.D., Psychiatry/Division of Behavioral Medicine, Columbia University Medical Center, New York, NY, Matthew M. Burg, Ph.D., School of Medicine, Yale University, Columbia University, New York, NY, Paula S. McKinley, Ph.D., Psychiatry/Division of Behavioral Medicine, Columbia University Medical Center, New York, NY, Joseph E. Schwartz, Ph.D., School of Medicine, Columbia University, New York, NY, William Gerin, Ph.D., Biobehavioral Health, The Pennsylvania State University, University Park, PA, Carol D. Ryff, Ph.D., Psychology, Institute on Aging and Adult Life, University of Wisconsin-Madison, Madison, WI, Maxine Weinstein, Ph.D., Center for Population and Health, Georgetown University, Washington, DC, Teresa E. Seeman, Ph.D., Geriatrics, Epidemiology, University of California-Los Angeles, Los Angeles, CA, Richard P. Sloan, Ph.D., Psychiatry/Division of Behavioral Medicine, Columbia University Medical Center, New York, NY

Background: Age is an independent risk factor for the development of cardiovascular disease. Investigation of heart rate recovery (HRR) after psychological stress and exercise may help elucidate the age to disease relationship. Previous studies of HRR from exercise found that greater age is related to poorer recovery. Only one prior study examined the impact of age on HRR after psychological stress. Two methodological issues may have limited prior investigation of HRR. First, HRR was measured in a way that limited information regarding the complete recovery trajectory. Second, research samples generally were either small, demographically unrepresentative, or both. We investigated the effect of age on the entire trajectory of HRR following psychological stress in a large data set representing diverse age range. Methods: A subsample of 405 subjects ages 35-84 years from the MIDUS II, an NIA-funded study of midlife development in the US, completed a laboratory stress protocol that included 2 psychological stressors (Math + Stroop), and recovery periods. Heart rate (HR) was measured continuously. HRR was computed using a curve fitting technique that allows for the evaluation of the dynamics of the entire recovery period. HR data were analyzed using multiple linear regression with age predicting HRR AUC. The analysis was performed in 2 steps. Results: In model 1, controlling for baseline HR and HR reactivity, age significantly predicted HRR AUC (Beta = -1.12, p<.009). In model 2, the effect of age on HRR AUC remained significant (Beta = -1.1, p<.007) after further control for medical comorbidity and medications known to influence HR, smoking, sex, menopausal status, and amount of physical activity/exercise. Conclusions: Contrary to prior research, greater age was associated with better HRR from psychological stress. Changes in vagal cardiac control and/or better emotion regulation (e.g., less rumination) associated with successful aging may underlie this finding. Future research should determine whether some age-related changes have beneficial effect with regard to physiological functioning and/or emotion regulation.

(67) Abstract 1618

INDEPENDENT ASSOCIATION BETWEEN POOR SLEEP QUALITY AND FATIGUE WITH PLATELET COUNT IN PATIENTS WITH A PREVIOUS VENOUS TRAMBOEMBOLIC EVENT

Paul S. Lukas, Lic. phil., General Internal Medicine, Bern University Hospital, Bern, Switzerland, René Krämer, MD, General Internal Medicine, Bern University Hospital, Zürich, Zürich, Switzerland, Franziska Demarmels Biasiutti, MD, Haematology and Central Haematology Laboratory, Stefan Bégré, Medical Doctor, Roland von Känel, MD, General Internal Medicine, Bern University Hospital, Bern, Bern, Switzerland

Background: Elevated platelet count has independently been associated with cardiovascular disease. Investigation of heart rate recovery (HRR) after psychological stress and exercise may help elucidate the age to disease relationship. Previous studies of HRR from exercise found that greater age is related to poorer recovery. Only one prior study examined the impact of age on HRR after psychological stress. Two methodological issues may have limited prior investigation of HRR. First, HRR was measured in a way that limited information regarding the complete recovery trajectory. Second, research samples generally were either small, demographically unrepresentative, or both. We investigated the effect of age on the entire trajectory of HRR following psychological stress in a large data set representing diverse age range. Methods: A subsample of 405 subjects ages 35-84 years from the MIDUS II, an NIA-funded study of midlife development in the US, completed a laboratory stress protocol that included 2 psychological stressors (Math + Stroop), and recovery periods. Heart rate (HR) was measured continuously. HRR was computed using a curve fitting technique that allows for the evaluation of the dynamics of the entire recovery period. HR data were analyzed using multiple linear regression with age predicting HRR AUC. The analysis was performed in 2 steps. Results: In model 1, controlling for baseline HR and HR reactivity, age significantly predicted HRR AUC (Beta = -1.12, p<.009). In model 2, the effect of age on HRR AUC remained significant (Beta = -1.1, p<.007) after further control for medical comorbidity and medications known to influence HR, smoking, sex, menopausal status, and amount of physical activity/exercise. Conclusions: Contrary to prior research, greater age was associated with better HRR from psychological stress. Changes in vagal cardiac control and/or better emotion regulation (e.g., less rumination) associated with successful aging may underlie this finding. Future research should determine whether some age-related changes have beneficial effect with regard to physiological functioning and/or emotion regulation.

66) Abstract 1568

ERECTILE DYSFUNCTION AND VASCULAR HEALTH AMONG MIDDLE-AGED, CLINICALLY DEPRESSED MEN

Benson M. Hoffman, PhD, Andrew Sherwood, PhD, Patrick J. Smith, MA, Michael A. Babayak, PhD, P. M. Doraasmyan, MD, Department of Psychiatry & Behavioral Sciences, Duke University Medical Center, Durham, NC, Alan Howard, MD, Department of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, NC, James A. Blumenthal, PhD, Department of Psychiatry & Behavioral Sciences, Duke University Medical Center, Durham, NC

Background: Erectile dysfunction (ED) is common in patients with major depressive disorder (MDD). Cardiovascular (CV) risk factors also have been associated with MDD and are believed to contribute to the development of ED through impaired vascular function. This study examined the extent to which CV risk factors and endothelium-dependent vasodilatation were associated with ED in patients with MDD. Methods: This is a secondary analysis of data from the SMILE 2 study. The sample included 46 middle-aged (M age = 53, SD = 7), sedentary men with untreated MDD. ED severity was assessed by the Arizona Sexual Experiences Scale, item 3 (ASEX; response options range from 1 to 6). Depressive severity was assessed by the Hamilton Depression Rating Scale (HamD). CV risk factors were indexed by the Framingham Cardiovascular Disease Risk Profile (CVDRP) score; measures of cardiorespiratory fitness (Peak VO2) and body mass index (BMI) were also obtained. Endothelium-dependent vasodilatation was measured by flow-mediated dilation (FMD) assessed at the brachial artery. A hierarchical multiple regression analysis was performed in which ASEX served as the dependent variable, and HamD (Step 1), BMI and Peak VO2 (Step 2), CVDRP score (Step 3), and FMD (Step 4) served as predictors. Results: The average ASEX score was 3.2 (SD = 1.2), and 8 participants (17%) scored > or = 5, the cutoff for ED. ASEX was not related to HamD (Step 1: Adj R2 = .04, p = .10), or to BMI and Peak VO2 (Step 2: Delta Adj R2 = .02, p = .24). However, ASEX was related to greater CVDRP (Step 3: Delta Adj R2 = .08, B = -.37, p = .03) as well as to lower FMD (Step 4: Delta Adj R2 = .11, B = -.39, p = .01). After FMD was included in the model, the relationship between CVDRP and ASEX was partially attenuated (B = .28, p = .07). FMD was moderately correlated with CVDRP (r = -.38, p < .01). Conclusions: Greater ED was associated with greater CV risk factors and more impaired vascular function, but not with depression severity, BMI, or aerobic fitness. The relationship between ED and CV risk factors was partially attenuated after FMD was added to the model, consistent with the hypothesis that CV risk factors impact ED through impairment of vascular functioning.
MARITAL STATUS AND HEART RATE VARIABILITY IN PATIENTS WITH SUSPECTED CORONARY ARTERY DISEASE

Gemma Randall, Msc, Mimi R. Bhattacharyya, MRCP, Andrew Steptoe, DPhil, Epidemiology and Public Health, University College London, London, England

Marital status has been associated with risk of cardiovascular disease morbidity and mortality, with married individuals being at reduced risk. Recent research indicates that impaired heart rate variability (HRV) may contribute to cardiovascular disease morbidity and mortality, and has also been associated with social isolation. We investigated associations between HRV and marital status in patients being investigated for suspected coronary artery disease (CAD). The sample comprised of eighty-eight patients (28 women, 60 men, mean age 61.6, 60% married) recruited from three Rapid Access Chest Pain Clinics in London. The patients were being investigated for suspected CAD due to symptomatology and either positive exercise tests or positive myocardial perfusion scans with evidence of myocardial ischemia. Heart rate variability was measured using 24 hour electrocardiograms and analysed using frequency and time domain measures. Married patients were older and more likely to report a history of coronary heart disease. No significant differences were found between single and married patients in any clinical, demographic, psychological or health risk behavior measures. Single marital status was associated with impaired log low frequency power (p = 0.035), log very low frequency power (p = 0.025), the root mean square of the sum of successive differences in heart period (RMSSD) (p = 0.020) and the pNN50 measure of heart rate variability (p = 0.029). These effects were independent of age, gender, blood pressure, and medication use or other medical intervention. The findings suggest that impaired HRV is associated with not being married, and may contribute to the relationship between marital status and cardiovascular disease morbidity and mortality.

RELATIONSHIP BETWEEN PSYCHOLOGICAL DISTRESS AND ENDOGENOUS ANTICOAGULANTS IN PATIENTS WITH A VENOUS THROMBOEMBOLIC EVENT

Paul S. Lukas, Lic. phil., General Internal Medicine, Bern University Hospital, Bern, Switzerland, René Krummenacher, Medical Doctor, General Internal Medicine, Bern University Hospital, Zürich, Switzerland, Franziska Denzinger, Medical Doctor, Haematology and Central Haematology Laboratory, Stefan Begré, Medical Doctor, Roland von Känel, MD, General Internal Medicine, Bern University Hospital, Bern, Switzerland

Background: Increased symptom levels of psychological distress, particularly anxiety and depression have been associated with increased coagulation activity and impaired fibrinolysis. Decreased levels of Protein S (PS) and Protein C (PC) are risk factors for venous thromboembolic events and antagonize activity of clotting factor VIII (FVIII). Methods: Between February 2006 and September 2008, we enrolled 138 patients with a previous deep venous thrombosis and/or pulmonary embolism. Approximately one week before blood collection for thrombophilia work-up, anxiety and depression scores were assessed using the Hospital Anxiety and Depression scale (HADS). PC, PS, and F VIII clotting activity were determined by routine laboratory assays. Routinely, controlling for age, gender, BMI, oral anticoagulants, aspirin, and the time interval since the last thrombotic event, the HADS total score (“distress”) predicted PC functional level assessed by the PC-aPTT method (beta = 0.245; p < 0.003) and the PC-chromatographic substrate method (beta = 0.186; p = 0.023), PS total antigen level (beta = 0.207; p = 0.007), but not PS free antigen level (p = 0.05). The anxiety subscale of the HADS predicted PC-aPTT (beta = 0.209; p = 0.010) and PC-chromatographic substrate (beta = 0.163; p = 0.047), but not PS. The depression subscale predicted PC-aPTT (beta = 0.217; p = 0.008), PC-chromatographic substrate (beta = 0.167; p = 0.044), and PS total antigen level (beta = 0.266; p = 0.004). PS free antigen showed a trend towards significance (beta = 0.138; p = 0.094). Factor VIII clotting activity was not associated to the total score and the depression score; however, further analyses with the anxiety subscale showed a trend towards significance (beta = 0.133; p = 0.08). The findings suggest that psychological distress as well as anxiety and depression in their own right are directly associated with the endogenous anticoagulants PC and PS. The inverse association between anxiety and factor VIII supports this fact in that greater activity of endogenous anticoagulants was expected to mitigate FVIII activity. The enhanced endogenous anticoagulant potential associated with psychological distress might reflect a counterregulatory mechanism in order to outweigh the previously observed hypercoagulability in individuals under chronic stress, respectively, elevated symptoms of anxiety and depression.
Interference (UT_SI) and Activity Limitations (UT_AL) measures. RESULTS: The sample comprised 193 patients (90% male), mean age 64.4 (SD=14.3) years who received their first ICD for secondary prevention of sudden cardiac death. Repeated measures analysis of variance revealed that PSS moderated the effect of treatment at six and twelve month follow-up on most of the outcome measures. Within subject contrasts revealed interaction effects for time x treatment x PSS such that patients with low PSS improved most with CBT on HADS total symptoms (F(1,176)=4.038, p=0.046), PTSD total symptoms (F(1,176)=5.124, p=0.025), and PTSD-dissociation (F(1,173)=7.012, p<0.009). There were also within subject linear contrast interactions for time x sex x treatment x PSS on HADS depression (F(1,174)=9.91, p=0.032) and UT_AL (F(1,172)=4.059, p=0.045) such that women low on PSS improved most with CBT while women low on PSS in UCC improved the least. CONCLUSION: PSS moderates the effect of treatment in ICD patients; however it is the females with low PSS who show the greatest improvements with CBT in terms of depression, PTSD, and activity limitation outcomes.

73) Abstract 1751

POTENTIAL PSYCHOSOCIAL AND BEHAVIORAL MEDIATORS IN THE RELATIONSHIP BETWEEN CHILDHOOD SES AND ADULT METABOLIC FUNCTIONING

Todd M. Bear, MPH, Thomas Kamarck, PhD, Psychology, Matthew F. Muldoon, MD, Medicine, Barbara M. Anderson, PhD, Psychology, University of Pittsburgh, Pittsburgh, PA

Childhood socioeconomic status (CSES) has been shown to be a predictor of adult cardiovascular risk factors and morbidity, independent of adult SES; however, little is known about the pathways by which this occurs. The purpose of this study was to examine the potential role of psychosocial and behavioral factors in the relationship between CSES and adult metabolic functioning (MF), a known risk factor for CVD. The present study included 364 healthy, older adults who participated in the Pittsburgh Health Heart Project and who had complete data for the psychological questionnaires, CSES, and MF measures. The mean age of participants was approximately 60 years. 48.8% were female, and 9.6% had less than a high school education or less. The measure of CSES used in this study was the fathers' occupation (categorized as high, middle, and low). Potential psychosocial mediators included hostility (Cook Medley), depressive symptoms (BDI), and anxiety (BAI). Potential behavioral mediators included years of smoking and BMI as a marker of dietary history and habitual physical activity. Mediation was examined using multiple regression analysis controlling for age, sex, race, and education. Our initial analyses found that CSES predicted indices of MF; CSES was negatively associated with waist circumference (p<0.02), glucose (p<0.02), triglycerides (p<0.02), and insulin resistance (p<0.04) and positively associated with HDL (p<0.03). Of the potential psychosocial and behavioral mediators, hostility and BMI were predicted by CSES (p<0.02 and p<0.01, respectively). When BMI was added to our initial model, the relationship between CSES and MF was attenuated and was no longer significant for any of the indices of MF (p=0.07-0.73). Independent of current SES, BMI appeared to mediate the relationship between CSES and metabolic functioning whereas none of the psychosocial factors had a significant effect. Our findings suggest that, among older adults, behavioral factors may play a more significant role than do psychosocial factors in the association between CSES and metabolic function.

74) Abstract 1295

QUALITY OF CARDIAC CARE IN DEPRESSED PATIENTS FOLLOWING MYOCARDIAL INFARCTION: ARE THE EFFECTS OF POST-MI DEPRESSION ON CARDIOVASCULAR PROGNOSIS DUE TO SUBOPTIMAL CARDIAC CARE?

Jerry van Rietzen, Bachelor of Medicine, Psychiatry, University Medical Center Groningen, Groningen, The Netherlands, Peter de Jonge, PhD, Internal Medicine and Psychiatry, University Groningen, Groningen, The Netherlands

Background: Depression is a prevalent disorder after myocardial infarction (MI) and it is associated with an increased risk of cardiac events and mortality. A possible mechanism may be that post-MI depression leads to a reduction in quality of cardiac care. This could explain the association of depression with cardiovascular prognosis. Purpose of study: This study will investigate whether patients with a post-MI depression receive less cardiac care than those without depression. Cardiac care is measured by the number of cardiac related hospital admissions, outpatient visits and the number of times patients did not show up for their appointments (no-show). Subject sample and statement of methods: This is a prospective study using a subgroup of the Myocardial Infarction and Depression - Intervention Trial (MIND-IT) study. In this subgroup, recruited at the University Medical Center in Groningen, 198 MI patients were included. Forty-seven patients had a post-MI depression. Baseline variables were collected from medical records. Depressed post-MI patients were compared to non-depressed patients on the number of hospital admissions, outpatient clinical visits and no-shows. Summary of results: Depressed post-MI patients had a significantly higher number of no-shows than those who were not depressed (OR=2.78, p=0.006, 95% CI 1.39 - 5.59). They also had significantly more outpatient clinic visits than those who were not depressed (B=0.18, p=0.016, 95% CI 0.04 - 0.40). Depression was associated with a higher number of hospital admissions, although this association was not significant (B=0.13, p=0.08, 95% CI -0.02 - +0.35). Conclusion: Patients with a post-MI depression have a almost 3-times higher no-show rate than non-depressed post-MI patients. In addition, depressed post-MI patients have a higher number of outpatient clinic visits rate and there was a trend towards more clinical admissions than in non-depressed patients.

75) Abstract 1625

THE INFLUENCE OF OPTIMISM, DEPRESSION, AND FATIGUE ON QUALITY OF LIFE IN HEART FAILURE

Institute of Preventive Medicine and Health Policy, San Diego, CA, Laura S. Redwine, PhD, Medicine, VMRF and University of California, San Diego, San Diego, CA, Paul J. Mills, PhD, Suzi Hong, PhD, Psychiatry, University of California San Diego, La Jolla, CA

Currently there are approximately 5 million individuals living in the United States with heart failure (HF). HF patients have increased disability and reduced quality of life. Little is known about the relationship between positive outlook and the perception of quality of life, which can ultimately affect disease outcome. More specifically, in HF patients the expression of hope, a construct similar to optimism has been shown to mitigate the effect of depression and/or fatigue influence this relationship. Forty-nine HF patients (mean age 58.4 years) completed the Minnesota Living with Heart Failure Questionnaire (MLHFQ), the Beck Depression Inventory (BDI), the Multidimensional Fatigue Symptom Inventory-Short Form, and the Optimism Questionnaire. Physical function was measured by the distance walked in a 6-min walk task. After controlling for age, ejection fraction, and physical function, multivariate regression analysis revealed that better MLHFQ emotional quality of life was independently associated with higher optimism (p<0.001). However, when depression (p=0.046) and fatigue (p=0.001) were entered into the regression model, optimism was no longer a significant independent predictor. A separate regression analysis predicting MLHFQ physical quality of life was also independently associated with higher optimism (p=0.018). When depression and fatigue (p=0.005) were entered into the model, optimism was no longer a significant independent predictor. These results indicate that both optimism and depression play roles in the perception of well-being in HF; its influence is mitigated by amount of depression and/or fatigue a patient might be experiencing.

76) Abstract 1344

THE IMPACT OF SEX AND THE METABOLIC SYNDROME ON CARDIOVASCULAR DISEASE (CVD) PROGRESSION

Sandra Favret, Master, Montreal Behavioural Medicine/ Psychology/Exercise Sc, Montreal Heart Institute/UQAM/ Concordia, Montreal, Québec, Canada, Kim L. Lavoie, PhD., Simon L. Bacon, PhD., André Arsenault, MD, Montreal Behavioural Medicine/ Psychology/Exercise Sc, Montreal Heart Institute/UQAM/ Concordia, Montreal, Quebec, Canada

There is a sex difference in the development and progression on CVD. Recently the metabolic syndrome has been shown to be a very good
predictor of future CVD, and there would seem to be an impact of sex on the presentation of the metabolic syndrome. However, there is little information on whether the metabolic syndrome or the metabolic syndrome type D is different between men and women. A total of 217 patients who underwent exercise stress testing (26% women, mean (SD) age = 61 (9) years) provided demographic information at baseline. In addition, blood samples were taken for lipid and glucose analysis and blood pressure and waist circumference were measured. Metabolic syndrome was defined using the AHA criteria. At 1 year, patients reported all events and procedures they had undergone. Logistic regression analyses revealed that men tended to have a greater risk for CVD events compared to women (OR=3.2, 95% CI=0.9-11.1), while there was no effect of metabolic syndrome on events (OR=0.8, 95% CI=0.4-2.0). In comparison to women with no metabolic syndrome, men without metabolic syndrome (OR=8.1, 95% CI=11.6-2.9) were at greater risk for CVD events, and women with metabolic syndrome (OR=8.6, 95% CI=0.7-104.4), and men with metabolic syndrome (OR=7.3, 95% CI=0.9-62.2) tended to be at greater risk. This study suggests that men are at greater risk of CVD events than women, especially in those patients without metabolic syndrome. However, further research is needed to determine if there is a sex difference in those patients with metabolic syndrome. Given the impact of behaviours on metabolic syndrome, these results suggest potential alternate interventions between sexes and those with and without the metabolic syndrome.

77) Abstract 1349
RELIGIOUS COPING AND SPIRITUAL WELL-BEING AMONG RECENT IMPLANTABLE CARDBOADER DEFIBRILLATOR (ICD) RECIPIENTS
Gina Magyar-Russell, Ph.D., Kellie Cain, BS, Psychiatry and Behavioral Sciences, Joseph Marine, MD, Roy C. Ziegelstein, MD, Medicine, Johns Hopkins School of Medicine, Baltimore, MD
Purpose: Undergoing Implantable Cardioverter Defibrillator (ICD) placement for the prevention of sudden cardiac death may raise religious and spiritual issues for recipients; however, this has been a neglected area of research. This study aims to examine the use of religious coping (RC) among ICD patients and to explore spiritual well-being (SWB) in ICD recipients. Methods: Sample: Nineteen patients referred for primary prevention ICD placement completed assessment pre-implant and at 3- and 6-month follow-ups. Results: Participants were 68.4% male, 73.7% White, 53.2% married, 36.8% retired, with a mean age of 61.4±12.1 years. Mean left ventricular ejection fraction (LVEF) was .28±.13, with 57.9% ischemic, 31.6% dilated, and 10.5% other cardiomyopathy. Pre-implant, 94% reported using RC in response to their pending ICD placement, with mean scores of 12.17±7.36/21 for positive and 3.66±2.13/21 for negative RC. Mean levels of positive RC decreased from pre-implant to 3-months (t=2.52, p<.05); no other changes were observed in RC over time. Mean SWB scores pre-implant were high, 36.44±7.39/48, and remained consistent across follow-ups (F=2.19, p>.05). Greater SWB was significantly related to lower levels of anxiety (r=.44,p<.01; r=.53, p<.05; r=.52, p<.05), depression (r=.48, r=.70; r=.67, p<.05), and symptoms of heart disease (r=.80, r=.75; r=.64, p<.05), at each assessment period. Negative RC was related to greater symptoms of anxiety at all three periods (r=.41, p<.05; r=.51, p<.05) and depression at 3-month follow-up (r=.58, p<.05) and 6-months (r=.60, p<.01). Using hierarchical linear regression, SWB pre-implant accounted for a significant portion of the variance in the prediction of anxiety (B=.54, p<.05) and depression (B=.41, p<.10) at 3-month follow-up after controlling for age, race, gender, LVEF, and anxiety and depression pre-implant, respectively. No gender differences were observed in SWB; however, women endorsed greater levels of positive RC than men pre-implant (t=2.21, p<.05). Conclusion: The use of RC is common among patients preparing to receive ICDs and remains relatively consistent after implantation. The use of negative RC may be a risk factor for poor adjustment, whereas SWB may be a protective factor against anxiety and depression following ICD implantation.

78) Abstract 1292
TYPE D PERSONALITY AS A RISK FACTOR FOR DISTRESS AND CLINICAL EVENTS IN MYOCARDIAL INFARCTION PATIENTS TREATED WITH INVASIVE VERSUS NON-INVASIVE THERAPY
Anneliese M. Roest, MSc, Elisabeth J. Martens, PhD, Medical Psychology, Tilburg University, Tilburg, Brabant, the Netherlands
Background: The role of Type D personality has become a major focus in coronary heart disease (CHD). Objective of this study was to investigate the impact of Type D personality on distress and cardiac death and/or recurrent myocardial infarction (MI) in MI patients. Second objective was to explore the differential effect of invasive versus non-invasive therapy in Type D patients on distress and medical outcome. We also evaluated if the impact of Type D and type of intervention on outcome could be attributed to increased levels of distress. Methods: Patients (n=474) were assessed on demographic and clinical variables and completed the Type D Personality Scale (DS14) during hospitalization. The primary endpoint was a composite of cardiac death and recurrent MI at follow-up, as verified by medical records. The secondary endpoint was distress experienced at 18 months post-MI, as measured by the Beck Depression Inventory (BDI) and the State Trait Anxiety Index (STAI). The median follow-up period was 11 months. Results: 36% of the sample was classified as Type D patients. There were 34 clinical events attributable to death or recurrent MI. Type D was a significant predictor of death/recurrent MI (HR:2.97; 95%CI; 1.44-6.13; p=0.003) when adjusting for cardiac history, LVEF, age, gender and use of statins. Type D patients treated with non-invasive therapy had an almost 6-fold increased risk of adverse outcome (HR:5.90; 95%CI; 2.25-15.47; p<0.0001) as compared to the reference group (non-Type D/ invasive therapy). Type D patients reported more symptoms of distress. However, no difference in distress between treatment groups was found. Conclusions: Type D personality was an important risk factor for distress and adverse cardiac outcome, independent of biomedical risk factors. Differences between intervention types were found, with the associated risk of Type D combined with non-invasive treatment being similar to that of traditional cardiovascular risk factors. Experienced distress by Type D patients did not account for this effect.

79) Abstract 1146
THE PREVALENCE OF ANXIETY AND DEPRESSION IN PATIENTS WITH IMPLANTABLE CARDBOADER DEFIBRILLATORS: A SYSTEMATIC REVIEW OF THE LITERATURE
Gina Magyar-Russell, Ph.D., Psychiatry and Behavioral Sciences, Johns Hopkins University School of Medicine, Baltimore, MD, Jennifer X. Cai, BS, Johns Hopkins School of Medicine, Baltimore, MD, Tarun Bavja, BA, All India Institute of Medical Sciences, New Delhi, India, Brett D. Thombs, Ph.D., Psychiatry, McGill University and SMBD-Jewish General Hospital, Montreal, Quebec, Canada, Emily Kahli, Ph.D., American Psychiatric Association, Arlington, VA, Preet Paul Singh, MD, Internal Medicine, University of Alabama at Birmingham, Birmingham, Alabama, Nivee Amin, MD, Medicine, Columbia University Medical Center, New York, New York, Joseph E. Marine, MD, Roy C. Ziegelstein, MD, Medicine, Johns Hopkins University School of Medicine, Baltimore, MD
Purpose: The prevalence of symptoms of anxiety and depression in implantable cardioverter defibrillator (ICD) recipients are estimated at 24-87.5% and 24-33%, respectively. This systematic review aims to more precisely quantify the prevalence of clinically significant anxiety and depressive symptoms among ICD recipients. Methods: A comprehensive search was conducted in May, 2008 to identify original published studies that used standardized interviews or validated questionnaires to assess anxiety or depression among ICD recipients. Weighted prevalence rates and 95% confidence intervals (bootstrapping with 1,000 resamples) were calculated for groups of studies that assessed anxiety or depression and used identical assessment methods and cutoff criterion. Comparisons were made to post-acute myocardial infarction (AMI) patients utilizing a review with shared methods. Results: The search process identified 355 unique titles. During the title, abstract, and article reviews, 152, 94, and 73 articles were excluded, respectively, for a total of 36 included studies. A lack of common measures excluded studies of <12 months post-implant from

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analyses. Weighted prevalence rates for anxiety >12 months after ICD implant were 25.8% (CI 23.4-28.2%;N=1356) based on the Hospital Anxiety and Depression Scale-8 (HADS-8), and 13.8% (CI 9.5-18.6%;N=206) based on the HADS-11. Rates and comparisons to post-AMI patients for depression are in Table 1. Conclusions: Anxiety and depression are common among ICD recipients, even more than 12 months following implant. Prevalence of anxiety and depression differed depending on assessment method. Compared to post-AMI patients, rates of depressive symptoms were significantly higher in ICD recipients based on the HADS-8, and similar based on a BDI score of >10. More research is needed using common instruments to establish the prevalence of anxiety and depression among ICD recipients, particularly in the first year post-implant when patients may be more vulnerable to mood disturbance.

**Weighted Prevalence Rates of Depression in ICD and AMI Patients**

<table>
<thead>
<tr>
<th>Measure and Cutoff Score</th>
<th>ICD Recipients</th>
<th>Post AMI Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDI &gt;=10</td>
<td>28.4% (CI 23.6-33.9%;N=292)</td>
<td>31.1% (CI 29.2-33.0%;N=2273)</td>
</tr>
<tr>
<td>HADS &gt;=8</td>
<td>20.3% (CI 18.2-22.3%;N=1548)</td>
<td>15.5% (CI 13.2-18.0%;N=663)</td>
</tr>
</tbody>
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80) Abstract 1202

**POSTTRAUMATIC STRESS AND ANXIETY SYMPTOMS IN PARTNERS OF PATIENTS FOLLOWING ACUTE CORONARY SYNDROME**

Anna Wikman, MSc, Gemma Randall, MSc, Gerard Molloy, PhD, Andrew Steptoe, DPhil, Epidemiology & Public Health, University College London, London, United Kingdom

There is increasing recognition that posttraumatic stress and anxiety may develop in the aftermath of an acute cardiac event. A number of studies have investigated the prevalence and predictors of posttraumatic symptoms in cardiac patients. However, there has been little research on the experiences of posttraumatic symptoms by the partners of these patients. The objectives of this study were to assess emotional responses among partners of acute coronary syndrome (ACS) patients 2 weeks following hospital discharge. Symptoms of posttraumatic stress, anxiety and depression were assessed in 303 ACS patients and 110 partners using standard measures. Patients were aged 60 years on average, the majority being men (83%) of white European decent (83%). Partners were mainly females (92%), again of white European decent (84%), aged on average 57 years. Patients reported significantly greater symptoms of depression than did partners (p<0.05), but partners reported more anxiety (p<0.05). Partners also reported more posttraumatic stress symptoms than patients, but this difference was no longer significant after gender was taken into account. Analyses of patient-partner dyads showed that anxiety and depression were positively correlated within couples (r = 0.34 and 0.29, p<0.05). There were also significant correlations between total posttraumatic stress symptoms within couples (r = 0.39, p<0.001), and between the number of avoidance and arousal symptoms experienced (r = 0.39 and 0.27, p<0.025). These findings suggest that partners of ACS patients experience significant distress, possibly even more so than patients themselves, in the immediate aftermath of the acute event. These results are an early indication of what may later lead to more persistent emotional distress for both patients and partners.

81) Abstract 1137

**TIMING OF DEPRESSION AS A PREDICTOR FOR WORSENED CARDIOVASCULAR PROGNOSIS IN DEPRESSED ACS PATIENTS: A SYSTEMATIC REVIEW**

Marnito Zuidersma, Master of Science, Department of Psychiatry, Peter de Jonge, PHD, Departments of Psychiatry and Internal Medicine, University of Groningen, Groningen, The Netherlands

Purpose of study: Evidence for an association between timing of depression and cardiovascular prognosis in ACS patients is growing. The purpose of this study is to evaluate this in a systematic review. Subject sample and statement of methods: A systematic search was done for studies reporting cardiovascular events and/or mortality in subgroups of depressed MI or ACS patients according to whether the depressive episode is first-ever or recurrent or whether its onset is before or after the event. Summary of results: Five published studies were retrieved reporting an association between timing of depressive episode in depressed ACS patients with cardiovascular prognosis. In a sample of 222 MI patients, those with a recurrent depressive episode have been found to be at increased risk for mortality compared to those with a first-ever depressive episode (OR 4.0). In contrast, 2 studies (N=588 and N=489) report that a depressive episode with an onset after the event is associated with worse cardiovascular outcomes compared to no depression (OR 2.3 and OR 2.1). In addition, 2 other studies (N=468 and N=750) report that a first-ever depressive episode with an onset after the event is associated with worse cardiovascular outcomes compared to no depression (HR 1.7 and HR 1.8). Conclusion: Different subtypes of depression in ACS patients seem to exist that are associated with worse cardiovascular outcomes. These findings are supplemented by findings from two studies showing that ACS patients with a first-ever depressive episode with an onset after the event have had a more severe MI and have more severe CAD respectively. In addition, results from one RCT show that ACS patients with a first-ever depressive episode with an onset after the event do not respond to sertraline, and results from 2 other RCTs indicate that MI patients not responding to antidepressant treatment are at increased risk for mortality or new cardiovascular events.

82) Abstract 1500

**SHARED VARIANCE AMONG PSYCHOSOCIAL VARIABLES RELATES TO CARDIOVASCULAR RISK MARKERS: A PRELIMINARY STUDY**

Sari D. Holmes, M.S., Kerry S. Whittaker, BA, Heather L. Rogers, PhD, Anu Ghambarayan, M.S., Nadine S. Bekkene, BS, Kristie M. Harris, BS, Anca Tabakova, MD, Medical and Clinical Psychology, Uniformed Services University, Bethesda, MD, Willem J. Kop, PhD, Cardiology, University of Maryland Medical Center, Baltimore, MD, David S. Krantz, PhD, Medical and Clinical Psychology, Uniformed Services University, Bethesda, MD

Introduction: Potential psychosocial risk factors for coronary artery disease (CAD) are associated with one another and share common variance. Objective: To determine whether shared components of psychosocial variables relate to cardiovascular risk markers. Methods: Psychosocial measures (including anger, anxiety, stress, coping) were given to 43 participants in a study of CAD patients with (n=24) and without (n=8) vulnerability to arrhythmia and healthy controls (n=11). To determine shared variance among psychosocial variables, an exploratory principal component factor analysis was conducted using orthogonal rotation and revealed three distinct factors. These derived factors were used in analyses to assess relationships with 24-hour ambulatory ECG (heart rate and heart rate variability [HRV]), mental stress-induced ischemia (MSI) measured via SPECT perfusion imaging, and mental stress changes in arrhythmic vulnerability (QT Variability Index [QTVI]). Results: Factor 1, consisting of Negative Affect measures, was negatively correlated with time domain HRV (r=-0.34, p<0.05) and positively correlated with change in QTVI (r=0.38, p=0.02). Factor 2, consisting of Anger, Hostility, and Low Social Support, was correlated with mean daily heart rate (r=0.31, p=0.05) and change in QTVI (r=0.33, p=0.05). Factor 3 consisted of Coping Styles. Patients with MSI used fewer coping strategies compared to those without MSI (t=3.00, p<0.01). Regression analyses of the scales comprising Factor 1 indicated that the component scales were not related to HRV (F=1.28, p>0.05) or change in QTVI (F=2.41, p>0.05). For Factors 2 and 3, the scales comprising these factors were significantly related to cardiovascular measures. Conclusions: In this preliminary study, psychosocial variables displayed shared variance in the form of factors representing Negative Affect, Anger/Hostility/Low Social Support, and Coping Style. These factors were related to cardiovascular risk markers, such as QTVI, HRV, and MSI. Of the 3 factors, only the Negative Affective factor was a better predictor of these risk markers than its component scales.
83) Abstract 1507

PROGNOSTIC ASSOCIATION OF ANXIETY FOLLOWING MYOCARDIAL INFARCTION WITH MORTALITY AND NEW CARDIOVASCULAR EVENTS: A SYSTEMATIC REVIEW
Annemieke M. Roest, MSc, Elisabeth J. Martens, PhD, Johan Denollet, PhD, Peter de Jonge, PhD, Psychology and Health, Tilburg University, Tilburg, Brabant, the Netherlands

Background: Anxiety is a common reaction in patients after myocardial infarction (MI). Several studies have shown that anxiety is related to prognosis after MI, but this is not confirmed by others. This review examines the prognostic association of anxiety following MI with cardiovascular prognosis using a pooled analysis of published studies.

Methods: A comprehensive search was conducted in September 2008 to identify original research studies published since 1975 that used an established psychiatric instrument to assess anxiety within 3 months after MI. Databases (MEDLINE, EMBASE, PSYCHINFO) were searched using the following terms: "myocardial infarction" and "anxiety", without language restrictions. Reference lists were hand searched. Only prospective studies, with a follow-up over 3 months were selected. Endpoints included all-cause mortality, cardiac mortality and cardiovascular events. Results: Twelve papers met the selection criteria. These studies described follow-up (on average 3.6 years) of 5764 patients (50%) and found significant results for cardiovascular events. Results: Anxiety remained a significant predictor in multivariate analysis in 4 studies (OR=1.68; 95% CI=1.04-2.70). We were able to calculate a pooled OR based on 6 of the available studies (4 with significant results), resulting in an estimated association of OR=1.68. Patient samples were heterogeneous regarding gender and disease severity. However, this did not account for the observed effects. There seems to be an effect of anxiety on adverse prognosis in univariate analysis. Anxiety remained a significant predictor in multivariate analysis in 4 studies (OR=1.68; 95% CI=1.04-2.70). HR=2.79). There were no significant differences between the groups in the presence of separate depressive symptoms after MI. MI was found in half of selected studies, with the associated risk comparable to traditional biomedical risk factors. More research is needed to investigate the specific role of anxiety in patients recovering from an MI.

84) Abstract 1133

DO SUBGROUPS OF DEPRESSED MI PATIENTS DEFINED ON TIMING AND RECURRENCE OF DEPRESSION DIFFER IN THEIR PROFILE OF DEPRESSIVE SYMPTOMS?
Marnij Zuiderma, Master of science, Department of Psychiatry, Peter de Jonge, Departments of Internal Medicine and Psychiatry, University of Groningen, Groningen, The Netherlands

Background: In ACS patients first-ever depressive episodes and depressive episodes with an onset after the event have been found to be particularly associated with worse cardiovascular outcomes. Furthermore, somatic/affective symptoms of depression have been specifically found to be associated with worse cardiovascular outcomes in MI patients. Purpose of study: To evaluate whether MI patients with different subtypes of post-MI depression according to incidence/recurrence and onset of the depressive episode relative to the event differ in presence of specific depressive symptoms after the MI. Subject sample and statements of methods: 440 depressed MI patients from the MIND-IT and DepreMI study were used for these analyses. The presence of an ICD-10 post-MI depressive episode was assessed with the CIDI at 3, 6, 9 and 12 months after the MI. Depressed MI patients were classified into groups according to incidence/recurrence of the depressive episode and whether its onset was before or after the MI. Presence of separate depressive symptoms after MI was compared between the following subgroups of depressed MI patients: 1) patients with a first-ever depressive episode (n=346) versus those with a recurrent episode (n=94), 2) patients with an episode with an onset after the event (n=284) versus those having an episode with an onset before the event (n=156), and 3) patients with a first-ever episode with an onset after the event (n=211) versus patients with an episode that is recurrent and/or has an onset before the event (n=229). Summary of results: There were no significant differences between the groups in the presence of separate depressive symptoms. However, high cortisol levels predicted cardiovascular death among both persons with and without depressive symptoms. Depressed patients present with hypercortisolism, this might put them at risk of dying from cardiovascular diseases.

85) Abstract 1203

DEPRESSIVE SYMPTOMS, CORITOL AND 6-YEAR CARDIOVASCULAR MORTALITY
Nicole Vogelzangs, MSc, Aartjan T. Beekman, MD, PhD, Psychiatry, VU University Medical Center, Amsterdam, The Netherlands, Yuri Milaneschi, PSY.D, Tuscany Health Regional Agency, Florence, Italy, Luigi Ferrucci, MD, PhD, Clinical Research Branch, National Institute on Aging, Baltimore, MD, Brenda W. Penninx, PhD, Psychiatry, VU University Medical Center, Amsterdam, The Netherlands

A large body of studies link depression with cardiovascular disease (CVD) and mortality. It has been hypothesized that cortisol plays an important role in this relationship, but whether high levels of cortisol and hypercortisolism are depression are risk factors for cardiovascular death has been largely unexamined. In a sample of 874 participants aged 65 years and older of the InChianti Study we examined cortisol and depression as determinants for all-cause and cardiovascular mortality during 6 years of follow-up. Depressive symptoms were assessed using the CES-D scale and a CES-D score of 20 or higher indicated clinically relevant depressive symptoms. Cortisol levels were determined in 24-hour urine samples. Cardiovascular mortality included deaths due to ischemic heart disease and cerebrovascular disease. During a mean follow-up of 5.7 (SD=1.2) years 184 persons died, of which 41 were cardiovascular deaths. After adjustment for sociodemographic, lifestyle, health behaviour and chronic diseases and baseline CVD, depressive symptoms did not increase the risk of all-cause mortality (HR per SD increase=0.97, 95%CI=0.82-1.14, p=.71) nor of cardiovascular mortality (HR per SD increase=1.08, 95%CI=0.77-1.51, p=.67) over 6 years. 24-H urinary cortisol levels did also not increase the risk of all-cause mortality (HR per SD increase=1.06, 95%CI=0.91-1.22, p=.47), but did predict cardiovascular mortality (HR per SD increase=1.75, 95%CI=1.00, p=.03). This effect was found to be consistent across persons with and without baseline CVD (p interaction=0.89) and across persons with and without depression (p interaction=0.93). This study found no evidence of an increased risk of (cardiovascular) death associated with depressive symptoms. However, high cortisol levels predicted cardiovascular death among both persons with and without depressive symptoms. Hypercortisolism, this might put them at risk of dying from cardiovascular diseases.

86) Abstract 1144

TYPE D PERSONALITY AND HAEMOGLOBIN LEVELS AT 12-MONTH FOLLOW-UP IN THE CONTEXT OF THE CARDIO-RENAL-ANAEMIA TRIAD IN CHRONIC HEART FAILURE
Nina Kupper, PhD, Aline J. Pelle, MSc, Medical Psychology, Tilburg University, Tilburg, The Netherlands, Balázs Szabó, MD PhD, Dept. of Cardiology, St. Elisabeth hospital, Tilburg, The Netherlands, Johan Denollet, PhD, Medical Psychology, Tilburg University, Tilburg, The Netherlands

Background: Anaemia is a common comorbidity in CHF, that may be instigated by multiple factors, including psychological stress. Type D (Distressed) personality is a risk marker for poor cardiac prognosis, and anaemia may be a candidate mechanism responsible for the adverse prognosis in Type D CHF patients. Aim: To examine the influence of Type D personality on haemoglobin (Hb) levels at 12-month follow-up, alongside other important factors in the cardio-renal anaemia triad, i.e., kidney dysfunction, sex and NYHA-class. Methods: Plasma levels of Hb and creatinine were assessed in 264 CHF patients at baseline and at 12-month follow-up. Kidney dysfunction was determined by calculating the glomerular filtration rate (GFR) of creatinine. Anaemia was defined according to WHO guidelines. Results: The presence of the cardio-renal anaemia triad was confirmed by demonstrating significant relations between Hb and GFRcreat (r=−0.24; p<0.001), and significantly higher NYHA-class in anaemic patients (Chi2=8.03; p=0.004). Within patients with MI, higher Hb levels (r=−0.2; p=0.001) and kidney function (r=−0.17; p=0.03) were relatively stable over
12-months. Hb levels were lowest in female Type D patients (M=7.96 mmol/L, SD=0.99), and highest in male non-Type D patients (M=8.99 mmol/L, SD=0.87). Multivariable regression analysis showed that Type D personality (beta=-.11; t=-2.01; p<.05) was an independent predictor of Hb levels at 12-month follow-up, alongside kidney dysfunction (beta=-.27; t=4.46; p<.001), sex (beta=.32; t=5.90; p<.001), and NYHA-class (beta=-.15; t=2.73; p<.01). Conclusion: Type D CHF patients are characterized by an increased anemic state at 12-month follow-up. Future research should examine whether treating anemia will improve prognosis in Type D CHF patients.

87) Abstract 1739
CROSS-VALIDATION OF THE TYPE D SCALE (DS14) IN TAIWANESE CARDIAC PATIENTS AND HEALTHY CONTROLS
Chia-Yong Weng, Ph. D, Quan-Hua Long, Master, Psychology, National Chung Cheng University, Chi-Yi, Taiwan, Susanne Pedersen, Ph. D., Medical Psychology, Tulburg University, LE Tilburg, Netherlands, Chin-Lon Lin, MD, Cardiology, Buddhist Dalin Tzu Chi General Hospital, Chia-Yi, Taiwan, Tin Kwang Lin, MD, Cardiology, The Buddhist Dalin Tzu Chi General Hospital, Chia-Yi, Taiwan
The purpose of the present study was to cross-validate the Chinese version of the Type D Scale (DS14) in Taiwanese patients with coronary artery disease (CAD) and healthy controls. Type D personality - increased negative affectivity (NA) and social inhibition (SI) - is associated with adverse clinical events and poor quality of life in cardiac patients in Western Europe, but it is not known whether the Type D construct extends to the Asian setting. Taiwanese CAD patients recruited from The Buddhist Dalin Tzu Chi General Hospital (n= 260) and healthy controls recruited from community (n= 84) completed the DS14 and other standardized and validated questionnaires. The prevalence of Type D was 26% for female and 32% for male with insignificant gender difference (p=.55) in CAD patients, and 20% in healthy controls. Explorative factor analysis confirmed the two-factor structure of the scale, with NA accounting for 26.66% and SI 17.71% of the variance, respectively. The internal consistency was good, with Cronbach's alpha reliability of NA and SI of .83 and .87, and three-month test-retest reliability of .63 and .68. NA correlated positively with anxiety (r=.62, p<.01), depression (r=.26, p<.01), hostile cognition (r=.33, p<.01), hostile affect (r=.25, p<.01), suppressive hostility (r=.39, p<.01), and total hostility score (r=.36, p<.01), but not expressive hostility (r=.12, p=.05). SI was positively correlated with anxiety (r=.34, p<.01), depression (r=.26, p<.01), suppressive hostility (r=.22, p<.05), and total hostility (r=.20, p<.05), but not expressive hostility (r=.10, p>.05), hostile cognition (r=.14, p>.05), and hostile affect(r=.16, p>.05). These findings confirm that the Type D construct is generalizable to the Asian setting such as Taiwan, although further study should examine an increased anemic state among those whose reported increasing demands over the follow-up period (b=1.3, P = .08). Effects were limited to those who were not taking antihypertensive drugs at follow up (n=171, b= 1.73, 1.73 mmHg change per unit change on Demand, p=.02). Within this unmedicated group, 6-year changes in ratings of task demands were also marginally related to changes in clinic SBP (b= 1.30, p=.09). Associations with ABP changes, however, remained significant after adjusting for changes in clinic BP (p=.05). Findings suggest that changes in daily stress load during mid- to late-adulthood are associated with commensurate alterations in ambulatory BP in unmedicated individuals. Further, results are consistent with the possibility that daily psychosocial stress contributes to hypertension risk, and they support the utility of EMA measures of momentary stress as predictors of health outcomes. Supported by HL056346, HL076852, HL040962, DA023821

Topic: Hypertension
88) Abstract 1532
DAILY PSYCHOSOCIAL DEMANDS ARE ASSOCIATED WITH SIX-YEAR CHANGES IN AMBULATORY BLOOD PRESSURE: THE PITTSBURGH HEARTY PROJECT
Thomas W. Kamarek, Ph.D., Soul Ji Shin, M.S., Psychology, Matthew Muldoon, MD, Medicine, University of Pittsburgh, Pittsburgh, PA
Ambulatory blood pressure (ABP) is an independent predictor of adverse cardiovascular outcomes. Little is known, however, about the daily life correlates of ABP, or the ways in which lifestyle alterations may affect the trajectory of ABP changes over time. In a community sample of 237 adults, age 50-70, we examined the correlates of 6-year changes in ABP, using ecological momentary assessment (EMA) methods. Stage 2 hypertensives and those taking antihypertensive drugs were initially excluded. Participants wore ABP monitors and responded to electronic diary questions 15 times per day in conjunction with concurrent BP measurements, over 6 days at baseline and again, over 3 days, 6 years later. Among other measures, a 3-item scale assessing daytime task demands (e.g., "Juggled several tasks at once") was administered at each assessment. Scores were averaged across assessments at each point, yielding indices of daily activity demands at baseline and 6 years. Ambulatory systolic BP increased over the 6 year period (8 mmHg). These increases occurred to a greater extent among those whose reported increasing demands over the follow-up period (b=1.3, P = .08). Effects were limited to those who were not taking antihypertensive drugs at follow up (n=171, b= 1.73, 1.73 mmHg change per unit change on Demand, p=.02). Within this unmedicated group, 6-year changes in ratings of task demands were also marginally related to changes in clinic SBP (b= 1.30, p=.09). Associations with ABP changes, however, remained significant after adjusting for changes in clinic BP (p=.05). Findings suggest that changes in daily stress load during mid- to late-adulthood are associated with commensurate alterations in ambulatory BP in unmedicated individuals. Further, results are consistent with the possibility that daily psychosocial stress contributes to hypertension risk, and they support the utility of EMA measures of momentary stress as predictors of health outcomes. Supported by HL056346, HL076852, HL040962, DA023821

Topic: Hypertension
89) Abstract 1697
THE EFFECTS OF ACCULTURATION AND MEXICAN CULTURAL ORIENTATION ON METABOLIC HEALTH OF MEXICAN IMMIGRANTS TO THE U.S.
Jill Walker, BS, Patrick Steffen, James Van Dyke, Clinical Psychology, Brigham Young University, Provo, UT
Introduction: Acculturation is an important factor in understanding the health status of immigrants from Mexico. Acculturation to a new culture, factors such as lifestyle, family life, social support, and nutrition are impacted. The current study aims to shed light on the impact of acculturation and cultural orientation on metabolic functioning in Mexican-born immigrants. It is important to study this group because Mexicans have higher rates of diabetes as compared to other populations and acculturation appears to play a significant role in developing diabetes. To study this issue, the effects of acculturation on Hba1c (a measure of metabolic health), glucose, and insulin, all of which are implicated in the development of diabetes, were studied. Methods: Subjects (n=250, 56% female, mean age 36, mean of 8 years living in the United States) were administered the Acculturation Rating Scale for Mexican-Americans, second edition (ARMSA-II) as a self-report measure of acculturation and Mexican and Anglo cultural orientations. Additionally, number of years in the U.S. served as a simple measure of acculturation. Blood samples were taken after a 12 hour fast. Results: It was found that Hba1c was negatively correlated with a Mexican cultural orientation (r = .14, p < .06) and positively correlated with years lived in the U.S. (r = .20, p < .01). Glucose was also negatively correlated with a Mexican cultural orientation (r = -.19, p < .01) and positively correlated with years lived in the U.S (r = .19, p < .01). Insulin was not related to the variables of interest (ns). Discussion: It appears that maintaining one’s ethnic identity (Mexican cultural orientation) has salutary benefits, specifically decreased levels of Hba1c and glucose. An understanding of these benefits may contribute to an awareness of and sensitivity to the impact of cultural orientation on metabolic functioning in Mexican immigrants to the U.S., as well as important insight into the impact of acculturation on health.

90) Abstract 1594
PLASMA RESISTIN, VISFATIN AND LEPTIN CONCENTRATIONS AND GLUCOSE HOMEOSTASIS IN PATIENTS WITH MAJOR DEPRESSIVE DISORDER
Wiebke Gregersen, MD, Sebastian Rudolf, MD, Kerstin M. Oltmanns, MD, Eva Fassbinder, MD, Psychiatry, Achim Peters, MD, Internal Medicine, Ulrich Schweiger, MD, Psychiatry, Lubeck University Medical School, Lubeck, Germany
Purpose of study: Adipokines may link altered body composition and increased risk for developing diabetes mellitus and cardiovascular disease in patients with major depressive disorders (MDD). Subject sample and statement of methods: Twenty-three patients with typical and 8 patients with atypical major depression (20 women, 11 men) underwent a hyper-/hypoglycemic stepwise glucose clamp. Eight healthy women and 16 healthy men served as the comparison group,
GLUCOSE TOLERANCE AND COGNITIVE FUNCTION RELATIONS IN NON-DIABETIC OLDER ADULTS
Regina C. Sims, PhD, Center for Aging and Human Development, Duke University Medical Center, Durham, NC, Leslie I. Katzell, MD/PhD, Medicine, University of Maryland School of Medicine, Baltimore, MD, Keith E. Whitfield, PhD, Psychology & Neuroscience, Duke University, Durham, NC, William F. Rosenberger, PhD, Zorayr Manuhan, PhD, Department of Statistics, George Mason University, Fairfax, VA, Shari R. Waldstein, PhD, Psychology, University of Maryland Baltimore County, Baltimore, MD.

Among diabetic patients, impaired glucose tolerance has been associated with poorer cognitive function; however, the relation between blood glucose levels and cognitive function in non-diabetics has not been adequately studied. The current study had two aims: 1) examine the association between glucose tolerance and cognitive function in non-diabetic older adults and 2) examine if age, gender, and education moderates the relation of glucose tolerance to cognitive function. The participants were 172 non-diabetic (fasting glucose < 126 mg/dl), stroke- and dementia-free older adults (MiSD: age = 66.5 (7.0); M (SD) education = 16.30 (3.0)). Participants completed neuropsychological tests that assessed attention, psychomotor, learning and memory, mental flexibility and visuospatial/visuoconstrucational abilities. An oral glucose tolerance test was administered. Blood samples were collected at baseline and after fasting, after glucose, after ingestion of glucose. Fastig, area-under-the-curve, and post-120 minute glucose values were used in the analyses. Linear regression was used to analyze the relations between glucose levels and cognitive performance. Results showed no significant associations between glucose levels and cognitive performance, after controlling for age, gender, and education. However, significant interactions of glucose with age, gender, and education indicated moderation. Specifically, higher fasting glucose values were associated with greater attention, mental flexibility and visuospatial/visuoconstrucational performance at older (e 70 years) ages. Higher fasting glucose values were associated with poorer attention, mental flexibility, and learning and memory performance for male participants. Finally, higher fasting, post-120 minutes, and area-under-the-curve values were associated with greater attention, psychomotor, and visuospatial/visuoconstrucational abilities at higher education levels (e 16 years). Findings suggest that the relations between glucose tolerance and cognitive function in non-diabetic older adults are complex, domain-specific, and subject to effect modification. In some instances, higher levels of non-diabetic glucose levels may be beneficial to cognitive performance.

DEPRESSIVE SYMPTOMS ARE ASSOCIATED WITH WORSE GLYCEMIC CONTROL AMONG NONDIABETIC OLDER ADULTS
Vera K. Tsenkova, MA, Psychology, Burton Singer, PhD, Institute on Aging, Carol D. Ryff, PhD, Psychology, Gayle Love, PhD, Institute on Aging, UW-Madison, Madison, WI

Glycosylated hemoglobin (HbA1c) is an indicator of long-term glycemic control in people with diabetes. Recent findings have linked HbA1c in nondiabetic people to cardiovascular outcomes and increased risk of type II diabetes, thereby provoking interest in factors influencing pre-diabetic glucose metabolism. The purpose of the present study was to investigate whether depression was linked to nondiabetic glycemic control (HbA1c) among a national study of adults. Since gender differences in depression and age-related increases in diabetes are well-documented, the moderating roles of gender and age were investigated as well. How these factors work together at different periods in the life course was the focus of the present study, which used data from the nondiabetic subsample (n = 874, age: 34-83) of a national sample of adults known as MIDUS (Midlife in the U.S.). Depressive symptoms were measured with the CES-D scale (Radloff, 1977). We found that depressive symptoms exacerbated the age-related increase in HbA1c for the older participants (R2= .28, p<.05) but showed no association with glycemic control for younger people. Furthermore, the association between depressive symptoms and HbA1c did not differ between men and women (p=.1). All analyses adjusted for an extensive set of relevant psychological, sociodemographic, and health influences. Results suggest that depressive mood becomes a vulnerability factor for dysregulated glycemic control when another risk factor, such as aging, is present. Because the obtained relationships were evident in people without diabetes, the findings indicate that the influence of depression on glucose metabolism is not exclusively mediated by diabetes-related regimens and possibly starts at prediabetic levels. Importantly, these findings add to the body of evidence that implicates depression as a risk factor for diabetes.
Participants randomized to the treatment group attend 8-weekly diabetes self-management classes, while controls receive standard care alone. Labs and psychosocial assessments are collected at baseline, the end of the intervention period (M4), and again six months later (M10). Participants included in preliminary analyses (n = 21) ranged from 29 to 66 years old (M = 52.48, SD = 10.39); 90% were female, and 86% were born in Mexico. Both groups exhibited reductions in HbA1c, low-density lipoprotein cholesterol (LDL-c), and diastolic blood pressure (DBP) at M4. Whereas the treatment group showed continued improvement at M10, the control group regressed. Consequently, the treatment group exhibited lower mean values than the control group at M10 on HbA1c (d = .50), LDL-c (d = .46), and DBP (d = 1.06). Both groups also demonstrated initial increases in diabetes self-efficacy (DSE) and perceived support for disease management (PSDM); however, only the treatment group sustained the change beyond M4. At M10, the treatment group exhibited greater DSE (d = .33) and PSDM (d = .32) than control patients. The initial improvement among control patients may reflect factors inherent to the baseline encounter: interacting with study staff, completing self-report measures, and/or receiving an incentive (glucose monitors). However, maintenance, as achieved by the treatment group, is needed to attain tight glycemic control and prevent serious health consequences. These findings lend preliminary support for a lower cost, culturally-sensitive approach to diabetes intervention for a growing, high-risk population.

95) Abstract 1254

RATE AND PREDICTORS OF NONCOMPLETION OF PHARMACOTHERAPY FOR DEPRESSION IN ADULTS WITH DIABETES

Bret M. Caldwell, MS, Ryan J. Anderson, BA, Psychiatry, Gregory S. Sayuk, MD, Gastroenterology, Billy D. Nix,, Patrick J. Lustman, PhD, Psychiatry, Washington University School of Medicine, Saint Louis, Missouri

External validity considerations affect the analysis, interpretation, and planning of depression treatment trials, yet pertinent data in patients with diabetes are scant. In this secondary analysis, we aggregated data from three prior published studies and determined the rate, reasons, and predictors of noncompletion (NC) of pharmacotherapy for DSM-defined major depressive disorder (MDD) in adults with comorbid diabetes. 444 such patients (51 years old, 61% female, 72% Caucasian, 87% type 2 diabetes) received up to 16 weeks of open treatment with bupropion (BU, N=93) or sertraline (SRT, N=351). Of these 444, 123 (27.7%) failed to complete treatment. NC rate was higher in SRT- vs. BU-treated patients (29.9% vs. 19.4%, x2=4.1, p=.04). Reasons for NC were protocol violations (N=77, 62.6%), medication side effects (N=33, 26.8%), and other (N=13, 10.6%); the NC reasons did not differ by treatment (x2=2.8, p=.66). Logistic regression was used to determine independent predictors of NC. Variables in the model [age, race, gender, marital status, treatment (SRT or BU), presence of diabetes complications, and Beck Depression Inventory (BDI) score] were derived from the clinical trials literature and not highly intercorrelated (r <0.30). Higher BDI (OR=0.97, 95% CI 0.95 - 0.99, p=0.02), younger age (1.03, 1.01 - 1.05, p=0.009) and SRT treatment (2.00, 1.09 - 3.70, p=0.03) were significant independent predictors. African American race and presence of diabetes complications trended toward significance (p=0.09 and 0.14, respectively). Different antidepressants have differential effects on completion; here the odds of NC were doubled with SRT vs. BU, and significantly higher in younger patients and those presenting with more severe depression. Further research is needed to confirm the findings of this secondary analysis, to clarify the contribution of race and diabetes illness severity to the risk of NC, and to determine whether retention efforts tailored to these risks can improve study completion rate.

96) Abstract 1418

PSYCHOLOGICAL FACTORS AND THE METABOLIC CONTROL OF TYPE 1 DIABETES MELLITUS

Bianca Andreica, MD, Children Psychiatry, Bogdan Lucian, pre-degree PhD, Simona Cainap, MD, Mariana Andreica, Professor, Psychiatry, Children Clinical Hospital, chuj-napoca, Chuj, Romania

The aim of this study is to find some correlations between psychological markers, familial dynamics, personality traits and coping mechanism in order to define clearer the phenomenology of onset and maintenance of diabetes mellitus. A sample of 34 children (mean age 10 years) and their parents and a second lot composed of 40 children (mean age 11 years) and their parents were recruited to assess the factors mentioned above. We assessed the children using Constructive Thinking Inventory, and their parents completed the Parental Stress Index. In our study, we have evaluated glycated hemoglobin, lipid metabolic parameters, the variation of the insulin dose, cortisol, calcium and magnesium in order to correlate these parameters with certain psychological factors. Children and adolescents with diabetes reported more distrust of others (p = 0.04), withdrawn (p<0.01) and more conduct problems than controls. Diabetic children’s parents showed lack of emotional and active support (p = 0.04), isolation (p = 0.01) and lesser competence (p = 0.03) than controls. We have found correlations between cortisolemia, serum magnesium, insulin dose, glycated hemoglobin and acceptability and life stress, showing a direction for follow-up and interventions with diabetic patients. The results suggest that ameliorating the psychological climate of the diabetic child might improve the metabolic control of the disease and prevent the long-term complications.

Topic: General Health/Symptoms

97) Abstract 1629

CONTENT ANALYSIS OF EMOTIONAL DISCLOSURE: CAN ACTIVE FACILITATION ENHANCE THE PROCESS?

Lindsay Sander, M.A., Olga Slavin, M.A., Jay Cohen, PhD, Psychology, Lilian Chan, B.A., Nursing, Sharon Im,, Psychology/Medicine, Mark Lumley, PhD, Psychology, Wayne State University, Detroit, MI

Written emotional disclosure encourages awareness, expression, and processing of stress-related emotions. Its effects are positive, yet rather weak, perhaps because the technique is written, private, and self-directed. In contrast, disclosure in daily life is typically verbal, interpersonal, and may be facilitated by a listener. This study compared different verbal disclosure methods in their effects on mood and emotional processing. Participants reported completion rate, remaining on the task, ranged from 84% female; age M = 21.9 years; 41% Caucasian and 32% African American) reporting an unresolved stressor. They were randomized to 1 of 4, 30-min, laboratory talking groups: a) neutral control (CT); or stress disclosure to b) an active facilitator (AF) who elicited more disclosure and processing; c) a passive listener (PL), or d) a private tape recorder (TR). Post-sesssion mood ratings and participant evaluations were obtained, and disclosures were transcribed and content analyzed by LIWC software and trained judges. ANOVAs and chi-square compared groups. For post-sesssion mood, AF but not other disclosure groups elicited more negative mood (p<0.01) and specifically anger (p=0.004) than CT. Compared to the other disclosure groups, AF produced more stress evaluation words, including cognitive mechanism (p = .003) and insight words (p = .001), and AF disclosures were judged to better label and identify emotions (p = .01). Participants rated AF as more comfortable than the other disclosure groups, but also were more aware of their inhibition or avoidance (p = .04). The results suggest that an active facilitator elicits more powerful disclosure content and cognitive-emotional processing than does a passive listener or private disclosure. This suggests that interpersonal facilitation of emotional disclosure, although requiring more resources than private disclosure, may also be more effective and lead to better health outcomes.

98) Abstract 1204

MORNINGNESS-EVENINGNESS IS RELATED TO EXHAUSTION AND TYPE D PERSONALITY CHARACTERISTICS BUT NOT TO ALLOSTATIC LOAD

Silija Bellgrath, PhD, Brittie M. Kudielka, PhD, Jacobs Center on Lifelong Learning, Jacobs University Bremen, Bremen, Germany

Levels of exhaustion and characteristics of type D personality as well as allostatic load (a cumulative measure of physiological wear and tear) were investigated in relation to morningness versus eveningness. We assessed self-reported exhaustion with the subscale Emotional Exhaustion of the Maslach Burnout Inventory (MBI-EE) and the Vital Exhaustion (VE) questionnaire. Type D personality is comprised of the two subscales Negative Affectivity (DS14-NA) and...
Social Inhibition (DS14-SI) as well as allostatic load in 95 middle-aged healthy women derived from the Trier-Teacher-Stress-Study. AL was composed of ten and 17 physiological parameters, respectively (classical and extended allostatic load), encompassing cardiovascular, endocrine, immunological, metabolic, and blood coagulation markers in order to capture the cumulative physiological burden exacted on the body through attempts to adapt to life's demands. A one-item proxy was used for the assessment of morningness versus evenningness. We found consistent differences between morning versus evening types in relation to exhaustion and type D personality characteristics. Evening types reported significantly higher levels of exhaustion (MBI-EE p<.003; VE p=.002) as well as more negative affectivity (p<.0001) and marginally higher levels of social inhibition (p=.060). Moreover, cross tabulation revealed significant differences regarding the distribution of Type D personality in respect to morningness versus evenningness (Chi-Square=10.5, p=.001). However, no differences were observed in relation to allostatic load (both p's>.05). In sum, the present data supports the idea of higher subjective psychosocial burden in evening types in terms of exhaustion and type D characteristics. This however seems not to be reflected in alterations on a physiological level as indicated by allostatic load.

99) Abstract 1127

JOB STATUS, BURNOUT, AND WAKING CORTISOL LEVELS: EVIDENCE FROM THE PENN STATE HOTEL WORK AND WELL-BEING STUDY
Kimberly N. Walter, BSN, Jeanette M. Bennett, MS, Courtney A. Whetzel, PhD, Biobehavioral Health, Kelly D. Davis, PhD, David M. Almeida, PhD, Human Development and Family Studies, Laura C. Klein, PhD, Biobehavioral Health, The Pennsylvania State University, University Park, PA

According to the allostatic load model, excessive stress exposure and insufficient recovery from stressors may be associated with an increased risk of negative health outcomes (McEwen 1998). High amounts of work stress and inadequate recovery from this stress may be deleterious to physical and psychological health (Sluijter et al. 1999). This study is part of an ongoing larger project that was to examine bedtime and awakening salivary cortisol and self-ratings of job demands and burnout among hotel industry department managers and hourly workers. The hotel industry was selected because of the stressful 24 hour/day work environment. As part of a larger project examining daily stress and well-being of hotel workers using a daily diary design, department managers (DMs; N = 65) and hourly workers (N = 38) provided saliva 4 times/day across 4 consecutive days: upon awakening, 30 min after waking, before lunch, and before going to bed. Self-ratings of job demands and burnout were assessed during a baseline telephone interview. Despite a similar amount of sleep per night (about 8 hrs), DMs' cortisol was significantly higher than hourly workers upon awakening (p<0.05), but not at other times in the day or evening. DMs also reported significantly more job demands, burnout, and alcohol consumption over a 30 day period (p's<0.05). Linear regression modeling indicated that high burnout was the strongest predictor of higher awakening cortisol levels (p<0.05). Elevated awakening cortisol levels among the DMs with high burnout suggest that they may be at increased risk for health problems associated with chronic stress exposure and elevated cortisol levels such as depression, diabetes, and cardiovascular disease (e.g., McEwen 1998). These findings are consistent with other studies of employee work stress and conclude (e.g., Givens et al. 2005) and suggest that future research is needed with workplace interventions to better understand the health consequences of burnout and chronic work stress exposure.

100) Abstract 1419

DAILY SPIRITUAL EXPERIENCES IN A BIRACIAL, COMMUNITY-BASED POPULATION OF OLDER ADULTS
George Fitchett, PhD, Religion, Health, and Human Values, Kimberly A. Skarupski, PhD, Denis A. Evans, MD, Carlos F. Mendes de Leon, PhD, Rush Institute for Healthy Aging, Rush University Medical Center, Chicago, Illinois

Purpose The purpose of this study was to examine the distribution of scores on a new measure of religiosity/spirituality (R/S), the Daily Spiritual Experience (DSE) scale, and to examine its demographic, religious, and psychosocial correlates. Sample and Methods The data came from 6,534 participants in the Chicago Health and Aging Project, an ongoing population-based, biracial (66% Black) study of risk factors for incident Alzheimer's disease among older adults. A five-item version of the DSE was used in the study. These items assessed the frequency (1 = never, 6 = many times a day) of feeling close to God, finding comfort in R/S, and feeling deep inner peace. Multivariable linear regression models were used to examine the relationship between demographic, religious, and psychosocial factors and DSE scores. Results The 5 DSE items had a Cronbach's alpha of 0.91. The average frequency of spiritual experiences for 69% of participants was daily or greater. Women and Blacks had higher DSE scores than men and Whites, respectively (p's < 0.001). Frequency of worship and prayer were positively associated with DSE scores (p's < 0.001). Social networks and social engagement were positively associated with, and depressive symptoms inversely associated with, DSE scores (p's < 0.001). DSE scores were not significantly associated with hostility. Some Black-White differences were observed in these associations. Discussion The DSE scale has high internal consistency. High levels of spiritual experiences were observed in this sample of community-dwelling older adults. The pattern of associations for DSE and demographic, religious, and psychosocial measures that were observed is consistent with findings for other measures of R/S. The developers of the DSE hypothesized that daily spiritual experiences are protective for health by increasing host resistance to stress; further research is required to test this hypothesis.

101) Abstract 1562

THE DIFFERENTIAL IMPACT OF AGE, GENDER, AND HERITABILITY ON DHEA AND DHEA-S
B. A. Fischer, PhD, University of Wisconsin, Madison, Wisconsin, Christopher L. Coe, Ph.D., Carol D. Ryff, Ph.D., Psychology, University of Wisconsin, Madison, WI

Dehydroepiandrosterone (DHEA) and its sulfated ester, DHEA-S are steroid hormones produced primarily by the adrenal cortex, which are secreted in abundance in the young healthy adult. DHEA-S then declines progressively with age, which is of some concern given its anti-atherosclerotic, anti-inflammatory and anti-osteoporotic effects. Prior research has shown that both age and gender affect the levels of DHEA-S found in systemic circulation. However, less is known about the factors influencing the maintenance of the biologically active form, DHEA. Our research examined the impact of age and gender on DHEA and DHEA-S levels in 1078 (480 males, 598 females) participants of the Midlife in the United States (MIDUS) project. Preliminary bivariate correlations indicated that participant age (M=57; Range: 35-86) was inversely related to DHEA-S (r=-.41, p<.001) and DHEA (r=-.45, p<.001) levels. In addition, one-way ANOVAs indicated that DHEA-S differed significantly by gender (F(1,1076)=118.1; p<.001) with males (M=132.5; SE=2.51) having higher DHEA-S compared to females (M=83.3; SE=4.0). However, DHEA levels did not differ significantly between males and females (F(1,1076)=2.8; p=.10), highlighting the marked sex differences in conversion rates into the active hormone form. As an extension of these findings, we will also report on the influence of genetic factors on DHEA-S and DHEA, by taking advantage of the unique monozygotic and dizygotic twin cohorts in the MIDUS study. Our biological assessments also included measures of cortisol and catecholamine activity, which are known to be inversely associated with the age-related changes in DHEA-S and its salubrious influence on health and longevity.

102) Abstract 1283

PHYSICAL ACTIVITY AND ITS EFFECTS ON VITALITY AMONG OLDER ADULTS
Tyler S. Story, Guido G. Urriza Jr., PhD, Psychology, California State University, Long Beach, Long Beach, California, Natara Garovoy, PhD, Cynthia M. Castro, PhD, Abby C. King, PhD, Medicine, Stanford University, Stanford, CA

Although some studies have previously shown that physical activity can improve vitality, or one's energy level, few studies have looked at how physical activity impacts the vitality levels of older adult caregivers and non-caregivers. The current study examined whether physical activity was associated with self-reported vitality (Vitality Plus scale) among a sample of older adult caregivers (n=29) and non-caregivers (n=25). Fifty-four men and women (70% female, mean...
age 56±6 years, mean BMI = 30±5) completed self-report assessments of physical activity (CHAMPS Physical Activity Questionnaire; Physical Activity Recall) and wore wrist accelerometers over a 48-hour period. On average, our sample reported engaging in 80 minutes of moderate-intensity physical activity per week (SD = 144 minutes) as reported by the PAR. Eighty-six percent of our sample reported engaging in very little to no moderate-intensity physical activity as reported by the CHAMPS. T-test analyses revealed no significant differences between caregivers and non-caregivers on either physical activity levels (t = -.61, p = .54) or vitality levels (t = -.64, p = .53). Hierarchical regression analyses were conducted to examine the association of physical activity on vitality levels, while controlling for body mass index. Results showed a significant main effect for moderate-intensity physical activity on vitality as assessed by the CHAMPS, such that increases in moderate-intensity physical activity resulted in increased vitality (R² = .17, p < .05). A significant main effect was also found for total activity assessed by accelerometer over a 48-hour period, such that increases in total activity resulted in increased vitality (R² = .15, p = .05). These findings highlight the importance of designing and implementing physical activity interventions, with the aim of increasing vitality levels of stressed older adult populations in order to help improve health outcomes such as exhaustion.

103) Abstract 1620

EXECUTIVE ABILITIES AS DETERMINANTS OF PHYSICAL ACTIVITY BEHAVIOR OVER THE LIFESPAN

Peter A. Hall, Ph.D., Kinesiology & Psychology, University of Waterloo, Waterloo, Ontario, Canada

PURPOSE: To examine the predictive power of individual differences in executive ability for physical activity behavior over their lifespan.

SAMPLE & METHODS: An age-stratified sample of 208 community-dwelling and functionally mobile adults between the ages of 18 and 89 (Mage = 45.21) attended two laboratory sessions separated by 7 days. In the initial session, they completed baseline measures of physical activity behavior for the prior week and completed a cognitive assessment including the Wechsler Adult Scale of Intelligence (WASI). Participants also completed a Go-NoGo (GNG) computer task, administered via E-prime software, to assess individual differences in executive ability. Before participants left the laboratory they were fitted with a hip-mounted tri-axial accelerometer which assessed motion along three axes (vertical, anteroposterior and mediolateral) and this was worn on a continuous basis for the subsequent 7 days. Upon arrival to the laboratory for the follow-up session, a research assistant downloaded the accelerometer data. Data were analyzed using multiple regression analyses, to test for the unique effects of executive ability on accelerometer-assessed physical activity after controlling for IQ and baseline activity. Interactions between executive ability and age predicting physical activity behavior were tested using standardized methods recommended by Aiken and West for moderated multiple regression.

SUMMARY OF RESULTS: As predicted, lower reaction time scores on correct GNG trials at baseline predicted higher levels of accelerometer-assessed physical activity over the 7-day follow-up interval, independently of IQ and baseline activity level (B = .302, p < .001). The interaction term (Age x Executive Ability) was significant as well (B = .163, p = .044), and further analysis revealed that the association between executive ability and physical activity was increasingly strong with advancing age. These effects were also independent of general cognitive ability (IQ) and baseline physical activity. As such, these data thus support the contention that executive abilities may be important, though under-researched, determinants of physical activity behavior, particularly among older adults.

104) Abstract 1423

DAILY HASSLES IN CIGARETTE SMOKERS PREPARING TO QUIT SMOKING

Ryan J. Stachowiak, BA, Psychiatry, Dingcai Cao, PhD, Health Studies, Andrea C. King, PhD, Psychiatry, University of Chicago, Chicago, IL

Elucidating psychosocial factors contributing to smoking behavior, the adverse affects of which account for nearly 1 of 5 of deaths each year in the US, may guide more effective treatment strategies. Prior research examining the construct of smoker’s “daily hassles” has focused largely on associations to quit rates and results have been inconclusive. In this study we systematically examined daily hassles and other psychosocial and smoking variables in a diverse sample of nicotine dependent participants prepared to quit smoking. The sample included 240 smokers (63% female; 39% African American; mean age 43.7 yrs) who averaged 17 cigarettes daily (range 5-40). During the pre-quit week, they completed surveys including the Negative Event Hassles scale (NEH), Perceived Stress Scale (PSS), Beck Depression Inventory (BDI), Barratt Impulsivity Scale (BIS-11), Brief Questionnaire of Smoking Urges (BQSU), Why Do You Smoke Questionnaire, and Minnesota Withdrawal Scale (MWS). Univariate regressions revealed higher NEH scores were significantly associated with higher scores on the PSS (p<.001), BDI (p<.001), BIS-11 (p<.05), BQSU (p<.004), MWS (p=.01), and smoking for stress reduction (p=.002). Multivariate analysis revealed that higher NEH scores were significantly associated with higher scores on the MWS (p<.007), even after controlling for the other variables that were significant in univariate analysis. Hassle scores did not differ by age, sex, race, and cigarettes or alcoholic drinks per day. These results suggest highly hassled individuals may experience heightened tobacco withdrawal symptoms during the interval when they are preparing to quit smoking. Future research that examines the role of these variables to smoking quitting outcomes in hassled individuals will help to design treatment strategies overcoming obstacles for treatment success. Supported by R01-DA016834 and UL1 RR024999; Respiratory Health Association of Metropolitan Chicago; Howard Brown Health Center.

105) Abstract 1497

EMPIRICAL COMPARISON OF NEW PROPOSALS FOR THE CLASSIFICATION OF SOMATOFORM DISORDERS

Winfried Rief, Ph.D., Ricarda Meves, Dipl.Psych, Clinical Psychology, University of Marburg, Marburg, Germany; Wolfgang Hiller, Ph.D., Clinical Psychology, University of Maine, Maine, Germany

Purpose of Study. The classification of medically unexplained symptoms/somatoform disorders is subject of critique, and alternatives have been suggested (e.g., from Escobar; Fink; Kroenke; Hiller). We aimed to evaluate the comparability and validity of these new classification proposals in comparison to (a) a non-somatoform sample, and (b) a primary care sample. A representative sample of the German general population (N=2,510) was screened for somatoform symptoms with the Patient Health Questionnaire-15 (PHQ-15). A high-risk subsample of somatizers (PHQ-15 >=5; n=154) and a control group (n=167) were interviewed using a structured approach asking for somatic symptoms, psychological features (e.g., catastrophizing), health care utilization, a.o. Overlap between the new proposals (specificity and sensitivity) and their impact on disability and health care utilization (HCU) were investigated. Results are cross validated in a sample of 350 primary care patients. Results. In the general population sample, no person fulfilled the DSM-IV-criteria for somatization disorder. Prevalence rates ranged from 2% (Polysymptomatic somatoform disorder PSS, Rief) to 20% (Multisomatoform disorder MSD, Kroenke). PSS was the most restrictive diagnostic algorithm in comparison to the other somatoform disorders (specificity=100%, sensitivity=82-97%). MSD was the least restrictive diagnostic algorithm (specificity=10-53%, sensitivity=96-100%). The persons of the different subgroups differ substantially in terms of disability and HCU (p<.001). These analyses provide an empirical basis for the revision of classification criteria for somatoform disorders. Symptom counts of predefined symptom lists as major diagnostic criteria in comparison to the other somatoform disorders should not include somatic symptom counts, but also psychological features which are able to identify the more problematic subgroup of patients.

106) Abstract 1627

DEPRESSION MORE THAN HOSTILITY RELATES TO SUBJECTIVE INDICES OF PHYSICAL FUNCTIONING IN HEALTHY OLDER MEN AND WOMEN

Karl J. Maier, Ph.D., Psychology, Salisbury University, Salisbury, MD, Leslie I. Katzel, M.D., Ph.D, Medicine, University of Maryland School of Medicine, Baltimore, MD, Shari R. Waldstein, Ph.D., Psychology, University of Maryland, Baltimore County, Baltimore, MD
We examined relations of dispositional hostility to cardio-respiratory fitness and self-reported physical function, with depression as a potential mediator. Healthy older adults (n=154; ages 54-83; 58% male) completed the Cook-Medley Hostility Scale (CMHS), the Beck Depression Inventory (BDI), and items related to physical functioning from the Medical Outcomes Survey (i.e., physical functioning, physical role functioning, bodily pain, vitality, sleep problems, and sexual problems). Cardio-respiratory fitness (VO2max) was measured by exercise treadmill testing (modified Bruce Protocol). CMHS and BDI scores were significantly correlated (r=.31; p<.001). We examined men and women separately because of known gender differences in depression and hostility. Outcome variables were regressed onto covariates (age, body mass index, history of diagnosed hypertension), depression and hostility. We developed educational programmes for medical communication in our area. This lead to an increasing awareness of the clinical process, this process has yet to be studied extensively in humans. To order to improve the clinical condition of chronic patients with other active systemic diseases, and/or with current alcohol or substance dependence. We analyzed the data separately for men and women since the pattern of findings differed by gender. Experimental and control groups did not differ on baseline age, education, race/ethnicity, PTSD, or other background or health variables. Regression analyses controlling for baseline PTSD predicting one-month PTSD scores (Davidson) showed that women had significantly lower (p=.036) trauma symptoms in the trauma writing experimental group (mean = 28.5, SE = 5.3) compared to the control (mean = 45.3, SE=5.5). Results for men failed to show a significant difference (p = .70) at 1 month between PTSD scores in the experimental (mean = 38.2, SE=6.2) and control conditions (mean = 34.6, SE=6.0). In a similar analysis at 6 months among women, we found that those doing trauma writing had significantly lower (p=.035) trauma symptoms (mean = 25.1, SE = 5.8) compared to the controls (mean = 43.6, SE=5.8). Men doing trauma writing failed to show a difference (mean = 34.2, SE = 5.5; p = .578) compared to the controls (mean = 29.7, SE = 5.2) at 6-months. Thus, the writing intervention was beneficial to women but not men.

**Topic: HIV/AIDS**

109) Abstract 1565

**GENDER DIFFERENCES: TRAUMA WRITING IN INDIVIDUALS WITH PTSD SYMPTOMS AND HIV**

Gail Ironson, MD, PhD, Psychology, University of Miami, Coral Gables, FL, Jane Leserman, PhD, Psychiatry, University of North Carolina, Chapel Hill, NC, Conall O'Clieigrigh, PhD, Psychiatry, Harvard Medical School, Boston, MA, Joanne M. Fordiani, PhD, Psychology, University of Miami, Coral Gables, FL

Despite high rates of trauma in people with HIV, there are few studies examining trauma treatment in this population. Exposure treatments have been found to be effective in reducing trauma symptoms in non-HIV infected persons. The purpose of this study was to determine whether a low level exposure treatment, writing about the trauma writing had probes to increase processing of the traumatic event, would help ameliorate symptoms of PTSD. A diverse group of HIV infected men and women were randomized into one of two groups: 1) writing about their worst trauma for 4 sessions (experimental) or 2) writing about every day events for 4 sessions (control). The Davidson PTSD scale measured trauma symptoms at baseline, one month, and 6 months follow-up. We present data on men (n=45) and women (n=29) who had elevated PTSD symptom scores (Davidson PTSD >30) at baseline (42% of the total sample). The study excluded individuals with other active systemic diseases, and/or with current alcohol or substance dependence. We analyzed the data separately for men and women since the pattern of findings differed by gender. Experimental and control groups did not differ on baseline age, education, race/ethnicity, PTSD, or other background or health variables. Regression analyses controlling for baseline PTSD predicting one-month PTSD scores (Davidson) showed that women had significantly lower (p=.036) trauma symptoms in the trauma writing experimental group (mean = 28.5, SE = 5.3) compared to the control (mean = 45.3, SE=5.5). Results for men failed to show a significant difference (p = .70) at 1 month between PTSD scores in the experimental (mean = 38.2, SE=6.2) and control conditions (mean = 34.6, SE=6.0). In a similar analysis at 6 months among women, we found that those doing trauma writing had significantly lower (p=.035) trauma symptoms (mean = 25.1, SE = 5.8) compared to the controls (mean = 43.6, SE=5.8). Men doing trauma writing failed to show a difference (mean = 34.2, SE = 5.5; p = .578) compared to the controls (mean = 29.7, SE = 5.2) at 6-months. Thus, the writing intervention was beneficial to women but not men.
Introduction: Ecodevelopmental theory hypothesizes that there are ecological determinants influencing HIV risk behaviors (i.e., adolescent substance use and early sex initiation) at various levels of the ecosystem (i.e., macrosystems, exosystems, mesosystems, and microsystems). Ecodevelopmental theory hypothesizes a “trickle-down effect,” such that the most distal processes (i.e., macrosystemic processes) influence HIV risk behaviors through exosystemic, mesosystemic, and microsystemic processes. Methods: 584 Hispanic youth (323 males and 261 females; M age = 13.6) and their parents participated in this cross-sectional study. Ecodevelopmental processes included youth and parent acculturation, parental social support, parent stressors, parental involvement in schools, parental monitoring of peers, family functioning, school functioning, peer substance use peer sexual behavior, adolescent substance use and adolescent sexual behavior. Structural equation modeling was used to test the ecodevelopmental chain of relationships. Results: Results from the structural equation model indicate that the model fits the data well, χ²(75) = 202.4, p < .001, CFI = .91, RMSEA = .05. The results also indicate that macrosystemic processes (parental acculturation and parent adolescent acculturation gap) influence both substance use and early sex initiation through their association with exosystemic, mesosystemic, and microsystemic processes. More specifically, the results show that parent-adolescent acculturation gap indirectly influences both adolescent substance use and early sex initiation through parental social support, parental stressors, family functioning, academic functioning, peer sex behavior and peer substance use. Additionally, parent s level of acculturation indirectly affected both adolescent substance use and early sexual behavior initiation through parental social support, parental stressors, family functioning, academic functioning, and peer sexual behavior and peer substance use. Discussion: Results from this study strongly support the “trickle-down” effect of ecodevelopmental theory through family functioning, academic functioning, peer sex behavior and peer substance use. There are various ecological processes that interplay with each other to influence Hispanic HIV risk behaviors. The results from this study support the design of ecodevelopmental interventions to prevent/reduce HIV risk behaviors among Hispanic adolescents.

Top: Mental Disorder

111) Abstract 1743

ATTENUATED CORTISOL AND ALPHA-AMYLASE RESPONSIVENESS TO ACUTE STRESS IN FEMALE PATIENTS WITH BORDERLINE PERSONALITY DISORDER

Urs M. Nater, PhD, Psychology, Universität Zürich, Zurich, Switzerland, Martin Bohus, MD, Psychosomatic Medicine and Psychotherapy, Central Institute of Mental Health, Mannheim, Germany, Ulrike Ehler, PhD, Psychology, Universität Zürich, Zurich, Switzerland

Purpose of study: Borderline personality disorder (BPD) is accompanied by increased self-reported stress and emotional responding. Knowledge about the physiological mechanisms that underlie these experiences in BPD patients is scarce. The objective of this study was to determine both autonomic and endocrine responses to a standardized psychosocial stressor. Methods: In a case-control study design, 15 female patients with borderline personality disorder (BPD) and 17 healthy control subjects were examined. Salivary alpha-amylase, salivary cortisol, plasma ACTH, plasma norepinephrine and epinephrine concentrations were measured before, during, and after exposure to a standardized psychosocial stress protocol (Trier Social Stress Test; TSST). Results: BPD patients displayed significantly higher subjective stress responses, coupled with a substantial alpha-amylase and cortisol hyperactivity to the stressor in comparison to the controls. No significant differences for ACTH and catecholaminergic responses were observed. Conclusions: These findings indicate a substantial alteration in both the autonomous nervous system and the hypothalamus-pituitary-adrenal axis in BPD patients. We did not find significant differences in peripheral norepinephrine and epinephrine levels between the two groups. Attenuated cortisol responsiveness might in part be explained by decreased adrenal responsiveness to endogenous ACTH and attenuated central noradrenergic activation as reflected by alpha-amylase. Alterations on a central level might be influenced by higher subjective stress responses that are reflecting cognitive appraisal processes typical for BPD.

112) Abstract 1113

DEPRESSION, ANXIETY DISORDERS, AND RISK OF INCIDENT HEART DISEASE IN A NATIONAL COHORT OF VETERANS ADMINISTRATION PATIENTS BETWEEN 40-60 YEARS OF AGE

Jeffrey F. Scherrer, PhD, Psychiatry, Timothy Chruscied, MPH, Angelique Zeringue, MS, Internal Medicine, St. Louis VAMC and Washington University, St. Louis, MO, Kathleen E. Bucholz, PhD, Psychiatry, Washington University, St. Louis, MO, Richard Owen, MD, Little Rock VAMC, Veterans Administration Center, Little Rock, AR, Robert M. Carney, PhD, Kenneth E. Freedland, PhD, Patrick Lustman, PhD, Psychiatry, Washington University, St. Louis, MO, William R. True, PhD, Health Services Research, St. Louis VAMC, St. Louis, MO

Purpose of the Study: To test if the major anxiety disorders, depression and their interactions increase risk of myocardial infarction (MI) in a middle aged veteran patient population. Subject Sample and Statement of Methods: We abstracted a cohort free of heart disease in 1999 and 2000, aged 40-60, who had an ICD-9-CM code indicating a diagnosis of depression in 2000 (baseline) (122,451 patients) and another 147,282 patients who were free of depression. All patients had one or more of the following disorders at baseline: panic disorder, generalized anxiety disorder (GAD), social phobia (SP), obsessive compulsive disorder (OCD) and posttraumatic stress disorder (PTSD). Exosystemic processes (parent adolescent acculturation gap) influence both substance use and early sex initiation through their association with exosystemic, mesosystemic, and microsystemic processes. More specifically, the results show that parent-adolescent acculturation gap indirectly influences both adolescent substance use and early sexual behavior initiation through parental social support, parental stressors, family functioning, academic functioning, peer sex behavior and peer substance use. Additionally, parent s level of acculturation indirectly affected both adolescent substance use and early sexual behavior initiation through parental social support, parental stressors, family functioning, academic functioning, and peer sexual behavior and peer substance use. Discussion: Results from this study strongly support the “trickle-down” effect of ecodevelopmental theory through family functioning, academic functioning, peer sex behavior and peer substance use. There are various ecological processes that interplay with each other to influence Hispanic HIV risk behaviors. The results from this study support the design of ecodevelopmental interventions to prevent/reduce HIV risk behaviors among Hispanic adolescents.

Purpose of study: The purpose of the study was to determine both autonomic and endocrine responses to a standardized psychosocial stressor. Methods: In a case-control study design, 15 female patients with borderline personality disorder (BPD) and 17 healthy control subjects were examined. Salivary alpha-amylase, salivary cortisol, plasma ACTH, plasma norepinephrine and epinephrine concentrations were measured before, during, and after exposure to a standardized psychosocial stress protocol (Trier Social Stress Test; TSST). Results: BPD patients displayed significantly higher subjective stress responses, coupled with a substantial alpha-amylase and cortisol hyperactivity to the stressor in comparison to the controls. No significant differences for ACTH and catecholaminergic responses were observed. Conclusions: These findings indicate a substantial alteration in both the autonomous nervous system and the hypothalamus-pituitary-adrenal axis in BPD patients. We did not find significant differences in peripheral norepinephrine and epinephrine levels between the two groups. Attenuated cortisol responsiveness might in part be explained by decreased adrenal responsiveness to endogenous ACTH and attenuated central noradrenergic activation as reflected by alpha-amylase. Alterations on a central level might be influenced by higher subjective stress responses that are reflecting cognitive appraisal processes typical for BPD.

113) Abstract 1357

AGE-RELATED FREQUENCY OF SYMPTOM EXPRESSION IN PRIMARY CARE WOMEN WITH PREMENSTRUAL DYSPHORIC DISORDER

Ossama T. Osman, M.D., Psychiatry and Behavioral Sciences, Faculty of Medicine- United Arab Emirates University, Al-Ain, Abu Dhabi, United Arab Emirates, Sufyan Sabri, PhD, Psychiatry and Behavioral Sciences, Faculty of Medicine- United Arab Emirates University, Al-Ain, United Arab Emirates, Hanan A. alraeesi, BS, Psychiatry and Behavioral Sciences, Faculty of Medicine-United Arab Emirates University, Al-Ain, Abu Dhabi, United Arab Emirates

Purpose of Study: This study surveyed the age related frequency of symptom expression in women who screened positive for premenstrual dysphoric disorder (PMDD) as part of an epidemiologic survey which estimates the prevalence of PMDD among women attending the primary care clinics in Al-Ain Medical District of the Gulf country of the United Arab Emirates. Subject Sample and Statistical Methods: Five hundred and eight (n=508) adult menstruating women were administered the Premenstrual Symptoms Screening Tool (PSST) to screen for self reported PMDD symptoms. The data were analyzed using the Statistical Package for the Social Sciences (SPSS Inc., Chicago, Ill-version 11) for bivariate and multivariate analysis. Several demographic variables (including age) were examined for their association with the DSM-IV diagnosis of PMDD. Logistic regression analysis was used to assess Chi-square values for most frequently reported symptom variables in the group of women below and above 35 years old. For all analysis, a significance level p value<0.05 was used. Summary of Results: Group statistics showed that the mean total scores for symptoms were higher for the less than 35 years old group compared to the 35 years or above group (mean=27.3 vs. 20, 5 consecutively). Logistic regression analysis revealed a statistically significant association between age of women who screened positive for PMDD and three specific PMDD symptoms. These were, Anger/irritability (P-value= .001), Anxiety/tension (P-value=.028) and overeating/food craving (P-value=.010). There was also a near significance for decreased interest in home activities (P-value=.059). We conclude that specific symptoms are more likely associated with PMDD in women younger than 35 years of age in our sample of
primary care women. This study adds to our understanding of the nature of age related symptom expression among Arab Women with PMDD. It is important to consider these symptoms while planning for individualized clinical management of the disorder.

114) Abstract 1281

PROSPECTIVE INVESTIGATION OF AUTONOMOUS NERVOUS SYSTEM FUNCTION AND RESTING ENERGY EXPENDITURE IN PATIENTS WITH ANOREXIA NERVOSA

Junko Moriya, MD/PhD, Yoshiyuki TAKIMOTO, MD/PhD, Kazuhiko YOSHICHI, MD/PhD, Psychosomatic Medicine, University of Tokyo, Tokyo, Japan, Junichiro HAYANO, MD/PhD, Medical Education, Nagoya City University, Nagoya, Japan, Akira AKABAYASHI, MD/PhD, Psychosomatic Medicine, University of Tokyo, Tokyo, Japan

Abnormalities in the autonomic nervous system (ANS) in patients with anorexia nervosa (AN) may contribute to the decrease in resting energy expenditure (REE). However, the correlation between ANS function and REE during treatment has rarely studied yet. Therefore, in order to determine the possible correlation between ANS function and REE in AN, the present study assessed pulse rate variability (PRV), which has been validated as an alternative method for calculating heart rate variability using a pulse frequency demodulation (PFDM) (Hayano, et al. 2005, 162), and REE prospectively in 11 women aged 16-35 years with AN before and after inpatient behavioral therapy. Pulse wave signals were recorded every week using a wrist-watch type transdermal wave device, which is less stressful for patients than a Holter ECG, and PRV was calculated by PFDM. We also measured REE as well as pulse rate (PR) and body mass index (BMI). Using the Wilcoxon's signed-rank test, the medians of BMI, PR, and PRV significantly increased from 14.2 (12.6-18.1] to 15.2 (11.2-18.6)] kg/m2 (p < 0.01), from 48.4 [37.8-68.1] to 52.8 [41.6-75.0] ms (p < 0.05). The LF/HHF ratio, an index of parasympathetic nervous function, significantly decreased from 42.2 [17.3-85.4] to 45.1 [18.0-70.3] ms (p < 0.05). The Spearman rank correlation analysis showed that REE significantly correlated with those in HF amplitude (r = -0.75, p < 0.05), but not with those in BMI or PR. In summary, this study has found that (i) PR and REE both increased; whereas HF amplitude decreased significantly during inpatient treatment of anorectic women; (ii) The changes in REE were associated with those in HF amplitude, but not with those in BMI. This result suggests that parasympathetic nervous function may influence on REE in AN during treatment, although further studies are required to reveal underlying mechanisms.

115) Abstract 1024

INCREASED CARDIOVASCULAR REACTIVITY TO ACUTE MENTAL CHALLENGE IN INDIVIDUALS WITH DEPRESSION

Ali A. Weinstein, PhD, Center for Study of Chronic Illness and Disability, George Mason University, Fairfax, VA, Patricia A. Deuster, Ph.D., Military and Emergency Medicine, Jennifer L. Francis, PhD, Medicine, Uniformed Services University of the Health Sciences, Bethesda, MD, Willem J. Kop, PhD, Cardiology, University of Maryland Medical Center, Baltimore, MD

Depression is associated with an increased risk for cardiovascular (CV) mortality and morbidity. CV hyper-reactivity to mental challenge is one possible explanation for this relationship. The present study examines the hypothesis that individuals with depression will have exaggerated elevations in CV parameters to acute mental challenge. Participants with DSM-IV-defined Major Depressive Disorder, as assessed by a structured clinical interview, (n=14, age: 42±10 years; 50% female) and 16 controls (age: 38±6 years; 50% female) performed mental challenge tasks (arithmetic and anger recall). Systolic blood pressure (SBP), diastolic blood pressure (DBP), and heart rate (HR) were measured at rest and during mental challenge (average and peak). Results revealed that depressed individuals displayed higher reactivity to mental challenge (Table). In addition to the CV responses, depressed individuals demonstrated increased negative mood reactivity (fatigue and feelings of depression as measured by the Profile of Mood States short form and Likert scale) relative to controls. Elevated CV reactivity was not related to the magnitude of negative mood induction. It is concluded that depressed individuals display hyper-reactivity of CV measures to mental challenge, which may exacerbate the increased risk of adverse CV health outcomes in depression. (For Table: *p<0.05 rest vs mean; rest vs peak and ^p<0.05 interaction of time group: depressed/control).

<table>
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<tr>
<th>Hemodynamic Factors Before and During Acute Mental Challenge</th>
<th>Control</th>
<th>Depressed</th>
<th>Control</th>
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<td>DBP (mmHg)</td>
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<td>(48.4)</td>
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</table>

116) Abstract 1210

PAST DEPRESSION AND CURRENT SLEEP PROBLEMS IN MIDLIFE WOMEN

Jason T. Brummett, PhD, Epidemiology, Yue-Jang Chang, PhD, Medicine, Daniel J. Buyse, MD, Karen A. Matthews, PhD, Jane F. Owens, DrPH, Martica Hall, PhD, Psychiatry, Mark Sanders, MD, University of Pittsburgh, Pittsburgh, PA, Howard Kravitz, DO, Psychiatry and Preventive Medicine, Rush University Medical Center, Chicago, IL, MaryFran Sowers, PhD, Epidemiology, University of Michigan, Ann Arbor, MI, Kimberly Hardin, MD, Internal Medicine, University of California, Davis, Sacramento, CA

Depression and sleep problems are highly comorbid in cross-sectional studies. Previous longitudinal studies suggest that sleep problems are a risk factor for subsequent depression, but less is known about the reverse association. We examined whether a longitudinal pattern of high depressive symptoms (Center for Epidemiological Studies Depression Scale (CESD)> 16) was associated with subjective or objective sleep measures in a prospective study in a multicategorical sample of 365 midlife women participating in the Study of Women’s Health Across the Nation (SWAN). The 20-item CESD was completed at baseline and annually. Between annuals 4-8, sleep was measured once by in-home polysomnography (PSG) and the self-report Pittsburgh Sleep Quality Index (PSQI) and current depressive symptoms data were obtained. Presence of vasmotor symptoms (VMS) was recorded in daily diaries. Four groups of women were defined by the percentage of annual visits with high depression scores (CESD > 16) prior to the sleep study: no visits (Group 1, n=211), <20% of visits (Group 2, n=72), 21-49% of visits (Group 3, n=48), and >50% of visits (Group 4, n=34). Separate linear regression analyses were used with each log transformed sleep variable as outcomes: sleep latency and efficiency, total sleep time, % delta, WASO (minutes awake after sleep onset), REM latency, and sleep quality. In multivariable analyses adjusting for age, ethnicity, current depression, vms, antidepressants and hypnotics, CESD group was significantly related to WASO (p=.06) and PSQI (p=.03). Compared to women in Group 1, Groups 3 and 4 were more likely to have higher WASO (b=.10; p=.02; b=.14; p=.02, respectively) and women in Groups 2 and 4 reported worse sleep problems on the PSQI (b=.22, p=.02; b=.22, p=.06, respectively) compared to women in Group 1. Groups 3 and 4 were more likely to have higher WASO (b=.10; p=.02; b=.14; p=.02, respectively). Results suggest that persistent depressive symptoms are associated with later objective and subjective sleep problems independent of current depression, supported by NIH/DHHS AG102505, AG102546, AG102554, NR04061, AG019360, AG019361, AG019362, AG019363. The content of abstract is solely the responsibility of the authors and does not necessarily represent the official views of the NIA.

117) Abstract 1564

NICOTINIC RECEPTOR GENETIC VARIANT INTERACTS WITH SMOKING HISTORY ON DIMENSIONAL LIABILITY FOR MAJOR DEPRESSION

Serina A. Neumann, PhD, Katherine J. Linder, BS, Psychiatry & Behavioral Sciences, Eastern Virginia Medical School, Norfolk, VA, Janine D. Flory, PhD, Psychology, Queens College, City University of New York, Flushing, NY, Robert E. Ferrell, PhD, Human Genetics,
were obese. Results: Our findings demonstrate that the determinants of age was 12 years. 52.5% were boys, 28.4% were overweight and 13.3% reported by adolescents aged 11-13.9, was independently associated with higher frequency of overweight (OR2.046 [1.466-5.525,p=0.0089]). Decreased level of adolescent - physical activity, as reported by both adolescents and parents, was independently associated with higher frequency of overweight (OR2.039 [1.153-3.607,p=0.0143] for adolescents, OR2.206 [1.053-4.621,p=0.0359] for parents, and obesity (OR4.027 [1.544-10.508,p=0.0044] for adolescents, OR3.122 [1.097-8.885,p=0.0329] for parents).

119) Abstract 1754

EXPLORING BIOLOGICAL, PSYCHOSOCIAL AND BEHAVIORAL DETERMINANTS OF ADOLESCENT OBESITY Pauline, P.L. Sung-Chan, Ph.D., Applied Social Sciences, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong, China, Alice P. Kong, FRCP, Medicine and Therapeutics, The Chinese University of Hong Kong, Shatin, Hong Kong, Master, Applied Social Sciences, The Hong Kong Polytechnic University, Hung Hong, Hong Kong, China, Xilin Yang, Ph.D., Centre for Epidemiology and Biostatistics, The Chinese University of Hong Kong, Shatin, Hong Kong, China, Jian Zhong Yang, Ph.D., The First Affiliated Hospital, Kunming Medical College, Kunming city, China, Pui Hung Ho, M.Phil., Division of Communication and Social Sciences, PolyU, Hong Kong Community College (Hong Ham Bay Capn, Hung Him, Kowloon, Hong Kong, China, Gary, W.K. Wong, MD, Paediatrics, The Chinese University of Hong Kong, Shatin, Hong Kong, China, Violette, F.P. Lin, Ph.D., Division of Creative Arts & Physical Education, The Hong Kong Institute of Education, Tai Po, Hong Kong, China, Stanley, S.C. Hui, Ed.D., Sports and Science and Physical Education, Georgia S. Guldan, Ph.D., Biochemistry, The Chinese University of Hong Kong, Shatin, Hong Kong, China, Xiaodong Zhao, Dr. med (Germany), Psychiatry, Tongji University, Shanghai, China, Jane, S.K. Tsoi, MPhil, Applied Social Sciences, Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong, China, Juliana, C.N. Chan, FRCP, Medicine and Therapeutics, The Chinese University of Hong Kong, Shatin, Hong Kong, China

Objective: Given the influence of family dynamics on children's cognitive-behavioral development, we examined the multidimensional determinants of obesity in Hong Kong adolescents, including familial dynamics. Methods: In a cross-sectional study, 581 adolescents aged 11-18 were recruited from 5 secondary schools in 2005. Anthropometric indices were measured. Obesity and overweight were defined as body mass index (BMI) ≥95th and ≥85th percentile (age- and sex-specific)respectively. Self-reported questionnaires, documenting physical activity (Physical Activity Ratings for Children & Youth), dietary habits (One-minute Diet Assessment), family dynamics (Family Dynamics Questionnaires), were completed by adolescents and their parents. Variables between normal weight, overweight and obese groups were compared using multivariate logistic regression analysis. The response rates to the questionnaires were 99.8% (580/581) and 85.2% (495/581) for adolescents and parents respectively. The median age was 12 years. 52.5% were boys, 28.4% were overweight and 13.3% were obese. Results: Our findings demonstrate that the determinants of adolescent obesity were multidimensional with implications for multi-disciplinary and family-based interventions. Higher maternal age was independently associated with lower frequency of overweight (OR6.600 [95%CI 0.867-4.997,p=0.0396]) and obesity (OR0.903 [0.821-0.993,p=0.0351]). Father s education level was negatively associated with overweight (OR2.321 [1.097-4.909,p=0.0055]). Family s perception of adolescent as victim with no control and responsibility over overweight (a measure of family dynamics), as reported by adolescents and parents, was independently associated with higher frequency of overweight (OR2.846 [1.466-5.525,p=0.0089]).

120) Abstract 1747

THE ROLE OF PERSONALITY IN CHRONIC FATIGUE SYNDROME: FINDINGS FROM A POPULATION-BASED STUDY Urs M. Nater, PhD, James F. Jones, MD, William C. Reeves, MD, Chronic Viral Diseases Branch, Centers for Disease Control & Prevention, Atlanta, GA, Christine Heim, PhD, Psychiatry & Behavioral Sciences, Emory University School of Medicine, Atlanta, GA

Purpose of study: Chronic fatigue syndrome (CFS) presents with unique diagnostic and management challenges. Insight into pathophysiology remains elusive. Maladaptive personality features have been discussed to be a risk factor of CFS or contribute to the maintenance of the disorder. No study so far has combined measurement of both dimensional (personality features) and categorical (personality disorders) approaches to personality in CFS. Methods: Study participants were identified from the general population of Georgia. A total of 113 cases with CFS and 124 well subjects participated in the current study. The NEO Five Factor Inventory (NEO-FFI) was used for the assessment of personality features neuroticism (N), extraversion (E), openness (O), agreeableness (A), and
conscientiousness (C). The Personality Diagnostic Questionnaire-4th Edition (PDQ-4) yielded personality diagnoses (PD) consistent with the DSM-IV diagnostic criteria for axis II disorders. In addition, the Multidimensional Fatigue Inventory measured facets of fatigue symptoms. Results: Comparing the NEO scales resulted in significant higher scores in the CFS group for N than in the well group. In E, differences were also significant, with lower scores in the CFS group. For A and C, well subjects had significantly higher scores than CFS. No differences were found for O. Importantly, N, but not the other dimensions, was correlated with the MFI scales general fatigue (r = 0.25), reduced motivation (r = 0.41), and mental fatigue (r = 0.52) in CFS (but not in well subjects). In addition, 29% of CFS cases had at least one PD (vs. 7% of well subjects). Most prominently, the two groups differed significantly in their prevalence rates for Paranoid PD (5.5% vs. 2.4%), Schizoid PD (6.4% vs. 1.6%), Avoidant PD (5.5% vs. 1.6%), Obsessive-compulsive PD (14.5% vs. 3.2%), and Depressive PD (6.4% vs. 0%). Discussion: Our results suggest that CFS is associated with increased prevalence of maladaptive personality features and PDs. It might be assumed that these persons are more likely to be non-compliant to treatment suggestions, display unhealthy behavioral strategies, and lack a stable social environment. The question arises whether personality dispositions are a premorbid risk factor or whether they are a consequence of the chronicity and severity of CFS. Future studies need address this important question.

121) Abstract 1624
THE COST OF CARE: BIOPSY OUTCOMES IN DELUSIONAL PARASITOSIS
Jessica E. Bury, B.A., J. Michael Bostwick, M.D., Psychiatry, Mayo Clinic, Mayo Medical School, Rochester, MN

Patients with delusional parasitosis (DP) use expensive resources without receiving curative care. When faced with such a patient, dermatologists often choose to take a skin biopsy or run other expensive tests to rule out a pathogenic cause. Patients also bring specimens they have collected themselves, known as matchbox signs. Although pathological correlation could theoretically be helpful diagnostically, preliminary case studies show that useful information in less than 2% of cases. Additionally, patient histories from subsequent visits showed that patients did not receive reassurance from a negative biopsy. Sample/Statement of Methods: Retrospective review of 446 DP patient charts from 1976-2006 to assess proportion having pathological correlation while treated at Mayo Clinic. When charts contained either biopsy results or specimen analysis, they were queried further, with results coded as negative when describing findings consistent with chronic skin gouging or scratching, or foreign bodies, and positive if they corresponded to specific disease states (e.g. rosacea) that changed the diagnosis. JMP software was used for statistical analysis. Preliminary Results: Demographically, the patients studied were most likely to be Caucasian, age 50+, female, and widowed or single. Of 446 patients, 181 had biopsies and 154 provided matchbox sign specimens. 90 of these patient-provided specimens they have collected themselves, known as matchbox signs. As hypothesized, dieters did not differ (t(49) = 1.57, p = .12) in kilocalorie consumption on the diet violation day (M = 1406.47, SD = 679.12) versus the other days in the food monitoring logs (M = 1488.36, SD = 433.71). Further, the kilocalorie consumption of the participants who violated their diet did not differ from that of participants who did not undergo a diet violation at all (F(83) = 0.14; p = .71). Future research must strive to generalize to real-life settings in order to generate successful eating interventions.

123) Abstract 1415
WITHIN PERSON VARIABILITY IN ACTIGRAPHY MEASURES OF SLEEP ACROSS NINE NIGHTS IS ASSOCIATED WITH STRESSFUL LIFE EVENTS AND POOR SUBJECTIVE SLEEP QUALITY
Elizabeth J. Mezick, M.S., Psychology, Karen A. Matthews, Ph.D., Martica Hall, Ph.D., Psychiatry, Thomas W. Kamarek, Ph.D., Psychology, Jane F. Owens, Dr.PH, Daniel J. Buysse, MD, Psychiatry, Psychology, J. Strollo, E. D., Psychiatry, Cardiovascular Institute, University of Pittsburgh, Pittsburgh, PA

Growing evidence shows there is substantial intra-individual variability in sleep, with estimates of within-person differences exceeding between-person differences in measures of sleep duration and fragmentation. Although relationships between demographic or psychosocial factors and average sleep parameters have been reported, the intraday variability in sleep is largely unknown. In the current study, 187 participants (41% Black, 53% men) wore a wrist actigraph for nine nights. Stressful life events questionnaires and the Pittsburgh Sleep Quality Index (PSQI) were also collected. Intra-individual variability in sleep duration and fragmentation was calculated as the standard deviation across nine nights for each individual. Results showed that the average night-to-night variation in sleep duration was slightly over an hour (mean = 67.3 minutes within individuals). Estimates of within-individual variability in both sleep duration and fragmentation exceeded between-individual differences. Women (p < .05) and younger individuals (p < .05) had more variability in sleep duration, and Blacks had more variability in sleep fragmentation than Whites (p < .01), after adjustment for mean sleep, socioeconomic status, BMI, cardiac/hypertensive medications, and Framingham risk status. Increased variability in sleep parameters was associated with a greater number of stressful life events (ps < .05) and poorer sleep quality as reported on the PSQI (p < .05). In conclusion, there is considerable variability within individuals in nightly assessments of sleep duration and fragmentation. Intra-individual variability in sleep is associated with demographic characteristics, stressful life events, and sleep quality, independent of average sleep, and may represent an important avenue for future sleep research. Supported by R01-MH6369 and Pennsylvania Department of Health (contract ME-02-384).

124) Abstract 1016
THE IMPACT OF SENSE OF SELF CONSCIOUSNESS AND LOW SELF ESTEEM TO QUALITY OF LIFE IN ACNE PATIENT
Andri Andri, MD, Andri Andri, MD, Mental Health and Psychosomatic Medicine, Omni International Hospital, Tangerang, Banten, INDONESIA, AAA.Agung Kusumawardhani, MD, Psychiatry, University of Indonesia, Tangerang, Banten, INDONESIA

Background: Previous studies reveal psychological impact of having acne vulgaris such as sense of self consciousness and low self esteem. Recently, enthusiasm in assessing the psychological effects of various types of skin diseases and their effects on patients' quality of life has
increased. The purpose of this study is to show that sense of self-consciousness and low self esteem have an impact on the quality of life of acne vulgaris patients. Method: This was a cross sectional study. Acne patients that came to the cosmetic dermatology clinic were asked to complete the World Health Organization Quality of Life (WHOQoL-BREF) and Rosenberg Test section A (Self Consciousness) and section C (Self Esteem) scales. Using Mann Whitney U tests, we determined differences between self-consciousness and non self-conscious and between low self esteem and high self esteem patients from the score of each domain on WHOQOL-BREF. Results: One hundred and seven patients completed the study. There were 28 males (26.2%) and 79 females (73.8%). Ninety patients (84.1%) were never married. Twenty three patients (21.5%) were less than or equal to 18 (d18) years old, 84 patients (78.5%) were above 18 years old when the study conducted. There were differences of mean rank score in psychological health between patients who were self conscious and not self conscious (mean rank 47.13 and 61.55, respectively, p=0.015) and Environment (mean rank 46.18 and 62.59, respectively, p=0.006) domains. There were also differences of mean rank score between low self esteem patients and high self esteem patients in psychological health (mean rank 38.15 and 59.35, respectively p=0.002) and social relationships (mean rank 42.80 and 57.78, respectively, p=0.026) domain. Conclusion: The quality of life in acne patients who were self conscious was influenced especially in the psychological health and social relationship domains. Low self esteem acne patients’ quality of life was also influenced in the psychological health and social relationship domains. Keywords: Self consciousness, self esteem, quality of life, acne patient

125) Abstract 1551

FAMILY DYSFUNCTION MEASURED USING THE GENOGRAM AND DERMATOLOGICAL CONDITIONS

Francesca Sampogna, MPH, Health Services Research Unit, Istituto Dermopatico dell’Immacolata IDI-IRCCS, Rome, Italy, Françoise Poot, MD, Department of Dermatology, ULB-Erasme Hospital, Brussels, Belgium

Collection of family history has been recognized as an important tool to detect risks for diseases, when risk factors are modifiable. To collect family information different approaches are possible. In general, a detect risks for diseases, when risk factors are modifiable. To collect GENOGRAM AND DERMATOLOGICAL CONDITIONS

To complete the World Health Organization Quality of Life (WHOQoL- Acne patients that came to the cosmetic dermatology clinic were asked increased. The purpose of this study is to show that sense of self-consciousness, self esteem, quality of life, acne patient

126) Abstract 1421

TARGETED EFFORTS TO ADDRESS BLOOD DONOR FEARS AND PROVIDE COPING SUGGESTIONS MAY ENHANCE DONOR RECRUITMENT

Christopher R. France, PhD, Janis L. France, PhD, Jennifer M. Kowalsky, BS, Tanay L. Cornett, Psychology, Ohio University, Athens, Ohio

Recent donor motivation studies highlight the importance of anxiety, attitudes, and perceived ability to cope with donation (i.e., self-efficacy) as crucial determinants of donation intention. Accordingly, educational materials that specifically address these constructs have the potential to outperform traditional recruitment brochures. Participants were randomly assigned to read one of three brochures: 1) a new brochure addressing common donor concerns and suggesting specific coping strategies (n=61), 2) a standard American Red Cross brochure (n=53), or 3) a control brochure on healthy eating and exercise (n=51). Standardized questionnaires were completed before and after the brochures to assess change in donation anxiety, attitude, self-efficacy, and general blood donation intention. Finally, to provide a behavioral assessment of donation intention, participants were asked if they were willing to sign up to give blood and, if so, to schedule an appointment for an upcoming campus blood drive. Significant group differences in change scores on the standardized questionnaires were noted between high and low self esteem patients' quality of life was also influenced in the psychological health and social relationship domains. Keywords: Self-consciousness, self-esteem, quality of life, acne patients

127) Abstract 1498

ASSESSMENTS OF MATERNAL CORTISOL AWAKENING RESPONSES AND DIURNAL CORTISOL PROFILES OVER A MULTIPLE-DAY PERIOD PREDICT LENGTH OF GESTATION

Sonja Entringer, Ph.D., Claudia Buss, Ph.D., Judith E. Andersen, Ph.D., Psychiatry and Human Behavior, University of California, Irvine, Orange, CA, Aleksandra Chicz-DeMet, Ph.D., Psychiatry and Human Behavior, University of California, Irvine, Orange, CA, Pathik D. Wadhwa, Ph.D, Psychiatry and Human Behavior, University of California, Irvine, Irvine, CA

Empirical evidence suggests that high levels of prenatal stress exposure in pregnancy constitute an independent risk factor for adverse birth outcomes. Postulated underlying mechanisms are stress-related changes in hypothalamic-pituitary-adrenal (HPA) axis function, resulting in an increase in cortisol concentrations. Most studies in the context of human pregnancy assessed single measures of cortisol. However, there is considerable diurnal variation in cortisol levels, and one-time measures of stress hormones are inconsistently associated with birth outcomes. The aim of the present study was to investigate whether inter-individual differences in diurnal salivary cortisol concentrations during pregnancy measured repeatedly over multiple days in women’s natural, everyday settings were associated with length of gestation. Thirty-three pregnant women (N=16 at 14 ± 0.52 weeks’ gestation, N=17 at 30 ± 0.42 weeks’ gestation) collected 7 salivary cortisol samples per day to assess the cortisol awakening response (CAR, 0, 30, 45 and 60 min after awakening) and a short day time profile (awakening, 1200h, 1600h and 2000h) using electronic monitors to record time of collection over a 4 day period (two weekdays and two weekend days). Hierarchical linear models were used to test the association between the cortisol awakening responses over a day and gestational age at delivery, controlling for time of collection and general blood donation intention. Finally, to provide a behavioral assessment of donation intention, participants were asked if they were willing to sign up to give blood and, if so, to schedule an appointment for a upcoming campus blood drive. Significant group differences in change scores on the standardized questionnaires were noted between high and low self esteem patients’ quality of life was also influenced in the psychological health and social relationship domains. Keywords: Self-consciousness, self-esteem, quality of life, acne patients

A-49
exact gestational age at assessment. Higher cortisol concentrations immediately after awakening (p<.03) and a steeper increase in response to awakening (p<.005) were associated with shorter length of gestation. Moreover, a less steep decline in cortisol concentrations over the day, resulting in higher evening levels, was also associated with shorter gestational length. Considering the small sample size, these associations are promising and support the ecological validity of repeated ambulatory assessments of salivary cortisol and their ability to improve the prediction of adverse birth outcomes. (Supported, in part, by US PHS (NIH) grants HD-33506 and HD-041696 to PDW).

128) Abstract 1354

DYNAMIC DYSSREGULATION OF PRO- AND ANTI-INFLAMMATORY SIGNALLING PATHWAYS IN CAREGIVERS OF BRAIN CANCER PATIENTS
Nicolas Rohleder, Ph.D. Psychology, Brandeis University, Waltham, MA, Teresa J. Marin, MA, Gregory E. Miller, Ph.D, Psychology, University of British Columbia, Vancouver, BC, Canada

Purpose of study: Caring for a family member with cancer is a psychologically demanding experience. However, it remains unclear whether the distress that caregiving provokes also takes a physiological toll on the body. This study followed familial caregivers of brain cancer patients for a year after diagnosis, tracking changes in neurohormonal and inflammatory processes. Sample and Methods: 18 caregivers (50.4±3.5 years) and 19 controls (50.2±2.6 years) were assessed four times over a year (before and after radiotherapy, as well as 6 weeks and 4 months thereafter). Salivary biomarkers of hypothalamus-pituitary-adrenal (HPA) and sympathetic nervous system (SNS) activity were collected, and blood was drawn for assessment of the systemic inflammatory markers C-reactive protein (CRP) and interleukin-6 (IL-6). Blood was also used to monitor in-vitro IL-6 production by endotoxin-stimulated leukocytes, and the expression of mRNA for pro-inflammatory cytokines and interleukin-6 receptor) signaling molecules. Results: Caregivers showed marked changes over time in diurnal output of salivary amylase (p=0.007), a marker of SNS activity, while secretion in controls was stable during follow-up. Cortisol output was similar in caregivers and controls. Over the year, caregivers showed a profound linear increase in systemic inflammation, as indexed by CRP (p=0.004). At the same time they displayed a linear decline in mRNA for the anti-inflammatory signaling molecule I-kappaB (p<0.016), and a trend towards diminished in-vitro glucocorticoid sensitivity (p=0.094). Conclusions: These data show that familial caregivers of cancer patients experience marked changes in neurohormonal and inflammatory processes in the year following diagnosis. These changes may place them at risk for morbidity and mortality from diseases fostered by excessive inflammation.

Topic: Respiratory Disorders

129) Abstract 1563

RELATIONSHIP BETWEEN ANXIETY SENSITIVITY AND ASTHMA TRIGGERS
Maxime Boudreau, Bachelor, Psychology, Kim L. Lavoie, PhD, Psychology, Montreal Behavioural Medicine Centre / Psychology, Hopital du Sacre-Coeur / QIAM, Montreal, Quebec, Canada, Simon L. Bacon, Ph.D., Montreal Behavioural Medicine Centre / Exercise Sc., Hopital du Sacre-Coeur / Concordia, Montreal, Quebec, Canada.

Asthma is a chronic disorder of the airways which is triggered by a variety of stimuli (e.g., pollen, animal hair, emotional stress, and exercise). We have previously reported that psychological factors have been associated with worse asthma control. However, there is limited data on the link between psychological factors and the number and kinds of triggers of asthma. Anxiety sensitivity, which is the fear of anxiety-related symptoms, may be particularly important in the study of asthma triggers. A total of 642 patients with physician diagnosed asthma (60% women, mean (SD) age = 49 (14) years) were recruited. During a clinic visit, patients provided self-reported demographic and medical history information, including the number and kinds of asthma triggers, and completed the Anxiety Sensitivity Index (ASI) and asthma control questionnaires. All medical information was confirmed by chart review. As part of the clinic visit all patients underwent spirometry testing, which was used to help calculate asthma severity (using GINA guidelines). On average patients reported having 6.4 (SD=2.1) asthma triggers (range = 0-11). General linear model analysis revealed that ASI was positively associated with the number of reported asthma triggers (F=21.54, p<.001), controlling for age, sex, severity, and control. Analysis of individual triggers revealed that ASI was related to asthma triggered by stress (F=35.28, p<.001), acid reflux (F=16.35, p<.001), and infections (F=3.91, p=.049), with a trend for exercise (F=3.20, p=.074). These results suggest that patients with physician diagnosed asthma with higher levels of anxiety sensitivity reported having more triggers that those patients with lower levels of anxiety sensitivity. In addition, patients with higher anxiety sensitivity were more likely to report stress, acid reflux, infections, and exercise as triggers of asthma. Given this data it can be suggest that anxiety sensitivity as a significant impact on the number and kinds of triggers. Further research is needed to assess if it the anxiety sensitivity that increases the number of triggers of asthma or it the high number of triggers that increases anxiety sensitivity.

130) Abstract 1008

COMORBIDITY AMONG OBESITY, ASTHMA AND DEPRESSION AND THEIR RELATIONSHIP WITH HEALTH OUTCOMES
Fernando C. Bandiera, MPH, David J. Lee, PhD, Laura E. Fleming, MD, PhD, Kristopher Arheart, EdD, Epidemiology and Public Health, Neil Schneiderman, PhD, Psychology, Adam Warner, MD, Respiratory and Critical Care Medicine, University of Miami, Miami, FL

Introduction: Obesity, asthma and depression are increasingly common conditions in the United States which are associated with impaired quality of life, chronic disease, and disability. However, no studies have investigated the potential synergistic effects of comorbidity between asthma, depression, and obesity and their associations with quality of life, chronic disease, and disability. Methods: Obesity, asthma, and depression data in adults were obtained from the 2006 Behavioral Risk Factor Surveillance System (BRFSS) (n = 172,598). Current depression was measured by the Patient Health Questionnaire. Body mass Index (kg/m2) and asthma were measured by self-report. Rho and a Synergy Index were performed with adjustment for survey design, age, race/ethnicity, gender, education, and smoking status. Results: Comorbidity between (a) asthma and depression and (b) obesity and depression were synergistically related with general health, physical health, functional limitations, heart attack, angina or coronary heart disease, activity limitations, and the need for special equipment (all ps < .05). The comorbidity between (c) obesity and asthma was synergistically related with general health, angina or coronary heart disease, activity limitations, and the need for special equipment (all ps < .05). Conclusion: The odds of impaired quality of life, chronic disease, and disability among those with the comorbid conditions were significantly greater than the sum of the odds of obesity, asthma and depression as single predictors. Clinicians need to consider the synergistic impact of comorbid conditions for adequate management and avoidance of impaired quality of life, chronic disease, and disability.

131) Abstract 1436

THE IMPACT OF PANIC DISORDER ON DYSPNEA PERCEPTION IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE
Nicholas D. Giardino, Ph.D., Psychiatry, University of Michigan, Ann Arbor, MI

Rationale: The prevalence of panic disorder (PD) in patients with chronic obstructive lung disease (COPD) is 3 to 10 times higher than that in the general population. Comorbid anxiety disorders in COPD is associated with increased hospitalizations for acute exacerbations, more severe dyspnea, greater disability, more impaired functional status, and decreased quality of life. However, little is known about the nature of PD that co-occurs in patients with COPD. Hypothesis: Although COPD has significant symptom overlap with PD, we hypothesize patients with PD and COPD will have greater cognitive-emotional, but not somatosensory, sensitivity to dyspnic stimuli. Methods: Ten patients with COPD and panic disorder, 10 patients with COPD without panic, and 10 healthy, age-matched subjects were compared. Subjects were administered the Structured Clinical Interview for DSM-IV-TR to obtain a diagnosis of PD and to exclude other Axis-I disorders.
Subjects completed questionnaire measures including the Beck Anxiety Inventory and Anxiety Sensitivity Index. Perceived dyspnea, respiratory behavior and other autonomic indices were recorded in response to increasing inspiratory resistive loads. Results: Subjects with panic disorder had higher anxiety and anxiety sensitivity scores and reported greater dyspnea in response to resistive loads. However no group differences were found in resistive load sensitivity. Subjects with panic disorder exhibited greater respiratory irregularity following the resistive load epochs. Conclusion: Patient with COPD and PD do not show heightened sensitivity, but do report greater dyspnea, to inspiratory resistive loads.

132) Abstract 1078
THE EFFECT OF SUBSTANCE USE/ABUSE ON SLEEP-DISORDERED BREATHING AND CONTINUOUS POSITIVE AIRWAY PRESSURE COMPLIANCE
Fahd A. Zarrouf, MD, Sleep Medicine, Cleveland Clinic, Strongsville, OH, Khurram Shaikh, MD, Psychiatry, West Virginia University, Charleston, WV

PURPOSE/ HYPOTHESIS: The exact rate of different substance use/abuse disorders in Obstructive Sleep Apnea (OSA) patients or the effects of these disorders on Continuous Positive Airway Pressure (CPAP) compliance are unknown. Our goals are to explore the relationships between alcohol, nicotine and caffeine use/abuse and both OSA severity, and CPAP acceptance and compliance. METHODS/ DESIGN: Study Setting: West Virginia University- Charleston Division and Charleston Area Medical Center. A retrospective review of medical records was conducted for all subjects who had a diagnosis of OSA and followed with available compliance card. The database was reviewed for subject demographics, data, the use/use of alcohol, nicotine and caffeine, and compliance card report. If patient was using substances, the degree of use was evaluated. RESULTS: Out of 600 charts reviewed, 228 were included in the final analysis. 79.2% of the patients reported no alcohol use/abuse and only 2.3% had been diagnosed with alcohol abuse disorder. 78.9% of participants reported no current nicotine use and 19.9% reported no caffeine use. None of the three substances were correlated with any of the OSA severity measures (AHF, Lowest SaO2, or CPAP pressure needed). The CPAP compliance was lower (percent of days the device was used) in patients with alcohol abuse compared to patients who reported no alcohol abuse; t(212)= -2.034, p=0.043. Similarly, for the caffeine users the percent of days the device was used was lower than for non-users; t(212)=1.773, p=0.025. Nicotine use/abuse did not correlate with any of the compliance measures. CONCLUSIONS: Contrary to our expectation in that nicotine use/abuse may affect lowest SaO2, and caffeine use/abuse may be related to the severity of OSA, we found that alcohol, nicotine or caffeine use/abuse did not predict OSA severity. We found that alcohol and caffeine use/abuse predicted lower CPAP compliance. Larger studies are needed to confirm our findings.

133) Abstract 1731
SENSITIVENESS IN CYSTIC FIBROSIS PATIENTS ASSESSED BEFORE LUNG TRANSPLANTATION PREDICTS POST-OPTERATIVE MORTALITY AND INFECTIOUS EPISODES
Silla M. Consoli, PhD, Olivier COTTENCIN, PhD, Sylvie PUCHEU, PhD, Sonia POIVENOT, PhD, CL-Psychiatry, Redah SOULAMAS, PhD, Jean-Noel FABIANI, PhD, Cardiovascular Surgery, Georges Pompidou European Hospital, Paris, France

Lung transplantation is a therapeutic solution that basically changed the prognosis of cystic fibrosis. Systematic assessment of candidates for lung transplantation is currently provided by CL-psychiatry teams. Methods: Data were collected during semi-structured psychological interviews that were conducted with 38 young candidates for lung transplantation suffering from cystic fibrosis, generally diagnosed at birth (19 males and 19 females; mean age 23.6 (SD=7.8)) and related to clinical outcomes during an average of 4 yrs (SD=0.5) of follow up (1 day to 6.3 years). Results: Neither the recipient's age or gender, nor the emergency of the transplantation indication or the presence of a diabetes (n=16) were associated with post-operative mortality (n=16; median=0.7 years), rejection or infectious episodes. High levels of sensitiveness were observed in 6 candidates: this characteristic predicted mortality in Cox survival analysis (OR=3.78; 95% CI: 1.12-12.75; p=0.032) as well as the occurrence of the first infectious episode (OR=4.09; 95% CI: 1.42-11.80; p=0.009). A mere similar trend was found for patients having a feeling of injustice regarding their health condition. No other psychological characteristic, such as depressive mood, social anxiety or dependency on others, predicted somatic outcome after lung transplantation. Conclusion: Cystic fibrosis is a chronic disease with a major impact on quality of life of children or teenagers. It is possible that the more sensitive of them cannot stand the new constraints of the post-transplantation period and are therefore at risk for poorer compliance and/or altered physiological balance after transplantation. This subgroup warrants a more careful psychological preparation and multidisciplinary follow-up.

134) Abstract 1769
STRUCTURE AND PSYCHOMETRIC PROPERTIES OF AN INDONESIAN VERSION OF THE ASTHMA TRIGGER INVENTORY
Sofia G. Zeni, Ph.D., Kwartarini W. Yuniarti, Ph.D., Psychology, Gadjah Mada University, Yogyakarta, Java, Indonesia, Andreas von Leupoldt, Ph.D., Bernhard Dahme, Ph.D., Psychology, University of Hamburg, Hamburg, Germany, Thomas Ritz, Ph.D., Psychology, Southern Methodist University, Dallas, TX

Patients’ perceptions of trigger factors for their asthma have long been explored in an understandable fashion, despite their importance for an informed management of the disease. We recently introduced a 32-item questionnaire instrument, the Asthma Trigger Inventory (ATI), to measure major categories of perceived asthma triggers. Here we report initial experience on the item structure and psychometric properties of a research version of the instrument in Balasas Indonesia language. Consistency in meaning with the original was established through back-translation by bilingual experts. Ninety adult asthma patients rated the frequency of occurrence of a range of asthma triggers in their personal experience of asthma symptom exacerbation. Responses to the 32 original trigger items were submitted to Principle Component Analysis with subsequent Varimax rotation. Extraction of five factors led to the most plausible solution, with item groups for psychological factors, allergens, exercise, and infection grouping on separate factors. One part of the air pollution/irritant triggers showed highest loadings on the infection factor, while the other part formed a separate factor. Internal consistencies of subscales were good to satisfactory (alpha=.70 to .86). On average triggers, were rated on a level that was comparable with other language versions of the ATI, the only pollen-allergen subscale showed markedly lower endorsement. We conclude that, despite smaller differences that were probably due to variation in cultural and environmental factors, this Indonesian version of the ATI has sufficiently acceptable psychometric properties to allow for a valid assessment of some of the patients’ major trigger categories.

Topic: Miscellaneous

135) Abstract 1027
CARDIOVASCULAR REACTIONS TO ACUTE PSYCHOLOGICAL STRESS AND SMOKING STATUS IN A LARGE COMMUNITY SAMPLE
Anna C. Phillips, PhD, School of Sport & Exercise Sciences, University of Birmingham, Birmingham, UK, Geoff Der, PhD, MRC Social and Public Health Sciences Unit, Oxethn, Oxford, Oxford, UK, Douglas Carroll, PhD, School of Sport & Exercise Sciences, University of Birmingham, Birmingham, UK

Exaggerated cardiovascular reactions to acute psychological stress have been implicated in a number of adverse health outcomes. This study examined, in a large community sample (N = 1647), the cross-sectional associations between cardiovascular reactivity to acute stress and self-reported smoking status. Blood pressure and heart rate were measured at rest and in response to a 3-minute arithmetic stress task. Participants were classified as current, ex- , or non-smokers by their response to a single question. Smokers had significantly smaller SBP, F(2,1642) = 10.85, p < .001, and DBP, F(2,1642) = 7.02, p = .001, reactions to acute stress than ex- and non-smokers; current and ex-smokers had lower HR reactivity, F(2,1642) = 11.07, p < .001. These effects remained significant following adjustment for a host of variables likely to be associated with reactivity.
and/or smoking. Although the act of smoking acutely increases haemodynamic activity, the present findings contribute to a growing body of literature showing that smokers have blunted reactivity to mental stress. They also support the hypothesis that blunted reactivity may be characteristic of a range of dependencies. The present results also suggest that smoking status needs to be considered in the design and analysis of stress reactivity studies.

136) Abstract 1753

ADIPOSY, BODY IMAGE, AND STRESS: USING A BIOPSYCHOSOCIAL APPROACH TO INVESTIGATE CARDIOVASCULAR DISEASE RISK
Kristi E. White, B.A., Kristen Salomon, Ph.D., William P. Sacco, Ph.D., Psychology, University of South Florida, Tampa, FL
Excess adiposity and exaggerated reactivity to laboratory stress have been shown to predict cardiovascular disease (CVD) risk. Individuals with excess adiposity show exaggerated cardiovascular reactivity (CVR) to laboratory stressors compared to their leaner counterparts. Some researchers have suggested that this difference in reactivity is due to biological factors while others have suggested that there may be a psychological component (e.g., body image concerns among those with excess adiposity). The purpose of the present study was to use a biopsychosocial dependent approach to investigate the relationship between adiposity and CVR. Participants included 106 Caucasian female undergraduates at the University of South Florida. The laboratory procedure consisted of resting baseline, speech preparation and delivery, and recovery phases. Participants also completed a variety of body image questionnaires. To manipulate appearance-related evaluation stress, participants were randomly assigned to present their speech to a video camera or an audio recorder. CVR was computed by subtracting baseline averages from task averages. Overall adiposity was measured as body mass index (BMI) and central adiposity was measured as waist-to-hip ratio (WHR). Greater adiposity was associated with more weight-related anxiety during the speech task (BMI: r = .54, p < .001; WHR: r = .44, p < .001). Additionally, those in the video condition reported more weight-related anxiety (BMI: 9.28, SD = 7.74) during the speech task than those in the audio condition (M = 3.31, SD = 5.61; F(1,99) = 19.73, p < .001). Significant relationships between adiposity and CVR emerged for several outcome measures with central and overall adiposity predicting different CVR patterns (all ps < .05). The results underscore the importance of using a comprehensive approach to investigating CVD risk factors.

137) Abstract 1682

SUBJECTIVE SOCIAL STATUS AND PSYCHOSOCIAL VULNERABILITY IN MIDDLE-AGED AND OLDER COUPLES
Jenny M. Cundiff, MA, Tim W. Smith, PhD, Bert N. Uchino, PhD, Cynthia A. Berg, PhD, Psychology, University of Utah, Salt Lake City, UT
The well-established association between socioeconomic status (SES) and health may be mediated by psychosocial vulnerabilities. Subjective social status (SSS) incorporates the individual’s perception of current socio-economic circumstances, and predicts health independently of objective social status (i.e. SES). Yet, it is unclear whether SSS is also associated with psychosocial vulnerability. To test this association, it is imperative that measures of SSS can be distinguished from psychosocial vulnerabilities such as neuroticism and depression, and are not simply additional measures of the current study of the social and appearance-related evaluation stress in the relationship between adiposity and CVR. Participants included 106 Caucasian female undergraduates at the University of South Florida. The laboratory procedure consisted of resting baseline, speech preparation and delivery, and recovery phases. Participants also completed a variety of body image questionnaires. To manipulate appearance-related evaluation stress, participants were randomly assigned to present their speech to a video camera or an audio recorder. CVR was computed by subtracting baseline averages from task averages. Overall adiposity was measured as body mass index (BMI) and central adiposity was measured as waist-to-hip ratio (WHR). Greater adiposity was associated with more weight-related anxiety during the speech task (BMI: r = .54, p < .001; WHR: r = .44, p < .001). Additionally, those in the video condition reported more weight-related anxiety (BMI: 9.28, SD = 7.74) during the speech task than those in the audio condition (M = 3.31, SD = 5.61; F(1,99) = 19.73, p < .001). Significant relationships between adiposity and CVR emerged for several outcome measures with central and overall adiposity predicting different CVR patterns (all ps < .05). The results underscore the importance of using a comprehensive approach to investigating CVD risk factors.
elicted FRN and increment of HR, which indicates the validity of the present study. Furthermore, as we hypothesized, the amplitude of FRN showed negative correlation with activity of the vagus nerve reflected in HRV. In addition, performance in the stochastic learning task was correlated with elevation of HR. These results suggest that performance monitoring should relate to the activity of the vagus nerve and the neural activity in the ACC should mediate it.

140) Abstract 1692

THE EFFECTS OF DIETARY FAT ON CARDIOVASCULAR REACTIVITY AND RECOVERY TO STRESS
Anthony W. Austin, M.A., Stephen M. Patterson, PhD, Jennifer M. Kowalsky, BA, BS, Psychology, Raymond J. Arregui, Jr., BS, Physical Therapy, Ohio University, Athens, OH

This study examined the effects of dietary fat on resting levels and stress-induced changes in cardiovascular parameters and whether changes in dietary fat over time influenced such cardiovascular variables. Participants were 16 (13 male; 3 female) nonsmoking freshman and sophomore university students of normal weight. Participants attended two laboratory sessions, one at the beginning of the academic quarter and one approximately six weeks later. In both sessions, participants completed the Food Habits Questionnaire (FHQ), which measures self-reported levels of dietary fat, followed by the State-Trait Anxiety Inventory (STAI), a 10-min subtraction math task, a 10-min recovery period and a 3-min cold pressor (CP). Systolic (SBP) and diastolic (DBP) blood pressure, mean arterial pressure (MAP) and heart rate (HR) were measured each minute. Cardiac output (CO), stroke volume (SV) and total peripheral resistance were measured continuously. Preliminary correlational analyses indicate that at time 1 FHQ scores were positively related to negatively related to HR recovery from rest (r = - .05, p < .05) and negatively related to SV reactivity from rest (r = .461, p = .072). The fruit and vegetable subscale of the FHQ was positively related to resting DBP (r = .612, p < .05), SBP (r = .706, p < .01) and MAP (r = .734, p < .001). The modification of meat (MM) subscale was negatively related to HR recovery from math (r = -.62, p < .05) and HR reactivity to CP (r = -.587, p < .05) and positively related to SV reactivity to CP (r = .559, p < .05). The fat substitution subscale was negatively related to recovery from math (r = -.504, p < .05) and HR reactivity to the CP (r = -.554, p < .05). At time 2, FHQ scores were negatively related to HR recovery from math (r = -.532, p < .05) and positively related to SV recovery from math (r = .602, p < .05). No subscales had significant correlations with cardiovascular parameters at time 2. Change in FHQ scores from time 1 to time 2 was positively related to change in SBP recovery (r = .507, p = .504), MM subscale change was negatively related to change in DBP reactivity to math (r = -.538, p < .05) and to change in MAP reactivity to math (r = - .436, p = .092). These results suggest that dietary fat may influence cardiovascular reactivity and recovery to acute laboratory stress.

141) Abstract 1690

THE ASSOCIATION OF METABOLIC RISK WITH FLUID AND CRYSTALLIZED COGNITIVE FUNCTION ACROSS ADULT LIFESPAN
Martin Slivinski, PhD, Joshua Smyth, PhD, Psychology, Syracuse University, Syracuse, NY

Purpose: A number of studies have reported that risk factors for metabolic syndrome relate to poorer cognitive function, particularly in the elderly. The present study was designed to examine whether metabolic risk (MR) that included Hemoglobin A1C, waist circumference, mean arterial pressure, body mass index and percent body fat was negatively associated with IR (b=-1.14, p<.01) and WM (b=-1.17, p<.01), but not with VOC WM (b=0.02, p=0.67). Age was negatively associated (p<.01) with both IR and WM (b=-.44 and b=-.44, respectively), but was positively associated with VOC (b=.20, p<.01), a common finding in cognitive aging literature. Testing a model which included MR as a mediator of age effects on IR and WM indicated evidence of significant mediation (p<.01 for both), with MR accounting for 11% and 9% of the age effect on IR and WM, respectively. These findings illustrate the importance of metabolic risk as a predictor and mediator age-related declines in fluid cognitive ability, which may impact health decision making and self-care behaviors.

142) Abstract 1680

THE ROLES OF PERCEIVED STRESS AND PERSEVERATIVE COGNITION ON COGNITIVE HEALTH ACROSS THE ADULT LIFESPAN
Martin J. Slivinski, PhD, Joshua Smyth, PhD, Jacquie Mogle, MA, Psychology, Syracuse University, Syracuse, NY, Robert Sliwinski, PhD, Human Development and Family Studies, Penn State University, University Park, PA

Purpose: The perseverative cognition hypothesis predicts that intrusive thoughts mediate the relationship between stress and negative health outcomes by prolonging the rest period and activating the amygdala in response to stressors. The present study extended this hypothesis to examine cognitive health across the adult lifespan. We predicted that perceived stress (PS) would be negatively associated with cognitive function, and that perseverative cognition (PC) would mediate this relationship. Methods: This cross-sectional study consisted of a sample of 318 community volunteers aged 20-83 (mean=50). A factor analysis guided formation of a composite index of PC by combining items from the Impact of Events Scale, White-Bear Suppression Inventory, Thought-Occurrence Questionnaire and Thought Control Questionnaire. Cognitive function was measured by tests of working memory (WM), episodic memory (EM), short-term memory (STM), inductive reasoning (IR) and simple processing speed (SPD). The Perceived Stress Scale (PS) was used to measure subjective stress. Results: All analyses controlled for age, SES, gender, trait neuroticism and social support. Perceived Stress was negatively associated with IR (b=-.19, p<.01), EM (b=-.17, p<.01), WM (b=-.22, p<.01), STM (b=-.15, p<.01) and SPD (b=-.19, p<.01). Perseverative cognition was negatively associated with performance on all tasks: IR (b=-.24, p<.01), EM (b=-.21, p<.01), WM (b=-.24, p<.01), STM (b=-.16, p<.01), and SPD (b=-.23, p<.01). Including the PC composite score significantly attenuated the effect of PS for all variables (p<.01). Neither PS nor PC influenced the effect of age, which was negative and significant (p<.01) for all variables. These results are consistent with the perseverative cognition hypothesis and emphasize the importance of PC and its potential role in the psychological pathway by which stress influences cognitive functioning and, subsequently, may impact health decision making and self-care behaviors.

143) Abstract 1561

AN ANIMAL MODEL TO EXPLORE THE EFFECTS OF SOCIAL STATUS AND SOCIAL GRADIENT ON STRESS HORMONE LEVELS, COGNITIVE MEASURES, AND DEPRESSIVE BEHAVIOR
Katherine B. Saxton, MPH, Epidemiology, Matthew W. Reid, BA, Psychology, Vistara Vows Research, Integrative Biology, Filomene Morrison, Molecular and Cell Biology, University of California Berkeley, Berkeley, CA, Sarah Reingold, Psychology, Bates College, Lewiston, ME, Darlene Francis, PhD, Public Health, Psychology, Neuroscience, University of California Berkeley, Berkeley, CA

Social status predicts many outcomes in humans, with those lower on the social ladder experiencing poorer physical and mental health than those nearer the top. Causes of these health disparities are difficult to identify, but may include income inequality, subjective social status, and stress. We sought to isolate social status as the exposure using a rat model to then assess if social place is related to stress reactivity, cognitive ability, and mental health. We housed male rats in cages of 4 (10 cages) and pair housed controls (5 cages) at postnatal day 22. All cage mates were matched on weight and maternal behavior received. We assessed social rankings using competition tasks for access to resources. In the adult rats, we measured cognitive ability using a
Two studies were conducted to investigate associations of depression and symptom reporting has been extensively studied, but little research has been focused on retrospective physical symptom reports. The relationship between NA (Negative Affectivity) and symptom reporting needs further investigation. In this study, we aimed to examine the relationship between NA components of Negative Affectivity (NA)--on concurrent and retrospective symptom reports. The study demonstrated that increased NA was associated with increased symptom reports.

**144) Abstract 1427**

**EXAMINING THE RELATIONSHIP BETWEEN EMOTION REGULATION AND FRONTALIS EMG RESPONSES TO NEGATIVELY VALENCED FILMS IN AFRICAN-AMERICAN FEMALES**

Brandi N. Cage, Ph.D., Psychology, Waisman Brain Imaging Lab, The University of Wisconsin, Madison, WI, Renee A. Davis, Psychology, Howard University, Washington, DC, Tiffany M. Polk, B.S., Criminology & Criminal Justice, University of Missouri - St. Louis, MO, Jules P. Halbreich, Ph.D., Psychology, Howard University, Washington, DC.

A powerful tool for studying emotion responding to stressful stimuli is electromyography (EMG). Although frontalis EMG is sensitive to arousal, it has also been shown to be activated by negative emotions, such as tension. Numerous studies have examined the relationship between the tendency to experience negative emotions and EMG assessed during emotion eliciting tasks. Fewer studies, however, have looked at the relationship between EMG assessed in the context of reappraisal and suppression to negatively valenced film clips. We hypothesized that reappraisal and suppression would have different effects on Frontalis EMG and subjective responding to negative film stimuli. In particular, it was posited that engaging in reappraisal would decrease both EMG and subjective responses to the films, whereas, suppression would increase EMG response to the film stimuli. The sample consisted of 68 African American females (mean age = 20 ± 1.8 years) from Howard University. Reappraisal and suppression were measured first by self-report with the Emotion Regulation Questionnaire. Later, participants were instructed to regulate their emotional responses while viewing negatively valenced films while EMG measures were obtained. An examination of facial EMG changes to emotional stimuli revealed a significant main effect for the films, [F (1.783, 67.765) = 6.6091, p = .01]. In addition, an interaction was disclosed between the film condition and emotion regulation order. When participants were instructed to suppress their emotional responses during the film condition as opposed to the control film, EMG measures were increased [F (1.517, 57.654) = 3.565, p = .05]. Our study supports the connotation that frontalis muscle activity is activated during emotion regulation processes elicited by negatively valenced film stimuli. These results also indicate that the tendency to regulate negative emotion is related to EMG activity, which may have implications for important health related outcomes.

**145) Abstract 1626**

**SPECIFYING THE DETERMINANTS OF CONCURRENT AND RETROSPECTIVE SYMPTOM REPORTS: THE ROLES OF ANXIETY AND DEPRESSION**

M. Bryant Howren, M.A., Jerry Suls, Ph.D., Psychology, The University of Iowa, Iowa City, IA

Objective: To examine the roles of anxiety and depression--specific components of Negative Affectivity (NA)--on concurrent and retrospective physical symptom reports. The relationship between NA and symptom reporting has been extensively studied, but little research has been devoted beyond symptom frequency. Methods: Two studies were conducted to investigate the determinants of depression and anxiety with common symptom complaints. In Study 1, we assessed the relative influences of depression and trait NA on the recall of previously experienced symptoms. Participants (N = 144) were asked to retrospectively report the occurrence and severity of 15 common physical symptoms experienced over the previous week; they also completed measures of depression (Beck Depression Inventory) and NA (NEO-PI-R). In Study 2, the effects of state affect on concurrent symptom reporting were evaluated. One-hundred participants were assigned to 1 of 5 mood induction conditions (i.e., anger, anxiety, depression, happiness, and control) and subsequently reported whether they were currently experiencing any of 24 common physical symptoms. Results: In Study 1, depression, but not NA, independently predicted retrospective symptom reports (depression: B = .18, SE = .07, p = .01, d = .43; NA: B = .01, SE = .01, p = .33, d = .16). In Study 2, ANOVA [F(4, 95) = 2.71, p = .03] and post-hoc comparisons revealed that the manipulation of anxious mood was associated with greater reports of concurrent symptoms when compared with the other 4 conditions. None of the other mood manipulations yielded significant differences in concurrent symptom reports (vs. control). Conclusion: Results of both studies suggest that depression and anxiety are stronger predictors of physical symptom reports than the broad dimension of NA. Cognitive biases associated with attention and recall specific to anxiety and depression are implicated and suggest the need to refine the classic symptom perception hypothesis.

**146) Abstract 1030**

**CLINICAL REASONING IN PHYSICIANS TRAINED IN A BIOPSYCHOSOCIAL APPROACH TO THE PATIENT AND IN PHYSICIANS NOT SO TRAINED**

Renate Adler, full prof of medicine, Emeritus, University of Berne Medical School, Kebratsberne, Switzerland, Christoph E. Minder, associate professor, Social and Preventive Medicine, University of Berne Medical School, Berne, Switzerland

Objective: To assess and compare clinical reasoning in physicians trained in Biopsychosocial Internal Medicine (MDLG) and physicians not so trained (CG). Methods: A verbatim first-interview of a 36-year old woman was presented to participants in both groups, (MDLG n=30, CG n=29). Patient included shaky knees, strange sensations in abdomen ascending to chest, insecurity, dizziness, increasing at a recent RN-exam and at the 60th birthday of her mother. Mother cares alone for another 19-year old daughter with storage disease and dementia, also present at mother`s birthday. Participants were requested to write down their clinical reasoning while going through text of case report. Results: MDLG physicians more often registered and interpreted physician-patient relationship and patient`s body language (Mann-Whitney rank sum test p=0.003. MDLG physicians also more often registered physical symptoms, p=0.009, and interpreted them, p=0.0165. They more often interpreted the two life events (RN-exam, mother`s birthday) with respect to the effects on the fear and guilt of the patient, p=0.007 and p=0.015, respectively, Fisher`s exact test. An integrative diagnosis including life events leading to stress, and evoking fear and guilt accompanied by fight-flight reaction with hyperventilation was only given by 11 of 59 participants;7 MDLG physicians and 4 CG doctors. Extensive laboratory work-up and requests for consultations were more frequently suggested by CG group, p=0.048,Mann-Whitney. Conclusions: Residency training in biopsychosocial internal medicine increases physicians` sensitivity to and interpretation of biological and psychosocial data and diminishes work-up and consultation costs.

**147) Abstract 1422**

**DEPRESSION AND PLATELET ACTIVATION IN PATIENTS WITH STABLE CORONARY HEART DISEASE: FINDINGS FROM THE HEART AND SOUL STUDY**

Mary A. Woolsey, MD, Donna Musselman, MD, MSCR, Christian Otte, MD, Erica B. Rosner, MPH, Sadia Ali, MD, MPH, Anil Gebi, MD, University of California, San Francisco, San Francisco, CA

Background: Depression is associated with increased morbidity and mortality in patients with coronary heart disease (CHD). Increased platelet activation has been proposed as a potential mechanism by which depression may lead to adverse cardiovascular outcomes. Methods: We measured platelet activation in a cross-sectional study of 104 patients with stable CHD, including 58 with a current episode of major depression.
and 46 without past or current major depression. Participants were instructed not to take aspirin for 7 days prior to the study appointment. Platelet activation was measured by plasma concentrations of platelet factor 4 (PF4) and beta-thromboglobulin (B-TG), and by 24-hour urinary concentrations of 11-dehydro-thromboxane B2 (TXB2). Results: We observed no differences in age-adjusted mean levels of PF4, B-TG or TXB2 in patients with and without major depression. Results were unchanged after adjustment for age, smoking, and use of psychotropic medication (Table). Conclusion: We found no evidence of an association between major depression and platelet activation as measured by plasma concentrations of PF4 and B-TG, or urinary TXB2, in 104 outpatients with stable CHD. These findings do not support a role for platelet activation in the association between depression and cardiovascular disease among patients with stable CHD.

**Markers of platelet activation by depression status**

<table>
<thead>
<tr>
<th>Measure</th>
<th>PF4</th>
<th>B-TG</th>
<th>TXB2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age-adjusted mean +/- SE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depressed</td>
<td>1.1 ± 0.17</td>
<td>2.9 ± 0.13</td>
<td>1.6 ± 0.13</td>
</tr>
<tr>
<td>Not depressed</td>
<td>1.3 ± 0.19</td>
<td>3.2 ± 0.14</td>
<td>1.7 ± 0.6</td>
</tr>
<tr>
<td><strong>Adjusted</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depressed</td>
<td>1.0 ± 0.26</td>
<td>2.0 ± 0.12</td>
<td>2.0 ± 0.12</td>
</tr>
<tr>
<td>Not depressed</td>
<td>1.4 ± 0.28</td>
<td>3.3 ± 0.20</td>
<td>2.3 ± 0.27</td>
</tr>
</tbody>
</table>

148) **Abstract 1367**

**HPA-AXIS FUNCTION IN A LARGE COHORT OF SUBJECTS WITH AND WITHOUT ANXIETY AND DEPRESSIVE DISORDERS**

*Eco de Geus, PhD, Biological Psychology, VU University, Amsterdam, Carmilla Licht, MSc, Richard van Dyck, PhD MD, Brenda Penninx, PhD Psychiatry, UMC Utrecht, The Netherlands, Roel de Rijk, PhD, Frans Zitman, PhD, MD, Psychiatry, Leiden University Medical Center, Leiden, ZH, Netherlands*

Background: Depression and (to a lesser extent) anxiety have been associated with hyperactivity of the hypothalamic-pituitary adrenal axis, which could partly explain their somatic consequences. However, results are inconsistent, partly due to differences in methodology between anxiety and depressive disorders with various cortisol indicators in a large cohort study. Methods: Data are from 1,843 participants of the Netherlands Study of Depression and Anxiety (NESDA), recruited from community, general practice and specialized mental health care. Four groups were compared: 308 controls without psychiatric disorders, 255 persons with an anxiety disorder (no history of MDD), 450 persons with a MDD diagnosis (no history of anxiety), and 830 persons with both anxiety and MDD diagnoses, as assessed using the DSM-based CIDI interview. Cortisol levels were measured in seven saliva samples, determining the 1-hour cortisol awakening response (CAR), evening cortisol levels and cortisol suppression after a 0.5 mg dexamethasone suppression test. Analyses were adjusted for sociodemographics, somatic health and awakening time. Results: Persons with a MDD disorder and those with comorbid disorders showed a significantly higher CAR compared to controls (effect sizes (Cohen d) between 0.18-0.29), with highest levels for the comorbid group. The comorbid group also had significantly higher evening cortisol at 22h00 (d=0.15) compared to controls. Anxiety disorder was not significantly associated with cortisol. Post-dexamethasone cortisol level did not differentiate between groups. The use of psycho-active medication was associated with lower cortisol levels and less cortisol suppression after dexamethasone ingestion, but additional adjustment for psychoactive medication did not essentially change results for the association between psychopathology and cortisol levels. Conclusion: This large cohort study shows a significantly higher cortisol awakening curve among persons with depressive disorder, especially those with comorbid anxiety, which suggests a modest hyperactivity of the HPA-axis among the depressed.

149) **Abstract 1429**

**DEPRESSIVE SYMPTOMS AND OMEGA-3 FATTY ACIDS: DATA FROM THE HEART AND SOUL STUDY**

*Sadia Ali, MD, MPH, Sachin K. Garg, BA, Beth E. Cohen, MD, MAS, Prashant Bhave, MD, William S. Harris, PhD, Mary A. Whooley, MD, University of California, San Francisco, CA*

Background: Low omega-3 fatty acid levels are associated with an increased risk of depression in patients recovering from acute coronary syndrome. It is unknown whether omega-3 fatty acid levels are associated with depressive symptoms in outpatients with stable coronary heart disease. Methods: We performed a cross-sectional study of 987 adults with stable coronary heart disease to determine whether low omega-3 fatty acid levels are associated with depression. Levels of two omega-3 fatty acids, docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA), were measured as a percentage of total fatty acid methyl esters in red blood cell membranes from fasting venous samples. We used the Patient Health Questionnaire (PHQ) to assess depressive symptoms, and considered a score >=10 as consistent with depression. Results: The prevalence of depressive symptoms (PHQ >=10) ranged from 23% in participants with omega-3 fatty acid levels in the lowest tertile to 13% in participants with levels in the highest tertile (p=0.004). Each unit increase in log (EPA+DHA) was associated with a lower depressive symptom score, after adjustment for age, sex and ethnicity (beta coefficient= -0.14, p=0.05). However, omega-3 fatty acid levels were no longer associated with depressive symptoms after adjustment for education and income level (beta coefficient = 0.06; p=0.42). Conclusion: Among patients with stable coronary disease, low omega-3 fatty acids are associated with greater depressive symptoms. This may occur because lower socioeconomic status is a risk factor for both decreased intake of omega 3 fatty acids and depressive symptoms.

150) **Abstract 1366**

**IS AUTONOMIC NERVOUS SYSTEM FUNCTION DIFFERENT FOR SUBJECTS WITH DEPRESSIVE OR ANXIETY DISORDERS? RESULTS FROM A LARGE COHORT STUDY**

*Eco de Geus, PhD, Biological Psychology, VU University, Amsterdam, Carmilla Licht, MSc, Richard van Dyck, PhD MD, Brenda Penninx, PhD Psychiatry, UMC Utrecht, The Netherlands, Roel de Rijk, PhD, Frans Zitman, PhD, MD, Psychiatry, Leiden University Medical Center, Leiden, ZH, Netherlands*

Objective: To determine whether patients with major depressive disorder (MDD) and/or anxiety disorder (AD) have higher heart rate and lower heart rate variability compared to healthy controls in a sample that was sufficiently powered to examine the confounding effects of lifestyle and antidepressants. Methods: The standard deviation of the normal-to-normal intervals (SDNN) and respiratory sinus arrhythmia (RSA) were measured in 2802 individuals (mean age 41.7±17.1) participating in the Netherlands Study of Depression and Anxiety. Based on the DSM-IV based CIDI interview NESDA for each participant the presence or absence of current or remitted MDD and current or remitted anxiety was ascertained. In this way, 618 participants were classified as healthy controls, 344 individuals had a current or remitted AD, 605 patients had a current or remitted MDD diagnosis and 1235 subjects had both an AD and MDD-diagnosis. Results: Depressed subjects, independent of current or remitted diagnoses, had a lower SDNN (-3.3 and -2.7ms, respectively) and RSA (-6.7 and -3.7ms, respectively) compared to controls. Individuals without depression but with a current anxiety disorder had a lower SDNN (-3.6ms) and RSA (-4.8ms). Finally, SDNN and RSA were significantly lower in individuals comorbid for MDD and anxiety disorder (-3.5 and -4.7ms, respectively) than in controls subjects. The association of MDD and AD with SDNN/RSA fully survived adjustment for lifestyle. However, additional adjustment for antidepressant use reduced all associations to non-significant or only borderline significance. All anxious and/or depressed subjects who used a TCA, SSRI, or other antidepressants showed significantly lower SDNN (-18.9, -4.3 and -9.6ms respectively) and RSA (-17.8, -8.7 and -12.6ms respectively) compared to controls and non-medicated AD, MDD, or comorbid patients. Conclusion: This study shows that both MDD and AD are associated with significantly lower heart rate variability and that these associations appear to be largely driven by the effects of antidepressants.

151) **Abstract 1453**

**DEPRESSION AND INFLAMMATION IN PATIENTS WITH ACUTE AND STABLE CORONARY ISCHEMIA: A META- ANALYSIS**

*Hester E. Duivis, MSc, Psychology & Health, Tilburg University, The Netherlands, Anna Meijer, MSc, Judith Rosmalen, PhD, Internal Medicine & Psychiatry, University Medical Center Groningen, The Netherlands, Nina Kupper, PhD, Peter de Jonge, PhD, Psychology and Health, Tilburg University, The Netherlands*

Background: Depression in cardiac patients is associated with a poorer cardiac prognosis. Since several studies have reported an increase of inflammatory activity in depressed patients, and higher levels of...
inflammation are associated with poorer cardiac prognosis, inflammation is possibly involved in this association. Several studies have investigated this association but their results are conflicting. Therefore, we conducted a meta-analysis to investigate the association between depression and inflammation in patients with myocardial ischemia. Purpose of study: To determine the association between depression and inflammation in patients with myocardial ischemia. Included biomarkers for inflammation were CRP, TNF- alpha, IL-6, IL-1ra, STNF-RI and STNF-RII. Summary of results: The quality of most studies did not meet strict inclusion criteria. Finally, 7 articles were included in the analysis. Six studies investigated CRP and 4 of these found a significant positive association, and 2 did not. Five studies reported on IL-6, of which 1 found a positive association, 1 study reported a significant negative association and 3 did not find any association. Two studies reported on TNF-alpha and did not find an association. One study reported on STNF-R2 and STNF-RII but found no association. No study was identified that reported on IL-1ra. Conclusions: Because of the limited number of studies, no conclusion could be drawn about the association of TNF-alpha, IL-6, IL-1ra, STNF-R2 and STNF-RII with depression in patients with myocardial ischemia. However, as 4 of the 7 studies found a significant positive association between CRP and depression, it may be that in depressed patients increased levels of CRP are partly responsible for poorer cardiac prognosis. More research is needed on the association of specific symptoms of depression and inflammatory markers, specifically CRP.

152) Abstract 1698

UNFAIR TREATMENT PREDICTS NIGHTTIME AMBULATORY BLOOD PRESSURE IN AFRICAN AMERICAN ADOLESCENTS

Danielle L. Beatty, Ph.D., Karen A. Matthews, Ph.D., Psychiatry, University of Pittsburgh, Pittsburgh, PA

Research demonstrates that: 1) elevated nighttime ABP or night/day ABP ratios is an independent predictor of CV events, 2) racial/ethnic differences in ABP patterns are apparent by late childhood, and 3) childhood SES influences daytime ABP during childhood and into adulthood. Unfair treatment, and more specifically, racial discrimination are additional chronic stressors for African Americans (AA), which may contribute to racial/ethnic disparities in BP. At the same time, prior research has shown that anger also influences ABP in AA. We examined whether unfair treatment and trait anger are associated with nighttime ABP in AA adolescents, and, whether these associations are exacerbated in lower SES adolescents. 99 healthy AA adolescents (age14 -16, SD = .61, 50% female) completed 24-hour ABP monitoring and Unfair Treatment and Trait Anger questionnaires. SES was measured by neighborhood SES. Night ABP was measured between the self-reported bedtime of each participant through 5 a.m. or through reported morning awakening, and the night/day ABP ratio was calculated by dividing the night ABP mean by the day ABP mean (8:30am until self-reported bedtime). Greater unfair treatment predicted higher night/day SBP, p = .06 and DBP ratios, p = .01, and elevated night SBP, p = .04 and night DBP, p = .03. Greater trait anger predicted a higher night/day DBP ratio, p = .03. The effects of unfair treatment and trait anger are associated with nighttime ABP were more pronounced among adolescents living in lower SES neighborhoods. Specifically, adolescents living in lower SES neighborhoods who remained normotensive during the ABP assessment had a higher treatment and higher SBP, p = .002, and higher nighttime DBP, p = .0099. The cost of coping with stressful stimuli during social interactions may not be evident until later in the day when a depletion of future resources becomes evident. Unfair treatment and trait anger are important predictors of elevated nighttime ABP among AA adolescents, particularly among those living in lower SES neighborhoods. These factors may contribute to the onset of hypertension in AAs at a younger age.

153) Abstract 1702

DISCRIMINATION AND CARDIOVASCULAR REACTIVITY TO INTERPERSONAL INCIVILITY

Kristen Salomon, Ph.D., Nicole E. Jaguzyn, M.A., Tebeth Emmons, B.A., Erin Jackson, M.A., Psychology, Univ. of South FL, Tampa, FL

Exposure to ethnic discrimination has been proposed as a chronic stressor explaining African Americans' increased risk for cardiovascular disease. Studies have shown that black participants exhibit greater cardiovascular reactivity to tasks that involve racial content. The present studies are the first to examine ethnic minority individuals' cardiovascular responses to an uncivil interpersonal encounter with a white individual. In the first study, white, black and Latina/o participants were treated rudely by a white accomplice in a bureaucratic hassles task. Past ethnic discrimination was measured as attributions of unfair treatment to race and/or ethnicity and with the Perceived Ethnic Discrimination Scale. Discrimination was related to higher resting systolic blood pressure (SBP) among Latina/o participants and lower resting SBP among White participants (p's < .05). Discrimination was also related to attenuated SBP and heart rate (HR) reactivity among Latina/o participants but was related to augmented HR reactivity among White participants (p's < .05). Discrimination was not related to resting levels or reactivity among black participants. The lack of a hypothesized effect for black participants led us to explore African Americans' responses to incivility further. In a second study, black participants were interviewed by a white accomplice in an uncivil and rude manner. We manipulated aspects of the environment that might guide attributions for the rude behavior. The interview was interrupted by a second accomplice who was either black or white and whom the interviewer treated in either a friendly or rude manner. We measured blood pressure, heart rate, and impedance cardiography-derived measures of cardiac and vascular reactivity. After the interview, we also administered a lexical decision-making task as an implicit measure of the activation of race-related thoughts. Past discrimination was measured and examined as a moderator of cardiovascular reactivity and race-related thoughts. Implications for the role of discrimination as a contributor to the increased CVD risk among African Americans will be discussed.

154) Abstract 1701

DAILY UNFAIR TREATMENT PREDICTS MASKED HYPERTENSION IN A COMMUNITY SAMPLE OF BLACK AND LATINO(A) ADULTS

Antoinette Schoenthaler, Ed.D., Internal Medicine, New York University School of Medicine, New York, NY, Jonathan N. Tobin, PhD, Andrea Cassells, MPH, Clinical Directors Network, Inc., NY, NY, Elizabeth Bronoldo, PhD, Psychology, St. John's University, Jamaica, NY, Joseph Schwartz, PhD, Psychiatry and Behavioral, Stony Brook University, Stony Brook, NY

Objective: To identify psychosocial risk factors that increase the risk for masked hypertension. Methods: Participants included 630 adults (51% Black, 48% Latino(a), 1% mixed race; 50% women) with a mean age of 39 years. Measures of unfair treatment included the Lifetime Discrimination and Past Week Discrimination scales of the Perceived Ethnic Discrimination Questionnaire-Community Version and responses to a daily diary (completed every 20 minutes) inquiring about the degree to which interpersonal interactions were unfair, harassing, or exclusionary. Clinic measures of BP were obtained on the initial visit; a 24-hr ABP recording was obtained within 2 weeks following the clinic visit. Patients were identified as having masked HTN if they had normal BP at the clinic visit (i.e., SBP < 120mmHg, and DBP< 80mmHg) and elevated mean ABP (i.e., SBP > = 135 or DBP > = 85mmHg). Results: Initial analyses used a case-control approach in which we examined the initially normotensive participants, contrasting those who remained normotensive during the ABP assessment (n = 156) with those who showed elevated ABP (i.e., masked HTN; n = 51). Chi-square analyses and t-tests revealed that those that masked HTN were more likely to be men, had lower levels of education, and had higher scores on measures of past week discrimination and unfair treatment than did the consistently normotensive individuals (ps < .05). Next we performed a stepwise discriminant function analysis including only the initially normotensive participants to test whether measures of unfair treatment - controlling for age, gender, BMI, and race - can differentiate those in 3 ABP groups (i.e., normotensive, borderline hypertensive or hypertensive). Daily experiences of harassment significantly differentiated the 3 groups (p = .008). Conclusions: Inquiring about patients’ daily levels of interpersonal harassment may help determine which normotensive patients might benefit from further clinical follow-up.
POSTERS/Session 2

Topic: Cardiac Disease

155) Abstract 1710

SPIRITUAL VALUES AND CARDIOVASCULAR DISEASE RISK FACTORS IN MEXICAN IMMIGRANTS

Chris Anderson, Patrick Steffen, PhD, Jill Walker, BS, James Van Dyke, BS, Clinical Psychology, Brigham Young University, Provo, UT

Introduction: Spiritual values have been related to positive health outcomes in a number of studies. Few studies, however, have examined the effects of spiritual values on health in Mexican immigrants. Two important reasons to study this population include the fact that Mexican immigrants are highly religious and they are also exposed to significant stress as they acculturate to life in the United States. It was hypothesized that spiritual values buffer the negative effects of acculturation in Mexican immigrants. Method: 240 Mexican immigrants (56% female, average age 36, average of 8 years living in the United States) were studied. Spiritual values were measured using the Functional Assessment in Chronic Illness Therapy-Spirituality scale expanded version (FACTIT-Sp-Ex). This scale examines aspects of spirituality such as being at peace with oneself, meaning in life, compassion, forgiveness, and gratitude. Blood samples were taken after a 12 hour fast and C-reactive protein, insulin, glucose, hba1c, sodium, and potassium were analyzed. Body mass index (BMI) and depressive symptoms (CESD) were also assessed. Level of acculturation was measured using the Acculturation Rating Scale for Mexican Americans-II (ARMSA-II). Results: Overall, higher levels of spiritual values were related to less depression (r = -.48, p < .0001) lower CRP levels (r = -.19, p < .01), lower sodium (r = -.14, p < .05), and a lower BMI score (r = -.21, p < .05). Spiritual values were not related to glucose, hba1c, or potassium levels. The effects of spirituality on health were strongest among those reporting a bicultural orientation, i.e. high on both Anglo and Mexican cultural orientations. Conclusions: These findings encourage further attention towards spiritual values as a buffer against stress immigrant populations.

156) Abstract 1764

HOSTILE CONTROL PREDICTS CARDIOVASCULAR REACTIVITY DURING MARITAL INTERACTION

Timothy W. Smith, PhD, Bert N. Uchino, PhD, Paul Florsheim, PhD, Cynthia A. Berg, PhD, Psychology, University of Utah, Salt Lake City, UT

Marital conflict and strain predict the onset and course of cardiovascular disease (CVD), perhaps in part through the mechanism of cardiovascular reactivity (CVR) during discordant interactions. Research to date has not identified specific behavioral interaction patterns during marital conflict that are associated with CVR for men and women. In this study of 140 middle-aged couples, a factor analysis of behavioral observations of husbands and wives hostile, warm, dominant, and submissive behavior during a 6-minute marital conflict discussion revealed two factors representing specific couple interaction patterns: hostile-control/wife-dominant (HC-WD), and hostile-control/husbands-dominant (HC-HD). Both patterns reflected low levels of warmth, but differed in whether the wife or husband displayed the greatest levels of hostile and controlling behavior. The conflict task evoked significant increases over baseline in SBP, HR, salivary cortisol, and heart rate variability. Blood pressure (BP), heart rate (HR), and hemodynamic measures during stressor were analyzed. Both (CI), vascular resistance index (VRI; via impedance cardiography) were taken at baseline and in response to speech and math stress. Repeated measures ANOVA revealed that the menstrual cycle influenced resting HR and VRI in all women, since LUT HR was greater than EF and LF HR (p<.05), while LUT VRI was less than EF VRI (p<.05). Race also influenced resting levels since AA women had lower SVI than nHWs (p<.05). During stressors, for all women, the LUT phase was associated with greater HR in response to stress than the EF or LF (p<.05), and with lower VRI levels than the EF (p<.05). Main effects of race were also observed for SVI during stressors, with AAs exhibiting lower SVI (p<.05) than nHWs. For stress CI, a race x phase trend was seen (p<.09), since only nHWs exhibited a phase effect (p<.05) with LUT CI levels greater than EF. There were no cycle or race effects for baseline or stress CI or VRI. In other words, both the menstrual cycle and race influence resting and stress hemodynamic patterns. The LUT phase (high hormone) was associated with a cardioprotective reduction in VRI for all women, and may contribute to the lack of race effect in VRI that is seen in men. However, race moderated myocardial function since AA women had lower resting SVI and no effect of cycle phase on CI stress levels.

157) Abstract 1070

MENSTRUAL CYCLE, RACE, AND HEMODYNAMIC RESPONSES TO STRESS

Anjni Patel, BS, Medicine, Edward Via Virginia College of Osteopathic Medicine, Blacksburg, Virginia, Beth Mechlin, M.A., Psychology, University of North Carolina at Chapel Hill, Chapel Hill, NC, Melanie Watkins, Psychology, University of Richmond, Richmond, Virginia, Susan Girdler, PhD, Psychiatry, University of North Carolina at Chapel Hill, Chapel Hill, NC

Research to date has not identified the female sex hormones are cardioprotective. African American (AA) women are at increased risk for CVD, yet few studies have examined cardioprotective effects of sex hormones on stress responses in AA women. This study compared 26 AA and 21 non-Hispanic White (nHW) medically healthy women 18 to 44 years of age, not taking any medications including contraceptives. Each woman was tested three times, once in the early follicular (EF; day 2 to 5), late follicular (LF; days 10 to 13), and luteal phase (LUT; 7 to 12 days following LH surge), with order randomized. Serum hormone levels were used to confirm phase. Blood pressure (BP), heart rate (HR), and hemodynamic measures were measured during regular everyday activities. Both (CI), vascular resistance index (VRI; via impedance cardiography) were taken at baseline and in response to speech and math stress. Repeated measures ANOVA revealed that the menstrual cycle influenced resting HR and VRI in all women, since LUT HR was greater than EF and LF HR (p<.05), while LUT VRI was less than EF VRI (p<.05). Race also influenced resting levels since AA women had lower SVI than nHWs (p<.05). During stressors, for all women, the LUT phase was associated with greater HR in response to stress than the EF or LF (p<.05), and with lower VRI levels than the EF (p<.05). Main effects of race were also observed for SVI during stressors, with AAs exhibiting lower SVI (p<.05) than nHWs. For stress CI, a race x phase trend was seen (p<.09), since only nHWs exhibited a phase effect (p<.05) with LUT CI levels greater than EF. There were no cycle or race effects for baseline or stress CI or VRI. In other words, both the menstrual cycle and race influence resting and stress hemodynamic patterns. The LUT phase (high hormone) was associated with a cardioprotective reduction in VRI for all women, and may contribute to the lack of race effect in VRI that is seen in men. However, race moderated myocardial function since AA women had lower resting SVI and no effect of cycle phase on CI stress levels.

158) Abstract 1245

THE PERCEPTION OF JOB STRESSORS IS RELATED TO MEASURES OF HEART RATE VARIABILITY

Els Clays, PhD, Dirk De Bacquer, PhD, Public Health, Ghent University, Ghent, Belgium, France Kettel, PhD, Vincent Crasset, MD, Patrick de Smet, MSc, Marcel Kornitzer, PhD, Public Health, Free University of Brussels, Brussels, Belgium, Guy De Backer, PhD, Public Health, Ghent University, Ghent, Belgium

Study purpose. The aim was to study the perception of job stressors in relation to measures of heart rate variability (HRV). Sample and methods. Results are based on observations in a sample of 635 healthy male workers aged 40-55 years from the Belgian Physical Fitness Study (1976-1978). Data on HRV were collected by means of 24-hour ambulatory ECG recordings during regular working hours and laboratory activities. Both time and frequency domain measures of HRV were calculated. The perception of working conditions was assessed with self-administered questionnaires. An index of physical and psychosocial job stressors was constructed based on 5 items dealing with general satisfaction with work, responsibility at work, work rhythm and social relations at the workplace. The conventional coronary risk factors were measured using standardized bio-clinical examinations. The association between the perception of job stressors and HRV parameters was assessed by means of Pearson correlation (r) and multiple linear regression analysis. Summary of results. The job stressor index ranged from 0 to 5 with a mean of Pearson correlation (r) and multiple linear regression analysis.
p<0.05) and the ratio of low-frequency over high-frequency power (r = 0.10; p<0.05). After adjusting for age, employment status, body mass index, smoking, systolic blood pressure, leisure time physical activity, the associations remained statistically significant. No significant associations were found with SDNN (standard deviation of all normal RR intervals) and total power. To conclude, an accumulation of physical and psychosocial job stressors was related to higher heart rate and reduced HRV. These findings support the idea that disturbances of the autonomic nervous system and its parasympathetic component in particular may play a role in the link between work stress and coronary heart disease.

159) Abstract 1431
VALIDATION OF AN ASSESSMENT OF VITAL EXHAUSTION AMONG U.S. CARDIOVASCULAR COMPROMISED AND COMMUNITY SAMPLES: THE MAASTRICHT QUESTIONNAIRE
Maria D. Dziok, M.S., Laurie Nash, M.A., Elina Spektor, Sonia Suchday, Ph.D., Clinical Psychology with Health Emphasis, Yeshiva University, Bronx, New York, Vankeepuram S. Srinivas, MB,BS, Division of Cardiology, Montefiore Medical Center, Bronx, New York.
Objective: The Maastricht Questionnaire (MQ: Appels, Hoppenier, & Mulder, 1987) assesses mental and physical symptoms associated with poor cardiac outcome. These cognitive, somatic, and emotional factors have been termed Vital Exhaustion (VE). VE has since been associated with first-time and recurrent cardiovascular illness and death in Europe.

The aim of this study was to validate a revised version of the MQ in the U.S. Methods: Participants were recruited from diverse urban and suburban neighborhoods, hospitals, and a private cardiology practice in Orange, NY, and MN. Participants included 106 patients diagnosed with 1 or more cardiac condition, not including hypertension, and 248 OH, NY, and MN. Participants included 106 patients diagnosed with first-time and recurrent cardiovascular illness and death in Europe.

Between 2006-8. The sample was 56% females (Mean age = 47, SD = 15.9). This study used a modified version of the MQ that uses a 5 point scale instead of 3 point: 1) almost never, 2) rarely, 3) sometimes, 4) often, or 5) almost always. Results: Cardiac patients reported a significant correlation between work stress and coronary heart disease.

160) Abstract 1450
DIFFERENTIAL ASSOCIATION OF SOMATIC AND COGNITIVE SYMPTOMS OF DEPRESSION WITH INFLAMMATION IN PATIENTS WITH STABLE CORONARY HEART DISEASE
Hester E. Duivis, MSc, Psychology and Health, Tilburg University, Tilburg, NB, The Netherlands, Mary A. Wholey, PhD, Epidemiology and Biostatistics, VA Medical Center, San Francisco, California, Peter de Jonge, PhD, Psychology and Health, Tilburg University, Tilburg, NB, The Netherlands.

Background: Studies investigating the association between depression and inflammation in patients with coronary heart disease (CHD) have shown inconclusive results. A possible explanation for this could be that somatic symptoms of depression are differently associated with concentrations of inflammatory markers than cognitive symptoms. Purpose of study: To determine whether somatic and cognitive depressive symptoms are differently associated with inflammatory markers.

Method: A total of 984 outpatients with established CHD from the Heart and Soul Study were included to examine the association between depressive symptoms and inflammation. Depressive symptoms were assessed using the 9-item Patient Health Questionnaire (PHQ-9). Venous blood samples were collected to measure 4 inflammatory biomarkers (Fibrinogen, TNF-alpha, IL-6 and CRP). Linear regression was used to examine the association between depressive symptoms and inflammatory markers. Summary of results: Adjusted regression analysis showed that log CRP was significantly positive associated with 2 of the somatic symptoms (b = .114, p = .008; b = .10, p = .002), but none of the cognitive symptoms. Log IL-6 positively associated with 1 of the somatic symptoms (b = .064, p = .046), but none of the cognitive symptoms. Fibrinogen, on the other hand, was inversely correlated with 1 of the somatic symptoms (b = -.076, p = .018) and with 3 of the cognitive symptoms (b = -.101, p = .001; b = -.091, p = .004 and b = -.064, p = .046). Log TNF-alpha was not associated with any of the markers. Conclusions: We found preliminary evidence suggesting that somatic and cognitive symptoms of current depression are differentially associated with inflammation, in which cognitive symptoms are not related to inflammation and even negatively associated with fibrinogen.

Some of the depressive symptoms were associated with CRP and IL6, but the magnitude of the associations was modest.

161) Abstract 1523
THE EFFECTS OF HOSTILITY MANIFESTATION TRAITS AND ANGER-COPECING BEHAVIORS ON THE ENDOTHelial FUNCTION IN HEALTHY TAIWANESE MEN
Shu-Chen Shen, MS, Psychiatry, Buddhist Dalin Tzu Chi General Hospital, Chia-Yi, Taiwan, R.O.C., Chia-Ying Weng, PhD, Psychology, National Chung-Cheng University, Chia-Yi, Taiwan, R.O.C., Ting-Kun Lin, Lin, MD, Cardiology, Buddhist Dalin Tzu Chi General Hospital, Chia-Yi, Taiwan, R.O.C., Chiu-Lon Lin, MD, Buddhist Tzu Chi General Hospital, Hualien County, Taiwan, R.O.C.

Previous studies have demonstrated that both high expressive hostility and high suppressive hostility are related to the development and severity of atherosclerosis. The purpose of this study is to simultaneously examine the effects of both trait (expressive and suppressive hostility traits) and state (anger-out and anger-in coping behaviors) hostility on endothelial function using an interpersonal conflict task as a stressor. Forth healthy Taiwanese males were categorized into four groups based on their responses to the expressive and suppressive hostility subscales of the Chinese Hostility Inventory-Short Form. Participants were randomly assigned to either an anger-in or an anger-out experimental condition. Flow-mediated dilation (FMD) of the brachial artery was assessed in a resting state and after an anger provoking task. The results demonstrate a significant main effect of anger provoking on the FMD (F= 68.011, p<0.001), and a significant main effect of anger copng style on FMD change (ß=0.366, p<0.001) after anger provocation. Furthermore, expressive hostility trait had a strong effect (ß=0.667, p<0.001), while suppressive hostility trait had a moderate effect (ß=0.335, p<0.05) on the FMD change. For the long-term effect, the expressive (ß=0.804, p<0.001), but not suppressive (ß=0.176, p<0.05) hostility trait was associated with reduced FMD in the resting state. These results suggest that the expressive hostility had a more pronounced association with transient FMD change than suppressive hostility did. Moreover, only the expressive hostility trait demonstrated the importance of the long-term effect on the development of endothelial dysfunction, and on the early development of vascular abnormalities associated with atherosclerosis among Chinese men. These findings will be discussed in terms of implications for future research.

162) Abstract 1580
ASSOCIATIONS BETWEEN STRESS-INDUCED HEMOCONCENTRATION AND SYMPATHO-ADRENAL ACTIVATION IN MEN AND WOMEN
Jet Veldhuijzen van Zanten, PhD, Jos Bosch, PhD, School of Sport and Exercise Sciences, University of Birmingham, Birmingham, WM, UK, John Cacioppo, PhD, Department of Psychology, University of Chicago, Chicago, IL, Gary Bernston, PhD, Department of Psychology, Ohio State University, Columbus, Ohio, Philip Marucha, PhD, Department of Periodontics, University of Illinois at Chicago, Chicago, IL.
Stress causes hemoconcentration (i.e., an increase in hematocrit), which augments shear stress on blood vessels and may trigger myocardial infarction. Little is known about how stress-induced hemoconcentration modulates platelet serotonin and parasympathetic cardiac activity. 

As expected, the task produced hemoconcentration and increased catecholamines and sympathetic cardiac drive, in conjunction with a parasympathetic withdrawal (all p<0.001). Men showed larger EPI and NE responses than women (p<0.01). Correlation analyses revealed that the increase in Hct was associated with the increase in NE (r = .41, p<0.001) and HR (r = .25, p<0.01), and was negatively correlated with LVET (r = -.27, p<0.01). Post-hoc analyses demonstrated subtle gender differences: in women the increase in Hct was associated with increases in both NE (r = .29, p<0.05) and EPI (r = .28, p<0.05), whereas in men increased Hct was associated with increases in NE (r = .48, p<0.001), HR (r = .27, p<0.05), and LVET (r = -.33, p<0.01). No associations were found for PEP or RSA. These data demonstrated a modest association between stress-induced hemoconcentration and catecholamine release (in particular NE). Men displayed larger catecholamine responses, but similar cardiac sympathetic and parasympathetic responses to stress. Post-hoc analyses suggested that the effects of sympatho-adrenal activation on hemoconcentration differ between men and women. Variations in sympatho-adrenal activation and factors related to stress-induced hemoconcentration may contribute to the sex difference in myocardial infarction.

163) Abstract 1638

EXPOSURE TO ANTIDEPRESSANTS IS ASSOCIATED WITH INCREASED RISK OF INCIDENT CORONARY HEART DISEASE IN A POPULATION-BASED STUDY

Karina W. Davidson, Ph.D., Medicine and Psychiatry, Elizabeth Mostofsky, MPH, Leah B. Rosenberg, BA, Ashish Shah, MD, Medicine, Peter A. Shapiro, MD, Psychiatry, Daichi Shimbo, MD, Medicine, Columbia University Medical Center, New York, NY, Susan Kirkland, Ph.D., Geriatric Medicine, Dalhousie University, Halifax, Nova Scotia, Canada

Exposure to antidepressants is associated with increased risk of incident coronary heart disease in a population-based study. Some convenience-based samples have suggested that anti-depressant exposure is associated with less incident coronary heart disease (CHD). Other samples have found increased CHD risk after anti-depressant use. It has been proposed that serotonin selective reuptake inhibitor (SSRI) antidepressants have cardioprotective effects likely due to modulation of platelet serotonin but little is known about how stress-induced hemoconcentration modulates platelet serotonin and parasympathetic cardiac activity. Our study examined whether antidepressant use and subsequent CHD outcomes. Summary of results: Exposure to antidepressants was associated with increased risk of incident CHD events; neither aspirin use nor SSRI use was predictive. Conclusion: In this large prospective population-based study, use of non-SSRI antidepressants was independently predictive of early 10-year incident CHD.

164) Abstract 1761

DIRECTIONAL RELATIONSHIPS IN NEURAL ACTIVITY BETWEEN CORTICOLIMBIC BRAIN AREAS AT REST PREDICT SUBSEQUENT BLOOD PRESSURE REACTIVITY

Israel C. Christie, PhD, Lei K. Sheu, PhD, Peter J. Gianaros, PhD, Psychiatry, University of Pittsburgh, Pittsburgh, PA

In a companion presentation by our research group, we identified 4 corticolimbic areas (dorsal dACC) and perigenual anterior cingulate cortices (pACC), dorsal medial prefrontal cortex (mPFC), and insular cortex (Ins]) in which resting regional cerebral blood flow predicted individual differences in blood pressure (BP) reactivity to subsequent stressor tasks. Here, we further report the manner in which the statistically causal relationships between these corticolimbic areas at rest relates to BP reactivity. Relationships between corticolimbic areas were assessed using Granger causality analysis, which quantifies the extent to which one time series, X1, predicts future values of a second time series, X2, after accounting for information contained in the past values of X2 alone. Summary statistics from the Granger analysis identified 5 directionally-specific causal relationships between areas that predicted BP reactivity. In all, these causal relationships both positively (e.g., pACC > Ins) and negatively (e.g., mPFC > pACC) predicted subsequent reactivity, accounting for 9-21% of the variance in reactivity (p<0.07 to 0.007). These findings further elucidate the functional organization of a potential corticolimbic network that may predispose some individuals towards exaggerated BP reactivity, a suspected risk factor for cardiovascular disease.

165) Abstract 1033

PSYCHOSOCIAL FACTORS AND HEALTH CARE NEEDS IN PATIENTS WITH CHRONIC HEART FAILURE

Thomas Mueller-Tasch, Dr, Ninon Hirsh, Dr, Nicole Holzapfel, Dr, Dieter Schellberg, PhD, Jana Juenger, Dr, Psychosomatic and General Internal Medicine, University of Heidelberg, Heidelberg, Germany, Markus Haass, Professor, Cardiology, Therese Hospital Mannheim, Mannheim, Germany, Latz Frankenstein, Dr, Christian Zugck, PD, Andrew Rempiss, PD, Cardiology, Angiology and Pneumology, Wolfgang Herzog, Professor, Psychosomatic and General Internal Medicine, University of Heidelberg, Heidelberg, Germany

Purpose of the study: Patients with chronic heart failure (CHF) show a high rate of depressive co-morbidity and have a high health care utilization. We performed a cross-sectional study in patients with CHF, using the proportion of variance of health care needs explained by psychosocial factors was assessed. Subject sample and methods: In 168 patients with CHF (NYHA functional class II-IV, 25% female, mean age 65±11 years), we assessed left ventricular ejection fraction (LVEF), contacts with a GP or hospitalization within the last 12 months, quality of life (QoL), SF-36, depressive co-morbidity (PHQ-9), and self care (BSg.). The INTERMED interview was used to assess biopsychosocial case complexity and health care needs, categorizing patients into complex vs. non complex. An explanation of variance of health care needs was performed using multiple regression analysis. Summary of results: 20% of patients were stratified as complex in the meaning of the INTERMED. In comparison to the non complex patients, they had higher numbers of hospitalizations (1.9±1.7 vs. 0.8±1.1, p<0.001), a lower QoL (mean differences in the eight SF-36 subscales -15.4 to -29.5, p=0.049 to <0.001), higher rates of co-morbid depression (32.7% vs. 9.0%, p<0.001), and a lower self care (EHFScBS scores 25.2±9.2 vs. 21.7±7.2, p=0.039, higher scores indicate lower self care). Complex and non complex patients did not differ significantly with regard to LVEF (30.5±11.2 vs. 31.4±10.5, p=0.731) and NYHA class (50.0% NYHA II vs. 60.9% NYHA II, p=0.286). In regression analysis, the IN-SCBS explained 61.2% of variance of health care needs in complex patients and 55.8% in non complex patients. 

P<0.059
explained with five QoL dimensions of the SF-36 (physical functioning β=.288, p<.001; vitality β=.238, p=.003; social functioning β=.220, p=.001; emotional role functioning β=.212, p=.001; mental health β=.659, p<.001). Substantial parts of health care needs of patients with CHF are explained by psychosocial factors. Caring for patients’ QoL is crucial not only for improving patients’ well-being, but also for reducing their health care needs and thus health-related expenses.

166) Abstract 1766

RELATIONSHIP BETWEEN DEPRESSION, CVD, AND PATIENT’S MOTIVATION FOR MEDICATION ADHERENCE

Roxanne Pelletier, B.Sc., Psychology, Montreal Heart Institute, Montreal, Quebec, Canada, Simon L. Bacon, Ph.D, Exercise Science, Concordia University, Montreal Heart Institute, Montreal, Quebec, Canada, Andre Arsenault, MD, Nuclear Medicine, Montreal Heart Institute, Montreal, Quebec, Canada, Kim L. Lavoie, Ph.D, Psychology, UQAM, Montreal Heart Institute, Montreal, Quebec, Canada

Background: One of the major challenges in the treatment of cardiovascular disease (CVD) is that it relies upon patient adherence to treatments. It has been shown that patients who are intrinsically vs. extrinsically motivated are more adherent to healthy lifestyles. Depression has been linked to both CVD and poor adherence to good health behaviors. However, little is still known about the relationship between depression and patient’s motivation for adherence (MFA) to CVD medication. This study assessed the relationship between depression and MFA to CVD medication in both patients with and without established CVD. Method: 344 patients referred for myocardial perfusion (SPECT) exercise stress testing completed the Beck Depression Inventory II and the Treatment Self-Regulation Questionnaire main subscales (for CVD medication adherence; a 6-point scale: autonomous, controlled, and amotivational, on which analyses were performed separately). To look at the main effect of depression, and its interaction with CVD on MFA, general linear models, controlling for age, sex, and socio-economic status, were performed. Results: Analyses showed that 52 patients (15%) were depressed (score ≥14 on BDI-II) and 163 (47%) had a CVD. Results also revealed a significant main effect for depression on autonomous MFA, such that patients with depression had less autonomous MFA (corrected mean=6.06, SE=13) compared to non-depressed patients (corrected mean=6.41, SE=.05). There was also a depression x CVD interaction for controlled MFA, such that patients with both depression and CVD had more controlled MFA (corrected mean=2.57, SE=.31) compared to patients with depression only (corrected mean=3.53, SE=.27), CVD only (corrected mean=3.33, SE=.13), or neither (corrected mean=3.35, SE=.12). Conclusion: Results suggest that patients presenting for exercise stress testing who are depressed are less intrinsically motivated to adhere to medications, and patients with both CVD and depression are more extrinsically motivated to adhere to medications.

167) Abstract 1156

TYPE D PERSONALITY PREDICTS DISABILITY, QUALITY OF LIFE AND MEDICATION ADHERENCE IN POST-MI PATIENTS

Lynn Williams, PhD, Psychology, University of the West of Scotland, Paisley, UK, Rory C. O’Connor, PhD, Roman E. O’Carroll, PhD, Psychology, University of Stirling, Stirling, UK

Distressed personality (Type D), the synergistic combination of negative affect and social inhibition, has been predictive of adverse outcome and psychological distress in patients with cardiovascular disease (CVD), independent of traditional biomedical risk factors. However, little is known about the mechanisms by which Type D affects health. Accordingly, the current study investigated (i) the relationship between Type D and medication adherence in myocardial infarction (MI) patients, and (ii) if Type D predicts quality of life and disability post-MI, after controlling for mood and severity. 391 MI patients (132 males, 59 females, mean age 66.1 years) completed measures of Type D, medication beliefs, illness perceptions, and mood, 3-5 days post-MI. Three months later, 131 patients completed measures of mood, medication adherence, quality of life and disability. Hierarchical multiple regression analysis demonstrated that after controlling for mood, demographics and MI severity, Type D predicted medication adherence (change in R²=.03, p<.05), quality of life (Change in R²=.07, p<.001), and disability (Change in R²=.05, p<.01), post-MI. In addition, Type D patients were found to differ from non-Type D patients on all illness perceptions. Type D MI patients are less likely to take their medication compared to non-Type D patients, which may explain, in part, the toxic effect of Type D on cardiac prognosis. In addition, Type D was found to predict disability and quality of life in MI patients, after controlling for mood, demographics and MI severity. Indeed, Type D explained an additional 15-20% of the variance in medication adherence, disability, and quality of life, over and above that explained by demographics and MI severity.

168) Abstract 1234

DISPOSITIONAL OPTIMISM AND CARDIOVASCULAR REACTIVITY TO SOCIAL VS. NON-SOCIAL STRESSORS

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

Increasing evidence suggests that dispositional optimism exerts a protective effect on cardiovascular health (Kubzansky et al., 2001; Scheier et al., 1999). These effects may be partially mediated through cardiovascular reactivity (CVR, magnitude & duration) to stress. Little is still known about the effects of optimism on CVR. Stressors can be conceptualized as either social or non-social in nature. Prior research suggests that negative dispositions such as hostility are more reactive to social as opposed to non-social stressors (Smith & Gallo, 2001). The present study sought to determine whether the social nature of the stressor is pertinent to optimism-related differences in CVR. A sample of 90 undergraduate men and women completed the Life Orientation Test-Reduced Form (LOT-R; Scheier et al., 1999). Stressors were counterbalanced, within-subjects lab protocol involving cold pressor (non-social) and self-disclosure speech (social) tasks. Multiple regression analyses revealed significant and marginal main effects for higher dispositional optimism and lower systolic and diastolic blood pressure and mean arterial pressure during the disclosure task, all ts <1.89, ps <.095. Similarly, marginal main effects were found for state anxiety, t=-2.063, ps <.042. These results suggest protective implications for cardiovascular health as individuals higher in dispositional optimism may be less vulnerable to social sources of stress. Keywords: Optimism, Stress, Cardiovascular reactivity

169) Abstract 1299

INCREASED RISK OF VENTRICULAR ARRYTHMIA IN IMPLANTABLE DEFIBRILLATOR PATIENTS WITH INCREASED ANXIETY AND A TYPE D PERSONALITY

Krista C. Van den Broek, PhD, Ivan Nyskirk, PhD, CoRPS - Medical Psychology, Tilburg University, Tilburg, The Netherlands, Pepijn H. Van der Voort, MD, Department of Cardiology, Catharina Hospital, Eindhoven, The Netherlands, Marco Alings, PhD, MD, Department of Cardiology, Amphia Hospital, Breda, The Netherlands, Albert Meijer, PhD, MD, Department of Cardiology, Catharina Hospital, Eindhoven, The Netherlands, Johan Denollet, PhD, CoRPS - Medical Psychology, Tilburg University, Tilburg, The Netherlands

Little is known about the role of psychological factors in the occurrence of life-threatening arrhythmias. We examined anxiety, depression, and Type D personality (tendency to experience increased negative emotions and to inhibit the expression of these emotions), and their interaction effects, as predictors of ventricular arrhythmias in implantable cardioverter defibrillator (ICD) patients. ICD patients (N=391, 81% males, age=62±10.4 years) completed questionnaires on anxiety (STAI), depressive symptoms (BDI), and Type D personality (DS14) at baseline (1 day-3 weeks post-implantation). The endpoint was occurrence of ventricular arrhythmias, defined as appropriate ICD therapies, in the first year post-implantation. Appropriate ICD therapies were experienced by 19% (n=75) of patients. Increased anxiety (OR=1.31; 95%CI 0.79-2.18; p=0.29) and depression (OR=1.02; 0.62-1.64; 95%CI 0.36-3.24; p=0.91) were predictors of ventricular arrhythmias, but there was a trend for Type D personality (OR=1.64;
depression symptoms (21 to 10) and response categories (4 to 3) on the follow-up data was complete for all patients. Results: The reduction of point was a composite of cardiac death and recurrent MI as verified by BDI-21 and STAI (anxiety symptoms) two months post-MI. The end independent predictor of cardiac death/recurrent MI. Conclusions: We (HR:1.31; 95%CI:1.02-1.69; p=0.038). Previous MI was also an independent predictor of death/recurrent MI adjusting for disease severity. Age, BMI and cardiac history were also independent predictors of death/recurrent MI in these analyses. Conclusion: The BD10 is a brief, valid, and easy-to-use self-report measure of depressive symptoms that predicts post-MI outcomes and hence can be used clinically for risk stratification purposes, while reducing assessment burden.

170) Abstract 1302
SYMPTOM DIMENSIONS OF POST-MYOCARDIAL INFARCTION DEPRESSION, DISEASE SEVERITY AND CARDIAC PROGNOSIS
Elisabeth J. Martens, PhD, Marie-Anne Mittelhaeuser, BA, Medical Psychology, Tilburg University, Tilburg, Brabant, the Netherlands, Peter de Jonge, PhD, Johan Denollet, PhD, Medical Psychology, Tilburg University, Tilburg, Brabant, the Netherlands
Background: Individual symptoms of post-myocardial infarction (MI) depression may be differentially associated with cardiac prognosis, in which somatic/affective symptoms appear to be more cardiotoxic than cognitive/affective symptoms. The current study aimed to replicate previous findings regarding treatment can be drawn. We therefore examined the relationship between depressive symptom dimensions following MI and both disease severity and prospective cardiac prognosis. Methods: Patients (n=473) were assessed on demographic and clinical variables and completed the Beck Depression Inventory (BDI) within the first week of hospital admission for acute MI. Depressive symptom dimensions were associated with baseline left ventricular ejection fraction (LVEF) and prospective cardiac death and/or recurrent MI. The average follow-up period was 2.8 years. Results: Factor analysis revealed two symptom dimensions - somatic/affective and cognitive/affective - in the underlying structure of the BDI, identical to the actual BDI10 score. There were 41 events attributable to cardiac death (n=24) or recurrent MI (n=20). The mean level of depressive symptoms as measured by the BDI10 was significantly higher in patients who experienced an event (4.3±4.4) compared with event-free patients (2.6±2.8); (p=0.015). The BD10 correlated highly (r=.89) with the standard BDI measure of depressive symptoms; a BDI-derived proxy measure of the BD10 correlated .94 with the actual BD10 score. There were 41 events attributable to cardiac death (n=24) or recurrent MI (n=20). The mean level of depressive symptoms as measured by the BD10 was significantly higher in patients who experienced an event (4.3±4.4) compared with event-free patients (2.6±2.8); (p=0.015). The BD10 (HR:1.18; 95%CI:1.08-1.29; p=0.0001) independently predicted death/recurrent MI adjusting for disease severity. Age, BMI and cardiac history were also independent predictors of death/recurrent MI in these analyses. Conclusion: The BD10 is a brief, valid, and easy-to-use self-report measure of depressive symptoms that predicts post-MI outcomes and hence can be used clinically for risk stratification purposes, while reducing assessment burden.

172) Abstract 1437
CORRELATIONS BETWEEN VITAL EXHAUSTION, DEPRESSION, AND GENERAL HEALTH OF CARDIAC PATIENTS AND COMMUNITY CONTROLS
Larisa A. Nash, M.A., Elena L. Block, M.S., Psychology, Health Emphasis, Ferkau Graduate School of Psychology, Yeshiva Univ, Bronx, NY, V. S. Srinivas, MB, BS, Department of Cardiology, Albert Einstein College of Medicine, Bronx, NY, Sonia Suchday, PhD, Clinical Psychology PhD, Health Emphasis, Ferkau Graduate School of Psychology, Yeshiva Univ, Bronx, NY Background: Cardiovascular disease is the number one killer of people in the United States. Vital exhaustion (VE), depression, and general health all have been shown to be independently associated with cardiovascular disease, especially in Western European populations. Vital exhaustion is characterized as the more physical symptoms of depression, including unusual fatigue, burnout, lack of energy, irritability, hopelessness, and loss of libido, but often without feelings of depression. However, the distinction between depression and VE as independent constructs is less clear in the literature. Furthermore, less is known about the relationship between depressive symptom dimensions following MI and both disease severity and prospective cardiac prognosis. The current study aimed to replicate previous findings regarding treatment can be drawn. We therefore examined the relationship between depressive symptom dimensions following MI and both disease severity and prospective cardiac prognosis. Methods: Patients (n=473) were assessed on demographic and clinical variables and completed the Beck Depression Inventory (BDI) within the first week of hospital admission for acute MI. Depressive symptom dimensions were associated with baseline left ventricular ejection fraction (LVEF) and prospective cardiac death and/or recurrent MI. The average follow-up period was 2.8 years. Results: Factor analysis revealed two symptom dimensions - somatic/affective and cognitive/affective - in the underlying structure of the BDI, identical to the actual BDI10 score. There were 41 events attributable to cardiac death (n=24) or recurrent MI (n=20). The mean level of depressive symptoms as measured by the BDI10 was significantly higher in patients who experienced an event (4.3±4.4) compared with event-free patients (2.6±2.8); (p=0.015). The BD10 (HR:1.18; 95%CI:1.08-1.29; p=0.0001) independently predicted death/recurrent MI adjusting for disease severity. Age, BMI and cardiac history were also independent predictors of death/recurrent MI in these analyses. Conclusion: The BD10 is a brief, valid, and easy-to-use self-report measure of depressive symptoms that predicts post-MI outcomes and hence can be used clinically for risk stratification purposes, while reducing assessment burden.

173) Abstract 1516
SLEEP APNEA, DEPRESSION, AND QUALITY OF LIFE IN CORONARY HEART DISEASE
Kenneth E. Freedland, PhD, Rebecca L. Reese, MA, Robert M. Carney, PhD, Brian C. Steinmeyer, MS, Psychiatry, Stephen Dunstley, MD, Psychology, Washington University School of Medicine, St. Louis, MO Background: Sleep apnea-hypopnea syndrome (OSAHS) and depression are common comorbidities in patients with coronary heart disease (CHD), but they are undiagnosed in many cases. Consequently, their effects on quality of life (QOL) and perceived quality of sleep in patients with CHD may not be recognized. One hundred thirty-two patients (53 women, 79 men; age=58±10 years) with documented CHD...
volunteered to undergo polysomnography (PSG) at the Sleep Medicine Center at Washington University School of Medicine in St. Louis. The participants also completed several self-report questionnaires including the Pittsburgh Sleep Quality Index (PSQI), the SF-36, and the Beck Depression Inventory (BDI). Multiple regression was used to model the effects of sleep apnea severity (via the apnea-hypopnea index [AHI]) and depression, controlling for gender, age, BMI, and common medical comorbidities (diabetes, arthritis) on the PSQI and SF-36 component scores; interactions with gender were also tested. Gender (t=-2.36, p=0.02) and BDI (t=-3.29, p=0.0001) predicted PSQI scores (model R2=0.51, R2adj=0.48, F=16.3, p=0.0001). Age (t=-2.33, p=0.02), diabetes (t=-2.10, p=0.04), arthritis (t=-2.45, p=0.02), and BDI (t=-2.90, p=0.004) predicted SF-36 Physical Component scores (model R2=0.26, R2adj=0.21, F=5.8, p=0.0001). Age (t=-2.02, p=0.05), AHI (t=-2.21, p=0.03), and BDI (t=-13.47, p=0.0001) predicted SF-36 Mental Component scores (model R2=0.69, R2adj=0.67, F=36.9, p=0.0001). There were no significant interactions between gender and AHI or BDI in any of the models. The results show that although depression has a strong effect on self-reported quality of sleep in these patients, the presence and severity of OSAHS does not predict sleep quality. They also show that depression is a strong predictor of both the physical and mental components of health-related QOL, but that the presence and severity of OSAHS predicts the mental but not the physical component of QOL. These effects are present in both men and women with CHD.

174) Abstract 1526
INTEGRAL APPROACH OF CORONARY ARTERY DISEASE WITH REFERENCE TO CIRCULATING ANTIBODIES TO HSP60
Jose R. Pola, MD PhD, Araceli M. Quintini, MD PhD, Medicine, University of Carabobo, School of Medicine, Valencia, Carabobo, Venezuela, Sabrina Islam, B.A. Sci, Babette Wexler, MD, Weill Cornell Medical College, New York, NY, Jose Poveda, MD PhD, University Autonoma of Madrid, Madrid, Spain
Our primary aim is to illustrate the importance of psychosocial and existential factors in patients with coronary artery disease (CAD), using a validated psychological scale and an hermenenutical phenomenological method. Hsp60 antibodies have been hypothesized to promote atherosclerosis. The secondary aim was to introduce an integral approach that includes biological, psychological, existential factors in managing CAD patients. This was a case-control observational study. Quantitative variables such as a life event scale (Holmes and Rahe), determination of Anti-Hsp60 and a simultaneous determination of a qualitative variable such as existential needs were measured in 45 CAD patients 45 to 85 years old (28 males and 17 females) and in 45 healthy age and gender matched controls. Results/Conclusions: In CAD patients the mean Anti-Hsp60 level was significantly increased over controls for both genders [t=0.05, t test]. Psychosocial stress in men was positively correlated with CAD [P=0.05 t test]. Anti-Hsp60 and higher psychosocial stress was positively correlated in men with CAD [Pearson correlation test Rxy=0.22], as were existential needs. Similar correlations were observed in women, with a stronger correlation between existential needs and Anti-Hsp60 level [Spearman correlation test Rs=0.86]. A direct and concordant relationship exists between the presence of CAD, increased levels of anti-Hsp60 antibodies and increased levels of psychosocial stress and existential needs. This correlation suggests a mechanism mediated by anti-Hsp60 antibodies.

175) Abstract 1644
THE ASSOCIATION BETWEEN AUTOIMMUNE NERVOUS SYSTEM DYSFUNCTION AND INFLAMMATION MARKERS: THE ROLE OF DEPRESSION IN ADULTS AGED 65 YEARS AND ABOVE
Willem J. Kop, PhD, John S. Gottfried, MD, Medicine, University of Maryland, Baltimore, MD, Phyllis K. Stein,, Psychiatry, Wash U, St. Louis, MO
Depression is associated with elevated levels of inflammation markers. This study examined whether the association between autoimmune nervous system dysfunction and inflammation is stronger in depressed versus non-depressed individuals. Methods: Participants in the Cardiovascular Health Study (N=908, age 71-85 yrs, 59% women) were evaluated for depressive symptoms (CES-D) using a previously validated cut-off point for depression (CES-8). Heart rate variability (HRV) analysis was used as an acute marker of autonomic system dysfunction (frequency domain and non-linear HRV, including detrended fluctuation analysis (DFA1) and heart rate turbulence). Inflammation markers included interleukin-6 (IL-6), C-reactive protein (CRP), and white blood cell count (WBC). Results: Depressed participants (n=131) had higher CRP (p=0.072) and WBC (p=0.033) levels than non-depressed participants (n=776), and had lower DFA1 levels (p=0.07) indicating autonomic dysfunction. Among depressed participants, HF-HRV, an index of parasympathetic activity, was inversely related to CRP, IL-6 and WBC, whereas no such associations were observed in non-depressed participants (p interaction < 0.01; Table). In contrast, associations between DFA1 and inflammation were significant in non-depressed but not in depressed participants. Conclusions: The nature of the associations between autonomic dysfunction and inflammation markers may differ based on depression status.

Associations of autonomic indices and inflammation markers

<table>
<thead>
<tr>
<th>Non-Dep.</th>
<th>Depressed</th>
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<tr>
<td>IL-6</td>
<td>CRP</td>
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<tr>
<td>0.011</td>
<td>-0.06</td>
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<tr>
<td>LF-HRV</td>
<td>-0.107 **</td>
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<tr>
<td>Total Power</td>
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<tr>
<td>DFA1</td>
<td>-0.151 **</td>
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<tr>
<td>HRT</td>
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<td>Onset HRT</td>
<td>Slope</td>
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176) Abstract 1151
RELATIONSHIP BETWEEN HEART RATE RECOVERY AND DEPRESSION
Leopoldo Pozuelo, MD, FACP, Consultation Liaison Psychiatry, Manuel Cerqueira, MD, FACC, Cardiology, Cleveland Clinic, Cleveland Clinic, Ohio, Kathleen Franco, MD, FACP, Psychiatry, Isabel Schuermeyer, MD, Psychiatry and Oncology, Cleveland Clinic, Cleveland, Ohio
Background Heart Rate Recovery (HRR) is an autonomic measure of cardiovascular fitness which is correlated with cardiac outcomes. Depression is also associated with worse cardiac outcome in patients with cardiac disease. We sought to study depression scores in a stress test population and identify any correlation with HRR. Methods Patients undergoing clinically indicated stress testing at the Cleveland Clinic were consented for this study. 71 patients have been enrolled to date, all patients were administered (prior to stress testing) a Beck Depression Inventory (BDI-II) and a Beck Anxiety Inventory (BAI) scale. Patients underwent either treadmill or pharmacologic stress testing and HRR was measured at one minute after peak heart rate. A HRR of less than 11 was considered abnormal. Results 69 of 71 patients were eligible with complete psychometric and physiologic data. 35 % of all patients met cutoff for depression and 30 % met criteria for anxiety. Collectively, there was a trend for patients in the no depression and mild depression to have a higher HRR compared to the moderate to severe depression group (median HRR of 11 vs. 7.5, p=0.07). There was no statistical difference or trend in HRR among anxiety scores. Median HRR score of the treadmill stress group (n =30) was 18, the median HRR score of the pharmacologic stress group (n=35) which was 6. The pharmacologic stress test group had higher percentage of depression (43 % vs. 27 %, p=0.17) and a higher percentage of anxiety (40 % vs. 20 %, p=0.08) compared to the exercise stress group. Discussion Our study, target enrollment of 200 patients, is currently underpowered to see a significant difference in HRR in the depression categories. However, there appears to be a trend toward lower HRR in patients with moderate depression compared to no or mild depression. Anxiety does not seem to have a correlation with HRR. The pharmacologic stress testing population did have a trend for higher percentage of depression and anxiety, and a lower HRR compared to the exercise stress testing group. Continued enrollment of
patients, as well as a complimentary biomarker study, is needed to assess further this relationship between depression and HRR.

177) Abstract 1363

EXPLORING ASSOCIATIONS BETWEEN TYPE D PERSONALITY, DEPRESSION, AND VITAL EXHAUSTION AMONG PATIENTS WITH CARDIOVASCULAR DISEASE

Elena Spектор, BA, Clinical Psychology, Health Emphasis, Ferkau Graduate School of Psychology, Bronx, NY; Laurie Nash, MA, Clinical Psychology, Health Emphasis, Yeshiva University, Bronx, NY; Vankeepuran S. Srinivas, M.B.B.S., Division of Cardiology, Montefiore Medical Center, Bronx, NY; Sonia Suchday, Ph.D., Clinical Psychology, Health Emphasis, Ferkau Graduate School of Psychology, Bronx, NY

Objective: Type D (Distressed) personality has been associated with increased rates of depression and vital exhaustion among various groups of cardiovascular patients. However, depression and vital exhaustion are highly correlated and overlap significantly. Furthermore, depression and vital exhaustion have also been shown to be independent risk factors in heart disease. Therefore, we compared to what extent depression and vital exhaustion are associated with Type D personality.

Method: A sample of 86 cardiac patients was recruited from various clinical settings. Depression and critical symptoms were assessed using the Center for Epidemiologic Studies Depression scale (CES-D); vital exhaustion was assessed using the Maastricht Questionnaire (revised version); and Type D using the DS14. Results: Prevalence rate of Type D personality was 26.8%. Vital exhaustion and depression were highly correlated at r = .88 (p < .001). After controlling for age, race/ethnicity, gender, and BMI, Vital exhaustion was associated with Type D personality [odds ratio (OR)=1.05, 95% confidence interval (CI)=1.01-1.10]. However, when depression was entered into the model, it was significantly associated with Type D personality (OR=1.22, 95% CI=1.04-1.42), while vital exhaustion was no longer associated with Type D personality (OR=95, 95% CI=.87-1.04). Conclusion: Depression appears to be mediating the association between vital exhaustion and Type D personality. Thus, although depression and vital exhaustion are strongly correlated, depression appears to be more strongly associated with Type D personality.

178) Abstract 1704

RUMINATION IS ASSOCIATED WITH HIGHER BLOOD PRESSURE DURING STRESS IN MALES BUT NOT FEMALES

Monica Lindsay, B.A., Psychiatry; Beth Meichlin, M.A., Psychology, University of North Carolina at Chapel Hill, Chapel Hill, NC

Research has suggested that rumination may be associated with an increased risk for cardiovascular disease via its association with delayed blood pressure (BP) recovery following stress. However, most studies have not focused on the relationship between rumination and BP levels during stress. Additionally, no studies of which we are aware have examined gender differences in the relationship between rumination and BP. Therefore, the purpose of this study was to examine the relationship between trait rumination and BP at rest and in response to stress separately in males and females.

Participants consisted of 44 men and 44 women (50% African American, 50% non-Hispanic White) aged 18 to 45, who were all medically and psychologically healthy, and not taking any prescription medication. Participants filled out the Impact of Events Scale, a 15-item questionnaire that assesses trait rumination by having subjects indicate the frequency with which they dwell on their thoughts in a stressful situation in certain ways. After completing the questionnaire, participants underwent the Trier Social Stress Test (TSST), which consists of a baseline rest period, a speech stressor, and a math stressor, and has been reliably shown to increase blood pressure in participants. Blood pressure was taken every 2 minutes during each task, and averaged across studies. Enquiries among patients and general practitioners as well as experimental, epidemiologic, and clinical studies suggest an influence of stress on the course of inflammatory bowel diseases (IBD). However, since this influence remains hypothetical further research is needed to verify it. Aim: To devise appropriate recommendations for further investigation by means of scrutinizing previous methodology across studies. Methods: We critically reviewed prospective clinical studies on the effect of psychological factors on IBD. Results: Among the most prominent FGD in our sample were functional abdominal bloating (37.1%), ulcer-like functional dyspepsia (8%), irritable bowel syndrome (4.4%), and functional chest pain (2.5%). If the subjective distress criterion was included in the algorithm, the prevalence rates for these FGD decreased significantly to 14.4% for functional abdominal bloating, 7.5% for ulcer-like functional dyspepsia, 2.5% for irritable bowel syndrome, and 2% for functional chest pain. Interestingly, FGD prevalence rates decreased less dramatically in men than in women after considering the subjective distress criterion. Conclusion: Prevalence rates for FGD decrease in some diagnoses up to more than 50% when symptom-related subjective distress is considered as case-defining criterion. Although this is not a community-based study, and diagnosis of FGD has been based on self-report, our results highlight the importance of measuring subjective distress experienced from FG symptoms. As prevalence rates dramatically change, the current findings might have an impact on the clinical relevance and therapeutic implications in patients with FGD.
IBD outcome. Conclusions: Methodological designs including the frequency or exactitude of outcome assessment (symptoms, clinical, or endoscopic) depend upon conditions like sample size, compliance, and available resources. Other criteria such as controlling for adequate covariates must be fulfilled independently of these circumstances. Those criteria offer much possibility for improved study designs in future IBD research. Supported by grant 33CSC0-108792 from the Swiss National Science Foundation (Mental Health Core Project of the Swiss Inflammatory Bowel Disease Cohort Study, SIBDCS)

181) Abstract 1577
THE EFFECT OF SHORT-TERM STRESS ON ADRENAL HORMONE IN INDIVIDUALS WITH IRRITABLE BOWEL SYNDROME
Nagisa Sugaya, Waseda University, Tokorozawa, Saitama, Japan, Shuhei Izawa, Waseda University, Shinjuku, Tokyo, Japan, Ketsake Saito, Tokai University Junior College Shizuoka, Shizuoka-shi, Shizuoka, Japan, Kentaro Shirotoki, Shinobu Nomura, Hironori Shimada, Waseda University, Tokorozawa, Saitama, Japan

Purpose of Study: The purpose of this study is to investigate the effect of short-term stress (for two weeks) on salivary adrenal hormone (cortisol and dehydroepiandrosterone [DHEA]) in individuals with irritable bowel symptoms (IBS). Methods: Participants were individuals with diarrhea-predominant, constipation-predominant, and mixed forms of IBS (n=18 in each leg), the other quit due to dissatisfaction with the study. They also completed perceived stress scale [PSS] (D1~D4).

Results: PSS scores in D1 and D4 were higher than that in D2 and D3 (p<0.01). Cortisol levels in IBS group were consistently higher than that in control group, although there were no significant date or group effects in cortisol levels in T1 and T2 were higher than that in T3, and that in T2 was higher than that in T1 (p<0.0001) regardless of group and date. Cortisol levels in D2 and D3 were higher than that in D4 (p<0.01) regardless of group and date. Although DHEA levels in T1 and T2 were higher than that in T3 (p<0.001) regardless of group and date, the effects of the presence of IBS and date on them were not found. Conclusion: Both of groups showed significant cortisol increases in response to short-term stress and the IBS group consistently had higher cortisol levels than control group, although there were no significant date or group effects in DHEA. While group differences in cortisol response to short-term stress was not found, these results suggest the possibility that the effect of cortisol increased under short-term stress and became more severe in individuals with IBS through increased cortisol/DHEA.

182) Abstract 1663
FLUVOXAMINE VERSUS AMITRYPTILINE IN IBS FEMALE PATIENTS WITH DEPRESSION
Dan I. Dumitrascu, Prof, Cosmin Grad, Drd, 2nd Medical, University Iuliu Hatieganu Cluj, Cluj, Romania

Background and aim IBS still needs a perfect therapy. Depression is a common disorder in IBS. Several trials showed the benefit of fluvoxamine vs a TCA, amitryptiline in depressed females with IBS. We looked for the effect of a SSRI (fluvoxamine) vs a TCA, amitryptiline in depressed females with IBS and available resources. Other criteria such as controlling for adequate covariates must be fulfilled independently of these circumstances. Those criteria offer much possibility for improved study designs in future IBD research. Supported by grant 33CSC0-108792 from the Swiss National Science Foundation (Mental Health Core Project of the Swiss Inflammatory Bowel Disease Cohort Study, SIBDCS). The trial was divided as a 2x2 factorial design (IBS symptoms vs antidepressants). The pts were randomized in 2 groups: group I received fluvoxamine 50 mg at bedtime 4 weeks; group II received amitryptiline 25 mg at bedtime 4 weeks. Both groups were comparable in respect to age and depression score. Pts were advised to avoid other medication for digestive symptoms during the trial. The effect of the drugs was assessed for 4 main symptoms with a symptom score for abdominal pain was decreased from 11.9±3.3 to 5.6±3.6 (p<0.02) in group I and from 12.5±4.0 to 6.2±4.5 (p<0.05) in group II. Bloating score was improved from 8.3±3.3 to 5.6±2.1 (p<0.05) in group II and from 7.7±2.7 to 4.6±3.2 in group II (p<0.05). Diarrhea and constipation scores were not significantly changed. BDI scores were similarly decreased by both drugs, from 22.5±6.8 to 14.5±6.1 in group I (p<0.01) and from 24.2±5.9 to 16.0±7.2 in group II (p<0.01). Less side-effects were recorded in group I vs group II (dry mouth: 2 vs 6 cases, dizziness: 2 vs 4 cases, somnolence 5 vs 9 cases). Conclusions Fluvoxamine and amitryptiline similarly improve pain and bloating as well as depression scores in females with IBS and depression. However fluvoxamine produces less secondary effects but there number is still high.

183) Abstract 1596
MODIFIED ECOLOGICAL MOMENTARY ASSESSMENT IN THE MEASUREMENT OF IRRITABLE BOWEL SYNDROME: FEASIBILITY AND PARTICIPANT COMPLIANCE
Stephan R. Weinland, Ph.D., UNC Center for Functional GI & Motility Disorders, University of North Carolina - Chapel Hill, Chapel Hill, NC, Carolyn Morris, M.S., Biostatistics Core, UNC Center for Functional GI & Motility Disorders, Chapel Hill, NC, Ashley G. Messina, BS, UNC Center for Functional GI & Motility Disorders, UNC Chapel Hill School of Medicine, Chapel Hill, NC, Douglas A. Drossman, M.D., UNC Center for Functional GI & Motility Disorders, UNC Chapel Hill, Chapel Hill, NC

Daily paper diary data with questionable levels of accuracy and reliability have been used to track symptoms in a number of studies. Ecological Momentary Assessment (EMA) has previously been shown to improve accuracy of symptom recording and in doing so, reliability of subject data. However, no studies have examined the efficacy of EMA data collection methods in a population of patients with Irritable Bowel Syndrome (IBS). We aim to assess the accuracy and reliability of EMA data collection methodologies in patients with physician diagnosed IBS. 25 participants with IBS D,C or M and 13 healthy controls demonstrated poor compliance (28% non compliant) at levels over once daily paper diary measurement of symptoms. However, no studies have examined the efficacy of EMA data collection methods in patients with Irritable Bowel Syndrome (IBS). We aim to assess the accuracy and reliability of EMA data collection methodologies in patients with physician diagnosed IBS. 25 participants with IBS D,C or M and 13 healthy controls demonstrated poor compliance (28% non compliant) at levels similar to or greater than most patients experiencing symptoms of IBS. However fluvoxamine produces less secondary effects but there number is still high.

184) Abstract 1130
ACTIVITIES OF ANTIOXIDANT ENZYMES IN SPLEEN AND THYMUS LYMOPHOCYTES OF RATS WITH EXPERIMENTAL STOMACH ULCER
Anar D. Rakhmetov, student, Larysa I. Kot, PhD, Olena V. Bogdanova, PhD, Ludmyla I. Ostapchenko, Doctor of Science, biochemistry, Taras Shevchenko National University of Kyiv, Kyiv, Ukraine

Stress is important etiological factor in peptic ulcer formation. The state of the immune system, in particular the functioning of the antioxidant enzymes, determines the primary and secondary clinical course and development of complications. That is why study of activities of superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GP) in spleen and thymus cells of rats with experimental stomach ulcer during five days of recovery was undertaken. In spleenocytes a 1.5-fold decrease in SOD activity was shown on day 5 after stress. In thymocytes, a 4-fold SOD inhibition was observed 40 min after stress, 2.5-fold on the 3rd day, and 2-fold on the 5th day. In spleenocytes, CAT activity decreased 25% at 40 min after stress and increased 2.5-fold on the 5th day. In thymocytes, CAT activity decreased on the 3rd day 1.8-
fold, but increased 2-fold on the 4th day. An increase of GP of activity of 37% took place in splenocytes on the 5th day. In thymocytes, immediately after ulcer forming, GP activity was inhibited 2.4-fold. For animals treated with omeprazole (OME) at 0.8 mg/kg each day, the decrease in SOD activity was shown in splenocytes during all periods of study. In thymocytes, a 2.2-fold increase in SOD activity was observed on the 1st day, 3.3-fold on the 5th day, and a 3- and 4-fold decrease in the parameter was observed on the 2nd and 3rd days, respectively. There was significant CAT inhibition during all study phases, except the 3rd day in splenocytes of rats injected with OME. In thymocytes, CAT activity increased 4.2-fold immediately after stress and OME injection, 8.8-fold on the 1st day, and 1.3-fold on the 5th day. A 2-fold decrease in CAT activity was found on the 4th day. Under OME treatment, GP activity in splenocytes decreased during all research phases. In thymocytes, there was a 3-fold increase in GP activity immediately following stress and on the 1st day, a 5-fold increase on the 5th day, but a 2-fold decrease on the 3rd day. Thus, mostly the inhibition of the antioxidant enzymes was observed in the cells of the thymus and spleen of animals with stress induced stomach ulcers. Only in the later stages of the study was observed particular activation of the enzymes. OME treatment supported the antioxidant system in lymphocytes, but only in the thymus.

185) Abstract 1428

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

Kristin A. Zerwicke, B.A., Tavis S. Campbell, PhD, Psychology, Philip K. H. Shin, MD, Medicine, Linda E. Carlson, PhD, Oncology, University of Calgary, Calgary, AB, Canada

A waitlist-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 group psychosocial intervention consisting of mindfulness meditation practice and gentle yoga stretches that has been applied within chronically-ill populations, with the goal of reducing stress and symptoms of disease. It was hypothesized that patients attending the MBSR classes would experience significantly greater reduction in IBS symptoms of abdominal pain, diarrhea and constipation, flatulence, and bloating than those on the wait list, and that patients would also experience a significant improvement in quality of life. Participants were recruited from multiple gastroenterology offices in the general community. IBS symptom severity and quality of life were assessed before and after participation in the MBSR program for the 15 participants of the trial to date. Preliminary findings using paired sample t-tests revealed a significant improvement in severity of IBS symptoms from pre MBSR intervention (M = 229.87, SD = 122.68) to completion of the program (M = 139.93, SD = 106.01). t (15) = 2.96, d = .78, p < .05. Furthermore, there was a significant improvement in quality of life from before the MBSR intervention (M = 2.47, SD = 1.22) to completion of the program (M = 1.77, SD = 0.78). t (15) = 3.29, d = .68, p < .05. Results indicate that the MBSR program may be effective in reducing the severity of IBS symptoms and increasing quality of life if results from the ongoing trial continue to support these preliminary findings.

Topic: General Health/Symptoms

186) Abstract 1067

COURSE OF RECOVERY OF THE IMPACT OF INTIMATE MALE PARTNER VIOLENCE ON PHYSICAL HEALTH OF WOMEN

Manuela Martinez, MD/PhD, Segunda Sanchez-Lorente, BA, Concepcion Blasco-Ros, BA, Department of Psychobiology, Faculty of Psychology, University of Valencia, Valencia, Spain

Intimate partner violence (IPV) has been recognized to have a high impact on the health of women. However, few longitudinal studies have been carried out to establish the course of this impact over time and the factors that may contribute to its recovery or deterioration. The objective of this study was to assess the course of physical health complaints of victims of IPV. Women who participated in a previous cross-sectional study (T-1) and that had been either physically/psychologically (n=33) or psychologically abused (n=23) by their male partners were followed up 3 years later (T-2) in order to assess the course of somatic symptoms. A control group of women (n=35) not exposed to IPV was included for comparison. Information about the incidence of 35 items that included nervous, circulatory, respiratory, muscular, urinary, endocrine, skin, gastrointestinal and gynecological symptoms was obtained by structured interviews. The results indicated that there were differences between groups both in T-1 [F(2,88)=11.06;p<.001] and in T-2 [F(2,88)=5.42;p<.05], having both abused groups more symptoms than control group (p<.05). Change over time (T-1 to T-2) was also different [F(2,88)=10.48;p<.001], physically/psychologically abused women experiencing a higher reduction of symptoms than both psychologically abused (p<.05) and control (p<.001) women. Within group comparisons indicated that there was a significant decrease of symptoms in the physically/psychologically abused [t(32)=6.8;p<.001] and in the psychologically abused [t(22)=3.3;p<.001] women, with no change in the control group [t(34)=1.94; ns]. Factors that contributed to this recovery are under analysis. This study shows that recovery of physical health in women that have been victims of IPV is possible, and that longitudinal evaluation are needed to determine which factors best predict it, what would contribute to the design of effective intervention programs. Supported by Institute of Women, Ministry of Equality (ref:102/01), FEDER, Ministry of Education and Science (ref:SEJ2005-06579/PSIC) and Generalitat Valenciana (GRUPOS2004/15).

187) Abstract 1642

DIFFERENT METHODS OF SINGLE-SESSION EMOTIONAL DISCLOSURE: EFFECTS ON POST-TRAUMATIC GROWTH AND SYMPTOMS

Olga M. Slavin, MA, Lindsay M. Sander, MA, Psychology, Wayne State University, Detroit, MI, Jay L. Cohen, PhD, Psychology, John D. Dingell VAMC, Detroit, MI, Christina Savula, BA, Megan Lasco, BA, Mark A. Lumley, PhD, Psychology, Wayne State University, Detroit, MI

Emotional disclosure about stress can improve health, yet different disclosure methods (writing, talking alone, talking to a person) have not been directly compared. Furthermore, whether one session of disclosure is beneficial, and whether such disclosure influences both post-traumatic growth as well as stress symptoms is not known. A sample of 193 young adults (82.4% female) who had unresolved life stress were randomized to 6 conditions that involved one, 30-min laboratory session: 4 emotional disclosure methods (private written disclosure, private verbal disclosure into a recorder, disclosure to a passive therapist, or disclosure to an active therapist) and 2 control conditions (writing or talking privately about time management). At baseline and 6-week follow-up, participants completed the Posttraumatic Growth Inventory, the Impact of Event Scale, the Brief Symptom Inventory, and a physical symptom measure. Analyses compared conditions on follow-up measures, covarying baseline scores. First, the four disclosure conditions were combined and compared with the combined control conditions. The disclosure conditions led to substantially greater posttraumatic growth at follow-up (baseline adjusted M = 3.95) than control conditions (adjusted M = 3.48), F (1, 190) = 8.69, p =.004, partial eta2 = .044. Each of the four disclosure methods yielded comparable, positive effects on posttraumatic growth, relative to some worsening for each of the controls. In contrast, disclosure groups (combined) did not differ from controls on any symptom measure (IES-Avoidance, p = .34; IES-Intrusions, p = .79; BSI Global Severity, p = .25; physical symptoms, p = .22), and all four disclosure groups showed this pattern. Correlations showed that growth and symptom measures were independent of each other (r’s from -.10 to .07). We conclude that one, 30-min session of emotional disclosure, regardless of method, leads to post-traumatic growth but not symptom reduction. Future researchers should consider treating growth and symptoms as separate outcomes and examine processes of change in both.
TYPE D PERSONALITY, TEMPERAMENT AND MENTAL HEALTH IN MILITARY PERSONNEL: AVOIDING DEPLOYMENT
Paula M.C. Monmersteeg, PhD, Johan Denollet, PhD. Center of Research on Psychology in Somatic diseases, Tilburg University, Tilburg, the Netherlands; Annemieke Kavelaars, PhD, Psychoneuroimmunology, Elbert Geuze, PhD, Eric Vernetten, PhD, Military Mental Health Research Centre, Cofti J. Heijnen, PhD, Psychoneuroimmunology, University Medical Center Utrecht, Utrecht, the Netherlands

Abstract: The purpose of the study was to examine Type D personality and mental health in a group of healthy young military personnel (n=92) before UN-deployment to Afghanistan. The goal of the present study was: 1. to validate the Type D personality scale in this group of disease free adults, 2. to examine NA and SI in the realm of temperament and character dimensions, measured with the Cloninger Temperament and Character Inventory (TCI), and 3. to relate reported health measures at baseline with Type D personality to pre-deployment mental health state. Despite relatively small sample size and cross-sectional design, Type D personality (15%) was present and validated in a subgroup of military personnel before deployment (NA alpha=.84, SI alpha=.89). Secondary factor analysis fitted the SI and NA components with harm-avoidance and self-directedness; SI correlated 0.64 with harm-avoidance, whereas NA correlated -.048 with self-directedness. Overall levels of the TCI were different from the general population, pointing towards a relative resilience of military personnel. The subgroup that met Type D personality criteria showed significant higher levels of pre-deployment post-traumatic stress symptoms, general distress, and hostility (F1,90=19.6, 25.5, 12.5 respectively, all p<.001). This study further validates the stable trait qualities of the Type D scale. The subgroup reporting Type D personality may be most vulnerable for developing mental health problems after deployment.

NO MEANING IN LIFE IS AN INDEPENDENT PREDICTOR OF MIDDLE AGED MALE ALL-CAUSE MORTALITY IN HUNGARY (HUNGARIAN EPIDEMIOLOGICAL PANEL 2002-2006)
Arpad Skrabski, PhD, Sociology, Apor Vilmos Catholic College, Vac, Hungary; Maria S. Kopp, MD, PhD, Behavioral Sciences, Semmelweis University, Budapest, Hungary

Abstract: The purpose of the study was to investigate the association between the Life Meaning scale of Rahe’s Brief Stress and Coping Inventory and the middle aged male and female all-cause mortality in the Hungarian population. Subject Sample and Methods: In the Hungarian Epidemiological Panel study 1130 men and 1529 women were contacted again in 2006, who in 2002 were between the ages of 40-69 years. In this age group this sample represented the Hungarian population according to gender and age. Between 2002 and 2006, 99 men (8.8%) and 53 women (3.5 %) died among them, these mortality rates correspond to the national statistics. Meaning in life, smoking history, alcohol abuse, body mass index, socioeconomic, psychosocial, work and family related factors and self-reported health measures were assessed at baseline. Logistic regression analysis was used to predict association with mortality. Summary of Results: After adjustment for age, education, smoking, alcohol abuse and body mass index low meaning in life increased the risk of male premature death, showing 2.06 (1.23-3.43) p=.006 times odds. Among women meaning in life was in no significant connection with premature mortality. This result might mean that the fundamental societal changes, especially demoralization and unpredictability might increase the middle aged male mortality risk in a suddenly changing society.
stronger Mexican orientation than men. Discussion addresses future directions relating gender differences and cultural adaptation.

192) Abstract 1162

FAMILY AND NEIGHBORHOOD SOCIOECONOMIC STATUS HAVE DIFFERENTIAL IMPACTS ON FAMILY HEALTH
Hannah M. Schreier, MA, Edith Chen, PhD, Psychology, University of British Columbia, Vancouver, BC, Canada

We investigated the differential impacts of family and neighborhood socioeconomic status (SES) on markers of general health in youth and their parents. SES has been linked to health outcomes but few studies have assessed SES at multiple levels or considered its impact on multiple family members. Hence, it remains unclear whether SES at a specific level of the social environment of families has a greater influence on family health. In this study, 100 families (youth aged 9-18, M = 12.9, 50.8% male; parents aged 32-68, M = 45.6, 27% male) participated in 3 study visits, each 6 months apart. At visit 1, parents were interviewed about family SES, while neighborhood SES information was obtained using the family’s postal code. After visits 1 and 2, youth rated daily health symptoms for 2 weeks. At visits 2 and 3, resting blood pressure (BP) readings were collected from parents and youth. Regressional analyses of change in youth’s BP between visits 2 and 3 revealed that when included simultaneously, neighborhood SES (predicted parent BP over time) and neighborhood SES (neighborhood education levels), but not family SES (maternal education), predicted systolic blood pressure (SBP) in youth (B = -0.26, p < .01), showing that children living in neighborhoods with lower average education had increases in SBP over 6 months, controlling for baseline levels. A similar finding emerged for parents. When neighborhood and family SES were included simultaneously, only neighborhood SES predicted parent BP over time (B = 0.26, p < .05), such that parents living in neighborhoods with lower unemployment rates had greater increases in DBP over a 6 months period, controlling for baseline levels. In contrast, children’s health symptoms were predicted only by family, not neighborhood, SES. That is, greater years of maternal education predicted increasing child symptoms over time (B = -0.28, p < .05), suggesting that maternal education might confer awareness of symptoms in children. Because SES indicates different aspects of family health, with family SES impacting self-reported health symptoms and neighborhood SES influencing traditional physiological markers of health.

193) Abstract 1307

PYROGENIC CYTOKINES DID NOT INFLUENCE STRESS INTERVIEW-INDUCED HYPERThERMIC RESPONSE IN A PATIENT WITH PSYCHOPHIC FEVER
Tetsuya Hiramoto, MD, Takakazu Oka, MD, PhD, Kazufumi Yoshihara, MD, PhD, Chiharu Kubo, MD, PhD, Psychosomatic Medicine, Graduate School of Medical Sciences, Kyushu University, Fukuoka, Fukuoka, Japan

In spite of many case reports dealing with psychogenic fever, the mechanism by which psychological stress increases core body temperature (Tc) in human subjects has yet to be clarified. In the current case, we investigated the levels of prostaglandin E2 (PGE2), catecholamine and pyrogenic cytokines, during stress-induced hyperthermia. The patient (a 13-year-old girl) had episodes of continuous fever above 38 °C. Although she had received detailed examination by pediatricians, there were no data indicating organic disease. Since psychogenic fever was suspected, the case was referred to our department. At hospitalization, she underwent a 60-minute stress interview to clarify whether the fever was in fact induced by emotionally stressful stimuli. Her baseline Tc was 36.6 °C and baseline heart rate was 84 bpm. These began to rise immediately after commencement of the interview, reaching a maximum of 37.5 °C and 102 bpm at 80 and 60 minutes (min), respectively. In this study, we measured the patient’s preference to hot (40°C) or cold (20°C) water upon immersion of her hands in both, in order to clarify how her thermoregulatory response changed over time. Her preference changed from cold at 20 min to hot at 40 and 60 min as her Tc increased. Her preference for water whose temperature was above her Tc indicates that the rise in Tc was a fever, i.e. active hyperthermia under the control of the brain. Plasma levels of PGF2α and catecholamine and serum levels of pyrogenic cytokines, such as IL-1α, IL-1β and MIP-1α levels were all less than their minimum detectable doses. This is the first case report showing that a stress interview induced an acute rise in Tc, with the rise in Tc being confirmed as an actual fever. Accordingly, the mechanism behind the development of psychogenic fever would seem to be unrelated to PGF2α, catecholamine or pyrogenic cytokines.

194) Abstract 1435

PHYSICAL FUNCTIONING IN A NON-CARDIAC CHEST PAIN POPULATION: PAIN, AVOIDANCE, AND BODY VIGILANCE
Katherine Hallandsmyth, MSc, Jennifer M. Craft, MA, Diane L. Rosenbaum, BA, Kamila S. White, PhD, Psychology, University of Missouri-St. Louis, St. Louis, MO, Ernest V. Gervino, ScD, Cardiovascular Medicine, Harvard Medical School, Boston, MA

The purpose of this study was to investigate physical disability in a non-cardiac chest pain (NCCP) population and to examine a theoretical model of contributory factors. Those with NCCP are apt to be uniquely vigilant to cardiopulmonary sensations and to avoid activities that may amplify cardiopulmonary cues. Activity avoidance in chronic pain is related to higher levels of depression and anxiety (Silverstein, 2007). We hypothesized pain severity, body vigilance, and pain avoidance behaviors would account for disability, as measured by physical functioning. The sample consisted of 229 NCCP patients seeking cardiac evaluation at an urban academic medical center. The average age of the participants was 51 years (SD = 10), 43% male. These data were collected as part of a larger longitudinal study of the clinical course and correlates of NCCP. The current study consisted of an assessment battery at baseline, 6-, 12-, and 18-month follow-up. Results indicate that the distribution of physical functioning was positively skewed with 43% of the sample reporting no disability and with a small proportion reporting potentially clinically significant levels of disability. The mean score for body vigilance in this sample was lower than has been reported elsewhere for non-clinical and clinical samples (Schmidt, Lentz, Tarnowski, 1997). To investigate contributory factors of functioning, a regression model was designed that included pain, avoidance, and vigilance: F(3, 181) = 6.66, p<0.01. Pain accounted for the greatest proportion of variance (Beta=.26, p<0.01) and avoidance approached significance (Beta=.14, p = 0.07). Vigilance was not significant. This model accounted for only 10% of the variance in functioning, which may be due, in part, to the low levels of disability present in this sample. These data suggest that there may be a subpopulation of NCCP patients who are uniquely disabled, and for whom a model including pain and avoidance may be pertinent. Secondary analyses will aim to better characterize this subsample of NCCP patients who may benefit from further research on predictors of physical functioning.

195) Abstract 1595

SHORT-TERM AUTONOMIC EFFECTS OF ESPRESSO-CONSUMPTION - HOW IMPORTANT ARE PRIOR EXPERIENCE AND EXPECTATION?
Frank Zimmermann-Viehoff, MD, Christian Herrmann, cand.med., Cora S. Weber, MD, Hans-Christian Deter, MD, Psychosomatic Medicine, Charité Campus Benjamin Franklin, Berlin, Germany

Introduction: Coffee is among the most widely consumed beverages in the world. Potential harmful or beneficial health effects are controversially discussed. Measurement of heart rate variability (HRV) provides a non-invasive tool to estimate vagal control of the heart. Reduced HRV is associated with all-cause mortality and cardiovascular risk factors such as hypertension, diabetes and obesity. Aim of our study was to investigate short-term effects of espresso-consumption on HRV. Methods: N=36 healthy habitual coffee-consumers and N=39 non-habitual coffee-consumers were enrolled in the study. All subjects participated in 3 laboratory sessions according to a randomised cross-over protocol. In the verum condition, a double espresso was administered, whereas decaffeinated espresso was administered in the placebo condition. To control for context effects such as changes due to resting or the laboratory surroundings, subjects received water in a similar control condition. HRV was assessed over 20 min before consumption (baseline) and from the 20th to 40th min after consumption.
consumption. Separate analyses were performed for habitual and non-habitual consumers because the effects of caffeine are subject to rapid habituation. Results: The habitual consumers did not significantly differ from the non-habitual consumers with regard to baseline HRV (high frequency component). After espresso, the habitual consumers showed a significantly higher increase in the high frequency component of HRV compared to decaffeinated espresso or water ($p=0.02$ and $p=0.003$ respectively). HRV response in the non-habitual consumers was not significantly different across the three conditions. Discussion: Espresso consumption increased cardiac vagal tone in habitual consumers. The observed effect may be due to physiological (baroreflex-mediated) or psychological mechanisms (conditioning, expectation). Differences between habitual and non-habitual consumers could be explained by habituation with regard to sympathetic effects of caffeine in the habitual consumers or differences in conditioning or expectations.

HEART RATE, HEART RATE VARIABILITY, AND INTERPERSONAL MOTIVES RELATED TO EYE-GAZE AVOIDANCE IN AN INTERPERSONAL TASK

Christine E. Kemmerer, Chelsea M. Ale, M.S., Matthew Whited, M.S., Linda K. Penweller, Kirsten Sundberg, Ph.D., Psychology, West Virginia University, Morgantown, West Virginia

It is well established that interpersonal stress leads to characteristic cardiovascular, behavioral, and motivational responses; however, less is known regarding how these three classes of responses are related. The current study examines the relations between resting heart rate (HR) and heart rate variability (HRV), eye-gaze avoidance, and interpersonal motives following two role play social interactions. Fifty-five undergraduates (45.5% female), ranging in age from 18 to 26-years-old, participated in two videotaped interactive social tasks with a confederate. In the Comfort Task, participants consoled the confederate whose relationship ended abruptly. In the Conflict Task, participants tried to convince the confederate to turn down loud music. HR data was collected pre- and post-task via Polar monitor and participants rated Agency (e.g., competitive) and Communal (e.g., relationship-building) motives following the tasks. Excellent inter-rater reliability was attained for coding eye-gaze aversion (Not Tracking), defined as looking away for at least three seconds. Participant rating of Agency was significantly negatively correlated with Not Tracking during the Conflict task ($r = .35$, $p < .01$), but not during the Conflict task ($r = .11$, n.s.). High frequency (HF) HRV was also negatively correlated with Not Tracking during the Conflict task ($r = .29$, $p < .05$), but not the Conflict task ($r = .07$, n.s.). Baseline HR was significantly positively associated with Not Tracking the Conflict task ($r = .32$, $p < .05$), but not during the Conflict task ($r = .24$, n.s.). Resting physiological arousal, as indicated by higher HR and lower HRV was significantly associated with increased eye-gaze avoidance, but only during the Conflict task. In this regard, anticipatory anxiety, as measured via cardiovascular parameters, influences behavioral responses to interpersonal tasks involving nurturance and comfort, particularly eye contact responses.

EXECUTIVE ATTENTIONAL CONTROL AND PARASYMPATHETIC ACTIVATION DURING STRESS

Paula G. Williams, Ph.D., Holly K. Rau, B.S., Matthew J. Cribbet, B.S., Cameron Curtis, B.S., Heather E. Gunn, M.S., Psychology, University of Utah, Salt Lake City, UT

The neurovisceral integration model of self-regulation suggests that individual differences in executive functioning should be associated with resting respiratory sinus arrhythmia (rRSA) and phasic change in RSA during stress, reflecting self-regulatory capacity and effort, respectively. The current study examined associations between performance on a measure of executive attentional control and both resting and phasic RSA (high frequency heart rate variability; HF-HRV) during a laboratory stress task. 104 young adults (49% female; mean age = 22.9) completed the Social Competence Interview, a well-validated laboratory stress task that involves discussion of a recent personal stressor. Systolic and diastolic blood pressure (SBP, DBP), ECG, and respiration were recorded throughout the session and participants completed measures of positive and negative affect (PA and NA) before and after the stressor. The Attention Network Test (ANT), a computerized reaction time flanker task, was used to assess individual differences in the efficiency of the executive attentional network. Poorer executive attention was associated with greater change in RSA during the stressor, controlling for rRSA, $B = .21$, $p < .05$. Individuals with poorer executive attention (1 SD above the mean in reaction time) evidenced lower rRSA, $F(1, 17) = 5.4$, $p < .05$, and greater increase in negative affect in response to the stressor, $F(1, 27) = 5.3$, $p < .05$, compared to individuals with better executive attention. Results of the current study indicate that individuals with poorer executive attention have less regulatory capacity (as evidenced by lower rRSA) and demonstrate greater regulatory effort during stress (i.e., greater change in RSA during stress and greater subjective distress). These findings are consistent with the hypothesis that individual differences in executive functioning influence stress regulation via parasympathetic mechanisms.

ASSOCIATION OF DEPRESSIVE SYMPTOMS AND STRESS ON THE SALIVARY CORTISOL PATTERNS OF OLDER ADULT CAREGIVERS AND NON-CAREGIVERS

Guad G. Urizar Jr., Ph.D., Psychology, California State University, Long Beach, Long Beach, CA, Natara G. Castro, Ph.D., Cynthia M. Castro, Ph.D., Abby C. King, Ph.D., Medicine, Stanford University, Stanford, CA

Although studies have shown that chronically stressed older adults, such as caregivers, are at increased risk for adverse mental health outcomes, few studies have examined the association of these health outcomes with biomarkers of stress. The objective of the current study was to examine whether depressive symptoms and stress were associated with the salivary cortisol patterns of 54 chronically stressed older adult caregivers and non-caregivers (mean age=56+6 years; 70% women; 77% married). Participants completed measures of depression (CES-D) and stress (Revised Life Events Measure, Caregiver Burden Scale), and collected their salivary cortisol at four different times during the day (i.e. awakening, 30 minutes after waking, 4pm, and bedtime). Independent samples t-test analyses showed that, on average, non-caregivers slept more than their caregivers (7.2 vs. 6.5 hours/day; $t=2.8$, $p < .01$). ANOVA analyses also showed that evening types woke up later in the morning than both neither and morning types ($F=5.7$, $p < .01$). Neither types (53%) were more prominent than morning (28%) and evening types (19%). ANCOVA analyses revealed that morning types exhibited more normal morning cortisol patterns than neither or evening types, controlling for sleep duration and time of awakening ($F=2.7$, $p < .05$). Marginal significant time of awakening by morningness/eveningness/both type interaction was also found, such that morning types who woke up later in the day had more normal morning cortisol patterns than evening types who woke up earlier in the day ($F=2.3$, $p=.07$). These results suggest that older adults who are classified as "evening" types, particularly those with less sleep, show irregular cortisol patterns which have been associated with negative health outcomes in this population.

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experiencing an average of five (SD=3.5) stressful life events over the past year (e.g., death of a loved one). Independent samples t-test analyses revealed no significant differences between caregivers and non-caregivers on depression or number of stressful life events experienced (t=1.41, p=n.s.). Pearson correlation analyses showed that caregivers who reported experiencing high levels of objective caregiver burden (i.e., helping the care recipient with daily activities) had more abnormal cortisol awakening responses (r≈.39, p<.05). For non-caregivers, hierarchical regression analyses demonstrated that high depressive symptoms and greater number of stressful life events were associated with more abnormal diurnal cortisol patterns over the course of the day (R²=.31, p=.05; R²=.43, p<.01, respectively), controlling for gender and marital status. These findings suggest that chronically stressed older adult caregivers and non-caregivers may have different biological pathways that affect their mental health functioning.

200) Abstract 1057

ALCOHOL USE OF ADOLESCENT PRISONERS COMPARED TO HIGH SCHOOL STUDENTS: ROLE OF EMOTION AND EMOTION REGULATION

Sunmi Song, M. A., Jennifer E. Graham, Ph. D., Department of Biobehavioral Health, Pennsylvania State University, University Park, PA, Young-Woo Sohn, Ph. D., Department of Psychology, Yonsei University, Seoul, South Korea

Adolescent delinquents are less able to regulate their emotions, despite experiencing more negative emotion, the combination of which may put them at greater risk of problematic alcohol use. The current research examined the role of emotion (positive and negative affect), emotional intensity, and emotion regulation (ER) on the drinking behavior of delinquents (juvenile prisoners, n = 303) and same age peers (high school students, n = 287) from South Korea. Compared to the peer group only, a tendency to use a voidant ER accounted for the interrelated emotional variable s and problem drinking. The models were significant (ΔR² = .08, p < .001), and explained more than 15% of the variance of problem drinking was mediated by a tendency to use both support-seeking and avoidant ER. These results imply that adolescent prisoners are more likely to engage in problem drinking when they try to avoid their negative feelings or to regulate their intense emotions by seeking out avoidance or escape. Interestingly, more than 71% of the delinquents were classified as avoidant ER

201) Abstract 1148

RUMINATION PREDICTS LONGER SLEEP ONSET LATENCY FOLLOWING AN ACUTE PSYCHOSOCIAL STRESSOR

Peterson, M.M. Zoccola, M.A., Sally S. Dickerson, Ph.D., Suman Lam, B.A. Psychology and Social Behavior, University of California, Irvine, Irvine, CA

Rumination has been linked to self-reported sleep quality. However, whether rumination is related to objective measures of sleep has not been tested. The purpose of the present study was to examine whether trait rumination and stressor-specific rumination following a laboratory speech task predict longer sleep onset latency (SOL), as measured with actigraphy. We hypothesized that those who ruminate (assessed with both trait and stressor-specific measures) would have longer SOL (i.e., take longer to fall asleep) on the evening following an acute psychosocial stressor. Seventy-one participants (age range = 18-26, M = 19.4, SD = 1.5; 62% female) delivered a five-minute speech in front of an evaluative panel in an afternoon laboratory session. Trait rumination was assessed with the Brief Ruminative subscale of the Revised Emotion Control Questionnaire (Roper & Najarian, 1989). To measure stressor-specific rumination, participants indicated the frequency of the thoughts they experienced during a 10 minute rest period following the stressor. Participants wore actigraphs on their wrists on the night following the laboratory session to measure SOL. We performed regression analyses to test the associations between rumination and SOL. Consistent with hypotheses, higher trait rumination scores were related to longer SOL. Specifically, we found a main effect of trait rumination on SOL (B = -.25, p < .05). In addition, we found a significant interaction between trait and stressor-specific rumination predicting longer SOL (B = .66, p < .05). SOL was longest among those who engaged in more stressor-specific task rumination and had greater trait rumination scores. The findings from the present study are consistent with previous research linking rumination to subjective sleep quality, and the results suggests that situations that induce ruminative thought may cause delayed sleep onset for those with a propensity for rumination.

202) Abstract 1689

LIFE HASSLES PRODUCE GREATER BLOOD PRESSURE RESPONSE THAN LIFE STRESSORS IN AFRICAN AMERICANS

Mildred A. Pointer, PhD, JLC-BBRI Cardiovascular Disease Research, Sandra Waters J. Waters, PhD, Psychology, Waters Brittany, HS, Brittany Royall, HS, Nursing, Jonathan Livingston, PhD, Crystal Cannon, BS, Psychology, Marilyn McClelland, School of Business, North Carolina Central University, Durham, NC

Stressful life events engender life stressors (e.g., divorce, death of family member/friend, loss of employment) or life hassles (e.g., sitting in traffic, misplaced something, late for appointment) that may elicit an acute cardiovascular response. The theory of cardiovascular reactivity posits that normotensive individuals who show exaggerated cardiovascular responses to stress are at risk for developing future cardiovascular disease. The purpose of the present study was to determine whether the typical stressors recalled by African Americans (e.g., divorce, death of family member/friend, loss of employment) or life hassles (e.g., sitting in traffic, misplaced something, late for appointment) elicit an acute cardiovascular response. Using structural equation modeling, the models were significant (ΔR² = .31, p < .05; ΔR² = .43, p < .01, respectively), controlling for gender and marital status. These findings suggest that chronic stressors engaged in more stressor-specific task rumination and had greater trait rumination scores. The findings from the present study are consistent with previous research linking rumination to subjective sleep quality, and the results suggest that situations that induce ruminative thought may cause delayed sleep onset for those with a propensity for rumination.

Topic: Hypertension

203) Abstract 1529

THE EFFECTS OF ETHNIC DISCRIMINATION AND SOCIOECONOMIC STATUS ON ENDOTHELIN-1 AMONG BLACKS AND WHITES

Denise C. Cooper, Ph.D., Paul J. Mills, Ph.D., Wayne A. Bardwell, Ph.D., Department of Psychiatry, University of California-San Diego, La Jolla, CA, Michael G. Ziegler, M.D., Department of Medicine, University of California San Diego Medical Center, San Diego, CA, Joel E. Dimsdale, M.D., Department of Psychiatry, University of California-San Diego, La Jolla, CA

Background: Ethnic disparities in cardiovascular disease may partially reflect differences in chronic stress burden that can vary by both social
class and exposure to ethnic discrimination. Stress has been associated with increases in the vasoconstrictor endothelin-1 (ET-1). This study examined the relationship of ET-1 to socioeconomic status (SES) and to perceived ethnic discrimination among healthy black (n=51) and white (n=65) adults (mean age 36.5). Methods: The Perceived Discrimination subscale of the Scale of Ethnic Experience measured exposure to discrimination. The Hollingshead Two-Factor Index of Social Position assessed SES. Plasma ET-1 was sampled upon awakening after an overnight admission. Results: SES and ET-1 levels were similar across ethnic groups, but mean discrimination scores were higher among blacks than whites (p<.001). Multiple regressions found that the SES x ethnicity interaction predicted ET-1 (p=.05), after adjustment for gender, resting mean arterial pressure, body mass index, and exercise frequency. Adjusted regressions stratified by ethnicity revealed that lower SES predicted higher ET-1 in whites, contributing 21% of the variance (p=.001). SES was not associated with ET-1 in blacks. Another series of regressions revealed an interaction effect of ethnicity by discrimination on ET-1 (p=.05) after adjustment for SES, gender, exercise frequency, and socially desirable response bias. Regressions adjusted for covariates found that increased discrimination predicted increased ET-1 among blacks and explained 11% of the variance (p=.05). Discrimination was not related to ET-1 in whites. Conclusions: ET-1 levels increased in association with different psychosocial stressors among blacks and whites. Plasma ET-1 was increased among whites with lower SES and among blacks with higher levels of perceived ethnic discrimination, regardless of SES.

204) Abstract 1169

ETHNIC DIFFERENCES IN CARDIOVASCULAR RESPONSE: THE EFFECT OF PERSEVERATIVE COGNITION
LaBarron K. Hill, B.A., John J. Sellers, PhD, Julian F. Thayer, PhD, Psychology, The Ohio State University, Columbus, OH
It has been proposed that ethnic differences in blood pressure (BP) regulatory mechanisms such as total peripheral resistance (TPR) may be related to heightened cardiovascular response to stress (Alpert & Barnard, 2001) and increased risk for cardiovascular disease (CD) (Cameron & Wallace, 2004) in African American adolescents and adults, respectively. African Americans are at greater risk than any other ethnic group for morbidity and mortality from one form of CD, Hypertension. Research on this health disparity has suggested that forms of negative affect (i.e. depression) play a significant role in BP regulation (Jonas & Lando, 1999). One related yet relatively unexplored path to the development of Hypertension in African Americans is the effect of worry. According to the Perseverative Cognition Hypothesis (PC) Brosschot, Gerin & Thayer, 2006) worry may lead to increased duration of both negative emotional states and physiological arousal which may detrimentally affect health. The present investigation sought to further explore the impact of worry (conceptualized as an indicator of PC) on indices of BP regulation in a sample of healthy African Americans (N = 24) and Controls (N = 31). Hemodynamic parameters were continuously measured during a laboratory stressor protocol. To establish high and low worry groups, a ethnicity by discrimination on ET-1 (p=.05) after adjustment for SES, gender, exercise frequency, and socially desirable response bias. Regressions adjusted for covariates found that increased discrimination predicted increased ET-1 among blacks and explained 11% of the variance (p=.05). Discrimination was not related to ET-1 in whites. Conclusions: ET-1 levels increased in association with different psychosocial stressors among blacks and whites. Plasma ET-1 was increased among whites with lower SES and among blacks with higher levels of perceived ethnic discrimination, regardless of SES.

206) Abstract 1246

INTERACTIVE EFFECTS OF THE ADRB2 T-47C POLYMORPHISM AND STRESS REDUCTION INTERVENTIONS UPON CARDIOVASCULAR REACTIVITY TO STRESS AMONG AFRICAN AMERICAN (AA) ADOLESCENTS
Mathew Gregoski, MS, University of Georgia, Athens, Georgia, Harry Davis, M.S., Vernor Barnes, PhD., Martha Tingen, PhD., Yanbin Dong, M.D., Frank Treiber, PhD, Pediatrics, Medical College of Georgia, Augusta, Ga.
The ADRB2 T-47C polymorphism has been associated with increased cardiovascular (CV) reactivity to laboratory stressors. Significant individual variability exists in impact of stress reduction interventions upon reduction in CV reactivity. Meditation programs have had the greatest degree of success. The purpose of this exploratory study was to evaluate the influence of the ADRB2 T-47C polymorphism and participation in meditation (MEDIT: Breathing Awareness Meditation or Transcendental Meditation) or Other Interventions (OI)(Life Skills or Health Education)upon CV reactivity to laboratory stressors. 172 AA ninth graders with high normal systolic BP (SBP)who had participated in MED (62)or OI(110)were genotyped(122 noncarriers,50 carriers). Interventions were conducted at school during health class for 3 months.Prior to and following the interventions 3 stressors were administered(Break Out and Need for Speed video game challenges, Social Competence Interview). Aggregated reactivity scores were constructed by first calculating the average of the change scores across the 3 stressors for SBP, diastolic BP(DBP)and heart rate (HR).The averaged pre intervention change scores were subtracted from their respective post intervention averaged change scores.Two(ADR22 carrier status) x 2(MED vs Other)ANOVA models revealed a main effect for ADRB2 status with T-47C noncarriers exhibiting lower DBP reactivity (-3.3 vs -.44 mmHg,p<.002).An ADRB2 x intervention interaction for HR reactivity indicated that ADRB2 T-47C carriers who received MED exhibited the greatest decrease(-4.2 vs range of -.13 to .31 beats/min,p<.004). These analyses indicate the importance of considering underlying stress activated genetic predispositions when designing predictive personalized intervention programs aimed at reducing CV disease endophenotypes.
207) Abstract 1650

A PSYCHOSOMATIC STUDY: MIND-BODY MEDICINE (YOGA BASED) COMPREHENSIVE LIFESTYLE INTERVENTION IN HYPERTENSIVE PATIENTS

Alok K. Mishra, Barkatullah University,Bhopal, Bhopal, M.P. India, Rajesh Sagar, MD, Dept.Psychiatry, All India Institute of Medical Science , New Delhi, Delhi, India, Dr. Tara Singh, PhD, Dept.of Psychology, Barkatullah University,Bhopal, Bhopal, Madhya Pradesh, India

Purpose: Sedentary life style, obesity, dietary habits, along with stresses is known risk factors of hypertension. Mind-Body Medicine(Yoga Based) is a science widely practiced health care practices is claimed to increase longevity along with therapeutic and rehabilitative effects. This study was conducted to examine the effect of Mind-body medicine on hypertension in subjects between 18 and 65 years of age. Pulse rate, systolic and diastolic blood pressure was studied in 30 control subjects (not doing any type of physical exercise) and 30 study subjects who had been undergone a systemically designed Mind-Body medicine yoga based classes and training at our centre. A well standardized questionnaire was asked by subjects to investigate its impact on well being, quality of life and anxiety level. Subject, sample and methods: The total duration of the study was 60 days.Intervention was two months in which 9 days for intervention of yoga and rest of 3 days follow up. Recap in 15 days two times was follow-up period.Both SBP and DBP were significantly lower in the study group (SBP=131.72± 7.35,DBP=83.88±4.970) compared to that in control group (SBP=138.20±11.6,DBP=89.00±5.4)(in following order SBP, p value=0.01 and DBP P value P<0.001) group as well as in the control group. The parameters were recorded in morning at 1st to 9th day and at 60th day. Results: In the study, significant reductions in the pulse rate occurs in subjects underwent yoga (P<0.01). The differences in the mean values of systolic and diastolic blood pressure between study group and control group was also statistically significant (P<0.01). The systolic and diastolic blood pressure showed positive co-correlation with age in the study group as well as in the control group. The significance of difference between correlation coefficient of both the study groups was tested with the use of test for proportion of difference was significant (P<0.01). A significant improvement in Quality of life and (QOL) and reduction in anxiety, stress as well as reductions in depression was observed. Conclusions: On the basis of findings, it can be concluded that Mind-Body Medicine (Yoga based) comprehensive life style intervention may be beneficial in improvement of QOL, psychological and hypertensive status.

208) Abstract 1454

A LATENT CLASS ANALYSIS APPROACH TO CHARACTERIZING NON-ADHERENT HYPERTENSIVE PATIENTS

Ranak B. Trivedi, PhD, Medicine, Duke University Medical Center, Durham, NC, Brian J. Ayotte, PhD, HSR&D, Durham VAMC, Durham, NC, Carolyn T. Thorpe, PhD, Population Health Sciences, University of Wisconsin, Madison, WI, David Edelman, MD, Medicine, Duke University Medical Center, Durham, NC, Hayden B. Bosworth, PhD, HSR&D, Durham VAMC, Durham, NC

National guidelines for hypertension (HTN) control recommend adherence to multiple health behaviors. Most research has examined these behaviors individually. We used a latent class analysis (LCA) approach to determine subtypes of adherent across 5 behaviors: Medication use, difficulty adhering to diet and exercise, smoking, and home BP monitor use. Characteristics of class membership were then examined. Data were collected from 636 hypertensive patients (48% White, 34% Male), recruited for a 24-month trial that tested a behavioral intervention for HTN control. Indicator variables were dichotomized based on behavior adherence. LCA was used to examine distinct patterns of adherence behavior. Model fit statistics suggested that a 2-class LCA model for adherence best represented the data (Lo-Mendell-Rubin Likelihood Value=-1824.3, p<.001). Class 1 members were more likely to be adherent across the five behaviors while Class 2 members were less likely to be adherent. Probabilities of class membership for class 1 and class 2 were: medication adherence (66.3 vs. 51%), diet (86.6 vs. 25.2%), exercise (88.3 vs. 27.3%), not smoking (84% vs. 16%), and home monitor use (8.0% vs. 88%). Class membership was used to measure five factors that underlie adherence: female (OR=1.4, 95%CI=1.03, 2.0), have more than HS education (OR=1.2, 95%CI=1.04, 1.3), less stressed (OR=0.74, 95%CI=1.65, .86), employed (OR=1.2, 95%CI=1.02,1.4), have less trouble paying bills (OR=0.76, 95%CI=0.64, .89), be have better physical well-being (OR=1.03) unit change in PCS scale of SF-36, 95%CI=1.02, 1.1), and better better emotional well-being (OR=1.05 unit change in the MCS scale of SF-36, 95%CI=1.03, 1.1). Race, social support, and help received were not related. Results suggest that hypertensive patients having difficulty adhering to one health behavior are likely to have difficulty adhering to other behaviors as well.

209) Abstract 1639

ANXIETY DISORDERs PREDICT 1-YEAR DEVELOPMENT OF HYPERTENSION

Simon L. Bacon, PhD, Catherine Laurin, PhD, Andre Arsenault, MD, Blaine Ditto, PhD, Tavis S. Campbell, PhD, Kim L. Lavoie, PhD, Montreal Behavioural Medicine Centre, MHI/Concordia/UQAM, Montreal, Canada

Psychiatric disorders such as mood and anxiety disorders have been associated with increased cardiovascular (CVD) morbidity and mortality. For example, depression has been shown to contribute to the risk of CVD by increasing blood pressure. However, the differential impact of depressive vs. anxiety disorders on the development of hypertension (HTN) remains unexplored. The objective of the current study was to examine the impact of psychiatric disorders (depressive and/or anxiety disorders) on the development of HTN. A total of 185 patients (mean age = 58 yrs; 39% women) who were referred for myocardial perfusion stress testing and were normotensive at the time of recruitment, underwent a structured psychiatric interview (Primary Care Evaluation of Mental Disorders) and completed a sociodemographic and medical history questionnaire on the day of their exercise stress test. To evaluate the occurrence of new HTN medication. During the follow-up, 11 (6%) patients reported having developed HTN, which is consistent with Canadian national age-adjusted averages. Controlling for age and sex, participants with any psychiatric disorder were not more likely to develop HTN (RR=1.92, 95%CI=0.51-7.22). When looking at those with and without a mood disorder there was no increase in risk (RR=0.54, 95%CI=0.06-4.59). However, participants with an anxiety disorder were at higher risk of developing HTN compared to those without an anxiety disorder after adjustment for age, sex and comorbid mood disorders (RR=4.30, 95%CI=1.08-17.18). The results suggest that anxiety disorders, but not mood disorders, are associated with a higher risk of developing HTN, independent of age and sex. Specifically, patients with an anxiety disorder had over a 4-fold increase in the chances of developing HTN over one year. There are a number of potential physiological pathways to explain this association. Further studies are needed to assess the impact of treating of anxiety disorders on the development of HTN in these patients.

Topic: Mental Disorder

210) Abstract 1072

ATTITUDES TOWARDS MENTAL ILLNESS A COMPARATIVE STUDY BETWEEN SYRIA AND THE UNITED KINGDOM

Mosa Al-Kurdi, Msc, Psychology, University Of Westminster, Cambridge, United Kingdom, Paula Hixenbaugh, Psychology, University Of Westminster, London, United Kingdom

The present study examined attitudes towards mental illness between students in Syria and the United Kingdom using a survey design. Attitudes were investigated using the Opinions on Mental Illness (OMI) questionnaire (Cohen and Struening, 1959), where sub-scales within the questionnaire were used to measure five factors that underlie attitudes towards mental illness (A - authoritarianism, B - benevolence,
SEVERE DEPRESSION IS AN INDEPENDENT PREDICTOR OF MALE MIDDLE-AGED ALL-CAUSE MORTALITY IN HUNGARY (HUNGARIAN EPIDEMIOLOGICAL PANEL 2002-2006)

Maria S. Kopp, MD, PhD, Behavioral Sciences, Semmelweis University, Budapest, Hungary, Árpád Sgrabszki, PhD, Sociology, Apor Vilmos Catholic College, Vác, Hungary, András Kezei, PhD, Behavioral Sciences, Semmelweis University, Budapest, Hungary

Purpose of the Study: In Hungary, the mortality rate among men is the highest in Europe, and it is 2.5 times higher than among women in the same age group. The aim of the present follow-up study was to analyze which psychosocial risk factors might explain the high premature mortality rates and the notable gender differences in this respect in Hungary. Subject Sample and Methods: In the Hungarian Epidemiological Panel study, 1130 men and 1529 women who in 2002 were between the ages of 40-69 years were contacted again in 2006. In this age group, this sample represented the Hungarian population according to gender and age. Between 2002 and 2006, 99 men (8.8%) and 53 women (3.5%) died and these mortality rates correspond to the national statistics. Socio-economic, psychosocial and work related measures, self-rated health, depressive symptoms (BDI), WHO well-being, negative affect, self-efficacy, and health behavioral factors were assessed at baseline. Logistic regression analysis was used to predict the association of these measures with mortality. Summary of Results: After adjustment for age, education, smoking, alcohol abuse and body mass index, depression, especially severe depression increased the risk of premature death, showing a 4.34 (CI 2.58-7.31, p<0.001) odds ratio but only in men. In 2002, the prevalence of severe depression according to the Beck Depression Inventory (BDI) was 24% among the deceased men in the sample and 5.8% among surviving men. Among the severely depressed men only 5.2% were treated in 2002. Interestingly, among women depression was not significantly associated with premature mortality. Socio-economic and work-related risk factors predicted only male premature death. These results might mean that severe depression is directly related to the chronic stress of fundamental societal changes more among men than among women.

211) Abstract 1380

ARE STIMULANTS USEFUL IN HOSPICE PATIENTS WITH DEPRESSION?

Steve H. Koh, MD, MPH, MBA, Psychiatry, University of California, San Diego, San Diego, CA, Alana Iglewicz, MD, Psychiatry, University of California, San Diego, La Jolla, CA, Matt Sokkins, JD, PhD, Laura K. Chambers, ASX, MFS, San Diego Hospice, San Diego Hospice, San Diego, CA, Dilip V. Jeste, MD, Geriatric Psychiatry, Joel E. Dimsdale, MD, Psychiatry, University of California, San Diego, San Diego, CA, Scott A. Irwin, MD, PhD, Psychiatry, San Diego Hospice, San Diego, CA

Purpose: Psychiatric morbidity in patients receiving hospice care is highly prevalent, under-recognized, under-treated, and/or mistreated. Current guidelines recommend against treatment for depression in hospice care. Quick acting, safe and effective treatment is needed in this population to achieve high quality end-of-life experience. A retrospective chart review of patients receiving inpatient hospice care in the state of California and one hundred UK students from the University of Westminster. It was found that there was a significant difference in overall attitudes towards mental illness between Syria and UK, with Syrian participants holding more positive attitudes than UK participants. Also, there was a significant difference in sub-scale scores between Syria and UK and a significant interaction between attitude and country. Positive attitudes were found to revolve around factor B (benevolence) and negative aspects of attitude were indicated by factor E (interpersonal etiology) for both the Syrian and British participants. Consideration was paid to the possible improvements of the design in future research. The study concluded that positive attitudes towards mental illness are driven by religious kindness and moral beliefs; and negative aspects of attitudes are rooted in a conviction that mental illness is motivated. It is, therefore, suggested that investigating the different factors that underlie attitudes would be useful in guiding awareness campaigns on ways to counteract stigmatisation of mental illness.

212) Abstract 1520

FEELING SAD AND ALCOHOL OR DRUG IMPAIRMENT: AGE, GENDER, AND BLACK/WHITE DIFFERENCES

Stephen J. Morewitz, Ph.D., Sociology, San Jose State University, San Francisco, CA

Purpose of Study: Many people in the general population feel sad and are impaired by alcohol or other drugs. Alcohol and drugs use has been found higher in younger age groups than in older age groups. In addition, men report a higher use of alcohol and drugs than women.
Studies also have found that whites have a greater frequency of alcohol use than African-Americans. More research is necessary to determine the extent to which there are age, gender, and Black/White differences in feelings of sadness and alcohol or drug impairment. Subject Sample and Method: Based on data from the 1998 Health Interview Survey (N=30,534 adults), this investigation analyzes possible age and gender differences in feeling sad and alcohol or drug impairment. The Survey obtained self-report data on a variety of health and disability problems, including feeling sad in the past 30 days, whether or alcohol or drug problem causes difficulties with activities. Correlational analysis was performed to test the null hypothesis that there are no age, gender, and Black/White differences in feeling sad in the past 30 days and alcohol or drug problem caused difficulties with activities. Partial correlations were performed to control for possible confounding variables, such as marital status, highest level of education and income. Summary of Results: The null hypothesis was rejected. Correlational analysis revealed that age, gender, and Black/White differences in feeling sad and alcohol or drug impairment. Among African-American males, ages 26–40 years of age, frequency of feeling sad in the past 30 days was positively correlated with alcohol or drug impairment (r=.224, p<0.013, N=100). Among White females, ages 18–25 years of age, feeling sad was positively associated with alcohol or drug impairment, but the association was weaker (r=.114, p<0.043, N=228). However, among White and Black in older age groups there was no association between feeling sad and alcohol or drug impairment. These results remained after controlling for possible predictor variables. Clinicians should assess feelings of sadness and other possible symptoms of depression and alcohol or drug impairment in adults younger than 40 years of age, especially African-American males and White females.

215) Abstract 1362

PERSONALITY TRAITS IN RELATION TO SUICIDALITY IN MAJOR DEPRESSIVE DISORDER PATIENTS

Rupert Conrad, MD, Psychosomatic Medicine and Psychotherapy, University of Bonn, Bonn, NRW, Germany, Reinhard Liedtke, MD, Ingo Wegener, PhD, Psychosomatic Medicine and Psychotherapy, University of Bonn, Germany

Particularly in major depression, it is important to better understand those personality traits associated with suicidal ideation and suicide attempts. A study sample of 394 consecutive major depressed outpatients admitted to Bonn University Hospital was subdivided into three groups: Lifetime suicide attempters (N=52), suicide ideators (N=133) and patients without suicidal ideation (N=229). Psychodiagnostic measures included the Temperament and Character Inventory (TCI), the Symptom Checklist-90-R and the Hamilton Depression Rating Scale. Suicide attempters and ideators showed higher scores on emotional distress (p<0.01) and depression (p<0.05) compared to non-ideators. Analysis of covariance (covariates: age, gender, depression) revealed that suicide attempters score higher on the temperament dimension harm avoidance compared to non attempters (p<0.05). Suicide ideators were distinguished from non-ideators by character dimensions in terms of lower self-directedness (p<0.01) and higher self-transcendence (p<0.05). Our findings suggest that high harm avoidance may be a personality trait associated with suicide attempts in major depression, whereas low self-directedness and high self-transcendence are related to suicidal ideation. As temperament dimensions represent the “emotional core” and character dimensions the “cognitive core” of personality, we discuss whether Cloninger's psychobiological paradigm is helpful in the differentiation of between non-suicide ideators, patients that think about suicide and those who initiate suicidal behavior.

216) Abstract 1312

ASSOCIATION BETWEEN COMPLICATED GRIEF AND DIURNAL CORTISOL SLOPE

Mary-Frances O'Connor, PhD, Cousins Center for PNI, David K. Wellichs, PhD, Annette L. Stanton, PhD, Psychiatry, Michael Irwin, MD, Cousins Center for PNI, UCLA, Los Angeles, CA

The association between bereavement and all-cause mortality has been documented since the 1970's and in epidemiological samples with stringent controls. The study of morbidity and mortality associated with bereavement has been refined through the use of a set of empirically derived criteria that distinguish complicated grief (CG) from noncomplicated grief (NCG). CG can be reliably identified and occurs in about 10–20% of bereaved individuals. CG appears to carry much of the risk for negative outcomes of bereavement. The incidence of cancer is significantly greater among those with CG compared to NCG, while subjects with CG are 17 times less likely to have visited a physician in the months since the death. Given that a flatter diurnal cortisol slope through the day has been associated with mortality risk in cancer patients, this study investigated diurnal cortisol in 12 participants with CG and 12 with NCG. Because cortisol declines in a linear fashion across the day, the slope of cortisol was calculated. Participants sampled saliva at waking, 45 minutes later, 1600 and 2100. Multi-level modeling, controlling for age, demonstrated that the diurnal slope of the CG group was flatter than that of the NCG group (F = 3.86, p < .03). The average diurnal slope for the Complicated Grief Group was (B = -3.12, SE = 0.59) and for the Non-complicated Grief group was (B = -4.81, SE = 0.35). This is the first investigation of diurnal cortisol in a bereaved sample. A flatter diurnal cortisol slope for those with CG versus those with NCG is consistent with a recent meta-analysis, reporting that higher subjective distress was associated with a flatter slope. This cross-sectional study points to a possible mechanism linking bereavement stress and physical health. Further studies are needed to determine whether changes in diurnal cortisol are associated with morbidity and mortality risk in persons with complicated grief.

217) Abstract 1374

HOPELESSNESS AND LOSS OF PLEASURE AFTER INFLAMMATION IN MOUSE MODELS OF DEPRESSIVE DISORDER

Donald M. Lammkin, M.A., Susan K. Langendorf, Ph.D., Alan Kim Johnson, Ph.D., Psychology, University of Iowa, Iowa City, Iowa

The purpose of this study was to examine the effect of peripheral inflammation on anhedonia and behavioral despair in the C57BL/6 mouse. The core depression-like behaviors of anhedonia during intracranial self-stimulation (ICSS) and behavioral despair in the tail suspension test (TST) have become widely used for screening pharmacological antidepressant efficacy in pre-clinical murine models of depression. Antidepressants increase responsiveness to rewarding brain stimulation during ICSS and decrease immobility time or "despair" in the TST. However, few studies have examined the effect of peripheral inflammation on these indices of depression in C57BL/6 mice. In contrast, many studies have examined the effect of inflammation on sickness behaviors (e.g., decreased food intake, decreased social exploration). A total of 18 female mice were used. For the ICSS paradigm, after being trained to respond for rewarding brain stimulation at minimum current intensity and measuring baseline response rates, mice were injected (i.p.) with lipopolysaccharide (LPS) (50 mcg/0.1 mL) or vehicle (0.1 mL) and then measured again at 120 minutes post injection. For the TST, mice were video recorded while being suspended in midair by their tails at 120 minutes post injection; immobility time (vs. time trying to escape) was then scored by an observer blind to condition. LPS significantly reduced responding for electrical brain stimulation from baseline (M = -29.7, SD = 4.9, responses/minute) compared to control mice (M = +8.2, SD = 3.6) (P < .001), but the behavior was restored by increasing the electrical current intensity beyond the minimum current intensity, which suggests that inflammation caused a decrease in the mouse's sensitivity to the initial rewarding threshold stimulation. In the TST, LPS caused significantly more immobility time (M = 4.5, SD = 0.3, minutes) compared to control mice (M = 3.9, SD = 0.5) (P = .05). Given the predictive validity attributed to these behavioral measures by antidepressant drugs, these results extend previous research on sickness behavior in rodents and provide further evidence for the peripheral inflammation hypothesis of depressive disorders. To the best of our knowledge, these results also give the first evidence of an LPS-induced ICSS-measured anhedonia in mice.

Topic: Other Condition

218) Abstract 1166

ASSOCIATIONS OF GENDER AND FITNESS WITH CIRCULATING BIOMARKERS OFATHEROSCLEROTIC RISK PRE AND POST-EXERCISE
ACCULTURATION AND METABOLIC SYNDROME RISK IN MEXICAN-AMERICAN WOMEN

Julie L. Sadja, B.A., Suzi Hong, Ph.D., Psychiatry, University of California, San Diego, La Jolla, CA; Roland von Känel, M.D., General Internal Medicine, University Hospital Berne, Berne, Switzerland; Paul J. Mills, Ph.D., Psychiatry, University of California, San Diego, La Jolla, CA

Gender differences are evident in cardiovascular diseases, including risk factors, warning signs, prevalence and disease course. Also, studies indicate that higher cardiovascular fitness levels lower the increased atherosclerotic risk in high blood pressure patients. We examined circulating levels of inflammatory and endothelial dysfunction biomarkers to determine whether gender and fitness interact to affect responses to a cardiovascular stressor. We investigated the effects of an acute exercise challenge on the following biomarkers: Von Willebrand factor (vWF), soluble intercellular adhesion molecule (sICAM-1), and Interleukin (IL-6). Twenty-six healthy and unmedicated women were studied. Results of a 20-min treadmill exercise at 65-70% VO2peak, on both men and women, were analyzed by two-way repeated measures ANCOVA (controlling for age, BMI, and BP). In response to exercise, non-fit women were the only group that had a significantly elevated vWF response to exercise (p<0.05). Additionally, non-fit women had significantly higher mean vWF levels than fit women (p<0.01) at all time points. Non-fit women also had significantly higher mean sICAM-1 levels as compared to fit women (p<0.01). Fit women had lower mean IL-6 levels as compared to non-fit women (p<0.05). These findings suggest that the beneficial effects of physical fitness on inflammation and endothelial function is differentially influenced by gender such that women may benefit more from being physically fit as compared to men.

219) Abstract 1229

ACCULTURATION AND METABOLIC SYNDROME RISK IN MEXICAN-AMERICAN WOMEN

Karla Espinosa de los Monteros, B.A., Clinical Psychology, Linda C. Gallo, PhD, Psychology, SDSU/UCSD JDP in Clinical Psychology, San Diego, CA; John P. Elder, PhD, Gregory A. Talavera, MD, Public Health, San Diego State University; San Diego, CA, Smriti Shivpuri, MD, Clinical Psychology, SDSU/UCSD JDP in Clinical Psychology, San Diego, CA, Adrienne Collazo, BA, Kenneth Stale, BA, Psychology, San Diego State University, San Diego, CA

Acculturation and Metabolic Syndrome Risk in Mexican-American Women Purpose: Prior research by the current authors showed that acculturation to the US was inversely associated with metabolic syndrome risk in a clinical sample of low socioeconomic status (SES) middle-aged Mexican-American women living along the US/Mexico border. The current study builds on this research by exploring the relationship between acculturation and metabolic dysregulation in a community sample of border region middle-aged Mexican-American women of varied socioeconomic backgrounds. Methods: 192 women underwent assessment of biomarkers and completed a battery of self-report measures including the Hazuda Acculturation Scales. The mean age of the sample was 49.13 (SD = 6.26), 37% of the women had a high school education (GED), and 69% were foreign-born. A risk score was created by summing the number of biological risk factors [i.e., blood pressure, waist circumference, and fasting glucose, high density lipoprotein cholesterol, and triglycerides] that met National Heart, Lung and Blood Institute/National Cholesterol Education Program’s Adult Treatment Panel III clinical high-risk criteria. The summary measure ranged from 0-5 with higher scores indicating greater risk. Results: Multiple linear regression analyses indicated that lower US acculturation was associated with a >1 increased risk of metabolic dysregulation after accounting for age, menopausal status, and nativity [B (i.e., beta) = -2.9,change in R2= .047,p<.01]. Although the effect size was notably weakened, the association remained significant after accounting for SES [B = -.21,change in R2= .019,p<.05]. Conclusions: These findings provide further evidence for a relationship between acculturation and metabolic dysregulation, an issue of particular importance among Mexican-American women. The results also indicate that upward socioeconomic mobility may be one mechanism via which US acculturation expresses its protective influence on metabolic regulation. This information may be instrumental in efforts aimed at understanding and eliminating ethnic disparities in cardiovascular disease and related health conditions.
score ($r=0.348$, $p=0.044$), and REM sleep latency ($r=0.373$, $p=0.030$). In hierarchical regression (full model $R^2=0.441$, $p=0.009$), older age ($p=0.041$), higher BMI ($p=0.005$), and higher MFSL-sf mental fatigue ($p=0.036$) were independent predictors of the PVT count of lapses. AHI, ODI and CES-D were unrelated to the PVT count of lapses. In conclusion, the findings suggest that even after controlling for age, BMI, depression, and apnea severity, the MFSL-sf mental fatigue is associated with the PVT lapse.

222) Abstract 1214

LOW BIRTH WEIGHT IS ASSOCIATED WITH MATERNAL DISTRESS AND ELEVATED SERUM MACROPHAGE MIGRATION INHIBITORY FACTOR DURING PREGNANCY

Lisa M. Christian, PhD, Psychiatry, The Ohio State University, Columbus, Ohio, Albert Franco, MD, Division of Maternal-Fetal Medicine, Carolinas Medical Center, Charlotte, NC, Ronald Glaser, PhD, Molecular Virology, Immunology, and Medical Genetics, Jay D. Iams, MD, Obstetrics and Gynecology, The Ohio State University, Columbus, Ohio

Preterm birth affects 12-13% of births in the U.S. and is a leading cause of infant mortality. Infants who are both preterm and low birth weight ($\leq 2500$ g) have the greatest complications. Distress (e.g., stress, anxiety, depression) during pregnancy has been associated with both preterm delivery and low birth weight. Maternal inflammation has also been linked with both outcomes. This study examined psychosocial factors, serum levels of the proinflammatory cytokine macrophage migration inhibitory factor (MIF), and perinatal outcomes among 53 women. Macrophage MIF has the unique ability to counteract the antiinflammatory effects of glucocorticoids and may be a therapeutic target for many disease processes. Significant depression was defined as a score of 16 or above on the CES-D depression scale. Those with low birth weight babies also reported a significantly greater hostile social interactions ($t(52)=-2.36$, $p=0.02$) and symptoms. Those with low birth weight babies also reported a significantly greater hostile social interactions ($t(52)=2.36$, $p=0.02$) and less happiness about being pregnant ($t(52)=2.22$, $p=0.03$). As a whole, 6 of 7 were at or above a clinical cut-off for significant depressive symptoms. The results of this study show that the high-hardy group had a higher LF level ($t=2.43$, $p=0.05$) at baseline, and a lower response level ($t=-1.843$, $p=0.08$, marginal significant) during the mental arithmetic task than the low-hardy group. These indicate that the high-hardy individuals do not display a lower arousal level at baseline or a higher response level under stress and failed to support the hypothesis proposed.

224) Abstract 1248

DAILY RHYTHMS OF MELATONIN ARE ALTERED BY AMOUNT OF SLEEP

Jeanette M. Bennett, M.S., Biobehavioral Health, Robert S. Stawski, Ph.D., Gerontology Center, Courtney A. Whetzel, Ph.D., Biobehavioral Health, David M. Almeida, Ph.D., Human Development and Family Studies, Laura C. Klein, Ph.D., Biobehavioral Health, The Pennsylvania State University, University Park, PA

Melatonin, the sleep hormone, is thought to synchronize circadian rhythms and seasonal variations (e.g. Haus 2007). The purpose of the present study was to determine whether a daily saliva sampling procedure could capture a melatonin rhythm and if sleep duration would impact this rhythm. Participants were selected from the hotel industry because of its 24/7 work environment with variable work schedules that could interrupt sleep patterns. As part of a larger project examining daily stress and well-being of hotel workers and their families, department managers (N=65), their partners (N=32) and hourly workers (N=38) provided saliva 4 times/day across 4 consecutive days: upon awakening, 30 min after waking, before lunch and before going to bed. A subset of these participants (N=35; males: N=17, females: N=18) was selected for melatonin assay based on ample saliva volumes at all time points. Using multi-level modeling, the saliva collection procedure captured a distinctive daily melatonin rhythm characterized by a decline from waking to lunch time ($p<0.01$) and rise from lunch to bed ($p<0.01$). The decline from waking to lunch was significantly associated with daily variations in amount of sleep, such that individuals’ melatonin declines were less steep on days when they slept more. The positive correlation between sleep duration and melatonin association suggests that the melatonin daily rhythm is impacted by the amount of sleep an individual gets on a daily basis. To our knowledge this is the first report to find systematic within-person variation in melatonin’s daily rhythm. The biological or psychological effects of this shift in rhythm remain unknown. Future research including a larger sample size is necessary to elucidate connections between melatonin rhythms and health.

225) Abstract 1703

ACCULTURATION AND OBESITY IN LATINOS: RECONCILING INCONSISTENT FINDINGS

Laura R. Buenrostro, Ph.D., West Suburban Hospital Medical Center, Oak Park, Illinois, Lisa Sanchez-Johnsen, Ph.D., Psychiatry and Medicine, University of Chicago, Chicago, Illinois, John Burns, Ph.D., Psychology, Rosalind Franklin University of Medicine & Science, North Chicago, Illinois

Overweight and obese individuals are at higher risk for cardiovascular disease, diabetes, and various cancers. Moreover, 23.7% of the Latino population is obese and the proportion of Latinos defined as overweight exceeds 50%. Rates of obesity in Latinos also appear to differ according to level of acculturation and social economic status (SES). It is plausible that a moderate negative linear relationship may obscure a non-linear association between acculturation and obesity. Moreover, increasing acculturation may have different effects on obesity depending on the SES level of Latinos. The aim of this study was to explore the relationships between acculturation, SES, and obesity in Latinos. We proposed a moderator model with SES as a moderating variable that interacts with acculturation to predict obesity risk factors. Next, we proposed a quadratic association model, whereby the negative relationship between acculturation and obesity turns into a positive relationship at higher levels of acculturation. Participants were 112 Latino women (n=85) and men (n=27) recruited from community programs and organizations in the metropolitan Chicago area. Demographic background, acculturation, SES, 24-hour dietary intake, and daily physical activity were assessed with bilingual questionnaires. Height and weight were objectively measured to compute body mass.
index (BMI). Results revealed that participants were primarily first generation Latinas with mid-level SES, and had an average BMI in the overweight range (BMI=29.41). Findings revealed that total daily caloric intake had a significant quadratic association with degree of Latino acculturation (p < .05). Results from the moderator model indicated SES and degree of American acculturation interacted to influence 12.5% of participant intake of protein (p < .01). Results suggest that SES and acculturation interact with diet and physical activity in Latinas to predict obesity. Understanding the relationship between acculturation, SES and obesity may be beneficial in future culturally targeted interventions for Latinas.

226) Abstract 1572
SUB-CLINICAL DEPRESSION SYMPTOMS PARTIALLY MEDIATE THE RELATION BETWEEN PERCEIVED AND MRI-DERIVED INDICES OF SUBCLINICAL NEUROVASCULAR DISEASE AMONG HEALTHY OLDER WOMEN, BUT NOT MEN
Megan M. Housey, B.S., S. Carrington Rice, M.A., Psychology, University of Maryland, Baltimore County, Baltimore, MD, David M. Lefkowitz, MD, Diagnostic Radiology, Leslie I. Katzel, MD/PhD, Division of Gerontolgy, Eliot L. Siegel, MD, Diagnostic Radiology, University of Maryland Medical System, Baltimore, MD, Boudewijn Van Houdenhove, MD, PhD, Liaison Psychiatry, Patrick Luyten, PhD, Psychology, University of Maryland, Baltimore County, Baltimore, MD
Elevated levels of stress are detrimental to brain structure. Here we explored potential sex differences in the relations among perceived stress, subclinical depressive symptoms, and indices of subclinical neurovascular disease (SNDS) and brain atrophy (BA) in 105 community-dwelling older adults (60% male; mean age=67 years) free of dementia, major neuropsychiatric, and psychiatric disease. Participants completed the Perceived Stress Scale (PSS), Beck Depression Inventory (BDI), and magnetic resonance imaging (MRI). MRIIs were neuroradiologist-rated for SNDS (i.e., periventricular and deep white matter hyperintensities, number of silent infarcts) and BA (i.e., ventricular enlargement, sulcal widening). Two rank-sum variables (SNDS, BA) served as primary outcome variables. Multiple regression analyses were performed, sex, education, and the interaction between sex and PSS and BA (β=−.43, p<.03) for SNDS and for BA (β=−.70, p<.04). Sex-stratified hierarchical regressions were then computed with age, education, and race adjustment. Adding PSS to the model revealed a significant relation between PSS and SNDS (β=3.46, p<.014) in women but not men. However, when BDI scores were entered, this relation was rendered non-significant (β=1.54, p=.29). Further, PSS was not related to BA in men or women. These findings suggest that in older women, depressive symptoms partially mediate the relation between perceived stress and SNDS.

227) Abstract 1305
IS THERE A LINK BETWEEN THERAPEUTIC OUTCOME IN CHRONIC FATIGUE SYNDROME AND COMORBID DEPRESSION?
Boudewijn Van Houdenhove, MD, PhD, Liaison Psychiatry, Patrick Luyten, PhD, Stefan Kempe, MA, Psychology, University of Leuven, Leuven, Belgium
Purpose of study: Although it is assumed that chronic fatigue syndrome (CFS) and depression may show complex psychological links, there is a paucity of research investigating the role of comorbid depression in CFS therapeutic. Therefore, in this study, the impact of comorbid depression on therapeutic outcome in a large sample of CFS patients was studied. Methods: Quasi-experimental, phase-lagged study of two multidisciplinary group treatment modalities with different intensity (weekly versus monthly), carried out in a tertiary care rehabilitation setting with two groups of CFS patients (n=101 and n=91 respectively). Both treatments were based on cognitive behavioural principles and also comprised relaxation exercises, pacing instructions and physical reconditioning exercises. Before treatment, comorbidity depression was measured by the Hospital Anxiety and Depression Scale (HADS). Consistent with the recommended cut-off point for the HADS depression subscale in CFS patients (Morriss & Wearden, 1998), a score of 10 or more was used as a cut-off point to categorize patients as depressed versus non-depressed. Results: In both treatment modalities, therapeutic outcome was very similar. Moreover, overall, comorbid depression was negatively associated with outcome. For instance, taking the results of the two groups together, 49.1% (n=57) of the patients showing no improvement met criteria for depression, whereas only 26.3% (n=20) of the improved patients were depressed (chi square = 9.956, p < .05). Conclusions: These findings point to the importance of attending to comorbid depression in treating CFS patients and are in line with the advice to customize CFS treatment to individual patient characteristics (Van Houdenhove & Luyten, in press).

228) Abstract 1646
PREDICTORS OF RHEUMATOID ARTHRITIS PAIN AND FUNCTIONING: ALEXITHYMIA VERSUS THE BIG FIVE PERSONALITY TRAITS
Alison M. Radcliffe, M.A., Jen Carty, Jay Cohen, Ph.D., Lynn Neely, Ph.D., Psychology, Angelia Mosley-Williams, MD, Internal Medicine, Anoua Mayo, M.A., Anita Kalal, B.A., Psychology, Wayne State University, Detroit, MI, Francis J. Keefe, Ph.D., Psychiatry, Duke University Medical Center, Durham, NC, Mark A. Lumley, Ph.D., Psychology, Wayne State University, Detroit, MI
Alexithymia, a limited capacity to introspect, identify, and regulate emotions, has been linked with poorer health. Yet, alexithymia is related to basic personality traits (particularly neuroticism [N], low extraversion [E], and low openness [O]). Whether alexithymia is an independent correlate of poor health is not known. This study compared alexithymia with the big five personality traits as correlates of pain, disability, and mood problems in patients with rheumatoid arthritis (RA). We studied 264 adults with RA (age M=55; 81% female; 68% European American, 28% African American, 4% other) who completed Big Five Inventory, Toronto Alexithymia Scale 20, and the Anthritis Impact Measurement Scale (SARS). Patients completed the Depression Anxiety Stress Scales and subclinical depression scale on MRI. MRIIs were neuroradiologist-rated for SNDS (i.e., periventricular and deep white matter hyperintensities, number of silent infarcts) and BA (i.e., ventricular enlargement, sulcal widening). Two rank-sum variables (SNDS, BA) served as primary outcome variables. Multiple regression analyses were performed, sex, education, and the interaction between sex and PSS and BA (β=−.43, p<.03) for SNDS and for BA (β=−.70, p<.04). Sex-stratified hierarchical regressions were then computed with age, education, and race adjustment. Adding PSS to the model revealed a significant relation between PSS and SNDS (β=3.46, p<.014) in women but not men. However, when BDI scores were entered, this relation was rendered non-significant (β=1.54, p=.29). Further, PSS was not related to BA in men or women. These findings suggest that in older women, depressive symptoms partially mediate the relation between perceived stress and SNDS.

Topic: Reproductive Health/Sexual Functioning

229) Abstract 1371
DO CONTROL BELIEFS AND RISK STATUS AFFECT PREGNANT WOMEN’S PERINATAL HEALTH CARE DECISIONS?
Natalie R. Stevens, M.A., Cynthia W. Karlson, M.A., Nancy A. Heneghan, Ph.D., Psychology, University of Kansas, Lawrence, KS, Danielle E. Staedeker, M.D., Obestetrics and Gynecology, University of Kansas Medical Center, Kansas City, KS, Ken A. Wallston, Ph.D., School of Nursing, Vanderbilt University, Nashville, TN, Kris Preacher, Ph.D., Psychology, University of Kansas, Lawrence, KS
Childbirth factors such as perceived control and delivery complications are thought to affect physical and psychological birth outcomes. However, little is known about how prenatal control beliefs and risk status influence perinatal health care choices. The current study examined the relationships between desire for control, health locus of control and perinatal care choices (i.e. medical provider, labor support, childbirth preparation, birth location) among women with high- and low-risk pregnancy. Participants were 193 pregnant women (mean age 29.2, 83.3% Caucasian; 39% primiparous; 30% high-risk) recruited from outpatient obstetric clinics (n=45) and a pregnancy resource website (n=148). High-risk pregnancy was defined as having a chronic illness.
(e.g. diabetes) or pregnancy complication (e.g. preeclampsia) associated with increased likelihood of adverse birth outcomes. Control beliefs were measured with the Desire for Control in Childbirth (DCCh-B) and the Multidimensional Health Locus of Control Scales for Labor and Delivery (MHLC-LD). Women who reported higher desire for control were significantly more likely to choose non-traditional providers such as midwives and doulas (OR: 9.7; 95% CI=3.6-26.5; p < .01), preparation classes that emphasize natural birthing methods (OR: 2.5; 95% CI = 1.2-5.3; p < .05), and birth locations other than a hospital (OR: 7.4; 95% CI = 1.8-29.4; p < .01). In contrast, attributing control to care providers predicted more traditional choices (OR: 0.44; 95% CI=0.2-0.96; p<.05). Surprisingly, chi-squared tests revealed no significant difference between high- and low-risk women for any health care choice (p > .05). However, high-risk pregnancy was inversely correlated with desire for control (r = - .13, p < .05), such that women with high-risk pregnancies reported lower desire for control. Overall, findings suggest that prenatal desire for control and health locus of control may affect childbirth care decisions for both high- and low-risk women. Furthermore, high-risk women may desire less personal control during labor and delivery than their low-risk counterparts.

230) Abstract 1750

DIETARY HYDRATION FACTORS AND HYDRATION PREDICTORS OF CARDIOVASCULAR FUNCTION DURING REST AND PSYCHOLOGICAL STRESS AMONG ORAL CONTRACEPTIVE USERS AND NON-USERS

Regina M. Warfel, B.S., Stephen M. Patterson, Ph.D., Diane M. Turcotte, B.S., Psychology, Ohio University, Athens, OH, Birgit A. Shanholtzer, M.S., Marshall University, Huntington, WV

The purpose of the present study was to assess whether hydration-related variables (total body water (TBW), water, sodium, and potassium intake) predict resting stress and-stress-induced HR and BP changes in two groups of women (OC-users and non-OC users) during both the follicular (FP) and luteal (LP) phases of their menstrual cycles. One hundred and eleven healthy, non-smoking women (45 OC users and 66 non-OC users) were recruited and attended lab sessions during the FP and LP of their menstrual cycle. TBW was assessed via bioelectrical impedance. HR and BP were assessed during a 10-min rest and 6-min math task. A 3-day diet log was completed prior to each testing session. Three separate multiple regression analyses were conducted for OC-users and non-OC users during both the FP and LP to assess the hydration-related predictors on 3 different cardiovascular variables: HR, SBP, and DBP. For non-OC users during the FP, the four predictors accounted for a significant amount of variance in HR reactivity (F(4,44)=2.53, p<.05, r2=.20). In the presence of the other predictors, higher sodium consumption was significantly related to higher HR reactivity (F(1,44)=5.26, p<.05). For OC-users during the LP, the four predictors accounted for a significant amount of variance in SRP reactivity (4, 62)=2.63, p<.05, r2=.153 and DBP reactivity (F(4,62)=4.63, p<.01, r2=.37). In the presence of other predictors, higher water consumption was significantly related to higher SBP reactivity (F(1,62)=9.41, p<.01) and higher DBP reactivity (F(1,62)=8.75, p<.01). For OC-users during the FP, the four predictors did not account for a significant amount of variance in HR and BP cardiovascular variables. For OC-users during the LP, the four predictors accounted for a significant amount of variance in resting HR (F(1, 44)=2.73, p<.05, r2=.22). In the presence of other predictors, lower TBW significantly related to the TSST reactivity to the TSST (r = -.31, p<.10), but only for PMDD did abuse modify CD25 values since abused PMDD women had lower CD25 reactivity to the TSST (r = -.31, p<.10), while both non-abused and abused PMDD women had lower CD25. A lower CD25 reflects greater BAR sensitivity test to evaluate BAR responsivity in terms of the chronotropic dose of isoproterenol (BAR agonist) required to increase HR by 25 bpm (CD25). A lower CD25 reflects greater BAR sensitivity. We found that for all women CD25 was inversely related to higher HR reactivity to the TSST (r = -.31, p<.10), but only for PMDD did abuse modify CD25 values since abused PMDD women had lower CD25 than never abused PMDD (p<.05), while abuse did not influence CD25 in non-PMDD women. Abuse also modified pain tolerance to the ischemic task but did so differently in the two groups since abused PMDD had lower tolerance than never abused PMDD while abused controls had greater tolerance than never abused controls (Group x Abuse: F(1,44)=2.73, p<.05). If PMDD, abuse was associated with greater daily ratings for flare mood (p<.05) and feeling overwhelmed (p<.06), while in controls abuse was associated with greater loss of interest (p<.05). Our findings in abused versus non-abused PMDD women for increased BAR responsivity coupled with greater pain sensitivity is consistent with animal models suggesting that BAR are involved in hyperalgesia. Our findings also parallel prior work suggesting that abused histories may be associated with different biological and mood sequelae in PMDD versus non-PMDD women.

232) Abstract 1318

BETA-ADRENERGIC RECEPTOR RESPONSIVITY, HISTORIES OF ABUSE AND PMDD

Monica E. Lindgren, B.A., Psychiatry, Rebecca R. Klatzkin, M.A., Psychology, Alan L. Hinderliter, M.D., Cardiology, Kim Rozanski, BSN, Jane Leserman, Ph.D., Susan S. Girdler, Ph.D., Psychiatry, University of North Carolina at Chapel Hill, Chapel Hill, NC

Prior work suggests that persistent biological disturbances associated with an abuse history may differ for women with premenstrual dysorphic disorder (PMDD) relative to non-PMDD controls. This ongoing study measures abuse-related differences in beta-adrenergic receptor (BAR) responsivity, heart rate (HR) reactivity, experimental pain sensitivity and daily symptom ratings in women meeting DSM-IV criteria for PMDD (n=13) and non-PMDD controls (n=18). Histories of sexual or physical abuse were confirmed via interview, yielding 7 PMDD with abuse (54%) and 9 non-PMDD with abuse (50%). Women were exposed to the cold pressor and ischemic pain tests, the Trier Social Stress Test (TSST), and to the standardized isolated protenoler sensitivity test to evaluate BAR responsivity in terms of the chronotropic dose of isoproterenol (BAR agonist) required to increase HR by 25 bpm (CD25). A lower CD25 reflects greater BAR sensitivity. Our findings in abused versus non-abused PMDD women for increased BAR responsivity coupled with greater pain sensitivity is consistent with animal models suggesting that BAR are involved in hyperalgesia. Our findings also parallel prior work suggesting that abused histories may be associated with different biological and mood sequelae in PMDD versus non-PMDD women.

PhD, Psychiatry, University of North Carolina at Chapel Hill, Chapel Hill, NC

Significant co-morbidity between Irritable Bowel Syndrome (IBS) and chronic pelvic pain (CPP) has been reported (35-39%). Patients with IBS have abdominal pain and abnormal stool, and CPP is defined as non-cyclic pain of at least 6-month duration. It has been hypothesized that co-morbid IBS among women with CPP is associated with higher pain report, poorer quality of life and treatment response. The objective of this study was to examine clinical pain over time among CPP patients with and without co-morbid IBS. We also investigated how past traumatic events and PTSD impacted pain over time. With IRB approval, new patients seen at the UNC Pelvic Pain Clinic were approached for participation. Participants were asked to complete baseline and interval (3, 6, 9, 12 months) questionnaires assessing pain severity, IBS symptoms, and psychological distress (e.g. McGill (Pain), Rome I (IBS), and SPAn (PTSD)). 196 of the 308 women completed at least 2 of the 5 quarterly IBS questionnaires and were included in the analysis. Subjects diagnosed as having IBS at 2 or more time points were defined as having persistent IBS. Demographic characteristics of the study sample were as follows: predominantly late reproductive-age (35.3 yrs, SD=10.7), educated (15.2 yrs, SD=2.5), and Caucasian (79.1%). Also, 24% had persistent IBS, 15% had IBS on one questionnaire, 25% had PTSD, and their average pelvic pain over the year including baseline was 10.2 (SD=8.7, SD=4.2). Regression analyses showed that patients with less education (STB=.26, p=.0002), persistent IBS (STB=.27, p=.0001), more past traumatic events (STB=.20, p=.004), and greater PTSD scores (STB=.19, p=.006) had higher average pelvic pain during the study period. Patients with persistent IBS scored on average (least squared mean) 16.3 on pain compared to 10.9 for those without persistent IBS, almost two-thirds of a standard deviation difference. Patients with chronic pelvic pain (CPP) had a standard deviation difference. Patients with persistent IBS scored on average (least squared mean) 16.3 on pain compared to 10.9 for those without persistent IBS, almost two-thirds of a standard deviation difference. Patients with chronic pelvic pain (CPP) had a standard deviation difference.
COMMUNAL CULTURAL ORIENTATION PREDICTS MATERNAL PRENATAL AND POSTPARTUM HEALTH BETTER THAN ETHNICITY AND SOCIOECONOMIC STATUS

Cleopatra M. Abdou, Ph.D., Center for Social Epidemiology and Population Health, University of Michigan, Ann Arbor; Christine Dunkel Schetter, Ph.D., Psychology, UCLA, Los Angeles; CA, Belinda Campos, Ph.D., Chicano Studies, UC Irvine, Irvine, CA, Clayton J. Hilbert, Ph.D., Psychology, North Dakota State University, Fargo, ND, Tyan Parker Dominguez, Ph.D., Social Work, USC, Los Angeles, CA, Calvin J. Hobel, MD, Maternal and Fetal Medicine, Cedars Sinai Medical Center, Los Angeles, CA, Laura Glynn, Curt Sandman, Ph.D., Psychiatry, UC Irvine, Irvine, CA.

This prospective longitudinal study of 262 African American and European American pregnant women investigated communal cultural orientation (CCO), a worldview emphasizing interpersonal connectedness and hypothesized to enhance social capital, as a predictor of maternal health. The goal of conceptualizing and operationalizing CCO was to directly evaluate cultural mechanisms in ethnic and socioeconomic health disparities. The relative and synthetic contributions of child SES, adult SES, and medical factors to maternal prenatal and postpartum health were examined. Expectant mothers were recruited early in pregnancy and followed to 12 weeks postpartum. Interviews and medical exams were conducted at 4 timepoints prenatally and 1 time postpartum. CCO emerged as a more robust predictor of maternal prenatal and postpartum health than ethnicity and childhood and adulthood SES (all ps < .05) and marginally attenuated the negative effects of ethnic minority status on maternal prenatal health (p = .10), suggesting that maternal health disparities may be better understood through attention to cultural mechanisms.

234) Abstract 1621

STATINS REDUCE ORGASM: RESULTS FROM THE UCSD STATIN STUDY

Beatrice A. Golomb, MD PhD, Julie A. Broadwin, PhD MPH, Medicine, Halbert L. White, PhD, Economics, Michael H. Criqui, MD MPH, Joel E. Dimsdale, MD, Medicine, University of California, San Diego, La Jolla, CA

Background: Sexual dysfunction is a reported statin adverse effect; but benefits to sexual function have also been suggested. Sexual function reductions of statins are not well characterized. Goal: To evaluate stats vs placebo on "Ability to Achieve Orgasm" (for brevity called "orgasm"). Subjects: 1,016 adult men and women without diabetes or CHD, with LDL 115-190mg/dL. Design: Randomized double-blind placebo-controlled trial of 6 months simvastatin (simva) 20mg, pravastatin (prava) 40mg or placebo. Outcome: Self-rated orgasm; and effects by LDL change in 2 placebo SES, and medical factors to maternal prenatal and postpartum health were examined. Expectant mothers were recruited early in pregnancy and followed to 12 weeks postpartum. Interviews and medical exams were conducted at 4 timepoints prenatally and 1 time postpartum. CCO emerged as a more robust predictor of maternal prenatal and postpartum health than ethnicity and childhood and adulthood SES (all ps < .05) and marginally attenuated the negative effects of ethnic minority status on maternal prenatal physical health (p = .10), suggesting that maternal health disparities may be better understood through attention to cultural mechanisms.

235) Abstract 1186

INTERVAL CHANGE IN POSTOPERATIVE PAIN REPORT AND PSYCHOLOGICAL CHARACTERISTICS AMONG WOMEN WITH ENDOMETRIOSIS

Caitlin E. Shew, BS, Kathleen Harper, MA, Denniz Zolnoun, MD, Obstetrics and Gynecology, University of North Carolina at Chapel Hill, Chapel Hill, NC.

Endometriosis is a common disorder that affects 2.5-3.3% of reproductive age women, accounting for 25-35% of laparoscopies and 10-15% of hysterectomies each year. However, there exists limited data on the contribution of disease specific (e.g. stage of endometriosis) vs. non-specific (e.g. biopsychosocial) factors on treatment outcomes (e.g. chronic pain report). With IRB approval, new pelvic pain patients seen at the UNC Pelvic Pain Clinic were approached for participation in our study. Participants were asked to complete a baseline and interval (3, 6, 9, 12 months) questionnaires assessing pain severity and psychological distress (e.g. McGill Pain, SF-12, Coping Strategies). A total of 21 from the original cohort of 308 were diagnosed with endometriosis and underwent surgical intervention during the study period. Severity of endometriosis (Soccerman scoring system) and stage (American Society for Reproductive Medicine) were compared between baseline and interval (3, 6, 9, 12 months) questionnaires assessing pain severity and psychological distress. A total of 21 from the original cohort of 308 were diagnosed with endometriosis and underwent surgical intervention during the study period. Severity of endometriosis (Soccerman scoring system) and stage (American Society for Reproductive Medicine) were compared between baseline and interval (3, 6, 9, 12 months) questionnaires assessing pain severity and psychological distress. The relative and synthetic contributions of child SES, adult SES, and medical factors to maternal prenatal and postpartum health were examined. Expectant mothers were recruited early in pregnancy and followed to 12 weeks postpartum. Interviews and medical exams were conducted at 4 timepoints prenatally and 1 time postpartum. CCO emerged as a more robust predictor of maternal prenatal and postpartum health than ethnicity and childhood and adulthood SES (all ps < .05) and marginally attenuated the negative effects of ethnic minority status on maternal prenatal physical health (p = .10), suggesting that maternal health disparities may be better understood through attention to cultural mechanisms.

236) Abstract 1188

AN EVALUATION OF PAIN AND PSYCHOLOGICAL OUTCOMES UP TO 1-YEAR POST-TREATMENT FOR CHRONIC PELVIC PAIN

Caitlin E. Shew, BS, Denniz Zolnoun, MD, Lindsiey K. Eley, BS, John F. Steege, MD, Obstetrics and Gynecology, Jane Leserman, PhD, Psychiatry, University of North Carolina at Chapel Hill, Chapel Hill, NC

Over 600,000 hysterectomies are performed each year, where 10% have pelvic pain as the primary indication. Despite its success in excising causative pathologies, up to 22% of patients have pain after surgery. The goal of this study was to examine the effects of post-traumatic stress disorder, duration of illness, and hysterectomy as predictors of change in pelvic pain severity. A total of 308 were diagnosed with endometriosis and underwent surgical intervention during the study period. Severity of endometriosis (Soccerman scoring system) and stage (American Society for Reproductive Medicine) were compared between baseline and interval (3, 6, 9, 12 months) questionnaires assessing pain severity and psychological distress (e.g. McGill Pain, SPAN (PTSD)), and surgical data were abstracted. 266 of the 308 women completed the questionnaires used and were included in the analysis. Pain was assessed between baseline and the average of the 9 and 12 month reports. On average these women were 35.2 years old (SD=10.5), educated (14.6 years, SD=2.3), Caucasian (76.2%), and had pelvic pain for 65.4 months (SD=36.9). All 21 women had a laparoscopic procedure, of which 5 were hysterectomies. Paired t-test showed that patients improved dramatically in their pain ratings from baseline (mean=21.1, SD=20.2) to one-year later (mean=10.3, SD=11.4) (p<.001) where the mean follow-up from surgery was 10 months (SD=4). Hysterectomy, stage of endometriosis, and duration of pelvic pain were not significant predictors of pain improvement. However, regression analyses showed that patients who were younger (STB=0.47, p<.001), had poorer mental health (STB=0.53, p<.0009) and were higher on catastrophizing (STB=0.43, p=.01) had less pain improvement. Thus, in this small group, psychological variables appear to be better predictors of pain after surgery than extent of disease. Further research on the relationship between biopsychosocial factors and treatment outcomes is warranted.

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patients having less education (STB=-.11, p=.03), more PTSD symptoms (STB=.10, p=.07), and no hysterectomy during the follow-up (STB=-.21, p<.0001). On the McGill pain, patients with hysterectomies reduced their pain 15.4 points (SD=6.5) versus 6.0 points (SD=9.9) for those who did not have this surgery. Bilateral oophorectomy did not significantly affect pain reports after surgery. Hysterectomy is an effective treatment for chronic pelvic pain; however, psychological factors should not be ignored.

237) Abstract 1760
DIFFERENCES IN DIETARY CONSUMPTION OF CARBOHYDRATES, FAT, AND CHOLESTEROL BETWEEN ORAL CONTRACEPTIVE USERS AND NON-USERS
Diane M. Turcotte, B.S., Regina M. Warfel, B.S., Stephen M. Patterson, Ph.D., Psychology, Ohio University, Athens, OH
It is fairly well-established that carbohydrate and fat intake is greater in the luteal phase (LP) compared to the follicular phase (FP) of the menstrual cycle (Martini et al, 1994; Tarasuk & Beaton, 1991). However, little research has been established on differences in dietary consumption between OC users and non-OC users. Thus, the goal of the present study was to assess whether dietary macronutrients (carbohydrate, fat, and cholesterol intake) vary in two groups of women (OC users and non-OC users) during both the follicular (FP) and luteal (LP) phases of their menstrual cycles. One hundred and twenty-three healthy, non-smoking women (54 OC users and 69 non-OC users) were recruited and both groups attended lab sessions during the FP and LP of their menstrual cycle. A 3-day diet log was completed prior to each testing session. Two separate MANOVAs were conducted to compare carbohydrate, fat, and cholesterol intake between OC-users and non-OC users during both the FP and LP. During the FP, the model for the MANOVA was significant (F(3, 115)=3.38, p<.05). Univariate between-subjects tests showed that dietary consumption of fat was significantly higher for OC users than non-OC users (F(1, 117)=10.17, p<.01). In addition, there was a marginal difference in dietary consumption of carbohydrates, with intake higher for OC users than non-OC users (F(1,117)=3.56, p=.06). During the FP, the model for the MANOVA was significant, and separate ANOVAs were conducted. Results indicated that dietary consumption of fat was significantly higher for OC users than non-OC users (F(1, 121)=4.27, p<.05). These results demonstrate that dietary intake of both carbohydrates and fat may be greater for women who are OC users compared to women who are non-OC users. In addition, dietary consumption is a factor that warrants consideration when drawing comparisons between OC users and non-OC users.

238) Abstract 1058
WHAT PSYCHOSOCIAL FACTORS ARE IMPORTANT FOR DEPRESSION DURING PREGNANCY?
Adomas Bunevicius, MD, Laima Kuuminaskas, MD, Institute of Psychophysiology and Rehabilitation, Palanga, Lithuania, Victor Pop, Department of Psychology and Health, Tilburg University, Tilburg, The Netherlands, Robertas Bunevicius, Institute of Psychophysiology and Rehabilitation, Palanga, Lithuania
PURPOSE: To assess the prevalence of antenatal depressive disorder at different trimesters during gestation and to evaluate the relationship of psychosocial risk factors with antenatal depressive disorder. SAMPLE AND METHODS: 230 pregnant women consecutively admitted to the Hospital of the Kaunas University of Medicine between 12-16 weeks, at 22-26 weeks, and at 32-36 weeks of pregnancy study participants were evaluated for depressive disorder using the patient version of the Structured Clinical Interview for DSM-III-R (SCID-NP). Psychosocial stressors were also evaluated. RESULTS: The prevalence of the antenatal depressive disorder at 12-16 weeks of gestation was 6.1%, at 22-26 weeks was 3.5%, and at 32-36 weeks was 4.4%. In the first trimester of pregnancy, the lowest prevalence of current depressive disorder was independently associated with unplanned and unwanted pregnancy, with low education and with previous history of depression; in the second trimester with unplanned and unwanted pregnancy; and in the third trimester with unplanned and unwanted pregnancy, and low education and with previous history of depression; in the second trimester with unplanned and unwanted pregnancy; and in the third trimester with unplanned and unwanted pregnancy, and with occurrence of psychosocial stressors during last year. CONCLUSIONS: The highest prevalence of depressive disorders was observed at the second trimester of pregnancy. Unwanted and unplanned pregnancy proved to be independent determinants of antenatal depressive disorders throughout whole pregnancy while other determinants (low education, previous history of depression, the occurrence of psychosocial stressors at the end of pregnancy) were trimester specific.

Topic: Miscellaneous
239) Abstract 1439
LONG-TERM HEALTH CONSEQUENCES OF CHILDHOOD SEXUAL ABUSE: A META-ANALYTIC REVIEW
Leah A. Irish, MA, Ihori Kobayashi, MA, Douglas Delahanty, PhD, Psychology, Kent State University, Kent, OH
Childhood sexual abuse (CSA) has been associated with increased risk for a number of long-term health consequences, including adverse gastrointestinal (GI), gynecologic and cardiopulmonary health, increased reports of musculoskeletal pain and poor perceptions of overall health. The purpose of the present study was to systematically review and synthesize the literature on CSA and these five health outcomes using meta-analysis techniques. Literature searches yielded a total of 24 studies comparing individuals with and without a history of CSA. Results suggested moderate to strong group differences in all health outcomes (p <.05) with the exception of GI symptoms measured on a continuous scale, such that individuals who reported history of CSA experience more adverse health symptoms than individuals without CSA history. Exploratory subgroup analyses were conducted to identify potential methodological moderators, including differing definitions of abuse, gender, type of sample, method of CSA assessment and type of comparison group. Trends in these analyses are presented; however, likely due to small sample sizes, meaningful moderation results were not found. Limitations and implications for future research of CSA and long-term health consequences are discussed.

240) Abstract 1527
INFLAMMATION LEVELS IN MIDLIFE WOMEN WITH HISTORIES OF RELATIONSHIP STRESS
Tamara L. Newton, Ph.D., Department of Psychological & Brain Sciences, Rafael Fernandez-Botran, Ph.D., James J. Miller, Ph.D., Department of Pathology and Laboratory Medicine, Vicki Ellison Burns, Ph.D., School of Nursing, University of Louisville, Louisville, KY
The prevalence of aging-associated medical conditions is heightened among women reporting abuse and violence within adult intimate relationships (IPV). Few studies have addressed mechanisms that might mediate this association; none have controlled for less severe relationship stress, itself a correlate of poor health. Healthy, postmenopausal women (n=69) with histories of divorce attended two research visits; baseline visit data are reported here. Women rated their emotional states, positive (e.g., enthusiastic) and negative (e.g., distressed), at the time of the visit. Blood was drawn and assayed for high-sensitivity C-reactive protein (hsCRP) and white blood cell (WBC) count, both indices of systemic inflammation, and plasma interleukin-6 (IL-6), a cytokine associated with acute phase responses but with both pro- and anti-inflammatory properties. Levels of hsCRP were more strongly correlated with WBC count (r = .46, p <.0001) than IL-6 (r = .23); the latter two were uncorrelated (r = .01). WBC and hsCRP were standardized and averaged into a composite inflammation index; this index and IL-6 levels were used for analyses. Women with (IPV+; n=46) and without (IPV-; n=23) severe abuse and violence histories were similar on age, body mass index, waist-to-hip ratio, blood pressure, and demographics (ps > .12). IPV+ women were more likely to be current smokers (p<.005), and reported stronger negative emotions at the study visit (p < .04). Compared to IPV- women, IPV+ women showed higher levels of WBC, hsCRP, IL-6, a cytokine associated with acute phase responses but with both pro- and anti-inflammatory properties.

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stress, may be necessary to optimize the health of midlife women. Supported by NIH R21AG024902.

241) Abstract 1591

PROFESSIONAL STRESS IS GENDER DEPENDENT IN MEDICAL DOCTORS
Laura I. Pouta, PhD, 2nd Medical Department, University of Medicine and Pharmacy Iuliu Hatieganu, Cluj Napoca, Cluj, ROMANIA, Dan L. Dumitrescu, PhD, 2nd Medical Department, University of Medicine and Pharmacy Iuliu Hatieganu, Cluj Napoca, Cluj, ROMANIA

Purpose: Prior research has shown that elevated cortisol is observed with chronic stress. Sustained levels of cortisol are associated with negative health effects, including cardiovascular disease. The aim of the present study is to identify the presence of stress among physicians and to determine the association between stress and plasma cortisol levels in males and females. Methods: We conduct a study among 118 physicians, 78 women and 40 men, aged between 32 and 60. The Romanian version of Job Content Questionnaire (JCQ) was mailed to all the subjects. We investigated the main scales of JCQ: decision latitude, psychological job demands and social support, along with levels of cholesterol, triglycerides, fibrinogen, hs-CRP and plasma cortisol measured from morning blood samples. Results: Cortisol value was 412.23 (±171.30), with 20% of the females and 18.75% of the males having cortisol levels above normal. Both in men and women we found positive correlations between depression (as reported in JCQ) and cortisol levels (r=0.42, p=0.05, and r=0.40, p=0.06, respectively). In women we found positive correlations between cortisol and sleeping problems (r=0.34, p=0.07), and with the disengagement scale of JCQ (r=0.38, p=0.07). In men, there was a negative correlation between cortisol levels and coworker support (r=0.53, p=0.05), and a positive correlation with psychological job demands (r=0.45, p=0.06). Cortisol levels had strong positive correlations with fibrinogen and hs-CRP only in women (r=0.71, and 0.78 respectively). Conclusions: Although physicians of both genders reported good physical and mental health, and reasonable work satisfaction, they had elevated plasma cortisol levels, with both social and individual influences. Strategies to lower stress should be individualized for male and female physicians.

242) Abstract 1099

HIGHER DEHYDROEPIANDROSTERONE-SULFATE (DHEA-S) LEVELS ARE ASSOCIATED WITH LOWER LEVELS OF DAILY AVERAGE STRESS: EVIDENCE FROM THE PENN STATE HOTEL WORK AND WELL-BEING STUDY
Courtney A. Whetzel, Ph.D., Biobehavioral Health, Kelly D. Davis, Ph.D., Human Development and Family Studies, Jeanette M. Bennett, M.S., Biobehavioral Health, David M. Almeida, Ph.D., Human Development and Family Studies, Ann C. Crouser, Ph.D., College of Health and Human Development, Laura C. Klein, Ph.D., Biobehavioral Health, The Pennsylvania State University, University Park, PA

We assessed the association between self-reported stress and plasma Dehydroepiandrosterone-sulfate (DHEA-S), the most widely circulating hormone in the human body, has a wide array of effects, including memory and mood enhancement, immune modulation, and energy metabolism (Labrie et al. 1998; Wolf & Kirschbaum 1999). DHEA-S is released from the adrenal cortex in response to adrenocorticotropic hormone in a manner similar to that of the classical stress hormone, cortisol. Reduced DHEA-S levels may be associated with excessive stressor exposure and poor health status (McEwen 1998), but it is not known how the stressors of daily life impact DHEA-S levels across the day. The present study examined the relationship between daily DHEA-S patterns and self-reported work stressors in hotel managers. The hotel industry was selected because of the stressful 24 hr/day work environment. As part of a larger project, department managers (DMs; N=38) provided saliva 4 times/day across 4 consecutive days: upon awakening, 30 min after waking, before lunch and before going to bed. Self-ratings of interpersonal stressors and mental health were assessed on each of the four saliva collection days via telephone interviews. Spousal support and negative work to family spillover were measured during a baseline interview. Between-subjects analysis revealed that lower levels of waking DHEA-S were associated with more employed and co-worker stressors (r=0.54, p=0.001). DMs who had lower levels of DHEA-S at 30 min post-waking had more interpersonal stressors that day (p<0.05). Lower out put of DHEA-S, as calculated by area under the curve (AUC), was associated with greater negative work-family spillover. Among male DMs, higher DHEA-S AUC was associated with better mental health overall (p<0.05). In documenting links between levels of DHEA-S and daily stressors, these results suggest a positive connection between DHEA-S and well-being.

243) Abstract 1780

CHRONIC STRESS BURDEN AND AGE PREDICTS ALLOSTATIC LOAD IN ETHNIC WOMEN WITH ADVERSE CHILDHOOD EXPERIENCES
Lekeisha A. Sumner, PhD, Psychiatry & Biobehavioral Sciences, Hector F. Myers, PhD, Psychology, Jennifer Carmona, PhD, Tamra Loeb, PhD, Psychiatry & Biobehavioral Sciences, Gail Wyatt, PhD, Psychology, University of California, Los Angeles, Los Angeles, CA

Prior research has suggested that mental stress and depressive symptoms are related to biological dysfunction and that low income, ethnic women are at increased vulnerability to a myriad of chronic stressors. Yet, little is known about the relationship of chronic stress burden, a composite index of ongoing stress and economic experiences, and depressive symptoms on Allostatic Load (AL) among low-income ethnic women with adverse childhood events (ACE). The current investigation examined the relationship of chronic stress burden, depressive symptoms and AL. Sixty-eight, low-income women (mean age 35.05 years), who self-identified as racially ethnic (68% African American, 31% Latina) and reported a history of child sexual abuse completed a demographic questionnaire, the Chronic Burden Scale, and the Center for Epidemiologic Studies Depression Scale (CES-D), followed by collection of seven biomarkers (waist-to-hip ratio, systolic arterial, systolic blood pressure, diastolic blood pressure, norepineprhine, dopamine, and DHEAS) which was used to comprise AL. As described by Charney (2004), the AL score was calculated by assigning one risk point for each biomarker in the top quartile of risk for the sample and then summed (between 0-8). GLM analysis revealed that age (p = 0.04) and chronic stress burden (p = 0.022) were significant predictors of AL risk but not depressive symptoms (p = 0.06). Thus findings indicate that chronic stress burden was not associated with being in the high-risk range. These findings suggest that chronic stress burden and age should be considered when examining the link between psychological stress and biomarkers among ethnic women, particularly those with adverse childhood experiences. Although the present preliminary study is limited by the sample size, these data contribute to the mounting body of evidence suggesting that chronic stress burden has adverse biological consequences.

244) Abstract 1709

FATHERS EDUCATION PREDICTS EVERYDAY SOCIAL SUPPORT IN SOCIAL INTERACTIONS AMONG HEALTHY MIDDLE-AGED BLACK ADULTS
Danielle L. Beatty, Ph.D., Psychiatry, University of Pittsburgh, Pittsburgh, PA, Thomas A. Kamarch, Ph.D., Psychology, University of Pittsburgh, Pittsburgh, PA

The Reserve Capacity Model (RCM) suggests that early life socioeconomic status (SES) including childhood SES can influence social resources and well-being in current day-to-day life in varying ways, including perceived social support. Using ecological momentary assessment (EMA), research has demonstrated that current SES influences ratings of daily health, social well-being, and moods. RCM suggests that childhood SES on daily experiences in adulthood and whether racial/ethnic differences might influence these associations remains unclear. In 369 (50% female) healthy Black (n = 58) and White (n=311) middle-aged (mean age = 60.5, SD = 4.8) adults, we examined whether and how income, socioeconomic status, and depressive symptoms on Allostatic Load (AL) among low-income ethnic women with adverse childhood events (ACE). The current study is to identify the presence of stress among physicians and to determine the association between stress and plasma cortisol levels in males and females. We investigated the main scales of JCQ: decision latitude, psychological job demands and social support, along with levels of cholesterol, triglycerides, fibrinogen, hs-CRP and plasma cortisol measured from morning blood samples. Results: Cortisol value was 412.23 (±171.30), with 20% of the females and 18.75% of the males having cortisol levels above normal. Both in men and women we found positive correlations between depression (as reported in JCQ) and cortisol levels (r=0.42, p=0.05, and r=0.40, p=0.06, respectively). In women we found positive correlations between cortisol and sleeping problems (r=0.34, p=0.07), and with the disengagement scale of JCQ (r=0.38, p=0.07). In men, there was a negative correlation between cortisol levels and coworker support (r=0.53, p=0.05), and a positive correlation with psychological job demands (r=0.45, p=0.06). Cortisol levels had strong positive correlations with fibrinogen and hs-CRP only in women (r=0.71, and 0.78 respectively). Conclusions: Although physicians of both genders reported good physical and mental health, and reasonable work satisfaction, they had elevated plasma cortisol levels, with both social and individual influences. Strategies to lower stress should be individualized for male and female physicians.

245) Abstract 1780

CHRONIC STRESS BURDEN AND AGE PREDICTS ALLOSTATIC LOAD IN ETHNIC WOMEN WITH ADVERSE CHILDHOOD EXPERIENCES
Lekeisha A. Sumner, PhD, Psychiatry & Biobehavioral Sciences, Hector F. Myers, PhD, Psychology, Jennifer Carmona, PhD, Tamra Loeb, PhD, Psychiatry & Biobehavioral Sciences, Gail Wyatt, PhD, Psychology, University of California, Los Angeles, Los Angeles, CA

Prior research has suggested that mental stress and depressive symptoms are related to biological dysfunction and that low income, ethnic women are at increased vulnerability to a myriad of chronic stressors. Yet, little is known about the relationship of chronic stress burden, a composite index of ongoing stress and economic experiences, and depressive symptoms on Allostatic Load (AL) among low-income ethnic women with adverse childhood events (ACE). The current investigation examined the relationship of chronic stress burden, depressive symptoms and AL. Sixty-eight, low-income women (mean age 35.05 years), who self-identified as racially ethnic (68% African American, 31% Latina) and reported a history of child sexual abuse completed a demographic questionnaire, the Chronic Burden Scale, and the Center for Epidemiologic Studies Depression Scale (CES-D), followed by collection of seven biomarkers (waist-to-hip ratio, systolic arterial, systolic blood pressure, diastolic blood pressure, norepineprhine, dopamine, and DHEAS) which was used to comprise AL. As described by Charney (2004), the AL score was calculated by assigning one risk point for each biomarker in the top quartile of risk for the sample and then summed (between 0-8). GLM analysis revealed that age (p = 0.04) and chronic stress burden (p = 0.022) were significant predictors of AL risk but not depressive symptoms (p = 0.06). Thus findings indicate that chronic stress burden and age should be considered when examining the link between psychological stress and biomarkers among ethnic women, particularly those with adverse childhood experiences. Although the present preliminary study is limited by the sample size, these data contribute to the mounting body of evidence suggesting that chronic stress burden has adverse biological consequences.
more everyday social support (p < .0001) in current or recent social interactions. These effects were not shown for Whites. Additionally, there was a marginal effect for current SES as a predictor of everyday social support in current or recent interactions in the full sample (p = .06). No effects were found for mothers education or for Race X Agreableness, Race X Intimacy, and Race X Current Education. The findings suggest that childhood SES, through Fathers education predicts perceptions of social support in social interactions. The findings not only provide further support for the RCM, but also indicate that racial/ethnic differences in childhood SES may differentially influence social interactions in everyday life in adulthood.

245) Abstract 1051

SELF-REPORTED HEALTH AND CARDIOVASCULAR REACTIONS TO PSYCHOLOGICAL STRESS IN A LARGE COMMUNITY SAMPLE: CROSS-SECTIONAL AND PROSPECTIVE ASSOCIATIONS

Anna C. Phillips, PhD, School of Sport & Exercise Sciences, University of Birmingham, Birmingham, West Midlands, UK, Geoff Der, PhD, MRC Social & Public Health Sciences Unit, University of Glasgow, Glasgow, Scotland, UK, Douglas Carroll, PhD, School of Sport & Exercise Sciences, University of Birmingham, Birmingham, West Midlands, UK

Exaggerated cardiovascular reactions to acute psychological stress have been implicated in a number of adverse health outcomes. This study examined, in a large community sample (N = 1647), the cross-sectional and prospective associations between reactivity and self-reported health. Blood pressure and heart rate were measured at rest and in response to a mental arithmetic stress task. Self-Reported health was assessed concurrently and after five years later in cross-sectional analyses, those with excellent/good self-reported health exhibited higher SBP, F(1,1641) = 8.01, p = .005, DBP, F(1,1641) = 7.19, p = .007, and HR, F(1,1641) = 6.16, p = .01, reactions than those with fair/poor subjective health. In prospective analyses, taking into account reported health status at the earlier assessment, participants in the top quartile of SBP, OR = 1.15, 95%CI 1.02 - 1.29, p = .02, DBP, OR = 1.23, 95%CI 1.04 - 1.45, p = .009, and HR, OR = 1.20, 95%CI 1.04 - 1.40, p = .01, reactivity to stress were more likely to report excellent/good health five years later than those in the bottom quartile of reactivity. The findings suggest that greater cardiovascular reactivity may not always be associated with negative health outcomes.

246) Abstract 1147

CHALLENGE AND THREAT APPRAISAL ARE PREDICTIVE OF DIFFERENTIAL HEMODYNAMIC REACTIVITY PATTERNS IN A REAL-LIFE STRESSOR (PUBLIC SPEAKING)

Tomya and colleagues (1993; 1997) showed that competitive appraisals are predictive of hemodynamic reaction patterns. Challenge and threat appraisal were found to be predictive of myocardial and vascular reactivity, respectively (Tomya et al., 1993; 1997). The current purpose is to test whether the relationships between competitive appraisal and hemodynamic responding observed in the laboratory are found in real-life stressful situations. Participants were 24 men aged 19-28 months (mean = 22.4 ± 2.5). Real-life stressors were recorded for the 30 minutes before and during performance of a speech (duration ranged between 5 and 49 minutes) as part of the participant's course requirements (students) or job. Blood pressure was sampled at 100 Hz using a Portapres. Model-based analysis was used to derive the hemodynamic parameters total peripheral resistance (TPR) and cardiac output (CO) from the blood pressure waveform. After artefact correction, one-minute means were calculated for the hemodynamic measures. Participant's appraisal self-reports were obtained prior to the stressor. Multilevel regression models (MLwiN v2.2) were used to analyze the relationships between appraisal and CO and TPR. Pre-stressor appraisals were significantly associated with CO, both during the stressor (Z=2.03 p<.05) as well as during the 30-minute anticipation period preceding the stressor (Z=2.43 p<.01). In line with the prediction, more positively appraised participants showed higher CO. Pre-stressor appraisals significantly predicted TPR during anticipation (Z=2.70 p<.01) but these associations failed to reach significance during the stressor (Z=1.82, n.s.). As was predicted, during anticipation, increased threat was associated with increased TPR. In conclusion, the current study provides initial evidence that appraisal-related hemodynamic responses that have been obtained in the laboratory can also be observed in real life.

247) Abstract 1154

THE CORTISOL AWAKENING RESPONSE, SEASONALITY, STRESS AND AROUSAL: A STUDY OF TRAIT AND STATE INFLUENCES

Lisa Thorn, PhD, Department of Psychology, Frank Hucklebridge, PhD, Department of Human and Health Sciences, Phil Evans, PhD, Angela Clow, PhD, Department of Psychology, University of Westminster, London, UK

The cortisol awakening response (CAR) was examined across two consecutive winter days in 50 healthy participants in relation to both state and trait variables. Participants collected saliva samples in the domestic setting immediately on awakening, then at 15, 30 and 45 minutes post awakening on the two study days. Concomitant trait and state measures were examined, notably seasonal changeability in mood as a trait variable, and self-reported stress and arousal as state measures. Although there was a marginal effect of current SES as a predictor of CAR, there was no significant effect for participants with high seasonality on CAR across days (r = 0.522 for overall levels following awakening and r = 0.431 for response magnitude), there was a significant difference in the magnitude of the increase in cortisol levels following awakening between the two study days (p = 0.001), being greater on the first sampling day. This reduction in the magnitude of cortisol increase was significantly associated with an observed reduction across the two days in self-reported arousal assessed at 45 minutes following awakening (r = 0.329). Participants reported greater arousal (more alert, energetic and stimulated, less drowsy, tired and sluggish) on the first study day than the second (p = 0.005). Average CAR across days was associated with seasonality score (r = -0.325), greater propensity for seasonal changes in mood being associated with smaller average CAR. High seasonality scorers were also more likely as a group to show a strong association between daily changes in state arousal and CAR (r = 0.565 for participants with high seasonality and r = 0.124 for those with low seasonality). This study supports the view that the CAR is, in part, susceptible to short-term changes in state variables, notably perceived arousal, while observing a novel link between CAR and the trait variable of perceived seasonality. Finally, a tentative finding suggests the importance of examining for possible interactions between trait and state effects, evidenced by a significantly greater association between state arousal changes and cortisol response changes in those with high (trait) seasonality.

248) Abstract 1641

ACHIEVEMENT GOALS PREDICT CARDIOVASCULAR RESPONSES TO A PERFORMANCE TASK

Victoria E. Burns, PhD, School of Sport and Exercise Sciences, University of Birmingham, Birmingham, West Midlands, UK, Rebecca Morris, PhD, School of Science and Technology, Nottingham Trent University, Nottingham, Nottinghamshire, UK, Jet Veldhuijzen van Zanten, PhD, School of Sport and Exercise Sciences, University of Birmingham, Birmingham, West Midlands, UK, Toby Mundel, PhD, Institute of Food, Nutrition, and Human Health, Massey University, Palmerston North, New Zealand, Douglas Carroll, PhD, Maria Kavussanu, PhD, Joan L. Duda, PhD, Douglas Phillips, PhD, Maria Kavussanu, PhD, Joan L. Duda, PhD, Douglas Carroll, PhD, School of Sport and Exercise Sciences, University of Birmingham, Birmingham, West Midlands, UK

Cardiovascular responses to performance tasks are related to task difficulty and perceived value of success. However, the influence of how individuals conceptualize competence has not been examined. Elliot (1999) suggests that competence can vary across two dimensions: (a) definition, varying from self/task- to other-referenced standards; and (b) valence, which refers to whether the individual approaches success or avoids failure. Achievement goal theory identifies four goals in a 2x2 framework, which reflect differences in the conceptualization of competence. These goals are: Mastery-Approach (master a skill); Mastery-Avoidance (avoid getting worse at skill performance); Performance-Approach (perform better than others) and Performance-Avoidance (avoid doing worse than others). The two Avoidance goals
are considered maladaptive and positively predict state test anxiety and worry; Performance-Avoidance goals also predict more self-reported physical symptoms and health centre visits during exam periods. This study examined how individuals’ goals during a mental arithmetic task predict cardiovascular reactivity. Forty participants (20 men; mean age (SD)=25(3) yrs) completed a 45 min resting baseline followed by a 32 min mental arithmetic task. SBP, DBP, and PR were assessed throughout, and reactivity computed by subtracting mean baseline from mean task. Immediately after the task, participants completed a questionnaire assessing their goals during the task. Task performance was computed as percent correct, and behavioural approach was calculated as percent of wrong answers that were attempted rather than missed. Linear regression analyses were conducted with cardiovascular reactivity scores as the outcome variables, and the four goals entered together as predictor variables. Individual differences in task goals significantly predicted cardiovascular reactivity. Mastery-Approach goals positively predicted SBP (p=0.02) and DBP (p=0.05). Performance-Avoidance goals negatively predicted DBP reactions (p=0.02). The goals did not predict PR responses. These relationships remained when controlling for sex, task performance, and behavioural approach. These results demonstrate that the cardiovascular response to a performance task vary according to how individuals conceptualize competence in this achievement context.

249) Abstract 1755

SIMPLE AND UNIQUE EFFECTS OF AGE AND HEART RATE VARIABILITY ON PSYCHOMOTOR SPEED

Larry D. Keen II, B.A., Jules Harrell, Doctorate, Alfonso Campbell, PhD, Psychology, Howard University, Washington, DC, Clive Collender, MD, Transplant Center, Howard University Hospital, Washington, DC

Routinely, researchers “adjust” or “control” for age in empirical studies in an attempt to remove the variability attributable to this demographic variable. However, age can be thought of as a proxy variable that operates through various physiological processes to impact an outcome variable. One such process would be alteration in autonomic regulation that result for both maturational and experiential factors. Heart rate variability (HRV) is influenced by parasympathetic control and diminished HRV has been linked to increased risk of cardiovascular mortality and morbidity. HRV has also been associated with various facets of cognition, specifically, psychomotor speed and information processing. Purpose: The purpose of this study was to estimate the extent to which the predictive effects of age on psychomotor functioning were shared with the more theoretically proximal predictor, HRV. Methods: A sample of 87 middle-aged African American adults, drawn from a larger study of psychoneuroimmunological factors and renal health outcomes participated in the study. HRV was sampled for five minute during resting periods and as participants were given the Symbol Digit Modalities Test oral (SDMTO) and written (SDMTW) forms. Results: Zero-order correlations revealed associations between HRV, age and performance on the SDMTO and SDMTW. Together age and HRV accounted for 15% of the variance in SDMRW and 20% of the variance SDTMO. An analysis of shared over simple effects revealed approximately 21% of the variance in SDTMO performance accounted for by age was shared with HRV. The SDMTW, approximately 57% of the variance that was accounted for by age was related to individual differences in HRV. These results show HRV partially mediates the relationship between age and symbol digit modalities performance.

250) Abstract 1762

THE EFFECT OF NEUROTICISM ON CARDIOVASCULAR REACTIVITY AND RECOVERY DURING A PAIRED SOCIAL STRESSOR TASK

James G. Hutchinson, M.S., Psychology, Washington State University, Pullman, WA, John M. Ruiz, Ph.D., Psychology, University of North Texas, Denton, TX

This study examined the relationships between Neuroticism and cardiovascular and affective response to a cooperative laboratory task. Eighty-seven college undergraduate women (mean age = 19.3 years) took part in a paired drawing task along with a laboratory confederate. The task had three conditions distinguished on the basis of the confederate’s interactive style: hostile, friendly, or ambiguous. Participants were blocked on Neuroticism and randomly assigned to one of the three confederate feedback conditions resulting in a 2 (high vs. low Neuroticism) x 3 (hostile, friendly, or ambiguous context) between-participants design. Repeated-measures analysis of covariance revealed that although Neuroticism had no main effects on blood pressure or heart rate reactivity or recovery, there were significant interactions between Neuroticism and condition whereby the high-Neuroticism group showed less systolic blood pressure (SBP) and mean arterial pressure recovery in the hostile condition, and greater SBP recovery in the friendly condition. These results suggest that in terms of social stressors, Neuroticism is most relevant to blood pressure in the period following hostile and friendly interactions. This study provides evidence of a relationship between Neuroticism and objectively-measured cardiovascular parameters, and suggests a mechanism by which personality could affect health outcomes.

251) Abstract 1763

GENDER ROLE MODERATES HEART RATE VARIABILITY RESPONSE AND EYE CONTACT DURING INTERPERSONAL STRESS

Paula R. Prentice, B.S., Matthew White, M.S., Lauren Penwell, B.A., Kevin T. Larkin, Ph.D., Chelsea M. Ale, M.S., Chrissy Kemmer., Kirsten Sundin., Amanda L. Wheat, B.A., Psychology, West Virginia University, Morgantown, WV

Although sex differences in cardiovascular reactivity to stress are well-documented, less is known about how gender role moderates this relationship. The purpose of this study was to examine the influence of gender role on cardiovascular reactivity to two interpersonal role plays (conflict: resolving a dispute vs. comfort: comforting a friend). Additionally, because specific social skills may be relevant during social interactions of these types, eye contact was observed during both interactions. Participants were 56 undergraduates who completed the Bem Sex Roles Inventory and participated in the two tasks while blood pressure and heart rate data were measured. Sex (male, female) by Gender Role (traditional, androgynous) by Task (conflict, comfort) ANOVAs were conducted. Although no significant results were observed for HR, SBP, and DBP, a significant Gender Role by Task interaction was observed for low frequency heart rate variability (LF), F(1, 51) = 4.25, p < .05. Follow-up tests indicated that while there were no task differences in mean LF for androgynous individuals, participants with traditional gender roles displayed higher mean LFs during the Conflict task versus the Comfort task. Two ANOVAs on eye tracking also yielded significant Gender Role x Task interactions for both females, F(1, 27) = 6.05, p < .05, and males, F(1, 22) = 5.67, p < .05. Follow-up tests for females indicated that during the Comfort Task, traditional females (M = 8.30) demonstrated more interruptions in eye contact than androgynous females (M = 3.74). There were no differences between traditional and androgynous females during the Conflict Task. Follow-up tests for males indicated that androgynous males demonstrated more interruptions in eye contact during the Conflict Task (M = 8.36) than the Comfort Task (M = 6.91), whereas traditional males demonstrated more interruptions during the Comfort Task (M = 7.54) than the Conflict Task (M = 5.23). These findings indicate that future research examining sex differences to interpersonal tasks should consider the moderating influences of the participant’s gender role.

252) Abstract 1306

ATTITUDES TOWARD SEEKING MEDICAL HELP: DEVELOPMENT OF A COMPREHENSIVE MEASURE

Terry A. Di Lorenzo, PhD, Psychology, Stern College for Women, Yeshiva University, New York NY; Edward J. Fischer, PhD, Ellen A. Dornelas, PhD, Cardiology, Hartford Hospital, Hartford, CT

Recognition of factors leading to treatment delays is important. While attitudes have consistently been associated with medical help-seeking behaviors, measures typically examine a specific attitude in patient surveys and have tested or inadequate psychometric properties. This study was designed to develop and assess psychometric properties of a comprehensive measure that examines attitudes toward medical help-seeking. The Attitudes toward Medical Help-Seeking Scale (ATMHS) consists
of 50 attitude items generated from the literature. Respondents rate their level of agreement with each item on a 4-point scale. Participants also completed an existing 4-item measure of medical attitudes. The sample included 23 male and 64 female students with a modal age of 21. ATMHSS scores were correlated with the 4-item attitude measure (r=.49, p<.01), providing evidence of concurrent validity. Internal consistency was high (alpha=.85). Factor analysis with Varimax rotation gave 4 factors (eigenvalues leveled out after those were extracted), explaining 35.7% of the matrix variance. Items loading >.49 on a factor were used to interpret that factor. For Factor 1, Action, there were 10 such items (alpha=.83) reflecting intention to seek help when necessary. Factor 2, Cynicism, included 5 items (alpha=.67) indicative of cynical attitudes toward medicine. Factor 3, Procrastination and Avoidance, included 6 items (alpha=.83) reflective of a tendency to delay or avoid seeking help. Factor 4, Confidence, included 5 items (alpha=.66) which reflect confidence in medical providers. Gender and age were not associated with any factor or the total scale. These preliminary results indicate that the ATMHSS has strong psychometric properties, including concurrent validity and internal consistency reliability. This study will be replicated in a larger, diverse sample. Existing medical help-seeking scales are quite limited with poor or untested reliability and validity. The ATMHSS is multi-dimensional, tapping different aspects of help-seeking and shows promise as a tool to identify people at risk for delaying or avoiding seeking medical attention.

253) Abstract 1652

NEURAL BASIS FOR HUMAN SENSITIVITY TO EMOTIONAL CHANGES OF FACIAL EXPRESSON: AN FMRI STUDY

Yoshiya Moriguchi., Psychosomatic Research, National Institute of Mental Health, NCNP, Kodaira, Tokyo, Japan, Richard D. Lane., Psychiatry, Psychology, and Neuroscience, University of Arizona, Tucson, AZ, Kevin S. Labar., Cognitive Neuroscience, Duke Univ, Durham, NC, Gen Komaki., Psychosomatic Research, National Institute of Mental Health, NCNP, Kodaira, Tokyo, Japan

The purpose is to explore the neural basis of 'being sensitive' to emotional changes of facial expressions using fMRI and signal detection theory, and its relationship with neuroticism (i.e., hypersensitive). Healthy right-handed volunteers (n=22, 6 males, 19-25yo, mean 21.2yo, SD=1.15) participated. We created pictures of seven-graded [from neutral to negatively-valenced (fear/anger)] morphed faces in each identity using validated facial sets. In fMRI, participants were presented briefly and randomly with the faces and required each time to answer an alternative choice question about the presence of emotion [anger/feel/Yes / neutral=No]. D-prime (d’) was calculated as a sensitivity index to detect the negatively-valenced facial expressions (16.7% to 100% morph) from baseline neutral faces (0% morph). Brain regions were mapped showing 1)correlation between neural response to task event and emotional intensity of faces, and 2)the regions more active in Yes than in No cases. Further, brain activation (Yes vs No, or main effect from baseline) was correlated with d’, and Neuroticism by NEO-FFI (p<0.001, k=10). In result, positive correlation of neural activity with facial emotional intensities was found in the bilateral amygdala and fusiform gyri (FG) and so on. Brain activity contrasted by Yes vs No was found in mostly overlapping areas found in the correlation analysis above, or rather in more extensive areas including the medial/inferior frontal and superior prefrontal gyrus. The contrast of brain activation in Yes vs No is correlated negatively with d’ in the anterior cingulate cortex (ACC), bilateral anterior insula (AI), and so on, but there is no correlation with main effect of the events on activity. On the other side, Neurotism was positively correlated with main effect of task events in ACC, left AI, while not correlated with Yes vs No contrast. The results show 1)emotional awareness influences neural activity more than intensities of physical changes of stimuli, 2)Neurotism is differentiated from emotional sensitivity and is associated with the magnitude of neural activity in ACC/AI, while sensitivity is related to the balance of the neural activities between saying Yes and No.

254) Abstract 1653

CARDIO-RESPIRATORY REACTIVITY TO A STANDARDIZED SOCIAL STRESSOR IN PRE-SCHOOL CHILDREN: A PILOT STUDY

Catherine Dodson, B.A., Thomas Ritz, PhD, Renee McDonald, PhD, Clinical Psychology, Southern Methodist University, Dallas, TX

The Strange Situation Test is a standardized social challenge that was originally developed for evaluation of attachment behavior in infants. It has been shown to evoke behavioral and autonomic responses compatible with mild to moderate distress. The test has recently been adapted for preschool ages, but little is known about its capacity to elicit psychophysiological activation compatible with a stress response. We pilot-tested a 1-minute version of the test using ambulatory inductance plethysmography combined with an electrocardiogram (LifeShirt, Vivometrics Inc.) in eleven 4- to 6-year-old children with a recent history of family violence. The procedure involved the experimenter leaving the child in a room as a male confederate (who was unknown to the child) entered. The confederate assumed a neutral facial expression and sat across from the child for one minute without talking. The experimenter then returned and debriefed the child and the confederate left the room. Cardiorespiratory responses during the stranger confrontation episode were compared with a 2-minute baseline task of viewing an interesting but non-stimulating video. This test episode led to reliable increases in heart rate, tidal volume, minute ventilation, and thoraco-abdominal asymmetry indices (p<.05) relative to baseline; timing indices of the respiratory cycle were not substantially affected. Children in general showed increased negative affect over baseline. Overt physical activity increased in general and was positively associated with thoraco-abdominal asymmetry. We conclude that the test is feasible for the induction of mild to moderate stress in preschool children. Physical activity changes should be monitored throughout the task.

255) Abstract 1521

PSYCHOPSYCHOLOGICAL EFFECTS OF CONTINUED EFFORTS OF THE EXERCISE IN THE ELDERLY PEOPLE IN JAPAN

Tokiko Isowa., Geriatric Nursing, Mie University, Tsu, Japan, Atsuko Uchida., Nursing, Asakusa Comprehensive Community Support Center, Tokyo, Japan, Chieko Greiner., Nursing, The Japanese Red Cross College of Nursing, Tokyo, Japan, Shiko Sawai., exercise physiology, Joshihi University of Art and Design, Tokyo, Japan, Seikou Marashima., Internal Medicine, Mie prefectural college of nursing, Tsu, Japan, Masao Kanamori., population health, Biwako Seikei Sport College, Shiga, Japan, Mizue Suzuki., Nursing, Hamamatsu University School of Medicine, Shizuoka, Japan

Purpose: The aim of this study was to examine the leg strength exercise on psychophysiological responses of older people in Japan. Subjects and Methods: Forty healthy people over 75 years old participated in the leg exercise program for three years. They performed the exercise as group activities with instructors twice a month, and also continued the exercise at home almost daily. To evaluate the effects of the leg strength exercise, physical characteristics (weight, height, and body mass index (BMI)), ability to walk (5-meter walking time test and Timed-Stands Test), lymphocyte subsets (CD3+ T cells, CD3+CD4+ helper T cells, CD3+CD8+ cytotoxic T cells, CD19+ B cells, and CD16+CD56+ Natural killer cells, CD4+/CD8+ ratio), beta-endorphin, oxytocin, high-sensitive CRP, and cholesterol in the blood, difficulty of activity of daily living (ADL) routinely-measured. Lymphocyte subsets were analyzed by flow cytometry using selected monoclonal antibodies. Beta-endorphin and oxytocin were analyzed by the enzyme immunoassay. Results: Some people withdrew from the study for health reasons. The mean number of their daily exercise for the three months was about twice a day per person. The proportion of CD4 helper T cell and CD4+/CD8+ ratio as immune function increased significantly after the exercise. Additionally, Timed-Stands Test after the exercise was significantly faster than baseline. 5-meter walking time and physical characteristics were the same before and after the exercise. Conclusion: Performing an appropriate and continued leg exercise regimen can contribute to the health of elderly people including their immune function and leg strength.
256) Abstract 1597

RANDOMIZED TRIAL OF QIGONG IN WOMEN WITH BREAST CANCER UNDERGOING RADIATION TREATMENT

Zhen Chen, MD, PhD, Fudan University Cancer Hospital, Shanghai, China, M. D. Anderson Cancer Center, TX, Bob Thornton, MPH, Wenying Bei, RN, Ying Zhang, RN, Zhiquan Meng, MD, PhD, Zhongxing Liao, MD, Qi Wei, MS, Jiayi Chen, MD, Xiaomao Guo, MD, Luming Liu, MD, Jennifer McQuade, BS, Lorenzo Cohen, PhD, Fudan University Cancer Hospital, Shanghai, China, M. D. Anderson Cancer Center, Houston, TX, USA

Purpose: This study examined the feasibility and benefits of a qigong intervention, an ancient Chinese mind-body practice, for women with breast cancer undergoing radiotherapy at a cancer hospital in Shanghai, China. Methods: Ninety-six women were randomized to the qigong (N=49) or waitlist control (N=47) group. Women in the qigong group attended class 5 days a week over five weeks of radiotherapy. Measures to assess intrusive thoughts and avoidance behaviors (IES), depression (CES-D), sleep disturbances (PSQI), fatigue (BFI) and quality of life (FACT-B) were collected at baseline, end of treatment, and 1 and 3 months after treatment. Results: The average age was 46 years (range 25-64), staging was 0 (7%) stage I (25%), stage II (40%) and stage III (28%), and over half (54%) had undergone mastectomy surgery. Ninety-one percent (91%) were married, 45% had a high school education or less and 50% earned less than $7,000/year. Class attendance was high: 80% attended at least 80% of classes and only 4% attended fewer than half. Mixed model analyses revealed a significant time effect (p=0.002) and group by time interaction (p=0.05) for CES-D scores. There was an overall reduction in CES-D scores in the qigong group (baseline=13.1 vs 3-month follow-up=9.5), while CES-D scores remained stable in the control group (baseline=12.2 vs 3-month follow-up=11.2). There were no other significant group differences. Written comments from the patients in the qigong group included: will be useful for patients with other cancers; will continue to practice after study is over; helped to improve mental status; lucky to participate in the study; would participate in similar studies in the future. Conclusions: Results indicate that the qigong program was feasible and associated with reduced depression 3 months following cancer care. The qigong program had no significant benefit observed for other quality of life measures, potentially due to the fact that the qigong program was low impact and did not include extensive physical movements. Future studies will compare the effects of qigong combined with tai chi versus a simple exercise program.

257) Abstract 1157

THE ROLE OF SELF-CRITICISM, DEPENDENCY AND STRESS IN THE DEVELOPMENT OF PHYSICAL SYMPTOMS OF ANXIETY: A MULTIWAVE LONGITUDINAL STUDY

Chenchen Zhang, M.D., Shuqiao Yao, M.D. Ph.D., Psychology, Second Xiangya Hospital, Central South University, Changsha, Hunan, China, John R. Abela, Ph.D., Psychology, University of Rutgers, Piscataway, New Jersey.

The Role of Self-criticism, Dependency and Stress in the Development of Physical Symptoms of Anxiety: A Multivariate Longitudinal Study

Purpose: The current study utilized a multivariate longitudinal design to test whether self-criticism and/or dependency influence the course of physical symptoms of anxiety in a community sample of adolescents. It was also examined whether social support serves as a buffer against the development of physical symptoms of anxiety following increases in stress in individuals possessing such traits. Method: 619 Chinese adolescents participated in the one-year longitudinal study with an interval of 3 months. Participants completed measures assessing physical symptoms of anxiety, life events, self-criticism, dependency and social support at time 1, and measurements assessing physical symptoms of anxiety and life events at each follow-up. Results: The results of hierarchical linear modeling analyses indicated that the interaction between self-criticism, social support and stress was significant (slope = -0.02, SE = 0.01, F(1,1133) = 4.22, p<.05). Participants showing either (a) high levels of self-criticism and low levels of social support, (t(1133) = 6.55, p<.001), or (b) low levels of self-criticism and low levels of social support, (t(1133) = 5.66, p<.001), reported higher levels of physical symptoms of anxiety when experiencing higher hassles. Similar results have been found for dependency, social support and stress (slope = 0.02, SE = 0.01, F(1,1133) = 3.99, p<.05). Levels of physical symptoms of anxiety varied as a function of level of stress only for participants with either (a) high levels of dependency and low levels of social support, t (1133) = 6.03, p<.001, or (b) low levels of dependency and low levels of social support, t (1133) = 6.24, p<.001. Conclusions: Both high self-criticism and high dependency were associated with greater elevations in physical symptoms of anxiety following elevations in stress in low but not high social support individuals.

258) Abstract 1370

ATTACHMENT STYLE AND HPA AXIS DYSREGULATION IN HEALTHY FEMALE ADOLESCENTS

Andrea Oksis, BSc, Angela Clow, PhD, Department of Psychology, Frank Hucklebridge, PhD, Department of Human and Health Sciences, Catherine Loveday, PhD, Cognitive Science Research Unit, University of Westminster, London, UK

Social support is a buffer to the consequences of stress across the life course. The capacity to access and utilise social support is inherent to attachment style, and an anxious attachment style is related to depression in adult women. We investigated whether anxious attachment style in healthy adolescent girls is associated with noradrenaline and cortisol dysregulation, which have a high impact on education or less and 50% earned less than $7,000/year. Class attendance was high: 80% attended at least 80% of classes and only 4% attended fewer than half. Mixed model analyses revealed a significant time effect (p=0.002) and group by time interaction (p=0.05) for CES-D scores. There was an overall reduction in CES-D scores in the qigong group (baseline=13.1 vs 3-month follow-up=9.5), while CES-D scores remained stable in the control group (baseline=12.2 vs 3-month follow-up=11.2). There were no other significant group differences. Written comments from the patients in the qigong group included: will be useful for patients with other cancers; will continue to practice after study is over; helped to improve mental status; lucky to participate in the study; would participate in similar studies in the future. Conclusions: Results indicate that the qigong program was feasible and associated with reduced depression 3 months following cancer care. The qigong program had no significant benefit observed for other quality of life measures, potentially due to the fact that the qigong program was low impact and did not include extensive physical movements. Future studies will compare the effects of qigong combined with tai chi versus a simple exercise program.

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similar non-caregiving married adults (NC). Methods: 60 CG and 30 NC (mean age for both groups was 75 years) underwent in-home assessment of systolic and diastolic blood pressure and assessment of carotid artery plaques via B-mode ultrasonography. Results: Multiple regression analysis indicated that CG had significantly higher mean arterial pressure ($p = .05$) than NC, above and beyond age, sex, smoking history, and use of antihypertensives. In our analysis of carotid plaques, 48% of CG compared to 27% of NC had visible plaques. Logistic regression analysis found that CG were 2.6 times more likely to have carotid plaques compared to NC ($p = .05$). This risk remained elevated despite controlling for traditional CVD risk factors, the most important in our model being age (OR = 1.1), past smoking history (OR = 4.7), and diabetes (OR = 1.7). Conclusions: Multiple indicators of increased cardiovascular disease risk are present in Alzheimer's CG. Specifically, CG appear more likely to have increased blood pressure and visible carotid plaques relative to NC controls. Considering that the presence of carotid plaque is correlated with atherosclerotic coronary artery disease, CG may be at increased risk for coronary events. The present findings begin to fill in the physiological links from previously reported sympathoadrenalmedullary arousal related to caregiving stress to downstream pathology, such as plaque formation.

260) Abstract 1567

STRESS EATING IN THE LAB PREDICTS ABDOMINAL FAT ACCUMULATION
Lisa M. Groesz, PhD, Psychiatry, University of California, San Francisco, San Francisco, CA, Imke Schamarek, BA, Hana Tylova-Stein, BA, Melanie Sun, BA, Jessica Chan, BS, Alanie Lazaro, BA, Elissa Epel, PhD, Psychiatry, University of California San Francisco, San Francisco, CA

The human literature documents that people often gain weight during chronic strain, in particular increases in abdominal fat. Further, animal studies show that chronic stress drives changes in metabolic hormones and consumption of highly palatable food. Thus overeating during stress may be an important mechanism leading to abdominal fat accumulation, particularly in those under chronic stress. The current study examined dementia caregivers and noncaregivers metabolic health over one year. We recruited a largely white sample of 63 women via fliers in the community (M age= 61.9, SD=6.5). We tested whether psychological stress (chronic stress), metabolic hormones (adiponectin, leptin, insulin resistance via OGTT) and behavioral tendency for stress eating (consumption of high sweet, high fat foods after a lab stressor) predict increases in BMI and abdominal fat (based on DEXA scan) over a one year period. We performed Spearman’s correlations and Analyses of Covariance using 2 tailed p tests. We found that chronic stress ($r=.33, p=.09$), and low adiponectin ($r=-.35, p=.08$) and lab stress eating predicted ($r=.36, p=.05$) one-year increases in abdominal fat. Insulin resistance, while related to abdominal fat at baseline ($r=.57, p=.01$), did not predict increases. Results held across groups except for adiponectin. Caregivers low in adiponectin gained the most abdominal fat compared to other groups, covarying BMI ($F=4.56, p=.04$). These preliminary results indicate that individual differences lab based stress eating may identify those at greatest risk for abdominal fat accumulation and the related insulin resistance syndrome. There were no predictors of increases in BMI, suggesting specificity of stress and stress eating for abdominal versus general fat deposition. Secondly, low adiponectin may compromise metabolic health particularly for those under chronic stress.
POSTERS/Session 3

**Topic: Cardiac Disease**

**261) Abstract 1111**

**POST-TRAUMATIC STRESS DISORDER AND CARDIOVASCULAR HEALTH STATUS IN THE HEART AND SOUL STUDY**

Beth E. Cohen, MD, Medicine, VA Medical Center/ University of California, San Francisco, CA, Sadia Ali, MD, Medicine, VA Medical Center, San Francisco, CA, Nelson B. Schiller, MD, Medicine, Radiology, Anesthesiology, Thomas C. Neylan, MD, Charles R. Marmar, MD, Psychiatry, Mary A. Whooley, MD, Medicine, Epidemiology & Biostatistics, VA Medical Center/ University of California, San Francisco, CA

Purpose: To determine whether post-traumatic stress disorder (PTSD) is associated with cardiovascular health status in patients with heart disease and whether this association is independent of objective measures of cardiac function. Subject sample and methods: We measured PTSD, cardiac function, and cardiovascular health status in 1022 men and women with heart disease. PTSD was assessed using the Computerized Diagnostic Interview Schedule for DSM-IV. Cardiac function was measured using left ventricular ejection fraction, treadmill exercise capacity, and inducible ischemia on stress echocardiography. Health status was assessed using the symptom burden, physical limitation, and quality of life subscales of the Seattle Angina Questionnaire. We used ordinal logistic regression to evaluate the association of PTSD with health status, adjusted for objective measures of cardiac function. Summary of results: Of the 1,022 participants, 95 (9%) had current PTSD. Participants with PTSD were more likely to report at least mild symptom burden (57% vs 36%), mild physical limitation (59% vs 44%), and mildly diminished quality of life (62% vs 35%) (all p<.001). When adjusted for cardiovascular risk factors and objective measures of cardiac function, PTSD remained independently associated with greater symptom burden, greater physical limitation, and worse quality of life (Table). Results were similar after excluding participants with depression. In summary, among patients with heart disease, PTSD is more strongly associated with patient-reported cardiovascular health status than objective measures of cardiac function. Addressing PTSD symptoms has the potential to improve function and quality of life in patients with heart disease.

<table>
<thead>
<tr>
<th>Symptom Burden</th>
<th>Greater Physical Limitation</th>
<th>Worse Quality of Life</th>
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<tbody>
<tr>
<td>PTSD</td>
<td>1.9 (1.2-2.8), p=.005</td>
<td>2.3 (1.4-3.6), p=.001</td>
</tr>
<tr>
<td>Exercise</td>
<td>1.4 (1.2-1.7), p&lt;.001</td>
<td>2.8 (2.4-3.4), p=.001</td>
</tr>
<tr>
<td>Ejection</td>
<td>1.0 (0.84-1.2), p=.96</td>
<td>1.0 (0.85-1.2), p=.96</td>
</tr>
<tr>
<td>Inducible</td>
<td>.99 (0.84-1.2), p=.87</td>
<td>1.0 (0.87-1.2), p=.75</td>
</tr>
<tr>
<td>ischemia</td>
<td>.99 (0.84-1.2), p=.87</td>
<td>1.1 (0.89-1.2), p=.55</td>
</tr>
</tbody>
</table>

**262) Abstract 1461**

**HIGHER PREVALENCE OF CARDIOVASCULAR DISEASE IN ALZHEIMER CAREGIVERS RELATIVE TO NON-CAREGIVING CONTROLS**

Alexandra L. Harmell, BA, Psychiatry, University California San Diego, La Jolla, Ca., Susan K. Roepke, BA, Psychiatry, UCSD, La Jolla, Ca., Brent T. Maushack, PhD, Paul J. Mills, PhD, Roland von Känel, MD, Joel E. Dimsdale, MD, Thomas L. Patterson, PhD, Psychiatry, Michael G. Ziegler, MD, Medicine, Sonia Ancois-Israel, PhD, Psychiatry, Matthew A. Allison, MD, Family and Preventative Medicine, Igor Grant, MD, Psychiatry, UCSD, La Jolla, Ca

Background: The chronic stress of caring for a loved-one with Alzheimer's disease has been linked to many psychological and physical health consequences as well as overall mortality. Specifically, caregivers (CG) are at increased risk for depression, anxiety, weakened immune response, and cardiovascular disease (CVD). Objective: To determine the association between CG status (i.e. Alzheimer caregivers versus non-caregiving married adults (NC)) on CVD prevalence controlling for relevant covariates. Methods: Criteria for eligibility included being 55 years of age or older, married, living with your spouse, and not having a serious medical condition (i.e. cancer). 73 elderly spousal CG (mean age= 74) and 33 demographically-similar NC (mean age= 75) were interviewed about their current and past medical history using a Health and Health Behaviors structured interview. Participants were queried regarding a history of myocardial infarction, angina, congestive heart failure, stroke, or arrhythmia. Results: Logistic regression was used to predict presence of CVD (yes vs. no). We found that CG were 12.5 times more likely to report having CVD compared to NC (p=.046), even after controlling for age, sex, smoking history, body mass index, Total/HDL Cholesterol ratio, diabetes, and the use of anti-hypertensive and cholesterol medications. Specifically, 14 CG (19%) reported having CVD compared with only 1 NC (3%). The most commonly reported diagnoses among caregivers included heart disease, angina, and stroke or TIA. In addition to CVD status, the most important CVD risk factors in this model were diabetes (OR=5.8), anti-hypertensive use (OR=2.9), and the use of cholesterol medications (OR=2.7). Discussion: While we cannot make causal inferences, we find that elderly CG are more likely to have a history of CVD than NC, adding to a growing body of literature that suggests caregiving may be associated with CVD and that the mechanisms are yet to be delineated, including possible unaccounted selection factors, these results indicate that health care providers should be alert to the possibility of greater CV risk in elderly caregivers, and screen appropriately for this.

**263) Abstract 1252**

**PERCEIVED SOCIAL STATUS & HEALTH AMONG FIRST GENERATION CHINESE IMMIGRANTS IN CHINATOWN, NYC**


Study Aims: 1) Validate the MacArthur SES ladder (ML) among Chinese immigrant samples; 2) Assess association of perceived social status with stress and health status among Chinese immigrants. Methods: As part of a larger study assessing acculturation and health among first generation Chinese Immigrants (N=1003, Females=658; Mean Age = 54.9, SD=12.8 years) in NYC Chinatown, participants participated in a health check which included anthropometric measures, blood pressure, and a blood draw and completed questionnaires (translated into Chinese) assessing demographics, perceived social status (ML), two additional versions of the ML asking participants to rate their social status compared to the Chinese immigrant community and the Chinese community in China, perceived stress, and measures of somatic complaints. Measures & Results: The ML correlated positively with participants' rating of their status when compared to the Chinese community in the US (r=.76, p<.0001), and their perceived status in China (r=.51, p<.0001). High social status was associated with high household income (r=.07, p<.05) and level of schooling (r=.17, p<.0001) but was not correlated with number of rooms in the home or number of people in the home. Perceived social status was negatively associated with systolic (r=-.09, p=.006) and diastolic (r=-.08, p=.02) blood pressure, total cholesterol (r=-.07, p<.03), and LDL cholesterol (r=-.07, p<.03), stress (r=-.07, p<.03), and somatic complaints (r=.08, p=.01). Conclusion: Results indicate preliminary validity of the ML. Higher overall perceived status was strongly associated with perceived relative status compared to the Chinese immigrant community and to peers in China. Higher status was also positively associated with conventional measures of SES such as education and with better metabolic health and lower stress and somatic complaints.
BIO-BEHAVIORAL MECHANISMS EXPLAINING THE RELATIONSHIP BETWEEN LACK OF SOCIAL INTEGRATION AND INCIDENT HEART FAILURE IN THE CARDIOVASCULAR HEALTH STUDY LIMITED ACCESS DATASET

Heather L. Rogers, Ph.D., David S. Krantz, Ph.D., Medical and Clinical Psychology, Uniformed Services University of the Health Sciences, Bethesda, MD

Social support is associated with the development and progression of coronary artery disease. Numerous bio-behavioral mechanisms may account for this relationship. We previously reported that lack of social integration was a predictor of incident heart failure (HF) in male participants in the Cardiovascular Health Study (CHS), independent of age, race/ethnicity, risk factors, and pre-existing coronary disease. The present study explored potential mediators of this relationship. Data were derived from the 2,334 community-dwelling elderly male CHS participants. Possible mediators included subjective general health status, self-rated health compared to others, Depression assessed via the CES-D, major life events, physical activity level, and inflammatory markers. Cox regression analyses indicated that incident HF was predicted by general health status [OR=1.24 (1.15-1.34); p<0.001], rating of health compared to others [OR=1.24 (1.07-1.44); p<0.01], total kilocalories spent in physical activity [OR=0.99 (0.99-0.99); p<0.001], Depression [OR=1.02 (1.01-1.04); p<0.05], Interleukin -6 [OR=1.06 (1.02-1.10); p<0.01], and C-Reactive Protein [OR=1.01 (1.01-1.02); p<0.05], but not major life events. Social integration was significantly correlated with general health status (r=0.05, p<0.01), self-rated health compared to others (r=0.03, p<0.05), depression (r=-0.12, p<0.001), physical activity in kcal (r=0.08, p<0.001), and levels of interleukin-6 (r=-0.05, p<0.05), but not C-reactive protein levels or major life events. Depression and rating of health compared to others were found to partially mediate the relationship between lack of social integration and incident HF. When both depression and rating of health compared to others were entered simultaneously in to the model as mediators, rating of health compared to others was a marginally significant predictor of incident HF, while Depression was not. Lack of social integration was significantly, but weakly, associated with IL-6, psychological, and behavioral markers linked to HF in this sample. Psychological factors, but not risk behaviors or physiological measures, partially accounted for the relationship between lack of social integration and incident HF in elderly community-dwelling males.

OVERCOMMITMENT RELATES TO AND MODERATES EFFECTS OF EFFORT-REWARD-IMBALANCE ON STRESS-INDUCED COAGULATION CHANGES

Roland von Känel, General Internal Medicine, University Hospital, Bern, Switzerland, Silja Bellingerath, Brigitte M. Kadielka, Jacobs University, Bremen, Germany

Background: Stress-related hypercoagulability might link job stress with atherosclerosis. Purpose: To study whether overcommitment (OC), effort-rewardimbalance (ERI), and the OC-by-ERI interaction relate to an exaggerated coagulant stress response. Methods: We assessed job stress in 52 healthy teachers (49±8 years, 63% women) at study entry and after a mean follow-up of 21±4 months when they underwent an acute psychosocial stressor and had coagulation measures determined in plasma. Results: During recovery from stress, elevated total OC (entry plus follow-up scores) and OC at follow-up all correlated with D-dimer increase and elevated total OC and OC at entry correlated with smaller fibrinogen decrease. Overcommitment was not associated with coagulation changes from pre-stress to immediately post-stress. Follow-up measures of elevated ERI correlated with D-dimer increase during recovery when OC was low but not when OC was high. Conclusions: Overcommitment individually predicted but also moderated the effect of ERI on stress-induced hypercoagulability, particularly during the recovery period.

ASSOCIATION BETWEEN HEART RATE RECOVERY AFTER EXERCISE AND PHYSICAL DISTRESS AND QUALITY OF LIFE IN PATIENTS WITH CHRONIC HEART FAILURE

Roland von Känel, General Internal Medicine, Hugo Saner, Sonja Kohls, Cardiology, University Hospital, Bern, Switzerland, Jürgen Barth, Social and Preventive Medicine, University, Bern, Switzerland, Jean-Paul Schmid, Cardiology, University Hospital, Bern, Switzerland

Background: Psychological distress, poor disease-specific quality of life (QoL), and reduction in vagally mediated early heart rate recovery (HRR) after exercise predicted mortality in patients with chronic heart failure (CHF). We hypothesized lower HRR with greater psychological distress and poorer QoL in CHF. Methods and Results: Fifty-six CHF patients (mean age 58±12 years, 84% men, left ventricular ejection fraction ≤40%) completed the Hospital Anxiety and Depression Scale and the Minnesota Living With Heart Failure Questionnaire (MLWHQ). HRR was determined as the difference between HR at the end of exercise and one minute after exercise (HRR-1). Levels of anxiety symptoms and poorer QoL in CHF. Methods and and emotional QoL (p=0.017) were all associated with blunted HRR-1 explaining between 7.8% and 11.4% of the variance after controlling for covariates. Depressed mood was not associated with HRR-1 (p=0.20). Conclusions: Increased psychological distress with regard to elevated anxiety symptoms and impaired QoL were independent correlates of reduced HRR-1 in patients with CHF.
Reduced vagal tone might explain part of the adverse clinical outcome previously observed in CHF patients in relation to psychological distress and poor disease-specific QoL.

269) Abstract 1313

ASSOCIATIONS OF POSITIVE AND NEGATIVE PSYCHOLOGICAL FACTORS WITH INDICES OF CARDIAC AUTONOMIC BALANCE AND REGULATORY CAPACITY

Jesse C. Stewart, Ph.D., Mary A. Hawkins, B.S., Devere J. Zielke, M.S., Psychology, Indiana University-Purdue University Indianapolis, Indianapolis, IN

Existing evidence indicates that positive psychological factors are associated with reduced all-cause and cardiovascular mortality. Although the pathways through which positive factors influence health have not yet been identified, one potential mechanism is autonomic nervous system dysfunction. We examined relationships between positive and negative psychological factors and two indices of autonomic function, cardiac autonomic balance (CAB) and cardiac autonomic regulation (CAR), in a sample of 70 young, healthy adults (80% female, 80% white, mean age=25 years). Participants attended a laboratory session, during which they underwent reactivity testing and completed questionnaires, including the Beck Depression Inventory-II, State-Trait Anxiety Inventory, State-Trait Anger Expression Inventory, Positive and Negative Affect Schedule, and Satisfaction with Life Scale (SWLS). Pre-ejection period (PEP) and high-frequency heart rate variability (HRV) estimates were derived from 1-minute epochs of impedance cardiographic and electrocardiographic data obtained during the last 5 minutes of a rest period, were averaged, and were converted to z-scores. Using the equations proposed by Berntson et al. (2008), CAR was calculated as HRV/(HRV-PEP) (lower values indicate parasympathetic dominance), and CAR was computed as HRV/(HRV+PEP) (higher values indicate greater autonomic regulatory capacity). Separate regression analyses revealed that, after adjustment for age, sex, race-ethnicity, and body mass index, Trait Anger (β=−.33, p<.01, delta R²=.097) and SWLS (β=−.29, p=.02, delta R²=.079) were associated with CAB, whereas none of the positive or negative factors was related to CAR. When the psychological factors were simultaneously entered into the same model, both Trait Anger (β=−.29, p=.04, delta R²=.060) and SWLS (β=.28, p=.08, delta R²=.044) were similarly associated with CAB, although the effect sizes were reduced. Controlling for respiration rate did not change the results. We found that trait anger and life satisfaction were associated with sympathetic and parasympathetic dominance, respectively. Given that increased parasympathetic activation has been linked to lower mortality, our findings are consistent with the notion that positive psychological factors may exert a health-protective effect via this physiological pathway.

270) Abstract 1392

HEART RATE VARIABILITY AND PERSONALITY IN HEALTHY WOMEN AND MEN

Slawomir Wojniewicz, Master of Health Science, Neuropsychiatry and psychosomatic medicine, Rikshospitalet University Hospital, Oslo, Oslo, Norway, Birgitte Boye, PhD, Neuropsychiatry and psychosomatic medicine, Rikshospitalet University Hospital, Oslo, Oslo, Norway

Purpose of study: Heart rate variability measures cardiac autonomic balance and cardiac regulatory capacity, which has been found to be importantly associated with different somatic and psychiatric diseases and disorders. Moreover, personality traits like anger, hostility, alexithymia, neuroticism and locus of control have been associated with course and prognosis of various psychiatric and somatic disorders. Purpose of this study was to assess associations between heart rate variability and various personality traits in healthy persons. Subject sample and methods: Twenty healthy men (age=39.5 years (SD10.9) and twenty women (age=36.0 years (SD10.6)); no psychiatric diagnosis on MINI neuropsychiatric interview, Montgomery and Asberg depression rating scale (MADRS <20), normotensive (BT<140/90), no previous or ongoing somatic disease (Norbrain Bipolar Research and Innovation Network), and unmedicated, completed questionnaires of personality (multidimensional health locus of control scale (LOC-introspective–p–extrascientific, -chance), Eysenck personality questionnaire (EPO–neuroticism, -lie), Toronto alexithymia scale (TAS-20), and Buss Perry aggression questionnaire (BPAQ–anger, -verbal aggression, -hostility and -physical aggression). Heart rate variability (HRV) was recorded after five minutes rest in sitting position for a 1-minute period. Summary of results: HRV analysis showed significant differences between women and men only in relation to cardiac autonomic balance (Low Frequency/High Frequency (LF/ HF) p=.009). Correlation analyses showed that in women powerful others locus of control were negatively correlated with Root mean square of successive differences in N-N intervals (RMSDD) (p<.004), LF (p=.003) HF (p=.008) and in men positively related to LF/HF (p=.02). In men TAS were positively correlated with RMSDD (p=.006), and HF (p=.009), BPAQ–anger were positively related to LF/HF (p=.04) in men. Conclusion: the association between heart rate variability and personality is different in healthy men and women.

271) Abstract 1483

DEPRESSION, NONLINEAR HEART RATE VARIABILITY, AND MORTALITY IN CORONARY HEART DISEASE

Robert M. Carney, PhD, Kenneth E. Freedland, PhD, Psychiatry, Washington University School of Medicine, St. Louis, Missouri, Rebecca L. Reese, MA, Psychology, Washington University, St. Louis, Missouri, Brian C. Steinmeyer, MS, Psychiatry, Phyllis K. Stein, PhD, Medicine, Washington University School of Medicine, St. Louis, Missouri

Both depression and low heart rate variability (HRV) have been shown to predict mortality in patients with coronary heart disease. In addition, very low frequency (VLF) power, a standard index of frequency domain HRV, has been shown to mediate the effect of depression on mortality (Carney et al., 2005). There is evidence that nonlinear HRV indices such as ones based on detrended fluctuation analysis (DFA) may be better predictors of mortality than standard HRV indices such as VLF (Ho et al., 1997). The purpose of this study was to determine whether depression predicts all-cause mortality in CHD after adjusting for the short-term fractal scaling exponent (DFA1) and other cardiac risk factors. Twenty-four hour ambulatory ECGs were obtained from 311 depressed patients with a recent MI who were enrolled in the FINMONICA AMI study. HRV was measured using short-term spectral analysis and non-linear DFA1. DFA1 was positively associated with age, depression, hostility, neuroticism and the trait anger scale of the Buss-Perry Aggression questionnaire (BPAQ-anger, -verbal aggression, -hostility and -physical aggression). Heart rate variability (HRV) was related to death within one month after an acute MI was classified as depressed. Forty percent of the subjects were women; the mean age was 59±12. Forty-seven patients died over a 30-month follow-up. After adjusting for age (HR=1.05, p=.003), diabetes (HR=5.60, p<.0001), smoking (HR=2.90, p=.01), ejection fraction 40-50 (HR=3.17, p=.02), ejection fraction <40 (HR=6.28, p<.0001), CABG at index MI (HR=0.25, p=.03), and decreased DFA1 (HR=0.10, p<.001), depression predicted decreased survival (HR=2.18, p<.03). We conclude that depression predicts decreased survival after acute myocardial infarction, even after taking into account one of the strongest HRV-related predictors of mortality.

272) Abstract 1661

INTERACTIVE EFFECTS OF DEPRESSIVE SYMPTOMS AND TRAIT ANGER ON CARDIOVASCULAR REACTIVITY

Julia D. Betensky, M.S., Richard J. Contrada, Ph.D., Psychology, Rutgers, The State University of New Jersey, Piscataway, NJ

There is evidence that depression and anger may independently promote exaggerated inflammatory responses and cardiovascular reactivity that, over time, may contribute to the development of coronary heart disease. In addition, some work suggests that depression and anger may operate synergistically to promote inflammation, but it is unclear whether this is also the case for cardiovascular reactivity. In the present study, we predicted that the combination of depressive symptoms and high trait anger would promote exaggerated cardiovascular reactivity by comparison with score combinations indicating low levels of one or both of these characteristics. Sixty-four healthy female undergraduates completed the Beck Depression Inventory and the trait anger scale of the Buss-Perry Aggression Questionnaire and performed a stressful speech task. Systolic blood pressure, diastolic blood pressure, and heart rate were recorded at rest and during the speech. Results indicated that women who scored high on both scales, reflecting high levels of both depressive symptoms and trait anger, showed significantly greater increases in systolic blood pressure, F(1, 62) = 5.57, p < .05, and in heart rate, F(1, 62) = 4.71, p <
.05, compared with women who scored low on one or both measures. For diastolic blood pressure, there was a marginally significant main effect of gender, reflecting higher diastolic blood pressure in women than in men in those with high compared with low levels of depressive symptoms, F(1, 62) = 3.51, p = .07, but no depression x anger interaction. Taken together, these data suggest that depressive symptoms and trait anger may interact to promote exaggerated myocardial responses reflecting enhanced beta-adrenergic activity, a possible marker for mechanisms whereby psychosocial factors contribute to heart disease. Continued investigation of the joint effects of depression and anger may contribute to efforts to identify individuals who are at high risk for coronary disease.

273) Abstract 1774
BEAT-TO-BEAT HEART RATE AND QT INTERVAL VARIABILITY IN FIRST EPISODE-NEUROLEPTIC-NAIVE PSYCHOSIS: A PRELIMINARY STUDY
Ripu D. Jindal, MD, Psychiatry, University of Pittsburgh School of Medicine, Pittsburgh, PA; Matcheri S. Keshavan, MD, Psychiatry, BIDMC Harvard Medical School; Wayne State University, Boston & Detroit, MA & MI; Kevin Eklund, BSN, Psychiatry, University of Pittsburgh School of Medicine, Pittsburgh, PA; Angela Stevens, MD, Psychiatry, University of Ottawa, Ottawa, Ontario, Canada; Zina A. Montrose, PhD, Psychiatry, University of Pittsburgh, Pittsburgh, PA; Vikram K. Yeragani, MD, Psychiatry, Wayne State University; University of Calgary, Detroit & Calgary, MI & Alberta, USA & Canada
Introduction: Though increased risk of sudden death in patients with schizophrenia is well-documented, the exact reasons remain unclear. Recently, some studies have found evidence of two known risk factors for sudden cardiac death and other arrhythmias, i.e. decreased R-R interval variability and increased QT interval variability, in patients with schizophrenia. However, these studies have not entirely controlled for the effects of medication. Herein, we report the results of our study comparing R-R interval variability and QT interval variability in patients who have never been treated with any neuroleptic, the first episode neuroleptic-naive patients, with healthy controls.
Methods: 24 patients with first episode neuroleptic-naive psychosis were matched with 26 healthy controls on age and gender. All participants had at least a five-minute electrocardiogram record in the morning after an overnight fast. Results: In comparison with matched controls, patients with first episode neuroleptic-naive psychosis had significantly increased Q-T interval variability corrected for R-R interval variability, and decreased RR interval variability. Conclusions: Patients with psychosis may be at increased risk of sudden death and other arrhythmias due to abnormal ventricular repolarization. The disease pathology, regardless of the medication use, may present an independent risk factor. This publication was supported by funds received from AAGP SRI Alumni Award (P.I Ripu Jindal) and the NIH/NCCR/GCRC grant #M01 RR00056 and grant MH45156.

274) Abstract 1267
DEPRESSION, SLEEP APNEA, AND HOSPITALIZATIONS IN PATIENTS WITH CORONARY DISEASE
Rebecca L. Reese, M.A., Psychology, Washington University, St. Louis, MO; Robert M. Carney, Ph.D., Psychiatry, Washington, St. Louis, Missouri; Brian C. Steinmeyer, M.S., Kenneth E. Freedland, Ph.D., Psychology, Washington University School of Medicine, St. Louis, Missouri
Coronary heart disease (CHD), obstructive sleep apnea-hypopnea syndrome (OSAHS), and depression frequently co-occur. OSAHS is a risk factor for morbidity and mortality in patients with heart disease. Depression also predicts cardiac morbidity and mortality in patients with heart disease. Depression also predicts cardiac morbidity and mortality in patients with heart disease. Depression also predicts cardiac morbidity and mortality in patients with heart disease. Depression also predicts cardiac morbidity and mortality in patients with heart disease. Depression also predicts cardiac morbidity and mortality in patients with heart disease. Depression also predicts cardiac morbidity and mortality in patients with heart disease. Depression also predicts cardiac morbidity and mortality in patients with heart disease. Depression also predicts cardiac morbidity and mortality in patients with heart disease. 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Depression also predicts cardiac morbidity and mortality in patients with heart disease. Depression also predicts cardiovascular risk factors, a family history (FH) of premature myocardial infarction (MI) may also be a with MD, 69% of those with md, and 77% of the nondepressed patients had OSAHS (p<.05). Telephone interviews were conducted every 3 months for one year after the PSG to ascertain cardiac and noncardiac hospitalizations. Follow-up data were obtained from 92% of the participants. Thirty-four percent of the participants reported at least one hospitalization during the follow-up. Hierarchical logistic regression was performed to model the effect of depression (as assessed by the Beck Depression Inventory) on hospitalizations (0 vs >1), controlling for age, AHI, and gender. The BDI was significant in a univariate model (OR=1.04, p<.05) and after adjusting for age and AHI (OR=1.04, p<.05). It was not significant after additional adjustment for gender (OR=1.04, p<.05), reflecting the fact that women were both more depressed than men and also more likely to be hospitalized. We conclude that depression predicts hospitalizations in cardiac patients even after adjusting for the presence and severity of OSAHS.

275) Abstract 1298
DESIGN AND RATIONALE OF A NEW GERMAN RANDOMIZED CONTROLLED TRIAL: STEPWISE PSYCHOTHERAPY INTERVENTION FOR REDUCING RISK IN CORONARY ARTERY DISEASE (SPIRR-CAD)
Christian Albus, MD, Psychosomatics, Univ. Clinic, Cologne, Germany; Christoph Herrmann-Lingen, MD, Psychosomatics, University of Potsdam, Germany; Hans-Christian Deter, MD, Psychosomatics, Univ. Medical Center, Berlin, Germany; Kurt Fritzschke, MD, Psychosomatics, Univ. Clinic, Freiburg, Germany; Christiane Waller, MD, Psychosomatics, Medical School, Hannover, Germany; Peter Jaraschky, MD, Psychosomatics, Univ. Clinic, Dresden, Germany; Jochen Jordan, PhD, Psychocardiology, Kerckhoff Reha Center, Bad Nauheim, Germany; Jana Jünger, MD, Psychosomatics, Univ. Clinic, Heidelberg, Germany; Karl-Heinz Ludwig, PhD, Psychosomatics, TU, München, Germany; Michael Mück-Weymann, MD, Psychosomatics, Univ. Clinic, Dresden, Germany; Wolfgang Söllner, MD, Psychosomatics, Klinikum Nord, Nürnberg, Germany; Christoph Herrmann-Lingen, MD, Psychosomatics, Univ. Clinic, Göttingen, Germany, on behalf of the SPIRR-CAD Study Group, Psychosomatics, Univ. Clinics, ten centres, Germany
Background: Besides being a cardiovascular risk factor, a family history (FH) of premature myocardial infarction (MI) may also be a
distressing experience. However, little information on subjective effects of a close relative's premature MI is available. Objective and Methods: We aimed to characterize the association between FH of premature MI, personality factors, and emotional distress. Results: Of the 1360 patients, 179 (13.2%) reported a positive FH of premature MI. These patients were more likely to be female, have hyperlipidemia, and own history of MI than the remaining patients. FH of MI was associated with significantly increased levels of anxiety, depression, and vital exhaustion, while considerably smaller effects on distress were observed for patients' own history of MI. Structural equation modelling controlling for sex and age showed that the effect of a positive FH on distress was not mediated by higher disease severity. Instead, a positive FH had highly significant effects on several aspects of personality, disease coping, and social support. Personality appeared as the main mediator of the observed association between positive FH and distress. Conclusion: A positive FH of premature MI is associated with elevated psychological distress. This effect is mainly independent of clinical variables but rather mediated by the effect of FH. Personalized treatment. Thus, in patients with cardiovascular disease and risk factors a positive FH of premature MI may exert a profound effect on psychological development and well-being. In addition, common genetic determinants of personality and cardiovascular disease risk may be of importance.

277) Abstract 1270

PSYCHOLOGICAL STRESS ASSOCIATED WITH RED BLOOD CELL OXIDATIVE STRESS: THE HEALTHY AGING IN NEIGHBORHOODS OF DIVERSITY ACROSS THE LIFE SPAN (HANDLS) STUDY
Sarah L. Szanton, Health Systems and Outcomes, Johns Hopkins University, School of Nursing, Baltimore, MD, Miller R. Edgar, PhD, Epidemiology; and J. Thorpe, PhD, Health Policy and Management, Johns Hopkins University, School of Public Health, Baltimore, MD, Elissa S. Epel, PhD, Psychiatry, University Of California, San Francisco, San Francisco, CA, Joseph M. Rikkind, PhD, Joy M. Mohanty, PhD, Molecular Dynamics Section, Alan B. Zonderman, PhD, Cognition, National Institute on Aging, Baltimore, MD, Michele K. Evans, MD, National Institute of Aging, National Institute of Health, Baltimore, MD

Purpose: Oxidative stress may have an important role in the pathogenesis of cardiovascular disease and premature aging. Small clinical studies suggest that oxidative stress can be increased by psychological stress. However, confirmation of this association in epidemiological studies has been limited by homogenous populations and unmeasured potential confounders. The purpose of this study is to test the cross-sectional association between self-reported psychological stress and oxidative stress in a demographically heterogeneous sample with well-measured confounders. Subject sample and statement of methods: We performed a cross sectional analysis of a consecutive series of 453 participants enrolled in the Healthy Aging in Neighborhoods of Diversity across the Life Span (HANDLS) study. Conducted by the National Institute on Aging Intramural Research Program, HANDLS is a prospective epidemiological study of a socioeconomically diverse cohort of African Americans aged 30-64 years. Psychological stress was based on: self-report of racial discrimination, the perceived stress scale, and poverty status (<125% of the federal poverty level). RBC oxidative stress was measured by fluorescent heme degradation products. Confounders were age, hemoglobin A1c, smoking status, and total cholesterol level. Summary of results: Participants had a mean age of 49 years (SD in 9.27). 74% were African-American and 54.5% were women. In univariate analyses, reported psychological stress was associated with increased oxidative stress using any of the three psychological stress measures (p<0.05). Psychological stress attributed to poverty and racial discrimination remained independent predictors of higher oxidative stress after adjustment for age, HgA1c, smoking, and total cholesterol level (B= -0.4 P <0.01 and B= -0.3 P<0.000) respectively. These findings suggest that there may be identifiable cellular pathways by which psychological stress amplifies cardiovascular and other age-related disease risk.

278) Abstract 1331

CHANGES IN VENTRICULAR REPOLARIZATION DURING DAILY EMOTIONS IN PATIENTS WITH LONG QT SYNDROME
Richard D. Lane, M.D., Ph.D., Psychiatry, University of Arizona, Tucson, AZ, Harry T. Reis, Ph.D., Psychology, Derek R. Peterson, Ph.D., Biostatistics and Computational Biology, Wojciech Zareba, M.D., Ph.D., Arthur J. Moss, M.D., Heart Research Follow Up Program, University of Rochester, Rochester, NY

Stressful life events associated with high arousal emotions have been linked to fatal arrhythmias in susceptible individuals. It is currently unknown, however, whether everyday low intensity emotions influence susceptibility to cardiac events. We studied 161 patients (72% female; mean age 35 years) with Long QT Syndrome (LQTS), a genetic disorder that puts affected individuals at risk for sudden cardiac death. Home visits were made throughout the U.S. to collect data over three days. Each day a 12-hour Holter recording was completed. Patients engaged in typical daily activities and were paged (on vibration mode) 10 times per day at random times. Patients responded by answering 60 questions using a Palm PDA to rate their degree of feeling preceding each page. Ratings addressed current activities, location, social circumstances, exertion, 22 emotion terms (rated on a 7-point intensity scale) and 9 somatic symptoms. Holter and PDA clocks were synchronized for later off-line analysis. Holter data over 5 minute epochs were analyzed for heart rate (HR) and QT interval (with variance due to HR removed on a subject-specific basis [QTci]). Highly statistically significant associations were observed between emotions (activated positive, activated negative and low arousal positive) and QTci (p<.001, .002, .01, respectively). Parallel highly statistically significant findings were observed between emotions and HR (p<.001, .03, .001, respectively). Regression coefficients for QTci-emotion and HR-motion relationships were highly correlated (r = .96). No interactions with genotype, beta blocker status, age or gender were observed. These findings suggest that everyday emotions have a definable effect on ventricular repolarization. They also suggest that changes in QTci and HR during low intensity everyday emotions may be driven by similar physiological processes.

279) Abstract 1402

HEALTH LOCUS OF CONTROL AND RELATED OUTCOMES FOLLOWING REHABILITATION IN PATIENTS WITH ACUTE CORONARY EVENTS: GENDER EFFECTS
Oskar Mittag, ScD, Andrea Doehrer, Dipl.-Psych., Department of Quality Management and Social Medicine, University Medical Center of Freiburg, Freiburg, Germany

Trials of psychosocial interventions for post-myocardial infarction patients have yielded disappointing results as to mortality (e.g. M-HART, ENRICHED). In women, even adverse outcomes have been found. It has been suggested that the interventions may have interfered with the adjustment processes in some patients, especially in repressors (Frasure-Smith et al., 2002). Also, different gender effects of supportive approaches versus giving advice and education have been described (Cossette et al., 2002). Ways of coping, illness perceptions and self-efficacy are thought to mediate the effects of treatment on mortality. In the present paper, we consider the question that internal or external locus of control leads to different outcomes in women and men. Included in the study were 310 consecutive patients (34 % women) undergoing three weeks of cardiac rehab following myocardial infarction, CABG or PCI. Mean age was 58 years (SD = 9.86). Rehabilitation treatment included exercise, education, and cognitive behavioral counseling. Patients were followed over 12 months. Self-efficacy was assessed by the Questionnaire for Health Locus of Control (KKG; Lohaus & Schmitt, 1989); anxiety and depression were measured by the SCL-90-R. Univariate analyses of variance were computed with change scores as dependent variables and gender and locus of control (median split) as factors (covariate: age). Statistically significant interaction effects between locus of control and gender were found for internal locus of control and fatalistic externality. High internality in women was related to increased anxiety (F(1, 293) = 9.09, p = .003) and 12 months [F(1, 244) = 4.46, p = .036] and
vice versa, whereas men improved irrespective of internality. Otherwise, women who attributed their prognosis to luck or fate improved with regard to depression at 3 months while men with high fatalistic externality worsened \[F(1,293) = 4.91, p = .027\]. There were no differences regarding social externality. These results support the assumption that internal versus external locus of control yield different outcomes in women and men. Internality seems more beneficial for men, whereas a more fatalistic way of coping may be favorable for women.

280) Abstract 1550

CONSTRUCTING CONSTRUCTIVE ANGER: PROTECTION AGAINST INCIDENT CORONARY HEART DISEASE IN A POPULATION-BASED STUDY

Karina W. Davidson, PhD, Medicine, Columbia University Medical Center, New York, NY, Elizabeth Mostofsky, MPH, Medicine, Columbia University, New York, NY, Maya R. Korin, PhD, Medicine, Columbia University Medical Center, New York, NY; Ian Kronish, MD, MPH, General Internal Medicine, Mt. Sinai Medical Center, New York, NY, Joseph Schwartz, PhD, Psychiatry and Behavioral Science, SUNY Stony Brook, Stony Brook, NY, Susan Kirkland, PhD, Community Health and Epidemiology and Medicine, Dalhousie University, Halifax, Nova Scotia, Canada, Daichi Shinbo, MD, Medicine, Columbia University Medical Center, New York, NY Objective: While studies have found that anger increases the risk of incident coronary heart disease (CHD), results have been inconsistent. Prior studies did not always account for different forms of anger expression. To assess whether distinct forms of anger expression differentially predict incident CHD, we examined the association among three forms of anger expression and CHD in a large, community-based, prospective, population-based sample. Methods: We surveyed 794 participants (397 men, 398 women) enrolled in the 1995 Nova Scotia Health Survey. Respondents were over 45 years old with no CHD at baseline. Raters scored anger expression from videotaped Extended Type A Structured Interviews. Anger expression scales included constructive anger (participant discusses anger to solve a problem), destructive anger (participant discusses anger to get others on their side), and destructive verbal rumination (subject feels compelled to discuss the anger over and over again). Hospital discharge records and death certificates identified incident CHD events over 10 years. Cox proportional hazards models assessed if distinct forms of anger expression predicted incident CHD and were adjusted for age, sex, Framingham risk score, Centers for Epidemiological Studies Depression score, Cook Medley Hostility score, and the trait version of the Spielberger Anxiety scale. Results: While there were 116 (14.6%) incident CHD events during 6,677 person-years of observation. Both constructive anger (HR, 0.81; 95% CI, 0.66-0.99; P=0.05) and destructive verbal justification symptoms (HR, 1.22; 95% CI 1.01-1.49; P=0.04) independently predicted CHD incidence after accounting for the significant association between depressive symptoms and CHD, scores for hostility and anxiety were not significantly associated with CHD (both P>0.20). Conclusion: Increased constructive anger and decreased destructive verbal justification are associated with a reduced risk of 10-year incident CHD in this population-based sample, which may explain previously disparate findings about the role of anger and incident CHD and provide preliminary findings to recommend targeted topics for CHD prevention in at-risk patients.

281) Abstract 1722

IMPROVING MINDFULNESS AND AFFECT REGULATION IN DEPRESSED CORONARY ARTERY DISEASE PATIENTS

Priya Chaudhri, Ph.D., Cardiology, Hartford Hospital, Hartford, CT The purpose of this study was to examine the efficacy of biofeedback and Dialectical Behavior Therapy (DBT) to improve mindfulness and affect regulation in post myocardial infarction (MI) patients with comorbid depression. We randomized 60 post-MI patients with Major Depressive Disorder (MDD) to a biofeedback/DBT/sertraline anti-depressant group or a sertraline only medication control group. Biofeedback sessions consisted of daily breathing retraining using a StressErasar device. A modified DBT group was implemented that emphasized emotion regulation, mindfulness and distress tolerance modules of treatment. Mindfulness was measured by the Five Facet Mindfulness Questionnaire (FFMQ). Affect regulation was assessed using the Difficulties in Emotion Regulation Scale (DERS). Statistical analyses were performed using hierarchical linear modeling and measurements were collected at week 1, 8, and 12. A significant time by treatment interaction occurred for the biofeedback/DBT/sertraline group on the FFMQ (p<0.001) and DERS (p<0.001) compared to the sertraline control group and these gains maintained at the follow-up assessment. These findings support the efficacy of behavioral interventions for improving mindfulness and affect regulation in coronary artery disease patients.

282) Abstract 1479

THE EFFECT OF PERCEIVED STRESS AND RELIGIOSITY AS A MODULATOR OF HS-CRP, A RISK FACTOR FOR CVD

Sally F. Shaw, DrPH, Bruce Nelson, MA, Community Services, Glendale Adventist Medical Center, Glendale, CA, Lee S. Berk, DrPH, Physical Therapy and Pathology, Michelle A. Prowse, MS, School of Allied Health Professions, Loma Linda University, Loma Linda, CA, Dana E. King, MD, Family Medicine, Medical University of South Carolina, Charleston, SC Background: Studies have shown the association between perceived stress and an increase in serum levels of inflammatory markers for cardiovascular disease (CVD). However, the relationship between perceived stress, religiosity and hs-C-reactive protein (CRP), a known risk factor for CVD, has not been established. Methods: Participants completed a risk survey that incorporated both established and lifestyle integrative medical-health risk assessments from psychoneuroimmunology (PNI). PNI items included perceived stress and religiosity, a potential modulator of stress. Religiosity was defined as religious church, synagogue or temple attendance. The relationship between these modulators to serum CRP levels was determined in a cohort of 1,023 adults ages 18 to 89. The Centers for Disease Control and Prevention and the American Heart Association guidelines define serum CRP >3 mg/L as high risk for CVD. Results: Chi Square analysis revealed a significant association between perceived stress and high risk CRP levels (p=0.01). Logistic regression analysis further showed that those who commonly felt overstressed were 1.4 times more likely to have a CRP value >3 mg/L (p<0.01). Additionally, Chi Square analysis displayed a significant association between religiosity and high risk CRP levels (p=0.05). Logistic regression analysis showed that those who regularly attended church, synagogue or temple were 26% less likely to have a CRP value >3 mg/L (p<0.05). Analysis also showed that the effects of stress and religiosity were independent of aging and social support (p>0.10). Conclusions: These findings support that a relationship appears to exist between perceived stress, religiosity, and CRP. This may have clinical relevance as religiosity could potentially reduce the negative impact that stress has on elevated serum CRP levels.

283) Abstract 1547

WEIGHING THE PREDICTIVE EVIDENCE ON TYPE D PERSONALITY: META-ANALYTIC REVIEW OF 20 PROSPECTIVE STUDIES IN CARDIOVASCULAR PATIENTS

Johan Denollet, PhD, Anjelique A. Schiffer, PhD, Viola Spek, PhD, Center of Research on Psychology in Somatic diseases, Tilburg University, Tilburg, The Netherlands Purpose Type D personality (tendency to experience distress and inhibit self-expression) has been related to poor cardiac prognosis, but there is some disparity in data (wide range in odds ratios [OR]). The purpose was to combine the smaller datasets of published reports in order to reliably estimate the risk associated with Type D personality in cardiovascular patients, and to enhance interpretation of published findings. Sample and Methods Studies were retrieved through systematic literature searches in PubMed (1996-May 2008) and PsychINFO (1961-May 2008), reference lists of retrieved papers and of earlier reviews, and through corresponding authors of papers. Twenty prospective follow-up studies were included (9 studies on clinical events, and 11 on emotional distress). Data on participants, type of outcome measure, and duration of follow-up were extracted. Meta-analyses were calculated for (a) clinical events [death, myocardial infarction, revascularization], and (b) emotional distress [anxiety, depression and distress tolerance]. Results Both fixed effects (FE) and random effects (RE) models indicated that Type D personality was
independently associated with a more than 3-fold increased risk of clinical events (OR=3.7, 95%CI=2.7-5.1, p<.0001). Type D personality was also associated with a 3-fold increased risk of emotional distress in the FE (OR=3.2, 95%CI=2.6-3.9) and RE (OR=3.4, 95%CI=2.6-4.3) models. Conclusion Type D personality is associated with a more than 3-fold increased risk of poor outcome. There are plausible biological and behavioral pathways that may explain this increase in risk. Type D assessment may flag high-risk patients, promote understanding of interpatient variability in the outcome of invasive treatment, and predict poor health status.

284) Abstract 1611

DEPRESSIVE SYMPTOMS, PERCEIVED STRESS, AND TRAIT ANGER ARE RELATED TO CORONARY ARTERY DISEASE IN A COLOMBIAN SAMPLE

Marcela Tovar, M.S., Psychology, Universidad del Rosario, Bogota, Colombia; Veronica Cuartas Murillo, Psychology, CES University, Medellin, Colombia; Juan Carlos Arango Lasprilla, Ph.D., Physical Medicine and Rehabilitation, Virginia Commonwealth University, Richmond, VA. Heather L. Rogers, Ph.D., Medical and Clinical Psychology, Uniformed Services University of the Health Sciences, Bethesda, MD

Psychosocial risk factors for the development and progression of coronary artery disease (CAD) include depressive symptoms, stress, anger, anxiety, and social support. However, in the majority of studies, the samples are derived from industrialized nations. Little is currently known about the importance of trait and state psychological variables in coronary disease in the developing world. Preliminary psychosocial data were collected from 53 CAD patients from Clinica Cardiovascular in Medellin, Colombia, and 47 controls. Participants completed Spanish language versions of the Patient Health Questionnaire - 9 (PHQ-9) to measure depression, State-Trait Anxiety Inventory (STAI), State-Trait Anger Expression Inventory - 2 (STAXI-2), Perceived Stress Scale - 14 (PSS-14), Interpersonal Support Evaluation List - 12 (ISEL-12), and Life Orientation Test (LOT-R) to measure optimism. Controlling for age and gender, CAD patients had significantly higher PHQ (p < 0.05) and total STAXI scores than controls, and marginally significantly higher trait anger scores (p = 0.10). Estimated marginal means and standard errors are reported in the table below. No differences in STAI, ISEL-12, LOT-R, or Anger Expression sub-scales between groups were found. These preliminary data suggest that depressive symptoms, perceived stress, and trait anger are more commonly reported by individuals with CAD in Medellin, while anxiety, anger expression, optimism, and social support levels are similar in Colombian CAD patients and controls. Further research with larger samples that are geographically representative are needed to confirm these findings.

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Topic: General Health/Symptoms

285) Abstract 1174

"WOUNDED HEALERS" AS FIRST RESPONDERS TO CRITICAL INCIDENTS: THE IMPACT OF CHILDHOOD ADVERSITY ON THE RESILIENCE OF PARAMEDICS

Robert G. Mauder, MD, Janice Halfen, MD, Psychiatry, Mount Sinai Hospital, University of Toronto, Toronto, Ontario, Canada; Brian Schwartz, MD, Family and Community Medicine, SunyBrook HSC; University of Toronto, Toronto, Ontario, Canada; Maria Garvezich, PhD, Psychology, Ryerson University, Toronto, Ontario, Canada

It is possible that childhood adversity leads some survivors toward careers in helping professions, but may also affect stress response. Emergency first responders experience extraordinary stress, but little is known about the factors that determine outcomes from critical incidents. Methos: In 2008 Toronto paramedics completed a retrospective survey of critical incidents, lifetime trauma experience (TSI Life Event Questionnaire), attachment style (RSQ), personality traits (Big Five), and adverse life events (CEQ). Results: Multiple regressions were performed to assess the unique contributions of peritraumatic distress (beta = .51, p = .001), morning anxiety (beta = .46, t = 3.9, p = .001), and childhood adversity (beta = .28, t = 3.1, p = .002) to PTSD symptoms as measured by the Impact of Event Scale. Controlling for age, gender, and the presence of major depressive disorder, there were significant independent contributions from childhood adversity (beta = .46, t = 3.0, p = .002) and peritraumatic distress (beta = .24, t = 2.4, p = .01). Conclusions: Childhood adversity is common in paramedics and may increase vulnerability to PTSD in response to critical incidents, especially when the desire to do more for the victim is thwarted. Childhood adversity is a risk factor for PTSD and may increase vulnerability to somatic and depressive symptoms (partially or fully mediated by fearful attachment and peritraumatic distress).

286) Abstract 1467

DOES WRITING ABOUT TRAUMA INFLUENCE COGNITIVE AND EMOTIONAL PROCESSING IN DREAMS?

Anne-Lise Smith, M.A., Ph.D., CPS, Fordham University, New York, NY

Purpose of the Study: A primary aim of this study was to investigate whether individuals assigned to write about traumatic life events would demonstrate increased levels of cognitive and emotional processing in their subsequent dream accounts as compared to participants assigned to write about non-emotional topics. Subject sample and statement of methods: Participants included 116 college undergraduates (Men = 32; Women = 84) randomly assigned to write about a trauma of their choice (n = 56) or to write about the design of a room (n = 60). On days 1-7 of the study, all participants recorded their dreams from the night before awakening. On days 3-5, participants engaged in an expressive writing task on the topic of trauma that they were assigned for 15-20 minutes. Linguistic analyses were performed on both the written essays and the dream accounts to evaluate the use of cognitive processing and emotional words. Path analyses and Pearson correlations were used to test associations between the written essays and their corresponding dream reports. Summary of results: A path analysis revealed that writing about trauma but not about non-emotional topics was associated with increased use of cognitive processing and positive emotion words in the written essays, and also within their corresponding dream accounts. Specifically, in the trauma disclosure group, there were significant associations between the day 3 essays and day 4 dream accounts (r = .82, p < .01) on the use of cognitive processing words. There was also a significant correlation between the day 4 essays and day 5 dream accounts on the use of positive emotion words (r = .26, p < .05). Findings suggest that writing about traumatic life experiences influences cognitive and emotional processing in participants' dream accounts, and thus may perhaps play a role in the psychological and physical health benefits observed in expressive writing paradigms.

287) Abstract 1726

NARCISSISM AND PSYCHOLOGICAL RISK FACTORS FOR CARDIOVASCULAR DISEASE IN BLACK YOUTH

Robert M. Kelcey, PhD, Pediatric Cardiology, Sidney R. Ornuff, PhD, Pediatric Cardiology, Shelley R. Gabel, MBA, Bruce S. Alpert, MD, Pediatric Cardiology, University of Tennessee Health Science Center, Memphis, TN

The prevalence of hypertension and related cardiovascular disease (CVD) is greater in Black Americans than in other ethnic groups in the US. Socioeconomic factors and chronic environmental stress likely
contribute to ethnic disparities in CVD, but factors associated with narcissism also may contribute. Narcissism is a complex personality construct that encompasses traits associated with CVD, including hostility, anger, and aspects of Type A behavior. Research indicates that Blacks score higher than Whites on some of these traits. Moreover, John Henryism, an active coping style that includes aspects of narcissism, has been linked to CVD risk in Blacks. We evaluated associations between narcissism and psychological risk factors for CVD in 576 Black youth (168 females, 208 males; mean age = 17.9 yrs). We used the Narcissistic Personality Inventory to assess narcissism, and the Cook-Medley Hostility scale, the Center for Epidemiologic Studies Depression scale, the John Henryism Active Coping scale, and the Spielberger Trait Anger and Trait Anxiety scales to assess psychological risk for CVD. We evaluated these associations while controlling for age, sex, social desirability, ethnic identity, self-esteem, and measures of environmental stress (family educational attainment, experiences of everyday discrimination, neighborhood stress, and perceived stress). Narcissism was positively associated with trait anger (change in R² = .056), hostility (change in R² = .045), and John Henryism (change in R² = .032), all p < .0005. Self-esteem was inversely associated with depression, trait anxiety, trait anger, and hostility, and positively associated with John Henryism, all p < .0005. Measures of environmental stress were positively associated with hormone levels and may contribute both to CVD and to stress. Immigrants that can adapt to new employment contexts and demands are more likely to succeed economically as well as better manage stress and have better health outcomes. In the current study it was hypothesized that increased job stress would be related to negative outcomes. Method: 240 Mexican immigrants (56% female, average age 36, average of 8 years lived in the United States) were examined. Job stress was measured using the decision latitude and psychological demands subscales of the Karasek Job Content Questionnaire. Depression was measured by the Center for Epidemiological Studies Depression Scale. Perceived stress was measured using the Perceived Stress Scale. Level of acculturation was measured using the Acculturation Rating Scale for Mexican-Americans-II (ARMS-II). Blood pressure was measured using 24-hour ambulatory blood pressure monitoring. Results: Increased job stress was related to increased depression (r = -.23, p < .001) and increased perceived stress (r =-.18, p <.01). Increased Anglo cultural orientation was related to decreased job stress (r = -.17, p < .05); Mexican cultural orientation was not related to job stress. Ambulatory blood pressure was not related to any of the variables of interest. Interestingly, the effects of job stress on well being appeared to be stronger among women. Conclusion: Job stress is related to self-reported well-being in Mexican immigrants and increased levels of depression and anxiety are associated with both psychological distress and physical health outcomes. The present study tested the hypothesis that environments and goals also increase respiratory and gastrointestinal illnesses. Social Action Theory (SAT) holds that dangerous environments foster agnostic striving (AS), a chronic struggle to control or dominate others, while impairing transcendence striving (TS), or efforts to control and improve the self. These goal-based patterns contribute to social and personal behaviors that increase illness risk. Participants were 126 youth (53.2% female, 38.9% Black, 48.4% White, 12.7% other) in a public high school in New York State. Youths’ perceptions of environmental stress were measured with the Neighborhood Disorder (ND) scale of the City Stress Inventory; behavioral ratings of AS and TS goals were made by trained observers from audio recordings of the Social Competence Interview (SCI). Approximately 3-6 months post-SCI, the tendency to experience respiratory (RS) and gastrointestinal (GI) symptoms was assessed by questionnaire. Statistical analyses tested the hypothesis that NS is positively associated with increased RS and GS, and that this relationship is partly mediated by AS and TS goals. Results (all p < .05) indicated that, as predicted: (1) ND correlated positively with RS (r = .27) and GS (r = .37); (2) AS correlated positively, and TS negatively, with ND (r = .20 and r = -.18, respectively); (3) AS correlated positively, and TS negatively, with RS (r=.18, and r = -.28, respectively). Regression analyses testing mediational paths yielded nonsignificant results. Findings support the view that neighborhood stress contributes to AS/TS goals and to RS/GS, and that AS/TS goals independently predict RS. In addition to raising youths’ ABP, ND and AS/TS goals also may weaken their immune systems. 290) Abstract 1671 TEMPERATURE CONTAGION Neil A. Harrison, PhD, Marcus A. Gray, PhD, Psychiatry, University of Sussex, Falmer, East Sussex, UK; John Garlick, BSc, University College London, London, UK; Tania Singer, PhD, Branco Weiss Laboratory, University of Zurich, Zurich, Switzerland, Hugo D. Critchley, DPhil, Psychiatry, University of Sussex, Falmer, East Sussex, UK Introduction: Psychophysiology focuses on the relationship between physiological and psychological processes within individuals. However, in social interactions, our own physiological responses influence those of others. Synchronization of physiological (and behavioural) responses can facilitate emotional understanding and group coherence through intersubjectivity, with implications for psychosomatic medicine. Here we investigate if observing cues indicating a change in another’s body temperature results in a corresponding temperature change in the observer. Methods: Thirty-five healthy participants (age: 22.9 ± 3.1 yrs) each observed, then rated, eight purpose-made videos (3 min duration) that depicted actors with their right or left hand either in visibly hot or visibly cold water. Four control videos with the actors’ hand in front of the water were also shown. Concurrently, the temperature of the participant observer’s right and left hands was measured using a thermistor within a Wheatstone bridge sensitive to temperature changes of < 0.001°C. Temperature data were analysed in a repeated measures ANOVA (temperature x actor x hand x observer x hand). Results: Participants rated the videos showing hands immersed in cold water as being significantly cooler than hands immersed in hot water, F(1,34)=167.0, p < 0.001. The participants’ own hands also showed a significant temperature-dependent effect: Hands were significantly colder when observing cold vs. hot videos F(1,34)=6.7, p<0.006. Further there was a significant interaction between gender and laterality of the observer with right-sided correspondence with observed temperature F(1,34)=8.1, p<0.007. There was however evidence of left-right mirroring of these temperature effects (no significant three way interaction F(1,34)=0.4, p>0.05). Conclusions: We illustrate physiological contagion of temperature in healthy individuals, suggesting that empathetic understanding for primary low-level physiological challenges (as well as more complex emotions) are grounded in somatic simulation. Recognition of such mechanisms is relevant to understanding physical health consequences of dyadic and workplace exchanges.

289) Abstract 1615 NEIGHBORHOOD STRESS AND DYSFUNCTIONAL STRIVINGS IN URBAN YOUTH Gavin Elder, BSc, Nina Stoecskel, MA, Psychology, Michelle Hallahan, BA, Education, Marta Kadziolka, MA, Craig Ewart, PhD, Psychology, Syracuse University, Syracuse, NY We have reported that stressful urban neighborhoods increase ambulatory blood pressure in young people by fostering dysfunctional goals that induce social stress and self-control. The present
investigating the effects of marriage, especially the quality of the marital relationship, has sought to identify the biological pathway may partly explain the relationship between social relationships and health outcomes.

FAMILY CONFLICT: THE ROLE OF THREAT PERCEPTIONS IN PHYSIOLOGICAL RESPONSES
Meane Chan, B.A., Ewelina Zysk, B.A., Anita Hibbert, B.A.Sc, Edith Chen, Ph.D., Psychology, University of British Columbia, Vancouver, BC, Canada

Previous research shows that perceptions of threat from ambiguous social situations are associated with heightened cardiovascular responses to standard acute laboratory stressors. However, little is known about how these threat perceptions predict physiological responses during conflicts with family members. The purpose of the present study was to test the hypothesis that threat perceptions of ambiguous social situations predict heightened physiological responses to conflict with family members, and that in particular, if parents and children have different ways of viewing the same situation, this might result in even greater physiological reactivity during conflict. Ninety children age 9 to 18 (M= 12.76, SD= 2.50) and their parents were studied. Threat perceptions were assessed by presenting standardized situations using previously established videos depicting a social situation with an ambiguous outcome (e.g. a teacher talking to a class about a cheating incident). Children and parents were interviewed separately about their interpretations of the situation. Parents and children then engaged in a discussion task about a hypothetical disagreement in their relationship (conflict task). Blood pressure (BP) and heart rate (HR) readings of both parents and children were taken at baseline and during the conflict task. Cortisol data were obtained through saliva samples taken at baseline and after the conflict task at 4 time points. Among children, a greater tendency to perceive threat during ambiguous situations significantly predicted greater increases in HR during the conflict task, controlling for baseline HR (ß= .260, t= 2.30, p=.025). Furthermore, parent-child discrepancies in threat perception also predicted HR reactivity. The greater the discrepancy between the child and parent in how they interpreted the ambiguous social situation, the greater the child's HR reactivity during the conflict task, controlling for baseline HR (ß= .295, t= 2.753, p=.008). Cortisol data are currently being analyzed and will be presented at the meeting. Threat perceptions identified that how children perceive ambiguous situations, partially determines their physiological responses to family conflict, and furthermore, that the less synchronized parents and children are in how they interpret their social world, the more physiologically responsive children will be during family conflict.

292) Abstract 1383
MARITAL STATUS AND MARITAL ROLE QUALITY: ASSOCIATIONS WITH CORTISOL PROFILE IN HEALTHY WOMEN
Nina Grant, MSc, Samantha Dockray, PhD, Andrew Steptoe, DPhil, Epidemiology & Public Health, University College London, London, UK

There is substantial evidence that social relationships are relevant to health, and both the quality of social relationships and the number of social network members are related to more positive health outcomes. Marriage is an important and central relationship during adulthood and has also been associated with positive health. Previous work investigating the effects of marriage, especially the quality of the marital relationship on health, has sought to identify the biological pathways through which marriage affects health. Our study aimed to examine the effect of marriage upon these pathways by examining the relationship between marital status, marital relationship quality and cortisol output in a naturalistic setting. Women aged 20-61 years (N = 193) participated in this study and completed two 24 hour periods of cortisol measurement, one period including a work day, and the other including a non-work day. Seven samples of saliva were collected across the 24-hour sampling period, and were collected at 5 pm, bedtime, waking, 30 minutes after waking, 10 a.m., noon and 3 pm. Participants completed a questionnaire containing demographic and psychosocial scales, including a marital quality measure. There were no differences in age, body mass index (BMI), education or ethnicity between married and unmarried participants. Being married was associated with a steeper cortisol slope on working days (p=0.01) and lower cortisol output over the leisure days (p<0.05) after controlling for education and age. Amongst married participants, those with a higher score for dyadic affection had a steeper cortisol decline on the weekend day (p=0.02) and those with higher dyadic affection scores had a lower cortisol awakening response on weekend days (p<0.03) after controlling for education and age. These findings suggest that women who are married have a different cortisol profile across working and weekend days. This pathway may partly explain the relationship between social relationships and health outcomes.

293) Abstract 1393
CLINICAL FEATURES OF NON-CARDIAC CHEST PAIN: RESULTS FROM TWO INDEPENDENT MEDICAL SETTINGS
Jennifer M. Craft, MA, MA, Katherine Hadlandsmith, MSc, Kamila S. White, PhD, Briania D. Mann, MA, Psychology, University of Missouri Saint Louis, Saint Louis, MO, Gregory S. Sayuk, MD, Chandra Prakash, MD, Gastroenterology, Washington University School of Medicine, Saint Louis, MO, Ernest V. Gervino, ScD, Cardiovascular Medicine, Harvard Medical School, Boston, MA

Nearly all patients with persistent chest pain seek medical attention, but many are discharged with a non-specific chest pain diagnosis. Non-cardiac chest pain (NCCP) theories assert persistent chest pain causes are likely multiple, indistinct (Fleet & Beitman, 1997), and include both physical and psychiatric components (White & Raffa, 2004; White et al., 2007). Lack of diagnostic certainty may lead patients to repeatedly seek medical evaluation across multiple settings. motivational interviewing and Behavioral medicine departments. Published research documents the incidence of NCCP in these settings, however, research has not examined demographic and clinical characteristics of these patient groups. The present study examined demographic and clinical characteristics in NCCP patients seeking care in two outpatient medical settings. Data were collected as part of separate longitudinal NCCP studies at two urban academic medical centers. To ensure the two groups were as identical as possible on variables other than setting, patients were included only if they had a chief complaint of chest pain. Nearly identical inclusion (i.e., no CAD) and exclusion criteria were used for each sample, with few exceptions. Sample 1 was 229 patients who presented to Cardiology (M age=51, SD=10; 43% male); Sample 2 was 60 patients who presented to Gastroenterology (M age=51, SD=10; 36% male). The samples were comparable on key demographic factors including age, race, gender, and employment status, p>0.05. The West Haven Multidimensional Pain Inventory revealed Sample 2 reported more pain (etap2=.2) and life interference due to pain (etap2=.13) than Sample 1, p<0.01. Sample 2 reported more intense pain (p<0.01) and experienced a longer length of illness (>1 year=58%) compared to Sample 1 (40%), F(4,243)=3.1, p<0.05, d=0.19 (small ES). However, the groups had similar incident pain episode (>20 minutes). This study is one of the first published studies to examine NCCP across multiple settings. Notwithstanding study limitations, our data reveal potentially important demographic and clinical similarities and differences in NCCP across settings.

294) Abstract 1533
DOES MITRAL VALVE PROLAPSE SYMPTOME COME FROM MITRAL VALVE PROLAPSE ?
Chen-Tung Hua, Master, Psychology, Buddhist Dalin Tzu Chi General Hospital, Taiwan, Republic of China (Taiwan), Chia-Ying Weng, PhD, Psychology, National Chung-Cheng University, Chia-Yi county, Taiwan, Republic of China (Taiwan)

Mitral valve prolapse syndrome (MVPS) presents with the same symptoms as those experienced by patients with MVP who present to medical centers. The purpose of this study was to test the hypothesis that threat perceptions of ambiguous social situations predict heightened physiological responses to conflict with family members, and that in particular, if parents and children have different ways of viewing the same situation, this might result in even greater physiological reactivity during conflict. Ninety children age 9 to 18 (M= 12.76, SD= 2.50) and their parents were included only if they had a chief complaint of chest pain. Nearly identical inclusion (i.e., no CAD) and exclusion criteria were used for each sample, with few exceptions. Sample 1 was 229 patients who presented to Cardiology (M age=51, SD=10; 43% male); Sample 2 was 60 patients who presented to Gastroenterology (M age=51, SD=10; 36% male). The samples were comparable on key demographic factors including age, race, gender, and employment status, p>0.05. The West Haven Multidimensional Pain Inventory revealed Sample 2 reported more pain (etap2=.2) and life interference due to pain (etap2=.13) than Sample 1, p<0.01. Sample 2 reported more intense pain (p<0.01) and experienced a longer length of illness (>1 year=58%) compared to Sample 1 (40%), F(4,243)=3.1, p<0.05, d=0.19 (small ES). However, the groups had similar incident pain episode (>20 minutes). This study is one of the first published studies to examine NCCP across multiple settings. Notwithstanding study limitations, our data reveal potentially important demographic and clinical similarities and differences in NCCP across settings.
way multivariate analyses of variance (MANOVA) revealed that the sympathetic nervous activity of the symptom groups was higher than that of the non-symptom groups, and the parasympathetic nervous activity of the symptom groups was lower than that of the non-symptom groups under rest and psychological stress state (p < .05). The AS and PSS of symptom groups were higher than those of the non-symptom groups (p < .05). The result of single-factor analysis of variance (ANOVA) revealed that there was no significant difference in the number of symptoms described between the MVPs and the non-MVP symptom group. The results of hierarchical regression analysis showed that AS was associated with the number of symptoms described (β = .43, p < .01). In conclusion, both AS and autonomic dysfunction were related to the presenting of symptoms, but MVP was not. This study suggests that MVPs could be a subgroup of psychosomatic disorder.

295) Abstract 1603

ACUTE SUPPLEMENTATION OF LONG-CHAIN OMEGA-3 FATTY ACIDS IS ASSOCIATED WITH REDUCED CARDIOVASCULAR REACTIVITY TO PSYCHOLOGICAL CHALLENGE IN HEALTHY YOUNG ADULTS

Joshua P. Sesek, Biology, Siera M. Goodnight, Neuroscience and Psychology, Marcia Komniak, Psychology, Sarah M. Conklin, PhD, Neuroscience and Psychology, Allegheny College, Meadville, PA

Acute supplementation of long-chain omega-3 fatty acids is associated with reduced cardiovascular reactivity to psychological challenge in healthy young adults. Purpose: Individuals exhibiting elevated cardiovascular reactivity to psychological challenge are at an increased risk for cardiovascular morbidity. In a separate and independent literature, long-chain polyunsaturated omega-3 fatty acids (LCPUFAs) have been linked to cardiovascular health and to brain morphology in the limbic system, a region involved with the regulation of stress and emotion. Given that the influence of LCPUFAs on cardiovascular reactivity is unknown, we aimed to determine if LCPUFA intake attenuates the cardiovascular response to psychological challenge in healthy young adults. Methods: Participants (n=37, M age=20.2) were randomly assigned to one of two groups and received a 21-day supply of either LCPUFAs (1.4 grams EPA & DHA) or corn oil (placebo). Cardiovascular reactivity was measured in response to a standard mental arithmetic task at baseline and at day 21. Exclusion criteria included current use of LCPUFA supplements and consumption of two or more meals of fatty fish per week. A repeated measures ANOVA was employed to analyze reactivity data (pulse, systolic, diastolic, and mean arterial pressure; MAP). Results: Compared to placebo, the LCPUFA group (n=16) showed a significant reduction in MAP reactivity, a measure encompassing both sympathetic nervous activity of the symptom groups and parasympathetic nervous activity of the symptom groups was lower than that of the non-symptom groups under rest and psychological stress state (p < .05). The AS and PSS of symptom groups were higher than those of the non-symptom groups (p < .05). The result of single-factor analysis of variance (ANOVA) revealed that there was no significant difference in the number of symptoms described between the MVPs and the non-MVP symptom group. The results of hierarchical regression analysis showed that AS was associated with the number of symptoms described (β = .43, p < .01). In conclusion, both AS and autonomic dysfunction were related to the presenting of symptoms, but MVP was not. This study suggests that MVPs could be a subgroup of psychosomatic disorder.

297) Abstract 1607

THE EFFECTS OF SOCIAL SUPPORT ON CORTISOL PATTERNs IN OLDER ADULTS

Karissa G. Miller, BA, Guido G. Urizar, Jr., PhD, Psychology, California State University, Long Beach, Long Beach, CA, Natura Garovoy, PhD, Cynthia M. Castro, PhD, Abby C. King, PhD, Medicine, Stanford University, Stanford, CA

Abnormal cortisol patterns have been linked to various adverse health outcomes, such as cardiovascular disease. Consequently, researchers have begun to examine whether psychological factors, such as social support, may help to regulate cortisol in chronically stressed populations. The current study examined whether different dimensions of social support were associated with salivary cortisol patterns among a sample of 51 older adult caregivers and non-caregivers (mean age = 56 ± 6 years; 54% caregivers). The majority of our participants were women (69%), and were married or living with a partner (77%). The Interpersonal Support Evaluation List was used to assess global social support, appraisal support, belonging support, and tangible support. Salivary cortisol was collected by participants in their homes, at four different times throughout the day (upon awakening, 30 minutes after awakening, 4pm and bedtime), over a two-day period. Cortisol patterns were calculated by taking the difference between waking and bedtime cortisol levels, with a greater decrease in cortisol throughout the day representing normal diurnal patterns. Independent samples t-test analyses demonstrated that older adults who were married or living with a partner reported higher levels of tangible support (having someone in your life who could provide material aid when needed) than those who were single, divorced or widowed (t = 2.20, p < .05). Furthermore, non-caregivers reported higher levels of appraisal support (perception of having someone to talk to about one's problems) than caregivers (t = -2.07 p < .05). Hierarchical regression analyses indicated that older adults with higher levels of appraisal support (R² = .15, p = .05) had more normal cortisol patterns, controlling for caregiver and marital status. Our results highlight the impact that different dimensions of social support may have on biological markers of stress and suggest that programs focused on improving appraisal support are needed, particularly for chronically stressed older adults.

298) Abstract 1460

COGNITIVE ABILITY AND SURVIVAL IN THE CONTEXT OF CHRONIC ILLNESS

Peter A. Hall, Ph.D., Kinesiology / Psychology, University of Waterloo, Waterloo, Ontario, Canada, Margaret Crossley, Ph.D., Psychology, Carl D'ArCY, Ph.D, Psychiatry, University of Saskatchewan, Saskatoon, Saskatchewan, Canada

Purpose: To examine the association between cognitive ability (Full Scale IQ and its separate subcomponents) and survival among individuals suffering from chronic illness. Sample & Methods: A sample of 162 community-dwelling older adults who had been diagnosed with at least one chronic illness (i.e., diabetes, cardiovascular disease, cancer) at baseline underwent a thorough medical and neurological examination by a multidisciplinary team (including a
physician, nurse and neuropsychologist) to ensure freedom from actual or probable dementia. Participants completed an abbreviated version of the WAIS-R, which included four subcales: Comprehension (verbal comprehension), Similarities (analogical reasoning), Block Design (visuospatial reasoning), and Digit Symbol (executive ability/processing speed). Participants were subsequently followed for 10 years; survival was assessed as time to death over the follow-up interval. Summary of Results: Higher IQ was associated with longer survival (HR = .969; CI = .956-.982; p < .001), and this association remained strong after adjustment for demographic variables (HR = .971; CI = .957-.985; p < .001), though was slightly attenuated after further adjustment for education (HR = .978; CI = .960-996; p = .016). Analyses of specific IQ subcomponents revealed that the association between Full Scale IQ and survival was largely attributable to scores on the Digit Symbol subtest. The association between Digit Symbol and survival was evident in raw analyses (HR = .978; CI = .959-.997; p = .001), though was attenuated in demographically-adjusted (HR = .983; CI = .963-1.00; p = .102), and education-adjusted analyses (HR = .987; CI = .966-1.01; p = .245). The observed association between Digit Symbol performance and survival did not vary significantly across chronic illness categories (i.e., diabetes, cardiovascular disease, cancer). In conclusion, IQ predicts 10-year survival among older adults who are living with a chronic illness, though most of this relationship is attributable to individual differences in scores on a single IQ subtest tapping executive abilities/processing speed.

299) Abstract 1484

ASSERTIVENESS TRAINING AND WRITTEN EMOTIONAL DISCLOSURE FOR INTERNATIONAL STUDENTS

Aliaa A. Hijazi, Ph.D, Psychology, Shaden Tahavoli-Moghaddam, Ph.D, Counselor Education, Mark A. Lumley, Ph.D, Olga Slavin, M.A, Psychology, Wayne State University, Detroit, MI

International students often experience acculturative stress, but interventions to reduce stress are lacking. Assertiveness training (AT) and written emotional disclosure (WED) may be useful, but are untested in this population, and their effects are likely moderated by individual differences. We conducted a randomized trial of AT and WED, their combination, and a wait-list control condition on the stress and health of 118 international students (60% male; 80% graduate students; M age = 25 years; from 28 countries, especially China and India) attending an American university. Interventions were conducted at the start of a semester, and assessments (acculturative stress, negative and positive affect, physical symptoms, and depression) were conducted at baseline and end of semester; gender and alexithymia were tested as moderators. Repeated measures ANOVAs showed that AT led to less negative affect than the other three groups (all p < .05), whereas WED led to increased homesickness (p < .05) but also increased positive affect (p < .05) than the other three groups. The combination intervention had no main effects, perhaps because of contrasting effects of the two intervention components. Regression analyses tested gender and alexithymia as moderators of group effects. Interaction terms revealed that women had better outcomes (increased positive affect and reduced physical symptoms, depression, culture shock, and fear) when participating in one of the AT conditions (i.e., AT alone or combination), whereas men had better outcomes in conditions without AT (i.e., WED or control). Also, greater baseline alexithymia, particularly the facets of difficulty identifying and describing feelings, predicted improvement in positive affect at follow-up for all three intervention groups relative to no change or worsening of positive affect in the control group. We conclude that AT may help international students, particularly women, learn to communicate more effectively and reduce stress in this new culture. WED had mixed effects, but students with alexithymia appeared to benefit from both interventions.

300) Abstract 1534

CAN CHARACTERISTICS OF TYPE D PERSONALITY BE CHANGED BY A MINDFULNESS-BASED STRESS REDUCTION INTERVENTION?

Ivan Nylkicke, PhD, Sylvia van Beugen, BSc, Johan Denollet, PhD, CoRPS - Medical Psychology, Tilburg University, Tilburg, Northern Brabant, Netherlands

Objectives: Type D personality consists of a combination of the traits negative affectivity and social inhibition and is associated with an unfavorable prognosis in cardiac patients. This study investigated the effectiveness of a mindfulness-based stress reduction (MBSR) intervention in reducing characteristics of Type D personality and the degree to which MBSR is a suitable intervention for people with Type D personality. Methods: Distressed people (N = 145, mean age 46.19 ± 10.35 years, 69% female) from the general population participated in a randomized-controlled trial comparing MBSR with a wait-list control condition. In addition to effects of MBSR on aspects of Type D personality, moderation effects of Type D on the effects of MBSR on perceived stress, positive and negative affect, and mindfulness skills, were studied. Results: Significant interaction effects showed that compared to the control group, MBSR significantly more strongly reduced both the negative affectivity (F (1, 132) = 16.11, p < .001, d = 0.70) and the social inhibition (F (1,132) = 10.25, p = .002, d = 0.56) components of Type D personality. Type D personality did not moderate the significant differences between the intervention and control groups regarding the effects on state negative affect (d = 0.63) and mindfulness (d = 0.40). However, a Time x Group x Type D interaction on perceived stress (F (2, 125) = 4.21, p = 0.02) showed that while there was no relation between Type D status and symptom reduction in the intervention group, Type D individuals in the control group did not show the small reduction in perceived stress symptoms which was evident in non Type D's. Conclusions: Psychological intervention based on mindfulness seems to reduce some, but not all, characteristics of Type D personality. In addition, Type D individuals showed similar benefit from the intervention compared with non Type D's. Future studies may examine whether the reduction of Type D characteristics also attenuates the risk for adverse cardiac events in coronary patients.

301) Abstract 1322

WEIGHT CONCERNS AMONG AFRICAN AMERICAN AND CAUCASIAN WOMEN AND MEN SMOKERS

Michelle R. Carpenter, BA, Psychiatry & Behavioral Neuroscience, University of Chicago, Chicago, IL, Lisa Sanchez-Johnsen, PhD, Andrea C. King, PhD, Psychiatry & Behavioral Neuroscience, University of Chicago, Chicago, Illinois

Cigarette smoking may lead to health complications such as cancer and early death. Weight concerns are often cited as a barrier to smoking cessation. However, little is known about the role of weight concerns in African American women and men smokers. This study compared general and smoking-specific weight concerns in African American and Caucasian smokers enrolled in a smoking cessation trial. Participants were 92 African Americans (62 female) and 128 Caucasians (78 female), ages 18-65. Prior to cessation, demographics, smoking history, weight concerns, and weight and height were assessed. African Americans were older (47 vs. 42 yrs), had a higher Body Mass Index (29 vs. 26), and were less educated (14 vs. 15 yrs) than Caucasians (all p<.001). African Americans smoked less cigarettes per day (16 vs. 18), but were more physically dependent on nicotine than Caucasians (all p<.01). Relative to men, women were more likely to report greater cognitive restraint (CR), body dissatisfaction (BD), and drive for thinness (DT) (all p<.01). Regardless of sex, Caucasians reported greater CR (p<.01), but not DT or BD compared with African Americans. Results also revealed a significant two way interaction between sex and race on smoking specific weight concerns (p<.01), with Caucasian women reporting greater smoking-specific weight concerns than Caucasian men and both African American women and men (all p<.01). Additionally, female sex, older age at smoking onset, and greater general weight concerns were associated with specific weight concerns (all p<.01). Results demonstrated heightened weight concerns in women vs. men smokers, and that African Americans show some vulnerability to this risk factor, although not as extensive as observed in Caucasians. Further research is needed to elucidate how these weight concerns may impact smoking cessation rates between African American and Caucasian women and men. Supported by R01-DA016834 and UL1 RR024999; Respiratory Health Association of Metropolitan Chicago; Howard Brown Health Center.

302) Abstract 1719

GROUP AVERAGE EFFECT-REWARD RATIO PREDICTS SLEEP QUALITY IN SHIFT WORKERS BEYOND THE VARIANCE EXPLAINED FROM THREE- OR FOUR-SHIFT SCHEDULES ALONE
303) Abstract 1777

RACIAL DIFFERENCES IN THE IMPACT OF SOCIAL SUPPORT ON NOCTURNAL BLOOD PRESSURE

Denise C. Cooper, Ph.D., Department of Psychiatry, University of California San Diego, La Jolla, CA, Michael G. Ziegler, M.D., Department of Medicine, University of California San Diego Medical Center, San Diego, CA, Richard A. Nelesen, Ph.D., Joel E. Dimsdale, M.D., Department of Psychiatry, University of California San Diego, La Jolla, CA

BACKGROUND: Studies indicate that blacks experience less of the decrease in blood pressure (BP) that usually occurs during sleep (i.e., nocturnal dipping). Blunted nighttime dipping of BP predicts increased cardiovascular morbidity and mortality. Although greater social support is often associated with favorable cardiovascular outcomes, little is known about its relationship to BP dipping. This study investigated whether blacks and whites benefit similarly from perceived social support in relation to BP decline during sleep.

METHODS: The Interpersonal Support Evaluation List (ISEL), which measures the perceived availability of several types of functional social support, was examined for interactive effects with race on nocturnal dipping of mean arterial pressure (MAP), systolic blood pressure (SBP), and diastolic blood pressure (DBP) derived from 24-hr ambulatory BP monitoring. The sample consisted of 156 young to middle-aged adults (61 blacks; mean age=35.7). RESULTS: Mean ISEL scores did not differ between racial groups. Controlling for age, body mass index (BMI), resting BP, and socioeconomic status (SES), the interaction of social support by race yielded associations with nighttime dipping in MAP and DBP (p<0.001), as well as SBP (p<0.01). As ISEL scores increased among whites, the extent of dipping increased in MAP, SBP, and DBP (p<0.01), explaining 10%, 10%, and 8% of the variance, respectively. Conversely, blacks exhibited associations between increasing ISEL scores and decreasing levels of dipping in MAP, SBP, and DBP (p<0.05), accounting for 9%, 8%, and 8% of the variance, respectively. CONCLUSION: Despite no difference in mean ISEL scores, increased levels of perceived functional social support showed opposite relationships by race, with enhanced BP dipping among whites, but blunted dipping in blacks.

304) Abstract 1768

FOR CHURCH AND MONEY: IMPACT OF RELIGIOSITY AND SOCIOECONOMIC STATUS ON CARDIOVASCULAR RESPONSES IN AFRICAN AMERICAN MEN

Marcellus M. Merritt, Ph.D., Psychology, University of Wisconsin Milwaukee, Milwaukee, Wisconsin, Christopher L. Edwards, Ph.D., Harold G. Koenig, M.D., Psychiatry and Behavioral Sciences, Duke University Medical Center, Durham, North Carolina, Keith A. Whitfield, Ph.D., Psychology and Neuroscience, Duke University, Durham, North Carolina, Gary G. Bennett, Ph.D., Dana Farber Cancer Center, Harvard University School of Public Health, Boston, Massachusetts, Camel McDougald, M.A., Psychology, East Carolina University, Greenville, North Carolina, Ashley M. Kulland, B.S., Muneebah Abdullah, Psychology, University of Wisconsin Milwaukee, Milwaukee, Wisconsin

We investigated whether socioeconomic status (SES) moderated the role of extreme levels of religiosity in cardiovascular responses to laboratory social stressors. Participants were 61 normotensive Black males, aged 23 to 47. The procedure included a battery of psychosocial surveys and a laboratory reactivity protocol involving the following stressor tasks and related recovery periods: a neutral speech task and an anger recall task. Measures of systolic and diastolic blood pressure (SBP and DBP) and heart rate (HR) were obtained using an Ohmeda Finapres monitor during the protocol. Spectral indices of heart rate variability (HRV), log-transformed high-frequency HRV (lghHF), and low-to-high frequency ratio HRV (LFHF) were derived from the HR time series data using HRV software. Hierarchical multiple regression, Univariate and Repeated ANOVA tests evaluated varying dimensions of religiosity (i.e. beliefs, attendance, and prayer), cardiovascular risk, and across-group measures of SES (combining job status and income level) as independent variables. Baseline-adjusted cardiovascular change scores for post-anger recall recovery (minus pre-anger recall rest) as the dependent variables. Increasing levels of attendance were linked with lower levels of SBP and DBP (p<0.02)(4.56, 5.03, and -2.66 mmHg for SBP, and 5.82, 4.17, and 1.47 mmHg for DBP). At high levels of prayer, high (vs. low) SES predicted lower reductions in lghHF (p<0.05) (-1.60 vs. -0.54 mmHg). High and moderate levels of religious activity among healthy Black males with high SES predicted enhanced cardiac vagal control during recovery to anger induction. These findings extend the traditional stress-buffering models of religious coping and suggest that the role of religious coping in cardiovascular risk may be nonlinear and contingent upon access to socioeconomic resources.

305) Abstract 1737

TRANSITION TO masked hypertension and echocardiographic indices of cardiovascular risk

Joseph Schwartz, PhD, Matthew Burg, PhD, Medicine, Columbia University, New York, NY, Mary Roman, MD, Richard Devereux, MD, Weill Medical College of Cornell University, New York, NY, Shiney Kunjukutty, MD, Carmen Liriano, MD, Thomas Pickering, MD, Medicine, Weill Medical College of Cornell University, New York, NY, Mary Roman, MD, Richard Devereux, MD, Medicine, Weill Medical College of Cornell University, New York, NY

Background: Resting blood pressure (BP) measured in the clinic is the recommended method for diagnosing hypertension (HT). It is known, however, that clinic BP (CBP) can misrepresent the BP that prevails at other times. The introduction of ambulatory BP monitoring (ABPM) allowed the identification of the complementary phenomena of masked hypertension (MHT), defined as a normal CBP (<140/90 mmHg and daytime ABP=135/85 mmHg), and white coat hypertension (WCHT, elevated CBP with normal ABP). About 15% of those with normal CBP have MHT. More than a dozen studies have demonstrated that daytime ABP is a better predictor of cardiovascular (CV) risk than CBP. We examined the relationship of changes in diagnostic status to changes in indices of target organ damage (TOD). Methods: 467 individuals, recruited from 10 worksite settings (Work Site BP Study), received a baseline assessment and up to 3 follow-up assessments over 12 years. At each assessment, 1) CBP (3 readings over a 5-min period, averaged) was measured, 2) a 24-hr ABPM was completed, and 3) left ventricular mass index (LVMI) and left ventricular relative wall thickness (LWTD), measurements of TOD that are associated with CV risk, were assessed by echocardiography (1225 total assessments). For each assessment, the CBP and ABP were used to classify participants as...
sustained normotensive (SNT; CBP and daytime ABP both below threshold for HT diagnosis), MHT, WCHT, or sustained HT (both CBP and ABP elevated). A multilevel mixed model was used to estimate the changes in the TOD measures associated with changes in diagnostic category. Results: The change from SNT to MHT was, on average, associated with an increase in LVMi of 4.0 g/m2 (p<.001), and an increase in RWTd of 1.4% (p<.0001). After controlling for changes in systolic and diastolic CBP, the relationship remained significant for RWTd (0.9%, p<.02) and marginally significant for LVMi (2.2 g/m2, p=.08). Conclusions: The transition from SNT to MHT is associated with increased TOD and risk for CV events. These findings indicate the importance of identifying people with MHT so that appropriate interventions might be initiated to reduce BP and CV risk.

**306 Abstract 1549**

EMOTIONAL MODULATION OF PAIN IN NORMOTENSIVE INDIVIDUALS WITH AND WITHOUT A PARENTAL HISTORY OF HYPERTENSION

Sarah T. McGlone, BA, Psychology, Ohio University, Athens, Ohio, Jamie L. Rhudy, PhD, Psychology, The University of Tulsa, Tulsa, OK, Christopher R. France, PhD, Psychology, Ohio University, Athens, Ohio

Brief presentations of pleasant and unpleasant pictures from the International Affective Picture System (IAPS) have been shown to reliably modulate pain responses. Specifically, pain is enhanced during unpleasant pictures and inhibited during pleasant pictures. To examine emotional modulation of pain in individuals at risk for hypertension, electrocutaneous stimulation was applied to the lower leg (over the sural nerve) in 41 men with and without a parental history of hypertension during presentation of unpleasant, neutral, and pleasant IAPS pictures. Results indicate that the pictures manipulated emotional valence ratings in the predicted direction (unpleasant < pleasant), and these ratings did not differ as a function of parental history of hypertension. Regardless of the emotional valence of the images, men with a parental history of hypertension reported significantly lower pain ratings than men without a parental history of hypertension, F(1,38)=2.85, p=.01. Activation of the ventral part of the medial frontal gyrus in 'self' vs. 'general' condition, or a generally desirable trait ('general' condition). As expected, individuals with a parental history of hypertension showed increased activation of the ventral part of the medial frontal gyrus in 'self' vs. 'general' condition.

**307 Abstract 1778**

HOW MUCH STRIVING IS TOO MUCH? JOHN HENRYISM ACTIVE COPING PREDICTS WORSE DIURNAL SALIVARY CORTISOL PATTERNS FOR BURDENED AFRICAN-AMERICAN FEMALE DEMENTIA FAMILY CAREGIVERS

Marcellus M. Merritt, Ph.D., Psychology, University of Wisconsin Milwaukee, Milwaukee, Wisconsin, T. J. McCallum, Ph.D., Psychology, Case Western Reserve University, Cleveland, Ohio, Thomas Fritsch, Ph.D., Social Work, Ashley M. Kulland, B.S., Psychology, University of Wisconsin Milwaukee, Milwaukee, Wisconsin

The John Henryism active coping (JHAC) hypothesis suggests that striving with (i.e., high help on HELP) predicts increased risk for cardiovascular disease among those with scarce coping resources. This study examined the moderating role of JHAC in the associations of 1) caregiver (CRG) status, 2) total amount of help needed with various CRG responsibilities (HELP) and 3) global stress (Perceived Stress Scale, PSS) with diurnal salivary cortisol patterns among 30 White and 30 African-American (AA) female dementia caregivers and noncaregivers (48 AAs; 15 Whites). CRG participants completed the JHAC-12 Scale and PSS and collected five saliva samples daily (at 7am, 11am, 3pm, 6pm, and 9pm) for two successive days. Hierarchical multiple regression analyses with mean diurnal cortisol slope as the criterion illustrated that among AA CRGs, higher JHAC scores were associated with higher cortisol slopes (p < .001). The JHAC x PSS interaction was significant (p < .003). Among all CRGs who scored high on PSS, higher JHAC scores were linked with flatter cortisol slopes (p < .04). Thus, it appears that being AA, a CRG, and high in JHAC may elevate the risk for chronic disease, especially for those CRGs with inadequate support with CRG responsibilities and high levels of psychological stress. Thus, it is imperative that CRG interventions focus on the coping skills of AA CRGs in order to minimize the stressful side effects of CRG burden.

**309 Abstract 1077**

IN SEARCH OF THE DEPRESSIVE SELF: MEDIAL FRONTAL GYRUS CONVICTED BY SELF-REFERENTIAL PROCESSING

Cédric Lemogne, MD, C-L Psychiatry, European Georges Pompidou Hospital, Paris, France, Guillaume le B gastard, MD, Psychiatry, Pitié-Salpêtrière Hospital, Paris, France, Helen Mayberg, MD, FRCPC, Psychiatry, Emory University School of Medicine, Atlanta, GA, Emmanuelle Volle, MD, PhD, INSERM U610, Loretsu Bergouignan, Pre-PhD, CNRS UMR 7593, Stéphane Léhericy, MD, PhD, Neuroradiology, Jean-François Allilaire, MD, Philippe Fossati, MD, PhD, Psychiatry, Pitié-Salpêtrière Hospital, Paris, France

Major depression is associated with an excessive self-focus, a tendency to engage oneself in self-referential processing. The medial frontal gyrus is central to self-referential processing. This study explored the neural bases of the depressive self by comparing two alternative hypotheses. The automatic self-focus hypothesis in depression postulates that self-referential processing is automatically triggered by any stimulus that may be related to one's own person. The controlled self-focus hypothesis is dimensioned into two categories: a controlled 'self' condition, a tendency to engage oneself in self-referential processing. We presented 15 depressed patients and 15 healthy subjects with personality traits words during functional magnetic resonance imaging and asked them to judge whether each trait described them ('self' condition), or a generally desirable trait ('general' condition). As predicted by the controlled self-focus hypothesis, the activation of the dorsal part of the medial frontal gyrus in 'self' vs. 'general' condition was greater in patients than healthy subjects (P<0.001, uncorrected).
Additionally, there was a similar group×condition interaction in the left DLPFC (P < 0.05, corrected). Finally, patients displayed an increased functional connectivity between the medial frontal gyrus, the dorsal anterior cingulate cortex (ACC), and the dorsolateral prefrontal cortex (DLPFC). These results provide evidence for a central role of the medial frontal gyrus in a controlled excessive self-focus in major depression. Whereas the DLPFC is thought to implement cognitive control, the dorsal ACC and the dorsomedial frontal gyri are thought to implement conflict monitoring. Self-focus may represent a particular instance of conflict monitoring through the assessment of the discrepancy between the current self and an inner standard. The excessive self-focus may have required further cognitive control by the DLPFC to reduce the adverse emotional consequences of the discrepancy by either cognitive reappraisal or self-focus inhibition.

310) Abstract 1536

PREVENTION PROGRAM FOR MINORLY DEPRESSED ELDERLY: THE EFFECTS OF THE COGNITIVE-BEHAVIORAL GROUP PROGRAM

Chiu-Tien Hsu,, Graduate Institute of Psychology, National Chung-Cheng University, Taiwan, Ming-Hsiung, Chia-Yi, Taiwan, ROC, Chia-Ying Weng,, Graduate Institute of Psychology, Ming-Hsiung, Chia-Yi, Taiwan, ROC, Pin-Fan Chen,, Department of Metabolism & Endocrinology, Buddhist Dalin Tzu Chi General Hospital, Ming-Hsiung, Chia-Yi, Taiwan, ROC, Chin-Sung Kuo,, Department of Metabolism & Endocrinology, Chin-Lon Lin,, Department of Cardiology, Buddhist Dalin Tzu Chi General Hospital, Ming-Hsiung, Chia-Yi, Taiwan,ROC, Ming-Chung Jong,, general, Public Health Bureau, Tainao, Chia-Yi-Taiwan,ROC, Sze-Yu Kuo,, mental health center, Public Health Bureau, Chiayi County, Taibao, Chia-Yi, Taiwan,ROC

Purpose of study: This study examined the effects of risk-factor based cognitive-behavioral group therapy (CBGT) on depressive symptoms, cortisol response, and inflammatory markers in a community-based sample of older people. Subject sample and statement of methods: A total 20 subjects (2 men and 18 women aged 69 - 84 years, mean age=75.3 years) were recruited, and were assigned to either the CBGT group (N=10) or a wait list control group (N=10). They were screened from an elderly community using the 15-item Geriatric Depression Scale (GDS15). All consenting participants completed the Center for Epidemiologic Studies Depression(CES-D), the Pittsburgh Sleep Quality Index(PSQI), and the Medical Outcomes 36-item Short Form(SF-36); their cortisol, interleukin (IL)-6, tumor necrosis factor (TNF)-α, and C-reactive protein (CRP) levels were also measured before and after the intervention. The CBGT was developed based on three modifiable risk factors: bereavement, sleep disturbance, and functional impairment of depression among elderly community subjects. The intervention consisted of a weekly 2-hour CBT group and included home relaxation practice for 8 weeks. Summary of results: The depressive symptoms decreased markedly in the CBGT group (F = 14.5, p < 0.05, effect size = 0.45). That might have been a result of decreased functional impairment (F = 5.5, p < 0.05, effect size=0.23 ). There were no differences between the two groups in the cortisol and inflammatory markers. The CBGT intervention was effective in decreasing minor depression in community-living elderly people, but this effect failed to change cortisol response and inflammatory markers.

312) Abstract 1666

IS PSYCHOSOMATIC REHABILITATION AND PSYCHOTHERAPY LESS EFFECTIVE IN ELDERLY PATIENTS?

Heinz Rüddel,, Ralph Jürgensen,, Center of Psychosomatic Research and Psychobiology, University of Trier, St. Franziskus-Stift Bad Kreuznach, Germany

Psychosomatic rehabilitation is well established in Germany and it could well be demonstrated that this intervention is highly effective. An age of patients of these programs is 42 years. It is unclear whether this intervention has similar effects if patients are older than 65 years. We therefore established an intervention for elderly patients and examined the effectiveness of this programme. 136 patients older than 65 with depression, anxiety disorders or somatisation were treated as inpatients for 3 to 6 weeks (M = 72 years). 83% were women. Patients were examined at the beginning of therapy and at discharge. Results were compared with a case mixed data set of inpatients of the same institution in the age range of 55-64 years (n = 1671, M = 59 years). Elderly patients and patients in the control group reported almost identical levels of global improvement (2.6 vs. 2.7 in a 5 point likert scale; n.s.) Depression similarly decreased in both groups (20.8 vs. 15.6, Cohen’s d = 0.20, 20.9 -> 15.7, d = 0.62). Complaints had almost identical improvements (31.6 -> 22.3 vs. 25.5, d = 0.75 vs. 0.62). We therefore conclude that the inpatient psychosomatic rehabilitation and psychotherapy with elderly patients can be as effective as the well established programs for patients who are still at work.

313) Abstract 1076

GENETICS AND PERSONALITY AFFECT SELF-PERSPECTIVE IN AUTOBIOGRAPHICAL MEMORY

Cédric Lemogne, MD, C-L Psychiatry, European Georges Pompidou Hospital, Paris, France, Loretsu Bergouignan, Pre-PhD, CNRS UMR 7593, Pitié-Salpêtrière Hospital, Paris, France, Claudette Boni, PHD, INSERM U675, Philip Gorwood, MD, PhD, Clinique des maladies mentales et de l'encéphale, Sainte-Anne Hospital, Paris, France, Antoine Pélissolo, MD, PhD, Philippe Fossati, MD, PhD, Psychiatry, Pitié-Salpêtrière Hospital, Paris, France

Major depression, one of the leading causes of disability in the world, is associated with an increased self-focus, a tendency to engage oneself in self-referential processing. In the context of autobiographical memory (AM), the amount of self-focus is captured by self-perspective. Self-perspective considers whether the memory image reinstates the original visual perspective (i.e. field self-perspective), rather than a visual perspective in which the subject sees himself engaged in the event as an observer would (i.e. observer self-perspective). Major depression is associated with a decrease of field (versus observer) self-perspective in autobiographical memory, even after full remission. This study aimed to examine self-perspective in healthy never-depressed subjects presenting with either genetic or psychological vulnerability for depression. Thirty healthy participants performed the Autobiographical Memory Test with an assessment of field-perspective (field/observer procedure). Genetic vulnerability was defined by the
presence of at least one 5' or LG allele of the polymorphism of the serotonin-transporter-linked promoter region (5-HTTLPR). Psychological variables such as high scores was determined by environment interaction between the 5-HTTLPR polymorphism and life stress exposure (P<0.025). These results suggest that a decrease of field self-perception for positive memories is associated with vulnerability for major depression. Reducing self-focus through manipulating self-perception could be used in cognitive therapy to reduce vulnerability for depression.

314) Abstract 1605

SMOKING STATUS AND DEPRESSION: A META-ANALYTIC REVIEW
Tana M. Luger, MA, Jerry Suls, PhD, Donald Lamkin, MA, Psychology, University of Iowa, Iowa City, IA
The relationship between smoking and depression has been an issue of interest for researchers in both medicine and behavioral science because both are risk factors for morbidity and mortality. A Medline and manual-based search identified 99 potentially relevant studies to evaluate the association between smoking status and depression status/ depressive symptoms. Exclusionary criteria were (a) not containing a validated clinical measure of depression or validated measure of depressive symptoms, (b) examining adolescents (younger than 18) or (c) confounding alcohol use and smoking behavior. Sixty-four cross-sectional studies met the criteria and were included in analyses using the Comprehensive Meta-Analysis computer program. Random effects models were selected because of the heterogeneity among studies (Q=1038.56, df=63, I2=93.93). Results showed that, in community samples, current smokers had 1.95 greater odds of showing sub-clinical depressive symptoms than non-smokers (OR=1.95, 95% CI=1.60-2.37, p<.01). Former smokers had 1.29 greater odds of exhibiting depressive symptoms than non-smokers (OR=1.29, 95% CI=1.27-1.3) although the effect was marginal (p=.09). For major depressive disorder diagnosed with clinical interviews, current smokers had 1.66 greater odds of clinical depression than non-smokers (OR=1.66, 95% CI=1.37-2.00, p<.01). Former smokers again showed marginally 1.36 greater odds of clinical depression than non-smokers (OR=1.36, 95% CI=1.97-1.89, p=.07). Current smokers seem to be at higher risk for both depressive symptoms and clinical depression when compared to former and non-smokers. It is possible that those at risk for depression may initiate and maintain smoking behavior in order to self-medicate negative affect. Conversely, current smokers may experience heightened dysphoria during times of low plasma nicotine levels (Morell & Cohen, 2006). Yet, causality cannot be determined by the cross-sectional nature of the reviewed studies. A notable lack of prospective studies was found in our searches, suggesting the need for longitudinal work in the area of smoking and depression to determine causal direction.

315) Abstract 1403

ILLNESS PERCEPTIONS, WORRY, AND CARDIAC RISK PREDICT REASSURANCE FOLLOWING A NEGATIVE STRESS TEST
Kamila S. White, PhD, Psychology, University of Missouri-Saint Louis, Saint Louis, MO, Natalie E. Kelso, BA cand., Psychology, University of Missouri-Saint Louis, High Ridge, MO, Ernest Y. Gervino, ScD, Medicine, Harvard Med School, Boston, MA
Many patients are not reassured by negative testing results following a negative stress test. Risk perceptions are associated with protective behaviors, and some research has shown that disease-related worry may play a motivating role. However, accurate perceptions of future cardiac risk are important to ensure informed lifestyle adaptation in patients with elevated cardiac profiles. The primary aim of this study was to investigate links between illness perceptions, worry, and cardiac risk factors in patients with non-cardiac chest pain (NCCP) and their associations with current and continuing cardiac related reassurance. The sample consisted of 229 NCCP patients (M age = 51 years, SD = 10, 43% male) seeking cardiac evaluation at an urban academic medical center. Data were collected as part of a larger longitudinal study of the clinical course and correlates of NCCP. Baseline, 6-, 12-, and 18-month follow-up assessments were conducted. At baseline, illness perceptions were associated with lower reassurance (p<.05), and cardiac risk was correlated with cardiac-specific worry (r = .16, p < .05). At baseline, the overall hierarchical regression model predicted 20% of the variance (F=2.33) in reassurance from the cardiac testing. The main effect of cardiac-specific anxiety predicted 14% of variance in reassurance, F(1,141) = 24.7, p < .01. The main effect of illness perceptions was associated with an additional 6% of variance in reassurance F(9,133) = 4.9, p < .01. Data on reassurance and illness perceptions over time will be presented. These data suggest that cardiac worry is linked with decreased reassurance, and that illness perceptions may be important determinants (i.e., emotional reactions to their symptoms, engagement in self-care behaviors) to optimize outcome.

316) Abstract 1791

THE PHYSICAL AND PSYCHOSOCIAL FACTORS RELATED TO EARLY DROPOUT FROM TREATMENTS IN EATING DISORDERS
Hitomi Kobayashi, Human Sciences, Waseda University, Tokorozawa, Saitama, Japan, Toshio Ishikawa, Psychosomatic Medicine, International Medical Center of Japan, Ichikawa, Chiba, Japan, Shinobu Nomura, Faculty of Human Sciences, Waseda University, Tokorozawa, Saitama, Japan
Purpose of study: Eating disorders (ED) patients are likely to dropout from early treatments. The purpose of this study was to examine subjective physical and psychosocial satisfactions related to early dropout of treatments in ED patients. Methods: Participants were selected from new outpatients who met criteria for Anorexia Nervosa (AN), Bulimia Nervosa (BN) and Eating Disorders not otherwise specified (ED-NOS) by Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM-IV). Patients who had been getting treatments for more than 3 months from the first treatment. Early dropouts made a decision on dropout from treatments within 5 times from the first treatment. Finally, 56 continuers (32 AN, 18 BN and 6 ED-NOS, 26.4±8.15years) and 22 early dropouts (4 AN, 17 BN and 1 ED-NOS, 23.60±5.89years) completed the self-reported questionnaires of World Health Organization Quality of Life (WHO-QOL26). Consent to study participation was obtained from all participants. Results: The results of t-test for each groups are as follows: In "psychological domain" of WHO-QOL26, early dropouts had lower scores than continuers (t=2.23, p<.029). In "total domain" of WHO-QOL26, early dropouts had higher scores than continuers (t=2.18, p=0.032) (see Table). Conclusions: Present results revealed that early dropouts in ED treatment are related to subjective psychological dissatisfaction including body image disability. On the other hand, early dropouts in ED treatments feel higher satisfaction with their general life. There is discrepancy between psychological dissatisfaction and satisfaction with their general life in the early dropouts of ED treatments. Thus, it was considered that higher satisfaction to general life in spite of disability in psychological aspects is related to dropouts of ED treatments.

Topic: Other Condition

317) Abstract 1184

LONGITUDINAL STUDY OF THE IMMUNE CONTROL OVER HERPES SIMPLEX VIRUS TYPE 1 IN WOMEN EXPOSED TO INTIMATE PARTNER VIOLENCE
Manuela Martinez, MD/PhD, Segunda Sanchez-Lorente, BA, Conception Blasco-Ros, BA, Department of Psychobiology, Faculty of Psychology, University of Valencia, Valencia, Spain, Christopher L. Coe, PhD, Department of Psychology, University of Wisconsin-Madison, Madison, Wisconsin
A few studies have demonstrated that intimate partner violence (IPV) produces alterations in immune responses in abused women. However,
no longitudinal studies have been carried out to establish the impact of IPV on immune function over time and the factors that may contribute to its recovery or deterioration. The objective of this study was to assess the course of immune control over herpes simplex virus type 1 (HSV-1) in victims of IPV through 3 salivary measures: neutralization of HSV-1, levels of specific antibody against HSV-1 (HSV-1-sIgA) and Total Immunoglobulin A (Total sIgA). Women abused by their intimate male partners either physically/psychologically (n=22) or psychologically (n=14) and nonabused control women (n=24), who participated in a previous cross-sectional study (T-1), were followed up 3 years later (T-2). The results indicated that in T-1 there were differences between groups both in the capacity to neutralize HSV-1 \( [F(2.57)=9.67; p<0.001] \) and in the levels of HSV-sIgA \( [F(2.57)=3.03, p<0.05] \), with the lowest capacity and level seen in the physically/psychologically abused women. On the contrary, in T-2 there were no longer significant differences in capacity to neutralize HSV-1 \( [F(2.57)=0.82, ns] \) nor in levels of HSV-sIgA \( [F(2.57)=0.82, ns] \) and Total sIgA \( [\text{T(29.35)}=0.28, ns] \). Over time (from T-1 to T-2) there was a significant increase in the physically/psychologically abused women both in capacity to neutralize HSV-1 \( [t(21)=6.28; p<0.001] \) and in HSV-sIgA levels \( [t(21)=3.29; p<0.01] \), with no changes in the psychologically abused women nor in the control group. Total sIgA did not differ over time in any group. This study shows that recovery of immunodominance in women victims of IPV is possible, and that longitudinal evaluations are needed to determine which factors best predict it in order to design more effective intervention programs. Supported by Institute of Women, Ministry of Equality (ref:102/01), FEDER, Ministry of Education and Science (ref:SEJ2005-00579/PSIC) and Generalitat Valenciana (GRUPOS2004/15).

318) Abstract 1788

AGE-RELATED DIFFERENCES IN THE SUPINE POSITION RESTING HEART RATE OF BLACK AFRICAN SEDENTARY MALES IN ZARIA, NIGERIA

Yuusuf Abduulkadir, BSc, Human Physiology, Adelaiye Alexandra, PhD, Human Physiology, Ahmadu Bello University, Zaria, Kaduna State, Nigeria, West Africa

The influence of the normal aging process on supine position resting heart rate (HR) remains elusive and is yet to be fully elucidated. Related studies among caucasians, reported unchanged supine position resting HR with age (Vargas et al., 1986, Simpson and Wicks, 1988, and Fleg et al., 1990) and lower supine position resting HR with age (Arora et al., 1987 and Cinalli et al., 1987). However, considering the normal aging process on one hand; genetic and environmental factors on the other hand may also lead to differences in supine position resting HR. We were interested in the age-related differences in supine position resting HR of black African males residing in Zaria, Nigeria. We randomly recruited and screened one hundred apparently healthy human male subjects, from the population of sedentary black African males residing in Zaria. Seventy five subjects were certified eligible to participate in the study. The selected 75 male subjects were further classified into three age groups of 25 subjects in each group; mean age of the young age group (21.0±1.3), mean age of the middle age group (36.8±1.2) and mean age of the older age group (52.6±3.3). Supine position resting HR was derived from one minute supine position continuous ECG tracing under controlled laboratory conditions. Data obtained were analyzed via a one-way classification of analysis of variance (ANOVA). The relationship between aging and supine position resting HR in this study was not consistent with the findings in related studies among caucasians. Although, the supine position resting HR of the young age versus middle age groups (61.6±2.6 versus 63.1±4.8) was not significantly different (p>0.05) but the older age group, showed a significantly increased supine position resting HR when compared with the young (67.4±5.4 versus 61.6±2.6) or the middle (67.4±5.4 versus 63.1±4.8) age groups (p<0.05). In conclusion, aging was associated with a significant increase in supine resting HR among black African sedentary males residing in Zaria, Nigeria in west Africa but the age-related increase was evident only at advance age (46-60+) years.

319) Abstract 1182

ASSOCIATION BETWEEN INFLAMMATORY MARKERS AND DEPRESSIVE SYMPTOMS IN WOMEN WITH RHEUMATOID ARTHRITIS

Carissa A. Low, PhD, Department of Psychiatry, University of Pittsburgh, Pittsburgh, PA, Amy Lynn Cunningham, MA, Department of Psychiatry, Yale University, New Haven, CT, Amy H. Kao, MD, MPH, Division of Rheumatology and Clinical Immunology, University of Pittsburgh, Pittsburgh, PA, Shanthi Krishnaswami, MPH, Division of Endocrinology, Medical College of Wisconsin, Milwaukee, WI, Lewis H. Kuller, Md, DrPH, Department of Epidemiology, Mary Chester M. Wasko, MD, Division of Rheumatology and Clinical Immunology, University of Pittsburgh, Pittsburgh, PA

Converging lines of evidence support an association between mediators of systemic inflammation and depressive symptoms in healthy adults and individuals with cardiovascular disease. Neuroimmune pathways may also account for the high prevalence of depression among individuals with rheumatoid arthritis (RA), but this relationship is complicated by factors linked to both inflammatory disease activity and mood, such as pain and physical disability. The goals of this cross-sectional study were to examine (a) the relationship between inflammatory markers and depressive symptoms among women with RA, and (b) the role of other RA-related factors in explaining any association. We hypothesized that inflammatory markers (i.e., erythrocyte sedimentation rate [ESR], C-reactive protein [CRP]) would be positively associated with self-reported depressive symptoms but that this relationship would be attenuated when RA-related variables were statistically controlled. Participants (n = 173, mean age = 58.9, mean time since RA diagnosis = 16.3 years) provided fasting blood samples for assessment of inflammatory markers in serum. We controlled for smoking status by Westergren method, and CRP was measured using latex immunonephelometry. Women also completed measures of depressive symptoms (CES-D) as well as disability and pain (modified Health Assessment Questionnaire). Consistent with hypotheses, circulating CRP was significantly and positively associated with depressive symptoms in hierarchical regression analyses adjusted for age, race, education level, marital status, BMI, physical activity, smoking status (Beta = .16, p < 0.05). However, this relationship was attenuated when pain, physical disability, and corticosteroid use were included as covariates (Beta = .09, p > 0.05). ESR was not significantly related to depressive symptoms in either model. These findings suggest that depression in the context of RA may be more closely related to subjective physical symptoms such as pain rather than markers of systemic inflammation.

320) Abstract 1717

EMOTIONAL JUDGEMENT IS INFLUENCED BY BARORECEPTOR ACTIVATION WITHIN THE CARDIAC CYCLE: EVIDENCE FROM A NEUROIMAGING STUDY OF VASOVAGAL SYCONE

Marcus A. Gray, PhD, Felis D. Beacher, PhD, Medicine, University of Sussex, Brighton Sussex Medical School, Brighton, East Sussex, UK, Neil A. Harrison, PhD, Institute of Cognitive Neuroscience, University College London, London, London, UK, Hugo D. Critchley, PhD, Clinical Imaging Sciences Centre, University of Sussex, Brighton Sussex Medical School, Brighton, East Sussex, UK

Background: Emotional feelings are influenced by afferent information from autonomic baroreceptors. Activation of arterial baroreceptors provides rhythmic feedback to central autonomic centres necessary for the dynamic regulation of blood pressure. Afferent baroreceptor activation also influences reflexive responses to brief painful somatosensory stimuli including autonomic reactions. Moreover individuals with vasovagal syncope and blood phobia may be especially sensitive to the conjunction of emotional challenge and baroreceptor activation (within the cardiac cycle). Method: We examined neural (fMRI) and behavioural response to brief emotional stimuli presented at different phases of the cardiac cycle. Thirty-seven participants (18 controls, 19 vasovagal syncope) were scanned at 1.5 T while judging emotional intensity (4 point scale) of briefly presented (100 ms duration) visual (happy, sad, disgust & neutral faces) and auditory (happy, surprise, fearful, sad, angry & disgust emotional sounds) stimuli during a feared reaction time period presented either synchronously, or delayed (200-500ms), during baroreceptor activation
ant systole) relative to the ECG R-wave. Result: Cardiac timing influenced perceived emotional intensity of both stimuli modalities. Relative to synchronous stimuli, delayed neutral [F(1,839)=96.3, p<0.001] and decreased disgust [F(1,839)=43.6, p<0.001] ratings of facial expressions. Similarly, ratings of delayed disgust sounds were decreased relative to synchronous stimuli [F(1,551)=4.0, p<0.05]. Syncope patients rated neutral [F(1,837)=3.9, p<0.05] and disgust [F(1,837)=12.8, p<0.001] expressions lower than controls. Neural responses associated with the influence of cardiac timing on emotional ratings will also be presented. Comment: Emotional ratings of brief visual and auditory stimuli were dependant on their relation to baroreceptor discharge. Thus even short-term timing of phase cardiovascular signals modulates emotional experience, an effect related to neurovascular phenotype and vulnerability to affective symptoms in neurocardiogenic (vasovagal) syncope.

321) Abstract 1729

JOINT EFFECTS OF FUNCTIONAL POLYMORPHISMS OF SEROTONIN TRANSPORTER (5HTTLPR) AND MAOA (MAOA-UVNTR) GENES ON HOSTILITY LEVELS IN MEN

Michael V. Stanton, B.A., Psychology and Neuroscience, Duke University, Durham, NC, John C. Barelfoot, PhD, Redford B. Williams, MD, MPH, Stephen H. Boyle, PhD, Ilene C. Siegler, PhD, Beverly H. Brunswell, PhD, Michael J. Helms, B.A., Psychiatry, Christopher L. Muller, B.A., Ann L. Collins, PhD, Allison L. Ashley-Koch, PhD, Center for Human Genetics, DUMC, Durham, NC

Prior research has shown the both 5HTTLPR and MAOA-uVNTR genotypes are associated with negative affects and aggressive tendencies in men. In this study we evaluated the joint effects of 5HTTLPR and MAOA-uVNTR genotypes on levels of derived index of hostility personality type in a sample of 118 men (35 black, 83 white) to determine whether there is a gene x gene interaction affecting hostility. The expression of the serotonin transporter is affected by genotype of the 5-HTTLPR (short and long forms) as well as the genotype of the SNP rs25531 within this region. Based on the combined genotypes for these two polymorphisms, we designated each allele as a high or low expressing allele, according to previously combined genotypes for these two polymorphisms, we designated each allele as a high or low expressing allele, according to previously combined genotypes for these two polymorphisms, we designated each allele as a high or low expressing allele, according to previously combined genotypes for these two polymorphisms, we designated each allele as a high or low expressing allele, according to previously combined genotypes for these two polymorphisms, we designated each allele as a high or low expressing allele, according to previously combined genotypes for these two polymorphisms, we designated each allele as a high or low expressing allele, according to previously combined genotypes for these two polymorphisms, we designated each allele as a high or low expressing allele, according to previously combined genotypes for these two polymorphisms, 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depression. The purpose of this study is to clarify whether depression effects sleepiness of OSAS patients. We conducted semi-structured interviews with patients undergoing polysomnography (843 men and 163 women) by using Hamilton Depression Rating Scale (HAM-D). Among the patients, 678 men and 93 women, who had 5 or more apnea-hypopnea index (AHI), were diagnosed as having OSAS. They were each classified as one of the following: HAM-D score >15 group (high, 53 men and 11 women), ≤15 HAM-D score ≤16 group (moderate, 261 men and 31 women), and HAM-D score ≤8 group (low, 364 men and 51 women). In male OSAS patients, the higher HAM-D score group had significantly higher Ewpsy sleepiness score (ESS) (high, 10.5 ± 4.5, moderate, 10.1 ± 5.2, low, 9.0 ± 5.0, p<0.01), higher proportion of Stage (1+2) to total sleeping time (high, 83.9 ± 7.3, moderate, 80.9 ± 8.1, low, 79.9 ± 8.0, p<0.01), and lower %REM (high, 15.5 ± 6.9, moderate, 18.0 ± 7.4, low, 18.8 ± 6.7, p<0.01). In female OSAS patients, the higher HAM-D score group had significantly higher body mass index (high, 34.6 ± 19.6, moderate, 27.5 ± 4.9, low, 26.4 ± 6.0, p<0.05), lower SpO2 (high, 92.6 ± 8.3, moderate, 95.9 ± 2.5, low, 96.0 ± 2.5, p<0.05), lower %REM (high, 13.6 ± 6.9, moderate, 20.5 ± 6.9, low, 19.5 ± 7.8, p<0.05), and no significantly different ESS. Stepwise multiple regression analysis was performed to estimate the magnitude of the association between the indices regarding sleeping condition as independent variables and ESS as a dependent variable. It showed that in male OSAS patients, the higher HAM-D score, lower %REM of stage(3+4) to total sleeping time were selected as independent variables related to the ESS of male OSAS patients, and that age was selected as an independent variable related to the ESS of female patients. Sleepiness of OSAS male patients would be modified by their depressive symptoms.

325) Abstract 1662

A ONE-ITEM SUBJECTIVE WORK STRESS ASSESSMENT TOOL IS ASSOCIATED WITH CORTISOL SECRETION LEVELS IN CRITICAL CARE NURSES

Joachim Fischer, Prof., Adrian Loerbroks, MSc, Darcey D. Terris, PhD, Mannheim Institute of Public Health, Heidelberg University, Mannheim, Baden-Württemberg, Germany

Objective: Stress-related diseases are increasing in prevalence, with workplace interventions targeting stress receiving greater attention. Cortisol levels, a marker of physiological stress reaction, can be used to evaluate intervention effects, but measurement can be challenging to implement. Objective workload and subjective stress measures are alternatives previously related to cortisol secretion. In our study, the validity of a one-item subjective stress measure was evaluated based on its association with cortisol levels. Methods: Eighty-two pediatric critical care nurses participated in a prospective cohort study in Switzerland between September 2004 and March 2005. Salivary cortisol samples were collected during three, nine-day periods. Sampling occurred at shift start, repeating every two hours. Subjective stress was recorded with each saliva sample and at shift end. Objective workload for each shift and nursing unit was derived from the hospital's LEP® Nursing Workload Management System. Multilevel regression models were employed in the analysis. Results: Subjective stress, measured contemporaneously (r=0.098, p=0.44), but not retrospectively (r=0.012, p=0.556), was significantly related to increased cortisol secretion. Objective workload was not significantly associated with cortisol levels. Conclusions: The one-item summary measure of subjective stress, administered during working periods, appears to be a valid tool for the evaluation of workplace stress reduction programs.

Topic: Pain

326) Abstract 1667

CHARACTERIZATION OF ADOLESCENT FEMALES IN AN INPATIENT PSYCHIATRIC UNIT WITH CHRONIC PAIN

Karen M. Lommel, D.O., Shiveta Kapoor, MBBS, Psychiatry and Pediatrics, Catherine Martin, MD, Psychiatry, Leslie Crofford, MD, Internal Medicine, Division of Rheumatology, University of Kentucky, Lexington, KY

Objective: The purpose of this study was to identify the characteristics of adolescent females admitted to a psychiatric hospital who met criteria for Juvenile Primary Fibromyalgia Syndrome (JPFS). Methods: We studied 62 female patients between the ages of 12 and 18 who were admitted to an adolescent inpatient psychiatric unit. Patients completed four questionnaires: Achenbach Youth Self-Report, the Children's Somatization Inventory (CSI), the Fibromyalgia Impact Questionnaire modified for children (FIQ-C) and a Pain Symptom Questionnaire. The Primary Investigator examined the 21 different tender points (18 test and 3 control points) on each patient and performed a face-to-face interview to assess for major and minor criteria for JPFS. This was the first of three phases of our study. Results 62 adolescent females were enrolled and 51.6% (n=32) met criteria for JPFS. Those who met criteria for JPFS were older (15.2 ± 1.3 vs. 14.5 ± 1.5, p=0.036). The BMI for those who met criteria was not significantly different (p=0.1396). There was no difference in the reports of physical or sexual abuse in either group. The FIQ and CSI were both significantly elevated for those who met criteria (p<0.0001 and p<0.0012 respectively). The most interesting results were from the Achenbach YSR. Those who met criteria for JPFS scored significantly higher on 4 of the 6 DSM-Oriented scales and all of the DSM-Syndrome scales. The most interesting finding was the significantly elevated Conduct Problems T-score for those who met criteria for JPFS (p<0.0069). Conclusions: Adolescent females admitted to a psychiatric unit who meet criteria for JPFS are more impaired than their inpatient peers based on the DSM-oriented scales. These females with chronic pain are also more likely to exhibit more conduct disorder symptoms. Therefore, it is important to address these issues to prevent future drug abuse in this patient population.

327) Abstract 1390

EVENT-RELATED POTENTIALS TO PAINFUL STIMULI ARE REDUCED DURING PLACEBO ANALGESIA

Per M. Aslaksen, PhD, Magne Arve Flaten, PhD, Psychology, University of Tromsø, Tromsø, Norway

Purpose: Placebo analgesia refers to a reduction in recorded pain after administration of a capsule containing an inactive ingredient, with the information that it is a powerful painkiller. The present study investigated if placebo analgesia could be observed as reduced cortical response to heat stimuli. If placebo analgesia was associated with a reduced cortical response, this would indicate that the pain signal was reduced prior to cortical processing. A capsule containing an inactive ingredient was administered with information that it was a powerful painkiller in the Placebo condition. Contact heat stimulation was administered to the arm before and after the administration of the capsule. In the Natural History condition, heat stimuli were administered without the capsule and the information. Subjects: Forty (20 females) healthy volunteers aged 19 to 40 years. Methods: Painful heat stimuli at 51 °C with abrupt rise time and duration of less than 0.1 sec were administered by a thermode applied to the lower arm. Pain was recorded by a visual analogue scale, and by 32 channel electroencephalography. Event-related potentials (ERPs) to painful stimulation were computed by the Vision Analyzer software. A within-subject design was used. All subjects were run in a Placebo condition where pain was applied before and after administration of a capsule with information that it was a powerful painkiller in the Placebo condition. Contact heat stimulation was administered to the arm before and after the administration of the capsule. In the Natural History condition, heat stimuli were administered without the capsule and the information. Subjects: Forty (20 females) healthy volunteers aged 19 to 40 years. Methods: Painful heat stimuli at 51 °C with abrupt rise time and duration of less than 0.1 sec were administered by a thermode applied to the lower arm. Pain was recorded by a visual analogue scale, and by 32 channel electroencephalography. Event-related potentials (ERPs) to painful stimulation were computed by the Vision Analyzer software. A within-subject design was used. All subjects were run in a Placebo condition where pain was applied before and after administration of a capsule with information that it was a powerful painkiller, and a Natural History condition where pain was applied, but no capsule was administered. The order of the conditions was counterbalanced. Results: Pain unpleasantness was reduced in the Placebo condition compared to the Natural History condition (F = 7.95, p = .01). The P2 component in the ERP data was reduced in the Placebo condition compared to the Natural History condition (F = 3.39, p = .045). Conclusions: Placebo analgesic responding was observed as reduced pain report and as reduced cortical response to painful stimuli. This indicates that the pain signal to the brain is reduced by information that a powerful painkiller has been administered, and that the placebo response is not due to response bias.

328) Abstract 1256

ANGER SUPPRESSION VS NONSUPPRESSION AFFECTS OBSERVABLE PAIN BEHAVIORS AMONG CLBP PATIENTS VIA PHYSIOLOGICAL AND SELF-REPORTED EMOTIONAL REACTIVITY

James W. Burns, PhD, Dept of Psychology, Rosalind Franklin University of Medicine & Science, North Chicago, IL, Phillip J.
Quartana, PhD, Dept of Psychiatry and Behavioral Sciences, Johns Hopkins University School of Medicine, Baltimore, MD

Anger suppression is linked to the incidence of physical symptoms, including pain. It is not clear, however, exactly how suppression of anger affects pain severity. We proposed an ironic process model of anger suppression (adapted from Wegner) which holds that attempts to suppress anger lead paradoxically to increased accessibility of anger-related content, which in turn contaminates perceptions of later noxious stimuli. Here, 52 chronic low back pain (CLBP) patients either suppressed or did not suppress anger during a computer maze task while being harassed by a confederate, and then performed a Pain Behavior Task (PBT; standing, walking, reclining). During the initial harassment, lower paraspinal and trapezius muscle tension, and SBP, DBP and HR increased significantly [Fs(1,50) > 15.6; p <.01], but did so equally across Suppress and NOSuppress conditions. Self-reported anger and anxiety increased significantly more in the Suppress condition than Nosuppress condition [Fs > 4.7; p<.05], and Suppress patients showed more pain behaviors during the PBT than Nosuppress patients [F= 6.1; p<.05]. Among Suppress patients, SBP, DBP, anger and anxiety were correlated significantly with number of pain behaviors (rS >.51; p <.05), with both SBP and anger accounting for unique variance (semi-partial rS >.30; p <.05) with the other IVs entered simultaneously. For Nosuppress patients, none of the physiological and emotional IVs were correlated with pain behaviors. Results indicate that attempts to suppress anger lead to the exhibition of more pain behaviors during a task that induces mild low back pain than not suppressing, and that these effects on pain severity may be partly accounted for by cardiovascular and anger reactivity evinced during anger suppression. Thus, suppressing anger at one point may influence CLBP severity at a later point because of the delayed or carry-over effects of sustained emotional arousal.

329) Abstract 1602

PAIN CATASTROPHIZING AS A MODERATOR OF THE RELATIONSHIP BETWEEN PTSD SYMPTOMS AND PAIN SEVERITY
Wesley P. Gilliam, MS, Justin Matsaura, MS, Kristin Somar, MA, John Burns, Ph.D, Psychology, Rosalind Franklin University, North Chicago, Illinois

Despite the high comorbidity rates of chronic pain and post-traumatic stress disorder (PTSD), research is limited in identifying mechanisms linking the two. Studies have found that pain catastrophizing contributes to pain sensitivity through exaggerated negative appraisals of actual or anticipated pain experiences (Sullivan et al., 1995). Consequently, pain catastrophizing serves to both direct attention to the painful experience and enhance the intensity of the painful experience. Per Foa et al. (1989), fear networks are formed in PTSD patients after a traumatic event which serves to store information about what is threatening and the internal and external cues that represent threat. Therefore, it would be expected that fear networks in traumatized pain patients with PTSD symptoms would be hyper-sensitive to activation among individuals with trait-like tendencies to appraise painful experiences in a catastrophic manner. 153 chronic pain patients previously involved in a motor vehicle accident completed the Life Events Checklist (PCLS), PTSD Checklist, Multidimensional Pain Inventory (MPI) and the Pain Catastrophizing Scale (PCS). Results from hierarchical multiple regression analysis indicated that PTSD symptoms significantly interacted with PCS to impact pain sensitivity [F(1, 152) = 2.02, p<.05]. To further illustrate the interaction, a median split was performed on PCS and pain severity was regressed on PCLS at both high and low PCS. At high PCS, PCLS relationship with pain severity was significant [Beta = .36, p<.001]. At low PCS, PCLS relationship with pain severity was nonsignificant. These results suggest that high levels of catastrophizing may serve to exacerbate pain severity by activating latent fear networks in chronic pain patients involved in a motor vehicle accident with PTSD symptoms. Activation of these fear networks may result in hypervigilance for external cues that may trigger intrusive recollections of the traumatic event and thus lead to misappraisals and subsequent exaggerations of painful experiences.
among those reporting some chronic pain experience, which is particularly striking given that these were relatively healthy young adults. Poor sleep in such individuals may lead to a cycle of depressed mood, pain, and maladaptive responses to stress.

332) Abstract 1064

ANGER MANAGEMENT STYLE, ATTENTIONAL BIAS, AND ACUTE PAIN: PRELIMINARY TEST OF AN INFORMATION PROCESSING MODEL FOR ANGER SUPPRESSORS

Justin T. Matsuura, MS, Wesley P. Gilliam, MS, Phillip J. Quartana, PhD, John W. Burns, PhD, Psychology, Rosalind Franklin University of Medicine and Science, North Chicago, IL

Although anger regulation styles (trait anger-in; trait anger-out) have been linked to both chronic and acute pain intensity, the processes by which these variables affect pain may differ. The Ironic Processing Model suggests a paradoxical increase in the accessibility of to-be-suppressed thoughts during attempts to suppress. Accordingly, those high on anger-in should demonstrate a shift in attention bias over time such that they would direct attention away from pain stimuli initially, but then direct attention towards such stimuli later. Those low on anger-in should not show an attention bias shift over time, nor should high anger-outs show such effects. A sample of 89 healthy normals underwent 4-min forearm ischemia while engaging in a modified dot-probe task using sensory pain-neutral stimulus word pairs. Four 1-min trial blocks were used. Attention biases to sensory pain words were computed. The Spielberger Anger Expression Inventory tapped anger-in and anger-out. Repeated measures regressions revealed an Anger-out x Block effect, F(3, 261) = 2.70, p<.05. Median splits were used to illustrate effects. By the 2nd block, high anger-ins revealed attention biasing away from pain stimuli. This effect continued until the 4th block when their attention became directed toward pain stimuli. Low anger-ins demonstrated attention bias towards pain stimuli by the 2nd block, which continued until the 4th block. The Anger-out x Block effect was nonsignificant. Results support our notion that those who tend to suppress anger appear to cope with pain by focusing away from such stimuli initially; a process which may then result in a later "rebound" effect. Such a pattern of shifting attention bias was not found for high anger-outs, suggesting that these people may use different cognitive processes when faced with pain.

333) Abstract 1365

THE EFFECT OF WEIGHT LIFTING VIDEO PRIMES ON ANTICIPATED PAIN AND HARM RATINGS IN PARTICIPANTS WITH HIGH AND LOW PAIN-RELATED FEAR

Zina Trotz, M.S., Ohio University Psychology Department, Danielle M. Degnovoio, B.S., Physical Therapy Department at Ohio University, Christopher R. France, Ph.D., Ohio University Psychology Department, Ohio University, Athens, Ohio

The current study examined the effect of video-primes showing individuals exerting great strain or sustaining injury while weightlifting on participants with high and low levels of pain-related fear. The sample included 30 healthy participants (15 males, 15 females, mean age 18.9 yrs) classified as High or Low Fear based on responses to the Tampa Scale of Kinesiophobia (a measure of fear of pain and injury due to movement). Participants rated the anticipated pain and harm of 20 photographs depicting common physical activities (the Photograph of Activity Identifying Scale, or PHODA) while viewing a 3-minute video compilation. All footage was obtained from YouTube and related sources. In response to the video prime, all participants showed increases in pain, F(1, 24) = 14.11, p = .01, and harm, F(1, 26) = 34.36, p < .01, ratings. Prior to viewing the video prime, there were no significant differences between high- and low-fear participants' pain, F(1, 28) = 1.84, p < .05, and harm, F(1, 27) = 2.3, p > .05, ratings. Following the video, those with high kinesiophobia reported greater pain, F(1, 28) = 4.21, p < .05, and harm, F(1, 29) = 4.24, p < .05, ratings than those with low kinesiophobia. The current results provide preliminary evidence for the utility of video stimuli as ecologically- valid threat cues. Additionally, the results provide the first evidence for the PHODA instruments' ability to capture elevations in pain and harm ratings over time, further differentiating responses of high and low-fear participants.

334) Abstract 1459

ILLNESS PERCEPTIONS AS PREDICTORS OF PAIN RELATED DISABILITY AND MOOD IN CHRONIC OROFACIAL PAIN PATIENTS. A 6-MONTH FOLLOW-UP STUDY

Ursala Galli, MSc, Psychology, Dominik A. Ettlin, MD, Sandro Palla, DDS, Dentistry, University of Zurich, Zurich, Switzerland, Ulrike Ehert, PhD, Psychology, University of Zurich, Zurich, Switzerland, Jens Guch, PhD, Psychology, University of Zurich, Zurich, Switzerland

Aim of Investigation: In our study we examined if and to which extent illness perceptions predict treatment outcome in the context of other clinical predictors in order to determine the relative contribution of each in patients with chronic orofacial pain in a 6-month follow-up period. Methods: 152 consecutive patients attending treatment at the orofacial pain unit completed the Illness Perceptions Questionnaire (IPQ-R) and the German pain questionnaire (DSF) including measures of pain intensity (VAS), the Graded Chronic Pain Scale (GCPS) and the Hospital Anxiety and Depression Scale (HADS) before, 3 and 6 months after treatment. Stepwise linear regression analysis was performed. Results: Significant symptom reduction between baseline to 6-month follow-up was found for pain intensity (VAS), pain related disability (GCPS), depression and anxiety (HADS). Pain related disability (IPQ-R) at 3-month follow-up was negatively associated with high pain catastrophizing, R2 change=.09, p<.001, but the degree of mediation was significant (Sobel=1.89, p=.05). For chronic pain patients, PTSD symptoms were no longer significant predictors of pain interference when PTSD symptoms were controlled, a and thus mediation was not pursued. PTSD symptoms were significant predictors for treatment outcome. Treatment of orofacial pain should include psychological interventions focusing on the modification of patients pain related negative beliefs and worries.

335) Abstract 1191

PAIN HELPLESSNESS MEDIATES THE RELATIONSHIP BETWEEN PTSD SYMPTOMS AND PAIN INTERFERENCE AMONG CHRONIC PAIN PATIENTS

Jessica Gerfen, MS, Kristin L. Somar, MA, John Burns, PhD, Psychology, Rosalind Franklin University of Medicine and Science, North Chicago, IL

Chronic pain patients tend to report interference due to pain in many aspects of everyday functioning (e.g., family, leisure time, work). Such interference may be greatest among patients who develop PTSD symptoms subsequent to traumatic events. PTSD symptoms inspired by traumatic events may lead to maladaptive views of pain, such as beliefs that patients are helpless to cope with pain or that pain is an overwhelming catastrophe, which, in turn, can affect patients' everyday functioning. 249 chronic pain patients completed the PTSD Checklist, Pain Catastrophizing Scale, Pain Helplessness Inventory, and the West Haven Yale Multidimensional Pain Inventory. PTSD symptoms correlated with pain interference (r=.32, p<.001), Pain Catastrophizing scores, (r=.52, p <.001) and with Pain Helplessness scores (r=.17, p<.05). Regressions revealed that Pain Catastrophizing scores were no longer significant predictors of pain interference when PTSD symptoms were controlled, and thus mediation was not pursued. However, regressions showed that Pain Helplessness scores were still significant predictors of pain interference with PTSD symptoms controlled (beta=.03, p<.001). PTSD symptoms did account for unique variance in pain interference with Pain Helplessness scores controlled (R2 change=.09, p<.001), but the degree of mediation was significant (Sobel=1.89, p<.05). For chronic pain patients, PTSD symptoms co-occurring in traumatic events may interfere with everyday functioning partially
through the effect such symptoms may have in increasing patients' beliefs that they are helpless to control their pain. Although related, PTSD symptoms and high levels of pain catastrophizing appear to have independent effects on interference with daily functioning.

336) Abstract 1628
INVESTIGATION OF HEART RATE VARIABILITY CHANGE DURING RELAXATION THERAPY USING WAVELET TRANSFORM
Hiroe Kikuchi, MD, PhD, Kazuhiro Yoshieuchi, MD, PhD, Psychosomatic Medicine, Yoshizuru Yamamoto, MD, PhD, Physical and Health Education, Akira Akabayashi, MD, PhD, Psychosomatic Medicine, the University of Tokyo, Bunkyo-ku, Tokyo, JAPAN
Relaxation therapy (RT) has been suggested to be effective in treating tension-type headache (TTH). Although some previous studies have suggested that RT has an effect on autonomic nervous function and the alliance between patient and provider is associated with improvements in pain. The evidence for psychosocial interventions are similar to that of a pharmacological-only approach to pain. In conclusion, psychosocial treatments combined with pharmacotherapy are effective in treating chronic pain, and in particular, CBT. More research is needed to allow for more specific recommendations for various chronic pain syndromes.

338) Abstract 1340
MIGRAINE ATTACKS AND PHYSICAL ACTIVITY: AN ACTIGRAPHIC STUDY
Shuji Inada, MD, Kazuhiro Yoshieuchi, MD, PhD, Stress Sciences and Psychosomatic Medicine, The University of Tokyo, Tokyo, Japan, Masahiro Hashizume, MD, PhD, Psychosomatic Medicine, Toho University, Tokyo, Japan, Hiroe Kikuchi, MD, PhD, Educational Physiology Laboratory, The University of Tokyo, Tokyo, Japan, Koji Tsuob, MD, PhD, Psychosomatic Medicine, Toho University, Tokyo, Japan, Yoshizuru Yamamoto, PhD, Educational Physiology Laboratory, Akira Akabayashi, MD, PhD, Stress Sciences and Psychosomatic Medicine, The University of Tokyo, Tokyo, Japan
Migraine is one of the most common primary headaches. One important characteristic is avoidance of routine physical activity. However, disturbance in physical activity has been assessed by self-report in most previous studies. Recently, objective methods such as accelerometry have been developed to assess physical activity (PA).

The aim of the present study was to evaluate the influence of migraine on physical activity in natural settings using actigraphy and an ecological momentary assessment (EMA) technique. Participants were 26 adult patients with migraine. The participants were asked to wear an actigraph on their wrist for recording physical activity continuously and to record migraine attacks and headache intensity with an electronic diary implemented into personal digital assistant (PDA) for consecutive four weeks. Signal-contingent recordings and event-contingent recordings (when they had migraine attacks) were performed. Mean activity levels were calculated as averaged acceleration counts per minute for the four periods; 1) 60 to 30 minutes before migraine attacks (B2), 2) 30 to 0 minutes before attacks (B1), 3) 0 to 30 minutes after attacks (A1), 4) 30 to 60 minutes after attacks (A2). Multilevel analysis was performed to investigate the within-individual relationship between migraine attacks and objectively measured physical activity. In addition, the association between headache intensity and reduction of physical activity was investigated using multilevel analysis. Twenty-three of 26 patients recorded 128 migraine episodes. In the daytime, physical activity counts between 30 to 60 minutes after migraine attacks were significantly lower than before migraine attacks (43.7 counts/min in "B2 - A2" , p< .001; 46.6 counts/min in "B1 - A2" , p= .0025). There was no significant linear association between momentary headache intensity and reduction of physical activity counts. In conclusion, it is confirmed objectively using actigraphy and EMA that migraine attacks reduce physical activity. Further studies on the relationship among psychosocial factors, headache, and physical activity are needed.

339) Abstract 1425
NEURAL CORRELATES OF PAIN PERCEPTION IN PATIENTS WITH MULTISOMATOFORM DISORDER
Michael Noll-Hussong, MD, Psychosomatic Medicine, Alexander Otto,, Neurology, TU Muenchen - Klinikum rechts der Isar, Muenchen, Bayern, Germany, Jean Decety,, Psychology, The University of Chicago, Chicago, IL, AD, Psychiatry, SUNY Upstate Medical University, Syracuse, NY, Chris Faubel, MD, Physical Medicine & Rehabilitation, Louisiana State University, New Orleans, LA, Adecako O. Aido, MD, Psychiatry, SUNY Upstate Medical University, Syracuse, NY
Chronic pain effects between 11-44% of adults in North America and involves significant financial and social costs. Pharmacologic interventions, such as non-steroidal anti-inflammatory drugs, muscle relaxants and opioids, are first line interventions. Medications can be effective for acute pain, but are often partially effective for moderate to severe chronic pain, and may have a plethora of side effects.

A multidisciplinary approach is often necessary for complicated and chronic pain syndromes. We reviewed the literature to determine the level of evidence for psychosocial techniques alone or in combination with pharmacological interventions in the treatment of pain. Exercise, biofeedback, relaxation techniques, various psychotherapies and other modalities used in pain reduction techniques. The strongest evidence favors a comprehensive approach to pain management, particularly with Cognitive Behavioral Therapy (CBT).

CBT has been shown to improve mood, decrease pain, improve fatigue and sleeplessness, as well as increase physical functioning and stress management. CBT helps patients examine their maladaptive cognitions and behaviors and develop appropriate coping skills. Treatment of patients' co-morbid medical and psychiatric disorders is crucial to success in treating pain, as anxiety and depression have been shown to exacerbate pain syndromes. Combinations of education, Operant Behavioral Therapy (OBT), self hypnosis and exercise are techniques with evidence of efficacy. OBT uses conditioning of behaviors through positive and negative reinforcement. OBT and CBT focus on factors that exacerbate and maintain suffering in chronic pain. The strength of the evidence between patients and providers is associated with improvements in pain. The evidence for psychosocial interventions are similar to that of a pharmacological-only approach to pain. In conclusion, psychosocial treatments combined with pharmacotherapy are effective in treating chronic pain, and in particular, CBT. More research is needed to allow for more specific recommendations for various chronic pain syndromes.

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share the feeling of pain of other individuals overlap with the so-called pain matrix (insula, somatosensory cortex, middle ACC) that mediates the process of one’s own pain. In this ongoing fMRI study we compared patients with multisomatiform pain disorders with age- and gender-matched healthy controls showing them pictures of human limbs in different painful situations asking the participants to take the self-perspective. A 3 Tesla Philips Achieva high field magnetic resonance scanner is used to obtain the fMRI data, analysis is done using SPM5 (threshold: puncorrected < 0.001). After the scan the test persons fix their appraisal of the pain strength on a scale from 0 (no pain) to 9 (worst pain). In the control group we could reproduce the results of former studies concerning the activations of the pain matrix. In comparison to our patients the controls ascribe higher pain intensity to the pain pictures during the post-scan interview. As a neural correlate a significantly higher (p[corrected] < 0.05, cluster level) activation in the frontal ACC appears in the control group compared with the patient group when exposed to the pain pictures. This group difference may reflect the fact that somatoform patients are not able to access and process self-relevant information as well as controls.

340) Abstract 1353
EFFECTIVENESS OF AN INTERDISCIPLINARY REHABILITATION PROGRAM AMONG CHRONIC BACK PAIN PATIENTS ACROSS THE LIFE COURSE
Derek G. Turesky, M.A., Psychological & Quantitative Foundation, University of Iowa, Iowa City, IA, Valerie Keffala, Ph.D., Orthopaedics & Rehabilitation, University of Iowa Hospitals & Clinics, Iowa City, IA, Benjamin Tallman, B.A., Psychological & Quantitative Foundation, University of Iowa, Iowa City, IA

In this ongoing 6-month study, it is estimated to affect up to 85% of individuals at some point in their lives and lead to lost wages and health costs exceeding 100 billion dollars annually. Interdisciplinary programs have been developed as treatments and shown promising results. However, there is limited work examining the effectiveness of interdisciplinary chronic back pain treatment across the lifespan. The present study explored the effectiveness of a 2-wk interdisciplinary rehabilitation program among chronic back pain patients aged 4 age groups: 1. <=35yrs (n=57); 2. 35-45yrs (n=63); 3. >45-55yrs (n=59); & 4. >55yrs (n=32). This program included psychological interventions based on behavioral medicine models, cardio & functional physical therapy, vocational counseling, and educational lectures. Patients completed scales for depression (Beck Depression Inventory-2: BDI-2), health-related quality of life (Mental component summary (MCS) & Physical component summary (PCS) subscales of Health Status Questionnaire-2:HSQ-2), and physical therapy functional measures (squat lift) at baseline, after program completion, and at 1mo, 3mo, & 6mo follow-up. Results revealed that patient aged <=35yrs & between 45-55yrs reported the most psychological & physical benefits compared to other age groups. These 2 patient groups reported sig. reductions in depression (all p’s <.05), health-related quality of life (PCS & MCS; all p’s <.05), and functional squat lifts measures (all p’s <.05). The compared to baseline scores at program completion and throughout each follow-up time point. Patients aged 35-45yrs did most poorly compared to other age groups. Although, these patients reported significant reductions in depression (p <.001) and improvements in mental health-related quality of life (MCS; p <.01) at program completion compared to baseline, they did not sustain these psychological benefits over time (n.s.). Also, these patients did not show sig. improvements of physical functional improvements as measured by the squat lift (n.s.).

341) Abstract 1514
ANGER SUPPRESSION AND PAIN RECOVERY IN ASIANS AND CAUCASIANS: A PRELIMINARY ANALYSIS
Justin T. Matsura, MS, Psychology, Rosalind Franklin University of Medicine & Science, North Chicago, IL, Lisa A. Sanchez-Johnsen, PhD, Psychiatry & Behavioral Neuroscience, The University of Chicago, Chicago, IL, Wesley P. Gilliam, MS, Nancy J. Beckman, MS, John W. Burns, PhD, Psychology, Rosalind Franklin University of Medicine & Science, North Chicago, IL

Trait anger suppression (anger-in) has been linked to both chronic and acute pain in several ways. The possibility that anger-in may affect pain differently across ethnic groups has not been widely considered, despite evidence that emotional inhibition is linked to differences in stress reactivity and illness across ethnic groups. Among Asians in general, restraint of strong feelings is an often-cited cultural value. It is not clear, however, whether anger-in functions as an adaptive or maladaptive emotion regulation style for Asians. The aim of this study was to examine recovery from an acute pain-induction task in Asians and Caucasians. We hypothesized that anger-in would affect pain recovery differently for Asians and Caucasians. Specifically, if high anger-in is adaptive for Asians, then they would show a quicker pain recovery than Caucasians. A sample of 22 Asian and 62 Caucasian healthy normals participated in a 4 min forearm ischemia pain task followed by a 2 min recovery period. Anger suppression style was assessed by the Anger-in subscale (AIS) of the Anger Expression Inventory. Repeated measures GLM procedures revealed an Anger-In x Ethnicity x Period interaction [F(4,156)= 3.02; p<.05]. Tertile splits of AIS scores were used to illustrate the interaction. Results revealed that among Asians, as anger-in increased, pain recovery became more prolonged. Pain recovery for Asians was found to be slower than Caucasians overall, regardless of the level of anger-in. Anger-in did not significantly affect pain recovery for Caucasians. Results provide preliminary support for the notion that anger suppression style may contribute to differences in pain recovery in Asians and Caucasians. Future studies are warranted to explore the relationship between anger suppression and pain recovery in Asians of diverse ethnic backgrounds.

342) Abstract 1116
BLUNTED OPIATE MODULATION OF PROLACTIN SECRETION DURING REST AND IN RESPONSE TO STRESS IN SMOKING MEN AND WOMEN
Darryl D. Shaw, BS, Medical School, University of Minnesota, Roseville, MN, Mustafa al’Absi, PhD, Department of Behavioral Medicine, University of Minnesota, Duluth, MN

Endogenous opioids are integral in modulating drug reward, and their effects may be mediated by activities of the dopaminergic pathway and the hypothalamic-pituitary-adrenocortical (HPA) axis. Prolactin is directly regulated by dopamine and may be a marker of dopaminergic acute stress response. Nicotine dependence may reflect dopaminergic inhibitory effects. This study was developed to examine how nicotine dependence alters endogenous opioid regulation of prolactin secretion. Smokers and nonsmokers completed two sessions during which placebo or 50 mg of naltrexone was administered, using a double-blind, counterbalanced design. Blood and saliva samples, as well as cardiovascular and mood measures were obtained during a resting absorption period, after exposure to two noxious stimuli (cold pressor and thermal pain), and during an extended recovery period. We showed opioid blockade to increase prolactin response with additional augmentation from noxious stimulus (p < 0.05). These responses were attenuated in smokers relative to nonsmokers (p < 0.05). There was also gender disparity in prolactin response, with women showing a stronger response to endogenous opioid modification than men. (Supported by a pilot grant from the Minnesota TTURC grant DA013333, NIH grants CA08272 and DA016351)

Topic: Stroke/Cerebrovascular Disease

343) Abstract 1126
VASCULAR HEALTH AND CEREBRAL HYPERINTENSITIES AMONG MIDDLE-AGED AND OLDER ADULTS WITH MAJOR DEPRESSION
Patrick J. Smith, MA, James A. Blumenthal, PhD, Michael A. Babcock, PhD, P M. Doraiswamy, MD, Lana L. Watkins, PhD, Psychiatry and Behavioral Sciences, Duke University, Durham, NC, Alan Hindleriter, MD, Cardiology, UNC-CH, Chapel Hill, NC, Benson M. Hoffman, PhD, David C. Steffen, MD, Andrew Sherwood, MD, Psychiatry and Behavioral Sciences, Duke University, Durham, NC

Background: Cerebral hyperintensities occur frequently in individuals with cerebrovascular risk factors and are particularly common among adults with a later onset of major depression (MDD); however, this relationship has not been examined among middle-aged and older adults with MDD. We therefore investigated the relationship between vascular indices of vascular health, including carotid intima-media thickness (IMT), cerebrovascular risk factors, and cerebral
hyperintensities, as well as age of first depressive episode, in a sample of 30 middle-aged and older adults (10 men, 20 women; aged 55 – 77) with MDD. Methods: Cerebrovascular risk factors were indexed by the Framingham Stroke Risk Profile and vascular function was indexed by carotid artery IMT. Thirty patients participated in a magnetic resonance imaging assessment to assess for the presence of white and gray matter cerebral hyperintensities. Results: Higher Framingham Stroke Risk Profile scores were associated greater white matter hyperintensities (WMH) (P = .004) and subcortical gray matter hyperintensities (P = .01). Higher levels of IMT tended to be associated with more periventricular WMH (P = .067). Greater WMH were associated a later age of first depressive episode (P = .044). Conclusions: Greater cerebrovascular risk factors and higher levels of IMT were associated with greater cerebral hyperintensities among middle-aged adults with MDD. Greater WMH also were associated with a later onset of depression.

344) Abstract 1600
C-REACTIVE PROTEIN COVARIATES INVERSELY WITH WHITE MATTER VOLUME IN MIDDLE-AGED ADULTS
A M. Remo, MS, Psychiatry, A L. Marsland, PhD, Psychology, L K. Sheu, PhD, Psychiatry, S B. Manuck, PhD, Psychology, A R. Hurrii, PhD, Psychiatry, J C. Muldoon, MD, Psychiatry, P J. Gianaros, PhD, Psychiatry, University of Pittsburgh, Pittsburgh, PA
Emerging epidemiological findings suggest that C-reactive protein (CRP) is not only associated with risk for incident cardiovascular disease, but also alterations in gross brain morphology, such as qualitative and observer-coded indicators of ischemic white matter (WM) lesions. However, it is unknown whether CRP levels covary with quantitative aspects of brain morphology, such as regional variation in WM volume. Here, we used a computational structural neuroimaging method (voxel-based morphometry) to examine the inter-individual covariation between plasma CRP levels and regional WM volume in 68 otherwise healthy community volunteers (28 male) aged 32-54 years. In whole-brain multiple regression analyses controlling for total WM volume and implemented in Statistical Parametric Mapping software, CRP covaried inversely with regional WM volume in the anterior medial frontal gyros (Montreal Neurological Institute x,y,z coordinates: 18,35,33), two areas of the posterior medial frontal gyros (12,1,54 and 16,15,62), postcentral gyros (27,-42,46), and gyrus rectus in the prefrontal cortex (8,34,18) (t=3.0, uncorrected p<0.002). Moreover, in supplemental regression models, associations between CRP and extracted WM volumes in these areas withstood adjustment for several factors, including age, sex, race, years of education, waist circumference, resting systolic blood pressure, smoking, and alcohol use (CRP-WM semi-partial r=0.232, p=0.035). These observations converge with qualitative work on CRP and WM integrity and provide further evidence for a relationship between inter-individual variation in peripheral inflammation and central alterations in brain morphology.

345) Abstract 1477
GENDER DIFFERENCES IN THE ENDORSEMENT OF SYMPTOMS FOR DEPRESSION POST-STROKE: A PROSPECTIVE STUDY
Cynthia Doleszar, BA, Department of Psychology, Concordia University, Montreal, QC, Canada, Sydney Miller, PhD, Department of Psychology, Concordia University, Montreal, Quebec, Canada, Nancy Meunier, PhD, Department of Medicine, Finch, PhD, School of Physical and Occupational Therapy, McGill University, Montreal, Quebec, Canada
Depression occurs in up to 60% of stroke survivors. Post-stroke depression (PSD) is associated with poor functional prognosis and decreased quality of life and is thus recognized as a critical factor in stroke treatment and recovery. It is unclear whether men or women exhibit a greater incidence of PSD. Methodological issues and timing of assessment may explain why studies have yielded conflicting results regarding gender differences in PSD. The objective of the current study was to examine the endorsement of depressive symptoms according to gender over a one-year period in a sample of stroke survivors. Participants (n=89) were from an ongoing prospective study carried out to ascertain the dynamic pattern of depressive symptoms post-stroke. Depressive symptoms were evaluated by the Geriatric Depression Scale (GDS) and the Mental Health Inventory (MHI) of the Medical Outcomes Study 36-item Short Form. Depressive symptomatology was assessed at 5 time points: 8 days, 3, 6, 9 and 12 months post-stroke. The sample included 39 women and 50 men, ranging from 27 to 94 years of age (X=71). Results revealed no significant gender differences in self-reported depressive symptoms at 8 days, 3, 6, 9 or 12 months post-stroke as measured by the MHI (p>.05) or by the GDS (p>.05). Men and women were found to endorse depression items similarly at each time point. These findings suggest that gender may not be an important factor to consider in research or the treatment of PSD. The question of why this study failed to reveal gender differences while others have may need to be clarified.

346) Abstract 1152
HOPELESSNESS IS ASSOCIATED WITH MRI-DERIVED SUBCLINICAL NEUROVASCULAR DISEASE AMONG HEALTHY OLDER ADULTS
S. Carrington Rice, MA, Megan M. Hassey, MS, Psychology, University of Maryland Baltimore County, Baltimore, MD, David M. Lefkowitz, MD, Diagnostic Radiology, University of Maryland School of Medicine, Baltimore, MD, Leslie I. Katzle, MD/PhD, Geriatric Research Education and Clinical Center, Baltimore VA Medical Center, Baltimore, MD, Eliot L. Siegel, MD, Diagnostic Radiology, University of Maryland School of Medicine, Baltimore, MD, William F. Rosenberger, PhD, Statistics, George Mason University, Fairfax, VA, Shari R. Waldstein, PhD, Psychology, University of Maryland Baltimore County, Baltimore, MD
Relations between depression and neurovascular disease are well established. Yet, little to no research has investigated whether hopelessness, a correlate of depression, is associated with neurovascular disease. Further, whether hopelessness relates to neurovascular disease on a subclinical level remains to be determined. Here we examine hopelessness and subclinical neurovascular disease among 76 older adults (49% male; mean age=66 years) free of major medical, neurologic, and psychiatric disease. Participants completed the Beck Hopelessness Scale and underwent magnetic resonance imaging (MRI). MRI scans were rated by a board certified neuroradiologist for measures of subclinical neurovascular disease through analysis of the following: presence of white matter hyperintensities, number of infarcts, and deep white matter hyperintensities, number of infaracts) and brain atrophy (BA: ventricular enlargement, sulcal widening). We created 2 rank-sum variables (SND, BA) that served as primary outcome variables. On average, participants reported relatively low levels of hopelessness (M=2.3, SD=2.5, range= 0-16). Multiple regression analyses, adjusted for age, sex, education, systolic blood pressure, glucose, maximal oxygen consumption, body mass index, average weekly alcohol consumption, and Mini Mental State Examination performance, revealed a significant positive association between hopelessness and degree of subcortical neurovascular disease (b=11.9, p<0.01). Hopelessness was not related to brain atrophy (b=1.2, p=.62). Thus hopelessness, even in a subclinical range, was significantly associated with MRI-derived indices of subcortical neurovascular disease, but not brain atrophy, in the present sample of healthy older adults. These findings extend the known link between depression and neurovascular disease to hopelessness and subclinical neurovascular disease.

Topic: Miscellaneous

347) Abstract 1771
CUMULATIVE EXPERIENCE OF SOCIOECONOMIC ADVERSITY AND MULTI-SYSTEM PHYSIOLOGICAL DYSREGULATION
Tara L. Gruenewald, Arun S. Karlamangla, Dana Miller-Martinez, Teresa E. Seeman, Medicine/Geriatrics, University of California, Los Angeles, Los Angeles, CA
A large body of research suggests that both childhood and adult socioeconomic status (SES) is inversely associated with physical health. However, the biological underpinnings of this relationship remain to be elucidated. The current study examines levels of dysregulation in multiple physiological systems as a function of cumulative indices of SES adversity across childhood and adulthood. Data come, from 938 (45% male; mean age =58) participants of the Biomarker Substudy of the Study of Midlife in the U.S. Two measures
of cumulative SES adversity were constructed: (1) A count score using low parental education and income, and participant income at two timepoints (10-years apart); and (2) A history variable reflecting patterns of childhood and adult SES (high-high, low-low, high-low, low-high). Five system indices of physiological dysregulation (blood pressure, heart rate variability, inflammation, metabolic, stress hormones) were computed by summing the number of biomarkers for each system (25 biomarkers across the systems) for which participant values fell into high-risk quartiles. Levels of physiological dysregulation significantly varied for inflammatory, metabolic and hormone systems, but not blood pressure and heart rate variability measures, as a function of both the cumulative count (linear trend p's < .05) and SES history predictors (omnibus F test p's < .05). Dysregulation scores were higher in those with higher levels of cumulative SES adversity. Examination of SES history patterns indicated that levels of physiological dysregulation were generally lowest in those with consistently high SES and highest in those with consistently low SES. Past experience of high SES slightly buffered the negative impact of current low SES, while past experience of SES adversity had a negative impact on levels of physiological dysregulation in those of current high SES. These findings suggest that SES adversity experienced across the lifetime may be associated with poor functioning of physiological regulatory systems involved in many diseases for which there are known SES gradients.

A large literature suggests there are gender differences in physiological responses to laboratory stressors. Additionally, interpersonal personality traits, particularly those related to hostility and dominance, have also been associated with stress reactivity. Recent models of self-regulation highlight the importance of examining parasympathetic activity during stress. The current study examined gender, interpersonal circumplex traits (the 8 octants of the circumplex derived from the NEO PI-R), and phasic respiratory sinus arrhythmia (RSA) during stress. Systolic and diastolic blood pressure (SBP, DBP) and continuous ECG and respiration were measured in ninety-nine undergraduates (49% male, mean age = 22) during the Social Competence Interview, a well-validated laboratory task for evoking physiological reactivity. Gender was not significantly associated with RSA change (controlling for resting RSA and respiration), p > .05. However, hostile dominance was associated with RSA increase during stress (B = .21, p = .03) and dominance was associated with RSA decrease (i.e., vagal withdrawal; B = -.21, p = .02). The hostile dominance finding was qualified by a gender x hostile dominance interaction (B = -.22, p = .02): hostile dominance was associated with an increase in RSA for men (B = .41, p = .005), but not for women (B = -.02, ns). Findings suggest that hostile dominance in men is associated with increased regulatory effort during stressful interactions. These findings highlight the importance of examining the interactive effects of gender and interpersonal traits on stress regulation.

**348) Abstract 1104**

**COPING FLEXIBILITY AND RATE OF PSYCHOPHYSIOLOGICAL RECOVERY FROM A COLD PRESSOR TASK**

Jessica K. Gerfen, M.S., Psychology, Rosalind Franklin University of Medicine and Science, North Chicago, IL, Brian Schmaus, M.S., Psychology, Rosalind Franklin University of Medicine and Science, North Chicago, IL

Adjusting coping strategies to effectively meet the specific demands of the stressor (coping flexibility) has been shown to facilitate recovery. Delayed recovery from stress has been shown to have damaging effects over time on physical health. Coping flexibility may be one mechanism which can impede or facilitate recovery. However, this relationship has not yet been examined. The current study examined whether coping flexibility (measured with the Flex) impacted the rate of psychophysiological (distress, heart rate[HR], systolic (SBP) and diastolic blood pressure[DBP]) recovery from a stressful task. 121 healthy participants underwent a 90-sec cold pressor task. Distress ratings were taken at baseline, immediately after task, and every 90-sec during the 7-min recovery period. Physiological readings were taken every 60-sec. Due to missing data, recovery data were averaged into 2-min segments. Coping flexibility was not significantly correlated with reactivity data(r's<.05). Reactivity was controlled in all recovery analyses due to significant relationships between reactivity and recovery data(r's> .19). General Linear Modeling yielded no significant main effects of coping flexibility for post-stressor recovery of any of the dependent variables (HR, F(1,117)=49, p=.00; SBP, F(1,117)=58, p=.48; DBP, F(1,116)=41, p=.53; distress, F(1,99)=3.60, p=.06). Coping flexibility x time interactions were non-significant for HR (F(3,351)=17, p=.02); SBP (F(1,166)=17, p=.02); DBP (F(1,173)=200.49)=1.58, p=.21); or distress (F(1,23)=124.29)=2.02, p=.15). Results suggest that coping flexibility had no beneficial effects for psychophysiological recovery. Given the theoretical underpinnings of coping flexibility, this finding is contrary to expectations. The findings suggest that the current understanding of coping flexibility may need additional research to further clarify its potential differential effects on psychophysiological adjustment.

**350) Abstract 1481**

**CORTISOL REACTIVITY TO STRESS PREDICTS TENDENCIES TO RUMINATE**

Desiree J. Ziedeke, M.S., Psychology, Indiana University-Purdue University Indianapolis, Indianapolis, Indiana, Clayton J. Hilmer, Ph.D., Psychology, North Dakota State University, Fargo, ND

Because post-stress rumination has been associated with slower cardiovascular recovery, which has health-deleterious implications, identifying factors that predict rumination may be an important next step in understanding how stress affects health. In past studies, rumination was not associated with cardiovascular reactivity to stress. However, because cortisol reactivity has been shown to be a specific stress-inducing components of laboratory studies, such as the evaluative nature of a study (Dickerson & Kemeny, 2004), we hypothesized that cortisol reactivity would predict specific post-stress thoughts. To test this hypothesis, undergraduates (N=145; 59 females) gave a 5-minute speech to an opposite-sex confederate. Reactivity was calculated by subtracting pre-task salivary cortisol from levels assessed 30 minutes post-task. Following a 15-minute recovery period, participants wrote about specific thoughts they had post stressor. Blind raters assessed whether these thoughts were stressor-related and whether they were positive, negative, or neutral. Results indicated that overall there was a marginally significant increase in cortisol (0.17 nmol/L; p<.10, one-tailed) and participants reported an average of 3.65 (SD=2.75) post-stress thoughts. Cortisol reactivity of male participants was positively associated with the tendency to have post-stress related thoughts (p=.05) and particularly with negative speech-related thoughts (p=.01). The cortisol reactivity of female participants was negatively associated with the tendency to report post-stress thoughts unrelated to the stressor (p<.01), especially when these unrelated thoughts were positive or neutral (p=.04). These findings suggest that in men higher cortisol reactivity to stress predicts more negative thoughts about the stressor whereas in women it predicts fewer unrelated thoughts. It appears that in terms of cortisol reactivity, men who are most stressed tend to have more traditional negative ruminations. On the other hand, women who are most stressed do not have more negative ruminations but tend to have fewer unrelated, possibly distracting post-stress thoughts than women who are less stressed.

**349) Abstract 1177**

**GENDER MODERATES THE EFFECTS OF HOSTILE DOMINANCE ON PHASIC RESPIRATORY SINUS ARRHYTHMIA DURING STRESS**

Heather E. Quinn, M.S., Psychology, University of Utah, Salt Lake City, Utah, Paula G. Williams, Ph.D., Matthew Cribbet, B.S., Cameron Curtiss, B.S., Holly Rau, B.S., Psychology, University of Utah, Salt Lake City, UT

A large literature suggests there are gender differences in physiological responses to laboratory stressors. Additionally, interpersonal personality traits, particularly those related to hostility and dominance, have also been associated with stress reactivity. Recent models of self-regulation highlight the importance of examining parasympathetic activity during stress. The current study examined gender, interpersonal circumplex traits (the 8 octants of the circumplex derived from the NEO PI-R), and phasic respiratory sinus arrhythmia (RSA) during stress. Systolic and diastolic blood pressure (SBP, DBP) and continuous ECG and respiration were measured in ninety-nine undergraduates (49% male, mean age = 22) during the Social Competence Interview, a well-validated laboratory task for evoking physiological reactivity. Gender was not significantly associated with RSA change (controlling for resting RSA and respiration), p > .05. However, hostile dominance was associated with RSA increase during stress (B = .21, p = .03) and dominance was associated with RSA decrease (i.e., vagal withdrawal; B = -.21, p = .02). The hostile dominance finding was qualified by a gender x hostile dominance interaction (B = -.22, p = .02): hostile dominance was associated with an increase in RSA for men (B = .41, p = .005), but not for women (B = -.02, ns). Findings suggest that hostile dominance in men is associated with increased regulatory effort during stressful interactions. These findings highlight the importance of examining the interactive effects of gender and interpersonal traits on stress regulation.
The purpose of this study was to examine the effect of gender on the relationship between multidimensional hostility and psychosomatic symptoms in Chinese participants. The participants in this study were 398 Chinese college students (40% female) recruited from Taiwan. Four dimensions of multidimensional hostility included hostility cogniton, hostility affect, expressive hostility behavior, and suppressive hostility behavior were measured with the Chinese Hostility Inventory. After controlling for the effects of depression and anxiety, the results of path analysis revealed that the four dimensions of multidimensional hostility predicted psychosomatic symptoms both directly, and indirectly through negative health behavior. Furthermore, gender moderated the relationships between multidimensional hostility and health outcomes. The moderating effects showed that not only suppressive but also expressive hostility behavior had a more negative effect on psychosomatic symptoms in females than males. Moreover, expressive hostility behavior even diminished the effect on psychosomatic symptoms in males. Conversely, hostility affect had a more negative effect on psychosomatic symptoms in males than females. With respect to negative health behaviors, females with higher suppressive hostility behaviors had a greater tendency to adopt negative health behaviors than males. The results of this study suggest that, for female Chinese college students, not only suppressive but also expressive hostility behavior is a critical predictor of psychosomatic symptoms. For male Chinese college students, the hostility affect emerged as the most important predictor of psychosomatic symptoms. A following predictor was that expressive hostility behavior was also seen to have an alleviative effect on psychosomatic symptoms.

352) Abstract 1654
THE CIRCADIAN CORTISOL SECRETION AMPLITUDE: NORMDATA FROM THE CIRCORT DATABASE
Joachim E. Fischer, Prof., Mannheim Institute of Public Health, University of Heidelberg, Mannheim, Germany, Clemens C. Kirschbaum, Prof., Biopsychology, Technical University of Dresden, Dresden, Germany, Meike Bartels, PhD, Department of Biological Psychology, Vrije Universiteit, Amsterdam, The Netherlands, Bonny Boden-Alb, Dott.D., Gunnar Lahm, M.D., Erasmus MC, Department of Child Development, University of Minnesota, Minneapolis, Megan Gunnar, PhD, Institute of Child Development, University of Minnesota, Minneapolis, MN, Meena Kumari, PhD, Department of Epidemiology and Public Health, University College London, London, Great-Britain, Chris P. Power, Centre for Paediatric Epidemiology and Biostatistics, Institute of Child Health, London, Great-Britain, Henning Tiemeier, M.D., Department of Epidemiology & Biostatistics, Erasmus MC, Faculty, Rotterdam, The Netherlands, Sarah Watamura, PhD, Child Health and Development Lab, Department of Psychology, University of Denver, Denver, CO

Background: Between-group differences in the circadian amplitude of cortisol secretion have been implicated with a variety of chronic and acute diseases and psychosocial states. Here we describe the circadian amplitude distribution and its variance partitioning from a large multi-study database. Methods: The CIRCORT dataset contains 101,924 samples from 16 independent studies on patterns of circadian cortisol secretion, which were obtained from 18,086 individuals during a large 24,599 days. The mean age of participants was 46.5 years (± 19.8 years, range 6 months to 98, 41% females). On average, participants sampled 4.1 samples per observation day. Multiple days (range 2 to 20) were collected by 3,105 subjects. The circadian dynamic was estimated from the highest value recorded within the first hour after awakening and the lowest value obtained later than 10 hours after awakening. Data were analyzed using multilevel methods (MLWin 2.02). Results: The required information was available for 19,857 days with a mean amplitude of 20.9 ± 10.7 nmol/l. The distribution was slightly skewed (median = 19.3 nmol/l). As expected, the circadian amplitude correlated strongly with the largest value obtained during the first hour after awakening (Spearman’s r = 0.91). A three-level random-intercept multilevel model (days within persons within study) attributed 55% of the variance to the day level, 28% to the subject level and 18% to the study level. This estimate remained unaltered if the logarithm of the circadian amplitude was entered as the dependent variable. Women were predicted to have a slightly lower circadian amplitude (delta = -0.7 nmol/l, p < 0.001). Conclusion: About half of the variance in the circadian amplitude is due to day-to-day variability within persons. Thus, in comparison to the post-awakening rise in cortisol (CAR) the circadian amplitude of a larger proportion of the variance is attributable to between-person characteristics.

353) Abstract 1658
CIRCADIAN CORTISOL SECRETION IN PARENTS EXPERIENCING OPEN-HEART SURGERY IN THEIR CHILD: A LONGITUDINAL REPEATED MEASURE ANALYSIS
Joachim E. Fischer, Mannheim Institute of Public Health, University of Heidelberg, Mannheim, Germany

Background: Little is known about the anticipatory change in cortisol secretion patterns during extremely stressful life events. We used scheduled open-heart surgery in the own child as an ecologically valid extreme real-life stressor. The objective of the present study was to characterize circadian secretion before, during and after the event in relation to state and trait psychosocial variables. Methods: A cohort of 57 healthy parents of children with CHD collected saliva samples on a typical resting day before surgery, on the actual day of surgery, and on a typical resting day after their child's discharge from hospital. Basal HPA activity was assessed by examining awakening cortisol and diurnal cortisol profiles. Multilevel analysis was used to analyse differences between the study sample and a reference group of working parents. Perioperative data on stressors, self-rated health, subjective stress perception at sampling. In contrast, trait anxiety and depression were unrelated to circadian cortisol secretion rates. Conclusion: The event of open-heart surgery in a child may contribute to enduring changes in HPA activity in healthy parents; this is mainly reflected in the heightened levels of cortisol immediately after awakening. Cortisol secretion under acute psychological stress on top of prolonged stress exposure may result in a marked morning rise and a tonic shift in the activity of the HPA axis towards higher cortisol secretion throughout the entire day.

354) Abstract 1486
GOAL-BASED APPRAISALS PREDICT DAILY AFFECT QUALITY AND CORTISOL ACROSS THE LIFESPAN
Christiane Hoppmann, PhD, Psychology, University of British Columbia, Vancouver, British Columbia, Canada, Fredda Blanchard-Fields, PhD, Psychology, Georgia Institute of Technology, Atlanta, Georgia

Purpose: This study targets goal-based appraisals as one specific psychological mechanism that addresses how external challenges affect the individual and influence daily stress reactions. Specifically, we predict that daily life situations that are appraised as interfering with age-related goals elicit affective and bodily stress reactions as measured by salivary cortisol. Given age-related shifts towards more social relationship goals in older adulthood, we further expect that affective and hormonal stress reactions are particularly strong when older adults encounter obstacles to their social goals. Methods: A total of 180 adults aged 20 to 80 years will provide two-week time-sampling information. A daily measurement period after awakening that reports their value as valuing, how much importance and subjective stress perception at sampling. Parallel to the collection of daily questionnaires, participants also provide saliva samples for cortisol assays. Results: Multilevel analyses on an initial subsample of 65 participants aged 20 to 80 (mean age = 50.7 years; 62 % female) show that the goal-relevance of daily activities and encounters. Parallel to the completion of daily questionnaires, participants also provide saliva samples for cortisol assays. Results: Multilevel analyses on an initial subsample of 65 participants aged 20 to 80 (mean age = 50.7 years; 62 % female) show that the goal-relevance of daily activities and encounters. Specifically, participants experiencing obstacles to their goals reported higher negative affect (p<.01) and lower positive affect (p<.01) than participants reporting goal-unrelated obstacles. Future analyses examining cortisol in the final sample will reveal if these self-report findings generalize to bodily stress reactions. Overall, first findings are in line with the assumption that we need to know how an individual interprets a specific situation based on his or her age-related goals if we want to understand individual differences in daily stress responses.
GENDER, RACE/ETHNICITY, PERSONALITY, AND INTERLEUKIN-6 IN URBAN PRIMARY CARE PATIENTS
Ben Chapman, PhD, Psychiatry, Ayesh Khan, MD, Community and Preventive Medicine, Mary Harper, BS, Psychiatry, Doug Stockman, MD, Department of Family Medicine, Kevin Fiscella, MD, Family Medicine, Jim Walton, BS, Paul Duberstein, PhD, Nancy Talbott, PhD, Jeff Lyness, MD, Jan Moynihan, PhD, Psychiatry, University of Rochester Medical Center, Rochester, NY
Gender, race/ethnicity, and personality are each markers of significant psychosocial and biological variability. Each may have implications for allostatic load (AL) and resulting inflammatory processes, yet findings regarding the association of each factor with markers of AL have been largely mixed. We investigated whether women, minorities, and those higher in Neuroticism and lower in Extraversion were at risk for elevated circulating levels of the pro-inflammatory cytokine interleukin (IL)-6 in a sample of 103 middle aged and older urban primary care patients. Regression analyses controlling for age, education, current depression levels, and chronic medical conditions revealed that women, minorities, and individuals lower in Extraversion had higher circulating levels of IL-6. Analyses of more specific personality traits revealed that the sociability and positive emotions components of Extraversion were unrelated to IL-6, but the activity facet--reflecting diurnal vigor and energy--was robustly associated with IL-6. The difference between high (+1 population Standard Deviation (SD)) and low (-1 SD) trait activity was sufficient to shift IL-6 levels beyond a previously established high risk cut-point in both white and minority women.

Men and minority primary care patients may be at higher risk for inflammation, while dispositional activity either offsets or exacerbates the effects of these other demographic factors. Future work should examine whether IL-6 levels may be reduced by boosting regular activity levels in women and minorities, who appear susceptible to greater inflammation.

356) Abstract 1293
SEX DIFFERENCES IN DIURNAL CORTISOL PATTERNS, CORTISOL AWAKENING RESPONSE AND TOTAL CORTISOL OUTPUT: RESULTS FROM THE NATIONAL STUDY OF DAILY EXPERIENCES (NSDE)
Laura C. Klein, Ph.D., Biobehavioral Health, Robert S. Stavisky, Ph.D., Gerontology Center, David M. Almeida, Ph.D., Human Development and Family Studies, Penn State University, University Park, PA
Sex differences in diurnal cortisol patterns were suggested over 20 years ago (Nicolaus et al. 1984) in an experimental paradigm with elderly participants. Although sex differences in laboratory-induced cortisol release to stress frequently are reported, the extent to which these sex differences translate into the challenges of daily life are less clear. We sought to examine sex differences in daily cortisol patterns in naturalistic settings using data from the second wave of the National Study of Daily Experiences (NSDE). A total of 1,138 participants (55% women, mean age=57 +/- 12 yrs, range=33-84) completed 8 daily diary telephone interviews about their mood, physical symptoms, and activities, and cortisol levels declined more rapidly over the course of the day compared to men (p<0.05). Thus, women displayed less total cortisol output (area under the curve; AUC) across the day compared to men (p<0.05). Results add to a growing literature describing sex differences in CAR, AUC, diurnal cortisol levels, and daily stressors (e.g., Bergman et al. 2008; Kunz-Ebrecht et al. 2004a, 2004b) with a significantly larger population. The extent to which these sex differences in cortisol patterns and output are associated with daily stressors will be discussed.

COGNITIVE FUNCTION AND THE MORNING CORTISOL RESPONSE TO AWAKENING
Martin Slivinski, PhD, Joshua Smyth, PhD, Psychology, Syracuse University, Syracuse, New York, Robert Stavisky, PhD, David Almeida, PhD, Human Development and Family Studies, Pennsylvania State University, University Park, Pennsylvania, Margie Lachman, PhD, Patricia Tan, PhD, Psychology, Brandeis University, Waltham, MA
Purpose: High levels of basal cortisol have been associated with decreased hippocampal volume and cognitive impairment. However, some research has shown positive associations of memory and hippocampal volume with the morning cortisol awakening response (CAR) in healthy young adults. The purpose of these analyses is to examine associations of hippocampal and frontal function with the CAR across the adult lifespan. Methods: Data from two studies were analyzed. The first study consists of 216 community volunteers ages 20-83 (mean=50). The second study consists of 1,156 participants (Mean Age = 57; Range = 35-84, 56% Female) from the Midlife in the United States survey, and National Study of Daily Experiences. Participants in both studies completed a battery of cognitive tests tapping hippocampal (i.e., episodic memory) and frontal lobe function (e.g., fluency, trailmaking, inductive reasoning). Average z-scores of tasks belonging to each domain were formed reflecting differences in composite scores. Participants collected saliva samples at home immediately upon awakening and 30 minutes post waking on 4 to 5 consecutive days: Results: All analyses controlled for time of waking and SES and were conducted on log transformed cortisol values. Cortisol values increased significantly from waking to 30 minutes post waking in individuals from Study 1 (15.6 nmol/l to 20.2 nmol/l, p<.01) and Study 2 (16.7 nmol/l to 23.7 nmol/l, p<.01). Study 1 showed a positive association of CAR with frontal composite scores (p<0.01) and age (p<.03), but not with the hippocampal composite (p>0.30). Study 2 confirmed this pattern of results showing higher levels of cortisol at waking and 30 minutes post waking associated with better frontal function (p<.02), and evidence that the association between the CAR and frontal function was stronger with increasing age (p<.05). These results suggest a stronger association of HPA activity with frontal compared to hippocampal cognitive function.

358) Abstract 1604
BODY MASS INDEX ACCOUNTS FOR AN INVERSE ASSOCIATION BETWEEN SOCIOECONOMIC STATUS AND SYSTEMIC INFLAMMATION: THE MIDLIFE IN THE URBAN RHYTHMS (MIUR) STUDY
Judith E. Carroll, M.S., Arci A. Prather, M.S., Jackie Fury, B.S., Kevin McDade, M.S., Diana Ross, B.S.N, R.N., Anna L. Marsland, Ph.D., R.N., Psychology, University of Pittsburgh, Pittsburgh, PA
Research on social inequalities shows an inverse relationship between socioeconomic status (SES) and markers of systemic inflammation; however, the pathway linking SES to inflammation remains unclear. Here, we examine (1) the possibility that body mass index (BMI) contributes to this association, with adipocytes being a known source of circulating inflammatory mediators, and (2) whether socioeconomic position influences the magnitude of inflammatory responses to acute psychological stress. For this purpose, 78 community volunteers (92% Caucasian, 59% female) between the ages of 40 and 60 years performed an acute stress protocol consisting of a 30-min resting baseline, a 5-min evaluative public speaking task, and a 30-min recovery period. Blood was drawn at the end of each period for the measurement of plasma interleukin (IL)-6, an inflammatory biomarker. Socioeconomic position was measured prior to the stress protocol using family income (M = $48,500, SD = $31,500). Partial correlation analyses, controlling for age, gender, and BMI, showed the expected negative correlations between family income and IL-6 (r = -.22, p = .055). Higher BMI was associated with both lower family income (r = -.22, p < .05) and higher IL-6 (r = .52, p < .001). After controlling for BMI, the association of family income with IL-6 was reduced (r = .12, n.s.), suggesting that BMI may be a source of the increased IL-6 that is associated with lower socioeconomic position. Although the acute psychological stress task was associated with a baseline-to-recovery increase in circulating levels of IL-6 (p < .05), family income was unrelated to the magnitude of this stress-induced reactivity. These findings suggest that SES may influence systemic inflammation through its association with BMI and other factors that contribute to body mass. (Supported by grant NR008237 (ALM)).
NEUROTIC HOSTILITY EXPLAINS THE ASSOCIATION BETWEEN DEPRESSIVE MOOD AND MORTALITY: EVIDENCE FROM THE FRENCH GAZEL COHORT STUDY

Cédric Lemogne, MD. CNRS UMR 7593, Pitité-Salpêtrière Hospital, Paris, France; Hermann Nahi, PhD, INSERM U687, Paul Brousse Hospital, Villejuif, France; Marie Zins, MD, RPPC Team, CETAF, Saint-Mandé, France; Sylviane Corderié, PhD, INSERM U625, Rennes 1 University, Rennes, France; Pierre Ducimetière, PhD, INSERM U258, Marcel Goldberg, MD, PhD, INSERM U657, Paul Brousse Hospital, Villejuif, France; Silvia M. Consoli, MD, PhD, C-L Psychiatry, European Georges Pompidou Hospital, Paris, France

Depressive mood is associated with mortality. Because personality has been found to be associated with depression and mortality as well, we aimed to test whether depressive mood could predict mortality when adjusting for several measures of personality. We assumed that if a personality measure partially explains the association between depressive mood and mortality, this association should be attenuated whenadjusting for this measure. 20,625 employees of the French national gas and electricity companies gave consent to enter in the GAZEL cohort in 1989. Questionnaires were mailed in 1993 to assess depressive mood, Type A behavior pattern, hostility, and the six personality types proposed by Grossarth-Matieck & Eysenck. Vital status and date of death were obtained annually for all participants. The association between personality variables and mortality was measured by the Relative Index of Inequality (RII) computed through Cox regression. The RII resembles relative risk in that it compares the mortality at the extremes of the predictor but it is weighted to account for the distribution of the personality scores. 14,356 (72.8%) members of the GAZEL cohort (10,916 men, mean age: 49 years, 3,965 women, mean age: 46 years) completed the depressive mood scale and at least one personality scale. Depressive mood and mortality was predicted mortality, even after adjustment for age, sex, education level, BMI, alcohol consumption, and smoking [RII (95% CI) = 1.56 (1.16-2.11)]. However, this association disappeared after further adjustment for neurotic hostility [RII (95% CI) = 1.12 (0.80-1.57)]. Neurotic hostility was the only personality measure remaining associated with mortality after adjustment for depressive mood [RII (95% CI) = 1.97 (1.39-2.77)]. Preventive and therapeutic interventions to reduce mortality associated with depressive mood could be refined by considering neurotic hostility as a potential mediating variable.

PSYCHOLOGICAL TRAITS AND MORBIDITY AND TOTAL MORTALITY IN THE WOMEN’S HEALTH INITIATIVE

Hilary A. Tindle, MD, Internal Medicine, Yue-Fang Chang, PhD, Lewis H. Kuller, MD, Department of Epidemiology, University of Pittsburgh, Pittsburgh, Pennsylvania; JoAnn E. Manson, MD, Division of Preventive Medicine, Brigham and Women’s Hospital, Boston, Massachusetts; Jennifer G. Robinson, MD, Department of Epidemiology, University of Iowa, Iowa City, Iowa; Milagros C. Rosal, PhD, Department of Medicine, University of Massachusetts, Worcester, Massachusetts; Greg J. Siegel, PhD, Karen A. Matthews, PhD, Department of Psychiatry, University of Pittsburgh, Pittsburgh, Pennsylvania

Purpose- Positive and negative psychological traits are associated with morbidity and mortality, but which traits are most strongly associated remains unclear, particularly among post-menopausal white and black females. Methods- We analyzed data from 107,356 Women’s Health Initiative participants (98,378 white, 8978 black) free of baseline chronic disease & followed ~8 years. The following scales were examined: WH-specific subscales of the emotional expressiveness (EEQ) and ambivalence over emotional expressiveness (AEQ) questionnaires; Life Orientation Test-Revised (optimism); Cook Medley cynicism subscale (cynical hostility). Chi-square analyses determined the best fit of association among psychological traits and total mortality. The relationship between psychological traits and mortality was assessed using age-adjusted rates of death and multivariable Cox proportional hazard models. Results- EEQ and AEQ were unrelated to total mortality regardless of race/ethnicity. Optimists were less likely, and cynical hostile women more likely, to be hypertensive, diabetic, and smokers (p < .0001). Optimists (vs. pessimists) had decreased rates of death (46 vs. 64 per 10,000), and most (vs. least) cynical hostile women had increased rates of death (63 vs. 47 per 10,000). Adjusting for age, education, hypertension, diabetes, cholesterol, BMI, smoking, alcohol, and depressive symptoms, optimists (vs. pessimists) had decreased hazard of total mortality (AHR 0.84 [0.78-0.91]). Most (vs. least) cynical hostile women exhibited greater hazard of total mortality (AHR 1.19 [1.10-1.30]). Outcomes appeared more pronounced in blacks: AHR (black optimists vs. black pessimists) 0.69 [0.52-0.91]; AHR (most vs. least cynical hostile black) 1.61 [1.15-2.24]. Conclusion- Optimism was associated with decreased hazard, and cynical hostility with increased hazard for co-morbid conditions and all-cause mortality. Effect sizes were larger in black women. Further research is needed to understand why and how these factors relate to morbidity and mortality in postmenopausal women in order to develop interventions to modify them in healthy ways.

DO ANGER AND HOSTILITY PREDICT CORONARY HEART DISEASE?: A META-ANALYTIC REVIEW OF PROSPECTIVE EVIDENCE

Yoichi Chida, MD, PhD, Andrew Stopeo, DPhil, Epidemiology and Public Health, University College London, London, UK

The harmful effect of anger and hostility on coronary heart disease (CHD) has been widely asserted, but previous reviews have been inconclusive. This review of 21 studies aimed to evaluate the association between anger and hostility and CHD using quantitative methods. We searched general bibliographic databases: Medline, PsycINFO, Web of Science, and PubMed up to October 2008. Two reviewers independently extracted data on study characteristics, quality, and estimates of associations. There were 25 studies (21 articles) investigating mortality in initially healthy populations and 20 studies (19 articles) of survival with existing CHD. Anger and hostility were associated with increased CHD events in the healthy population studies (combined hazard ratio 1.19, 95% confidence interval 1.05-1.35, p=0.008) and with poor prognosis in the CHD population studies (1.24, 1.08-1.42, p=0.002). There were indications of publication bias in this literature, although the fail-safe numbers were 2,020 and 750 for healthy and disease population studies respectively. Intriguingly, the harmful effect of anger and hostility on CHD events in the healthy population was greater in men than women. In studies of participants with CHD at baseline that controlled fully for baseline disease status and treatment, the association of anger and hostility with poor prognosis persisted. Unfortunately, it was not possible to analyse anger and hostility studies separately, because these constructs often are used interchangeably and their interrelationship remains poorly delineated. In conclusion, the current review suggests that anger and hostility are associated with CHD outcomes both in healthy and CHD populations. Besides conventional physical and pharmacological interventions, this supports the use of psychological management focusing on anger and hostility in the prevention and treatment of CHD.

PREDICTING CORONARY HEART DISEASE RISK FROM CHILDHOOD PERSONALITY TRAITS

Sarah E. Hampson, PhD, Oregon Research Institute, Eugene, OR; Teresa A. Hillier, MD, Kaiser Permanente Center for Health Research Hawaii, Honolulu, Hawaii; Joan P. Dubanoski, PhD, Kaiser Permanente Center for Health Research, Honolulu, HI; Lewis R. Goldberg, PhD, Oregon Research Institute, Eugene, Oregon

Childhood personality traits, particularly conscientiousness and the related facets, have been associated with longevity in men and women. Although the harmful effect of anger and hostility on CHD events in the healthy population was greater in men than women, it is unclear how childhood traits influence life course pathways that lead to later life-threatening disease. We hypothesized that personality traits assessed in childhood would be related to coronary heart disease (CHD) risk assessed at middle age. The study was conducted on participants in the Hawaii Personality and Health Cohort. Between 1957 and 1967, teacher assessed personality traits were obtained when these children were in elementary school (aged 6-12). They are now
returning for a clinical examination as middle-aged adults over 45 years later. Participants with no history of heart disease who recently completed a clinical examination were included in the present analyses (N = 503; mean age = 50 years; 249 men and 254 women). The sample was composed primarily of Japanese Americans (40.9%), Native or part Native Hawaiians (18.2%), European Americans (14.2%), and other (26.7%). The teachers’ personality assessments were used to create scores on the Big Five traits: Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect/Openness to Experience. Framingham CHD points and 10-year CHD risk scores were computed using standard algorithms based on age, total cholesterol, HDL cholesterol, blood pressure, diabetes and smoking status, and gender. Multiple regression analyses revealed that for men, childhood personality traits were not related to either measure of CHD risk. For women, those who were less Conscientiousness (Beta = −.17, p = .006) and less Agreeable (i.e., more hostile; Beta = −.14, p = .03) in elementary school were more likely to have higher 10-year CHD risk scores at age 50 (Adjusted Multiple R = .16). These findings indicate that gender could be an important moderating factor in life course pathways from childhood personality to cardiovascular morbidity and mortality.

Abstract 1123

HIGHER LEVELS OF PERCEIVED STRESS INCREASE RISK OF STROKE MORTALITY IN OLDER ADULTS
Susan A. Everson-Rose, PhD, Medicine, Hongfei Guo, PhD, Scott Lunos, MS, Biostatistics, University of Minnesota, Minneapolis, MN, Carlos F. Mendes de Leon, PhD, Rush Institute for Healthy Aging, Neelum T. Aggarwal, MD, Neurological Sciences, Denis A. Evans, MD, Rush Institute for Healthy Aging, Rush University Medical Center, Chicago, IL
Traumatic, acute stressors have been linked with sudden death, but little is known about the relation of chronic stress or perceived stress burden with risk of stroke. The objective of this study was to determine whether high levels of perceived stress were related to excess stroke mortality in a population-based sample of older adults. Participants were from the Cardiovascular Health Study (CHS) and comprised 4,187 adults (61.3% African American, 38.7% white; 61.9% female) with a mean (SD) age of 77.1 (6.3) years. CHAP is an ongoing, longitudinal study of risk for Alzheimer's disease and other chronic conditions of the elderly. Mortality was ascertained through 12/31/05 and verified by data from the National Death Index; over 7.7 years of follow-up, 91 fatal strokes were identified. Stress levels were measured by the 6-item Perceived Stress Scale, a well-validated self-report measure of overall stress experienced. Item responses range from 0 to 3 and are summed (range 0 to 18) across items to create an overall score; higher scores indicate greater stress. Mean (SD) reported stress levels in this study were 7.4 (3.7). In a Cox Proportional Hazards model adjusted for age, race, and sex, each 1-point increase in stress score predicted a 9% excess risk of dying from stroke (hazard ratio=1.09; 95% CI=1.04-1.15; p=0.0008). Thus, a 2-SD difference in perceived stress level related to a nearly 95% increased risk of stroke mortality. Including covariates for education, resting systolic blood pressure, physical activity, body mass index, smoking, and history of chronic medical conditions and excluding those with a previous history of stroke had almost no effect on the observed association. In this cohort of elderly African American and Non-Hispanic white adults, higher levels of chronic stress contributed to significantly greater risk of dying from stroke over the eight years of follow-up with stroke mortality.

Paper Session: Effects of Psychosocial Factors on Immunity and Inflammation

Abstract 1375

PSYCHOLOGICALLY ADVERSE WORK CONDITIONS ARE ASSOCIATED WITH CD8+ T CELL DIFFERENTIATION INDICATIVE OF IMMUNOSENSCENCE
Jos A. Bosch, PhD, MPH, University of Heidelberg, Mannheim, Germany, Johannes E. Fischer, MD, Institute for Transplantation Diagnostics, Heinrich Heine University Dusseldorf, Dusseldorf, Germany, Joachim M. Fischer, MD, MPH, University of Heidelberg, Mannheim, Germany
Numerous studies have demonstrated associations between psychosocial stress and indices of poor health, and much research is dedicated to identifying the responsible biological pathways. The current study examined the hypothesis that stress impacts health by modulating immunological aging. Participants were 537 factory workers (89% male; mean age 44; range 18-65 years). Blood was analyzed for two components of the aging "immune risk phenotype": the number and proportion of late-differentiated (CD27-CD28-) CD8+ T cells (CTLs) and CD4:CD8 ratio. Psychological assessment focussed on work-related stressors which have been found to predict morbidity and mortality in prospective studies. This assessment included measures of work-load, effort-reward imbalance, and low social support at work. High levels of job stress (low reward, high effort-reward imbalance) and low social support at work were associated with a significantly lower CD4:CD8 ratio and higher number and proportion of CD27-CD28- CTLs (p<.01). For example, the number of CD27-CD28- CTLs was approximately 50% higher in employees classified in the highest tertile of each stress parameter as compared to employees in the corresponding lowest tertile (p<.01). These associations withstood adjustment for a wide range of demographic, life style, medical, and socioeconomic indicators. These associations between CTL phenotype and social stress became stronger with increasing age. The results showed that psychosocial stress was independently associated with established markers of immunological ageing. These findings suggest that a adverse working conditions may accelerate immunosenescence.

Abstract 1517

RELATIONSHIP SATISFACTION, SOCIAL SUPPORT, AND WOUND HEALING IN DATING COUPLES
Theodore F. Robles, Ph.D., Kathryn P. Brooks, M. A., Danielle M. Vinas,, Chris Dunkel Schetter, Ph.D., Psychology, University of California, Los Angeles, Los Angeles, CA
Relationship quality is linked to lower physical morbidity and mortality in married couples. Moreover, social support provided in close relationships, particularly social support effectiveness, which reflects both the quantity and quality of support received from others, may predict better physical health. Most studies of relationship quality and social support have been conducted in married samples, and in this study, we are extending such findings to a younger sample. We will present results from an ongoing study that investigates the effects of relationship satisfaction and social support in romantic relationships on the skin's ability to heal after a minor disruption. On two separate visits, dating couples (N = 22) received a skin irritation on the forearm, and the degree of skin healing was measured at an early stage (1 - 2 hr after irritation), and at a later follow-up 24 hrs later. Following skin disruption, couples discussed areas of disagreement (conflict discussion) or personal goals (supportive discussion). Participants provided ratings of relationship satisfaction and overall social support effectiveness before skin disruption. We used multilevel modeling to predict the early stage of skin barrier recovery in the laboratory and later 24 hr follow-up. Our preliminary results indicated that higher relationship satisfaction predicted faster skin barrier recovery, but only after the supportive discussion (p = .03). Interestingly, one aspect of social support effectiveness, greater negative interactions with support provider, predicted faster early stage skin barrier recovery during the conflict discussion only (p = .04). At the same time, negative interactions with the support provider predicted marginally slower skin barrier recovery at 24 hr follow-up across both visits (p = .06). These data suggest that one way that social support in close relationships may influence health is by influencing processes involved in skin repair and wound healing, and that the situational context (support or conflict) may affect early and later stages of healing in opposite ways.

Abstract 1676

GENDER DIFFERENCES IN STIMULATED CYTOKINE PRODUCTION FOLLOWING ACUTE PSYCHOLOGICAL STRESS
Aric A. Prather, M.S., Judith E. Carroll, M.S., Jacqueline M. Fury, B.S., Kevin K. McDade, M.S., Diana Ross, R.N., BSN, Anna L.
Emerging evidence suggests that acute psychological stress modulates inflammatory competence; however, not all findings are consistent. Gender is one factor that may impact magnitude of response. In this regard, there is growing literature showing that reproductive hormones may impact inflammatory competence; however, not all findings are consistent.

Specifically, stress during examinations was associated with: 1) slower healing; 2) a state of hyper-inflammation in normal unwounded tissue; and 3) higher inflammatory responses in wounded tissue. Importantly, stress has been associated with reduced inflammation in dermal wounds. The present finding that stress causes higher tissue pressure has been associated with reduced inflammation in dermal wounds.

Gender is one factor that may impact magnitude of response. In this regard, there is growing literature showing that reproductive hormones may impact inflammatory competence; however, not all findings are consistent.

Pittsburgh, Pennsylvania
Marsland, Ph.D., R.N., Psychology, University of Pittsburgh, Pittsburgh, Pennsylvania
Christopher G. Engeland, Ph.D., Zongjuan Fang, MD, Phillip T. Marucha, PhD, DMD, Periodontics, University of Illinois at Chicago, Chicago, IL

Chronic stress can dysregulate inflammation which, in turn, may negatively impact upon health. The present study examined the effects of stress on healing rates and inflammation in oral mucosal wounds. 65 dental students received a 3.5mm diameter circular wound and a 1x5mm longitudinal wound on the hard palate at two time points: during examinations (stress) and during summer vacation (non-stress).

The first wound was videographed daily to assess closure. From the second wound, a 2x5mm biopsy was obtained at 6h or 24h post-wounding. Real-time PCR was performed on all biopsies. Overall, wound closure was delayed during examinations compared to vacation (P<.05). In unwounded tissue, higher gene expression of inflammatory mediators was seen during university examinations. Gene expression for IL-6, MIP-1a, ICAM and e-selectin were significantly upregulated compared to the non-stress period (P<.05 or better). In wounded tissue, gene expression was also significantly higher during the stress period. All genes examined (IL-1b, IL-6, TNF-a, IL-8, MIP-1a, MCP-1, ICAM, e-selectin) were more highly expressed at 6h post-wounding during examinations than during vacation. By 24h post-wounding much of this inflammation was resolved, although gene expression for IL-6 and MIP-1a remained higher during the stress condition. In conclusion, stress during examinations was associated with: 1) slower healing; 2) a state of hyper-inflammation in normal unwounded tissue; and 3) higher inflammatory responses in wounded tissue. Importantly, stress has been associated with reduced inflammation in dermal wounds. The present finding that stress causes higher tissue inflammation is unique and may be specific to mucosal tissues. This model suggests that any attempts to augment healing by altering inflammatory responses should be made in a tissue specific manner. (Support NIH RO1DE12792, UIC College of Dentistry)
Conclusions: While we did not find a relationship between the PSS and GCR, we did find that the CESD predicted increased GCR in both IFN-γ and IL-6 four weeks later. To the best of our knowledge, this is the first longitudinal study to examine psychosocial predictors of GCR. These findings are particularly important for MS, as IFN-γ has been shown to both precede and cause MS exacerbation. These findings suggest that depression may be a more important factor than perceived stress in weakening glucocorticoid regulation of inflammation in MS.

Abstract 1242

SELF-REPORTED EXPERIENCES OF DISCRIMINATION ARE ASSOCIATED WITH ELEVATED C-REACTIVE PROTEIN LEVELS IN OLDER AFRICAN-AMERICAN ADULTS

Téné T. Lewis, PhD, Epidemiology & Public Health, Yale University School of Medicine, New Haven, CT, Jeremiah Kelly, MD, Sue E. Leurgans, PhD, Lisa L. Barnes, PhD, Rush Alzheimer's Disease Center, Rush University Medical Center, Chicago, IL

Self-reported experiences of discrimination have been linked to indices of cardiovascular disease and overall mortality. However, the biological mechanisms underlying these associations remain unclear. C-Reactive Protein (CRP), a marker of inflammation, is a known correlate of cardiovascular and other health outcomes and has been linked to a number of psychosocial factors. To our knowledge however, no studies have examined the association between experiences of discrimination and CRP. We examined the cross-sectional association between self-reported experiences of discrimination and CRP in a sample of 292 older African-American adults (70% female, Mean age=73.1). Experiences of discrimination were assessed with the 9-item Experiences of Discrimination Scale and CRP was assessed from blood samples. In linear regression models adjusted for age, sex and education, experiences of discrimination were associated with higher levels of log-transformed CRP (B=.10, p=.03). This association remained significant after additional adjustments for smoking and chronic health conditions (heart disease, diabetes, thyroid conditions, etc) that might impact inflammation (B=.11, p=.02). However, results were not significant when the Body Mass Index (BMI) was added to the model (B=.08, p=.08). Additional adjustment for depressive symptoms (measured by the CES-D) did not alter these results. In conclusion, experiences of discrimination are associated with higher levels of CRP in African-American older adults, although this association is not independent of BMI.

Paper Session: Depression & Heart

Abstract 1117

MARRIAGE, DEPRESSIVE SYMPTOMS, AND THE METABOLIC SYNDROME: A COUPLES' STRUCTURAL MODEL

Nancy J. Henry, M.S., Timothy W. Smith, PhD, Jonathan Butner, PhD, Cynthia Berg, PhD, Bert Uchino, PhD, Psychology, University of Utah, Salt Lake City, UT

The metabolic syndrome (MetS), a clustering of cardiovascular disease (CVD) risk factors (high triglycerides, low HDL cholesterol, high blood pressure, high glucose, and central obesity), may help explain the link between psychosocial risk factors and CVD. This study examined the associations of positive (e.g., support, friendliness, confiding in partner) and negative marital processes, depressive symptoms, and MetS were developed from these measures. Structural equation modeling was used to analyze whether a conceptual model fit the data, modeling husbands' and wives' data simultaneously. In the model paths were freely estimated from spouses' positive and negative marital processes to their own MetS, from spouses' negative marital processes to their own depressive symptoms, and from depressive symptoms to MetS. This model was an excellent fit for the data (chi square (316, N = 276) = 343.56 p = .14, RMSEA = .02, CFI = .99). Paths from wives' negative marital processes to wives' depressive symptoms, B = 3.12, p < .001, and from wives' depressive symptoms to wives' MetS, B = .59, p = .03, proved significant, consistent with a pattern of mediation where wives' report of negative marital processes predicted MetS through depressive symptoms. For husbands, only the path from husbands' negative marital processes to depressive symptoms was significant, B = 3.46, p < .001. Results suggest that for wives negative aspects of marriage are associated with MetS through their relationship with depressive symptoms. Findings emphasize the potential impact of marital distress and depressive symptoms on health, particularly for middle-aged and older women.

Abstract 1326

DEPRESSION AND RESTING ENDOTHELIN-1 IN PATIENTS WITH CORONARY ARTERY DISEASE

Matthew M. Burg, PhD, Medicine, Yale U School of Medicine / Columbia U Med Center, West Haven, CT, Elisabeth Martens, PhD, Medical Psychology, Tilburg University, Tilburg, 5000 LE, Netherlands, Dorothea Collins, ScD, Cooperative Studies, VA Connecticut, West Haven, CT, Hoorna Ranjbaran, MD, Medicine, Yale University School of Medicine, West Haven, CT, Aaron Soufer, BS, Medicine, VA Connecticut, West Haven, CT, Antonio Fernandez, MD, Robert Soufer, MD, Medicine, Yale University School of Medicine, West Haven, CT

Objective: Depression predicts recurrent acute coronary syndrome (ACS) and early death among patients with coronary artery disease (CAD). The pathophysiology underlying this link is not fully established. Endothelin-1 (ET-1), a potent vasoconstrictor released from the vascular endothelium, is associated with cardiovascular risk. We hypothesized that depression is associated with elevated resting ET-1 in ACS patients with CAD. Methods: As part of their participation in a laboratory stress study, 105 CAD patients completed the 21-item Beck Depression Inventory (BDI), a measure of depressive symptoms previously linked to subclinical cardiovascular disease (1.899-16.109), p<0.002) significantly predicted resting ET-1, controlling for age and LVF. Conclusions: Depressive symptoms measured continuously or as a dichotomous threshold measure (≥ 10), along with variables found significant in the univariate models. Results: BDI score significantly correlated with resting ET-1 (r=0.216, p<0.03). Age and LVF were significant univariate predictors of resting ET-1. In separate multivariate models, total BDI score (OR=1.245, 95% CI [1.110-1.396], p<0.0002) and threshold score (OR=5.531, 95% CI [1.899-16.109], p<0.002) significantly predicted resting ET-1, controlling for age and LVF. Conclusions: Depressive symptoms measured continuously or as a previously defined threshold associated with risk of ACS events and death, significantly predicted resting ET-1 in CAD patients. This finding demonstrates a potential role for ET-1, a potent vasoconstrictor, in the pathophysiology linking depression to incident CHD.

Abstract 1446

SUBCLINICAL CAROTID ATHEROSCLEROSIS IN PERSONS WITH AND WITHOUT DEPRESSIVE AND ANXIETY DISORDERS: PRELIMINARY RESULTS FROM A LARGE COHORT STUDY

Adrie Seldenrijk, MSc, Psychiatry, Hein Van Hout, PhD, Harro Van Marwijk, PhD, General Practice, Michaela Diamant, PhD, Endocrinology, Brenda Penninx, PhD, Psychiatry, VU University Medical Center, Amsterdam, The Netherlands

Background The association between psychopathology and cardiovascular disease (CVD) has been frequently confirmed in large-scale community studies. However, the association of psychopathology with subclinical CVD has been less extensively examined. Carotid intima-media thickness (CIMT), a marker of subclinical atherosclerosis, has also been established as a predictor of
cardiovascular and cerebrovascular events. Aim & Sample This study examined whether an increased CIMT was more prevalent among persons with a psychiatric diagnosis of depression or anxiety (n=308) than in healthy controls (n=108), using baseline and 2 year follow-up data from a subcohort (no history of CVD; mean age 47 years; 69% women) of the Netherlands Study of Depression and Anxiety (NEDSA). Methods Major depressive disorder and anxiety disorders (generalized anxiety disorder, social phobia, panic disorder and agoraphobia) were diagnosed using the DSM-IV based CIDI interview. IMT of the common carotid artery (CCA), bulb (CB) and internal artery (ICA) was obtained by B-mode ultrasound measurements using a Acuson Aspen ultrasound instrument, equipped with a 5-10MHz broadband transducer. Regression analyses were used to investigate the association between psychopathology and CIMT. Results Mean CIMT values in this sample were .62mm (CCA), .73mm (CB) and .58mm (ICA). Having a history of major depressive disorder increased the likelihood of highest quartile CB IMT (mean 1.06mm) more than 2-fold (OR=2.24, 95%CI=1.10-4.60, p<.03) after adjustment for sociodemographic and lifestyle factors, systolic blood pressure, diabetes, use of statins and antidepressants. No significant associations were found for highest quartile CCA or ICA IMT. Lifetime anxiety disorder was not associated with carotid IMT. Conclusion These preliminary results show that high intima-media thickness in the carotid bulb only was significantly more often present among subjects with major depressive disorder.

Abstract 1463
DEPRESSION AND CORONARY FLOW RESERVE DETECTED BY POSITRON EMISSION TOMOGRAPHY
Vlad M. Iulian, MD, PhD, Medicine & Psychiatry, Med Uni Innsbruck, Innsbruck, Austria; Volker Faber, PhD, Radiology, Emory University, Atlanta, GA; Jack Goldberg, PhD, Vietnam Era Twin Registry, Seattle, WA; David Sheps, MD, Medicine, J D Bremner, MD, Psychiatry, Emory University, Atlanta, GA

Introduction. Major depressive disorder (MDD) is a risk factor for coronary artery disease (CAD), but the underlying mechanisms are unclear. Coronary flow reserve (CFR) in response to adenosine is an index of coronary microvascular dysfunction which predisposes to myocardial ischemia. We examined the relationship between MDD and CFR in a genetically informative sample of twins. Methods. We studied 141 twin pairs drawn from the Vietnam Era Twin Registry who were born between 1946 and 1956 (mean age 54). A lifetime history of MDD was determined with the Structured Clinical Interview for Psychiatry Disorders; 53 pairs were discordant for MDD and 88 pairs were free of MDD (control pairs). Standard CAD risk factors were obtained by interview, examination and blood work. All twins underwent myocardial perfusion imaging and blood flow quantification with [N13] ammonia positron emission tomography at rest and after adenosine stress. CFR was measured as the ratio of maximum flow to baseline flow at rest. A standard perfusion score was also used to assess presence of myocardial ischemia. Mixed-effect and GEE models were used to conduct matched-pair analyses. Results. Compared to their co-twins without MDD, twins with MDD were less educated and more often smokers but there were no differences in other baseline characteristics. There was no difference in heart rate/blood pressure response and myocardial ischemia after adenosine stress between twins with and without MDD. Among the dizygotic twin pairs discordant for MDD, the mean CFR was 13% lower in twins with MDD than their brothers without MDD (2.38 vs 2.75, p=0.03), but this was not found in the monozygotic discordant pairs (2.90 vs 2.64, p=0.13). p=0.01 for the zygosity by MDD interaction. Results were not altered by adjusting for CAD risk factors and antidepressant use (adjusted interaction p=0.009). There were no differences in myocardial ischemia and coronary blood flow comparing twins in discordant pairs with twins in control pairs. Conclusions. MDD is associated with lower CFR in spite of no differences in perceivable perfusion defects, suggesting microvascular dysfunction. This association is mostly due to shared genetic liability between depression and CFR, suggesting that a shared genetic factor influences both MDD and myocardial perfusion.

Abstract 1394
RESULTS OF METABOLIC ANALYSIS DIFFER BETWEEN DEPRESSED AND NON-DEPRESSED PATIENTS WITH CHRONIC HEART FAILURE
Wei Jiang, MD, Internal Medicine/Psychiatry & Behavioral Sciences, Duke University Medical Center, Durham, NC; David C. Steffens, MD, Psychiatry & Behavioral Sciences, Duke University, Durham, NC; Edward Karoly, PhD, Metabolon Inc., Durham, NC; Christopher M. O'Connor, MD, Internal Medicine, Duke University, Durham, NC; Maragatha Kuchibhatla, PhD, Aging center, Duke University, Durham, NC; Susan G. Silva, PhD, DSCRI, Michael S. Caffe, MD, Internal Medicine, Ranga R. Krishnan, MD, Rima F. Kaddura-Daouk, PhD, Psychiatry & Behavioral Sciences, Duke University, Durham, NC

BACKGROUND: Metabolomics is the systematic and theoretically comprehensive study of the small molecules that comprise a biological sample, e.g., e.g. sera or plasma and enables detection and quantification of small molecules involved in metabolic and signaling pathways. Metabolic signatures for a disease could provide valuable biomarkers and insights about mechanisms of the disease and indication of future therapeutic search. Previous study using metabolomics indicated that non-comorbid depression may be associated with alterations in the metabolism of lipids and neurotransmitters. In this study, we evaluate whether metabolomics detected depressed heart failure patients from their non-depressed counterparts. METHODS: We performed a metabolomic analysis of blood plasma from 80 patients who have chronic heart failure with a New York Heart Association class II or greater and left ventricular ejection fraction 45% or less. Of them, 40 have diagnosis of major depressive disorder and the other 40 had never experienced depression in their lives. Approximately 400 metabolites were analyzed using GC-MS and UHPLC-MS/MS (+ESI -ESI). metabolomics platforms, with comparisons made among the two groups. RESULTS: Several classes of metabolites were identified to be significantly altered in currently depressed patients when compared with the never depressed heart failure patients, pointing to alterations in fatty acid, glutamate, inositol and tryptophan pathways. Additionally data suggests that muscle protein catabolism, and heme metabolism might be affected in depressed patients. CONCLUSION: These observations suggest among patients with significant heart failure, metabolomics is able to differentiate metabolic profiles for the depressed from the non-depressed which may provide more understanding of underlying pathology of depressed population. Whether treatment of depression may modify those alterations will need to be examined.

Abstract 1294
DEPRESSIVE SYMPTOMS ARE ASSOCIATED WITH SOLUBLE P-SELECTIN (SP-SELECTIN) REACTIVITY TO ACUTE EXERCISE IN HEART FAILURE
Petra H. Wirtz, PhD, Clinical Psychology and Psychotherapy, University of Zurich, Zurich, Switzerland; Suzi Hong, PhD, Laura S. Redwine, PhD, Psychiatry, Medical Center, Joseph Tafur, MD, Psychiatry, Medical School, Thomas Rutledge, PhD, Psychiatry, Medical Center, Michael G. Ziegler, MD, Barry Greenberg, MD, Medicine, Paul J. Mills, PhD, Psychiatry, Medical Center, UCSD, San Diego, CA

Background: To determine the effects of depressive symptom severity on the circulating soluble adhesion molecule response to an acute exercise challenge in patients with heart failure (HF) compared to controls. Methods: 38 male HF patients and 19 male controls (mean age ± SD: 55.5 ± 13.9) completed the Beck Depression Inventory (BDI) before undergoing a moderate 20-min bicycle exercise at approximately 65-70% VO2peak. Plasma levels of the soluble adhesion molecules sP-selectin (sCD62P) and ICAM-1 (sICAM-1) (ELISA) were determined immediately before and after, and 10 min after exercise. Results: Higher BDI scores moderated greater increases in sP-selectin levels in response to exercise over time in HF patients as compared to controls (F(1.8/84.5) = 3.25, p = .05, eta p 2 = 0.06). Post-hoc testing revealed that in HF patients, but not in controls, higher BDI scores were significantly associated with greater increases in sP-selectin levels over time in response to exercise (BDI-by-exercise interaction: F(1.6/49.6) = 5.67, p = .010, eta p 2 = .16). Also, in HF patients, but not in controls, higher BDI scores were associated with higher sP-selectin levels at pre and post-exercise time points (main
The goal of these two integrative single-case studies on patients with prior breast cancer was to gather first evidence on the naturally occurring cause-effect relations between cellular immune activity, fatigue and mood. For this purpose, time series analysis was applied on extensive equidistant serial data to identify possible bidirectional effects among immunological and psychological variables. Both women (Case 1, 60 year-old, diagnosis 5 years ago, no cancer-related fatigue; Case 2, 40 year-old, diagnosis 5 years ago, cancer-related fatigue) collected their entire urine for approx. one month in 12h intervals for the determination of immune activation markers neopterin and creatinine concentrations by HPLC. The study with Case 1 used only the daytime urinary neopterin concentrations (from approx. 8 a.m. to 8 p.m.) and cross-correlated them with daily data from mood (3-Skalen-EWL) and fatigue (VAS) questionnaires (31 measurements). The Case 2 study, instead, applied both day- and night time data (55 measurements). Serial dependencies were controlled for by applying moving average smoothing (Case 1) or ARIMA modeling (Case 2). When averaged over the whole observation period daily urinary neopterin levels were within normal limits (Case 1: 173 µmol per mol creatinine; Case 2: 178 µmol per mol creatinine). Cross-correlational analyses revealed that increases in urinary neopterin significantly preceded increases in fatigue in Case 1 by 24h (lag 1: r = -0.434; p <0.05) and in Case 2 by 60 h (lag 5: r = -0.324; p <0.05). The opposite direction of effects, however, existed between mood and neopterin. In Case 1 decreases in mood preceded increases in neopterin by 96 h (lag 4: r = -0.768; p <0.05), whereas in Case 2 decreases in mood preceded increases in neopterin by 132 h (lag 11: r = -0.306; n.s.). Though these findings are very preliminary they show the feasibility of gathering evidence on naturally occurring psychomunomological cause-effect relations based on extensive serial data collection and time series analysis.

Abstract 1441

PERCEIVED COGNITIVE DYSFUNCTION IN SURVIVORS OF HEMATOLOGICAL STEM CELL TRANSPLANTATION
Anna Rusiewicz, PhD, Oncological Sciences, Mt Sinai School of Medicine, New York, NY

Background: Hematological Stem Cell Transplantation (HSCT) is a potentially life-saving treatment for numerous cancers and related blood disorders. Research shows that the majority of HSCT survivors do well after the initial adjustment yet about one third of HSCT survivors report psychological distress. Our preliminary work shows that HSCT survivors endorsement of symptoms of obsessive-compulsiveness were measured by the Brief Symptom Inventory. Participants also completed the FACT-Cog, a self-report measure of perceived cognitive dysfunction. Results: HSCT survivors who meet criteria for Obsessive-Compulsiveness on the BSI report greater severity of perceived cognitive dysfunction on each of seven dimensions on the FACT-Cog (p s <.05). Severity of perceived cognitive dysfunction was not associated with age or gender. Furthermore, greater severity of perceived cognitive dysfunction was associated with greater severity of psychological distress. Conclusion: Findings from the current study provide preliminary evidence that symptoms of obsessive-compulsiveness endorsed by HSCT survivors are reflective of perceived cognitive dysfunction, rather than indicative of psychiatric disorder. Although it appears quite clear from our preliminary evidence that addressing perceived cognitive dysfunction in HSCT patients is an important issue for survivorship research, more knowledge is required before appropriate interventions can be developed.

Abstract 1452

EVIDENCE ON THE DIRECTION OF EFFECTS BETWEEN DAY-TO-DAY CHANGES IN CELLULAR IMMUNE ACTIVATION, FATIGUE AND MOOD IN TWO PATIENTS WITH PRIOR BREAST CANCER: A TIME- SERIES ANALYSIS APPROACH
Christiane Scuhart, MD PhD, Dept. of Med. Psychology and Psychotherapy, Innsbruck Medical University, Innsbruck, Tirol, Austria, Christina Burbaum, PhD, Dept. of Psychosomatic Medicine and Psychotherapy, University Hospital Freiburg, Freiburg, Baden-Wuerttemberg, Germany, Mechthild Neises, MD PhD, Dept. of Psychosomatic Medicine, Hannover Medical School, Hannover, Niedersachsen, Germany, Willi Geyer, PhD, Institute of Psychology, University of Psychology, Innsbruck, Tirol, Austria, Francisco M. Ocaña Peinado, PhD, Dept. of Statistics and Operations Research, University of Granada, Granada, Spain, Spain, Dietmar Fuchs, PhD, Division of Biological Chemistry, Biocentre, Innsbruck Medical University, Innsbruck, Tirol, Austria, Gerhard Schmid-Ott, MD, Dept. of Psychosomatic Medicine, Hannover Medical School, Hannover, Niedersachsen, Germany, Kurt Fritzsche, MD, Dept. of Psychosomatic Medicine and Psychotherapy, University Hospital Freiburg, Freiburg, Baden-Wuerttemberg, Germany

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Background: Hematological Stem Cell Transplantation (HSCT) is a potentially life-saving treatment for numerous cancers and related blood disorders. Research shows that the majority of HSCT survivors do well after the initial adjustment yet about one third of HSCT surviv...
PATHWAYS TO RESILIENCE FOLLOWING A CANCER DIAGNOSIS
Erin S. Costanzo, PhD, Psychology, Burton H. Singer, PhD, Institute on Aging, Carol D. Ryff, PhD, Psychology and Institute on Aging, University of Wisconsin, Madison, WI
While psychosocial oncology research has traditionally focused on distress and maladjustment, there is growing attention to processes of resilience following a cancer diagnosis. We investigated variability in pre- to post-diagnosis trajectories of psychological well-being among 184 individuals diagnosed with cancer during the course of participation in a 9-year longitudinal study of health and well-being in midlife (MIDUS). The objective was to identify combinations of risk and protective factors (psychosocial, sociodemographic, health) measured prior to diagnosis that explain resilience following a cancer diagnosis. Resilience was defined as pre- to post-diagnosis gains or maintenance of high well-being in four domains: positive relationships (PR), environmental mastery (EM), self-acceptance (SA), or personal growth (PG). Recursive partitioning, a tree-structured regression method, was used to examine interactions of variables to identify pathways to resilience. The "branches" of each model were defined by a significant difference in well-being trajectories for individuals who had, or lacked, a risk factor or protective factor. Pathways for those with gains following diagnosis included good mental health and low functional impairment pre-diagnosis; F(1,94)=7.7 (mental health), F(1,74)=13.7 (functional impairment), p<.05. Singles and married men maintained high EM pre- to post-diagnosis; F(1,85)=7.4 (partner status), F(1,66)=4.2 (gender), ps<.05. For gains in SA, the key protective pathway was good mental health, while poor mental health was particularly detrimental for women: F(1,94)=10.2 (mental health), F(1,52)=4.9 (gender), p<.05. Good physical health predicted maintenance of high SA, F(1,86)=9.2, p<.05. These profiles accounted for 34% of the variance in EM trajectories and 26% in SA trajectories. Fewer pathways were identified in PR and PG trees. Findings suggest the presence of multiple pathways to resilience following a cancer diagnosis. Profiles could prove useful in identifying those likely to be vulnerable to the stress of a cancer diagnosis as well as characteristics of resilient cancer survivors.

Abstract 1749
COUPLING STYLE AND DISEASE STAGE AS PREDICTORS OF ADJUSTMENT TO A DIAGNOSIS OF GYNECOLOGIC CANCER
Elizabeth A. Mullen, M.S., Psychology, University of Iowa, Iowa City, IA, Barrie Anderson, M.D., Obstetrics & Gynecology, University of Iowa College of Medicine, Iowa City, IA, Susan K. Latendorf, Ph.D., Psychology, University of Iowa, Iowa City, IA
Persistently impaired quality of life (QOL) has been reported in response to a gynecologic cancer diagnosis. Cross-sectional studies suggest that QOL is negatively related to avoiding coping strategies and positively related to active coping. However, there is little known about the contributions of coping style and disease stage at diagnosis to long-term QOL outcomes in these patients. Using multi-level modeling, we prospectively examined the contributions of disease stage and coping at the time of diagnosis to the intercept of QOL (FACT-G) 3 years past diagnosis in 103 patients with cervical, endometrial, or ovarian cancer. Avoidant (mental disengagement, behavioral disengagement and denial), active (positive reframing, instrumental support, and acceptance) coping styles were constructed based on relevant COPE scales. Patients were recruited prior to surgery and completed psychosocial questionnaires at baseline, and at 1, 2, and 3 years post-surgery. Medical data was abstracted from patient medical records. Results indicate that advanced stage disease predicted worse physical QOL at 3 years regardless of coping style at diagnosis (p<.001). Greater avoidant coping predicted decrements in 3-year social QOL independent of disease stage (p<.04). Greater use of active coping predicted better three-year emotional (p<.05) and global (p<.03) QOL in all patients. However, while greater active coping predicted better functional (p<.05) and social (p<.05) QOL in early stage patients, it was unrelated to these measures in advanced stage patients. These findings suggest that both advanced stage disease and avoiding coping appear to be risk factors for maladjustment following cancer treatment.

COGNITIVE-BEHAVIORAL STRESS MANAGEMENT: EFFECTS ON PSYCHOSOCIAL WELL-BEING OF HIV+ WOMEN AT RISK FOR CERVICAL CANCER
Sally E. Jensen, M.S., Center on Outcomes, Research and Education, NorthShore University HealthSystem, Evanston, IL, Deidre B. Pereira, Ph.D., Clinical and Health Psychology, University of Florida, Gainesville, FL, Nicole Ennis Whitehead, Ph.D., UM Sylvester Comprehensive Cancer Center, University of Miami, Miami, FL, Itano Marion, M.S., Judith R. McCalla, Ph.D., Psychology, University of Miami, Coral Gables, FL, Michelle P. Andrasik, Ph.D., Psychiatry and Behavioral Sciences, University of Washington, Seattle, WA, Rachel C. Rose, Ph.D., Atlanta Center for Eating Disorders, Atlanta Center for Eating Disorders, Atlanta, GA, Michael H. Antoni, Ph.D., Psychology, University of Miami, Coral Gables, FL
Purpose: HIV+ women at risk for cervical cancer may be at risk for impaired psychosocial well-being, which has been associated with poorer immune and disease outcome. Cognitive behavioral stress management (CBSM) interventions have resulted in improved psychosocial well-being and health outcomes among HIV+ gay men and women with breast cancer. Recently, CBSM was found to reduce life stress and odds of cervical neoplasia among ethnic minority women with HPV infection (Antoni et al., 2008). The present study examined the effects of CBSM on psychosocial well-being in this same sample. Methods: 43 HIV+ women with HPV/cervical neoplasia were randomized to a 10-week CBSM group (N = 24) or a 1-day CBSM workshop (N = 19). Psychosocial well-being (benefit-finding, positive affect, positive states of mind, spiritual well-being) was assessed at baseline, 3 months and 9 months. Doubly multivariate repeated measures ANOVA was used to examine CBSM effects on psychosocial well-being. Results: Analyses revealed a significant 3-way interaction among psychosocial well-being, time, and condition (F[6, 35] = 2.67, p = .05, n2 = .31). Women randomized to the 10-week CBSM group reported significantly increased benefit-finding (t[23] = -2.62, p < .05, d = .46) and positive states of mind (t[23] = -2.38, p < .05, d = .49), and marginally increased positive affect (t[23] = -2.03, p = .05, d = .39) and spiritual well-being at 9-month follow-up (t[23] = -2.03, p = .054, d = .36). There were no significant changes across time in indices of psychosocial well-being among women randomized to the 1-day CBSM workshop. Conclusion: This is the first study to demonstrate CBSM intervention effects on a cluster of indices of psychosocial well-being among HIV+ ethnic minority women at risk for cervical cancer. The results provide preliminary evidence suggesting that CBSM may be an effective means through which to enhance positive psychosocial well-being among ethnic women with HIV who are also at risk for cervical cancer.

COMPARISON OF LONG-TERM QUALITY OF LIFE AND SYMPTOM BURDEN IN PROSTATE CANCER SURVIVORS MANAGED WITH ACTIVE SURVEILLANCE OR TREATED WITH RADIOTHERAPY: A MATCHED STUDY
Floortje Mols, PhD, Medical Psychology, Tilburg University, Tilburg, The Netherlands, Melissa S. Thong, PhD, Eindhoven Cancer Registry, Comprehensive Cancer Centre South, Eindhoven, The Netherlands, Paul J. Kil, PhD, Department of Urology, Sint Elisabeth hospital, Tilburg, The Netherlands, Lonneke V. van de Poll-Frants, PhD, Eindhoven Cancer Registry, Comprehensive Cancer Centre South, Eindhoven, The Netherlands
PURPOSE: Research on long-term health-related quality of life (HRQL) of low-risk prostate cancer patients managed with active surveillance (AS) is scarce. We aimed to assess and identify predictors associated with long-term HRQL of prostate cancer survivors managed expectantly. METHODS: From the population-based Eindhoven Cancer Registry, 71 men who fit the criteria for AS were matched with 71 survivors treated with external beam radiotherapy (RT) of similar demographic and clinical characteristics. Patients completed generic (SF-36) and cancer-specific (QOL-CS) HRQL, and symptom burden (UCLA-EPIC, SAc) questionnaires 5-10 years after diagnosis. RESULTS: Seventeen (24%) AS and 13 (18%) RT patients had clinical disease progression since initial diagnosis until time of study. Patients in the AS group were comparable to patients treated with RT on most generic and disease-specific HRQL.
dimensions. RT patients have poorer bowel function (87.1 versus 92.8, p= 0.0008) and more bother with bowel function (85.0 versus 93.7, p= 0.0006). RT patients have also more problems with getting an erection compared to AS patients. Multivariate regression analyses indicate that the management strategy of low-risk prostate cancer patients independently predicts differences in physical functioning, bodily pain, spiritual and total well-being, and bowel function and bowel bother. CONCLUSIONS: Our study demonstrates that patients managed expectantly at initial diagnosis (AS) have comparable HRQL and less symptom burden than RT patients up to 10 years since diagnosis, even after controlling for comorbidity and clinical disease progression.

Abstract 1134

US CANCER SURVIVORS ARE MORE LIKELY TO REPORT FORGOING MENTAL HEALTH CARE DUE TO COST
Kathryn E. Weaver, PhD, Julia H. Bowland, PhD, Noreen M. Aziz, MD, PhD, Office of Cancer Survivorship, National Cancer Institute, Bethesda, MD, Keith M. Bellizzi, PhD, Human Development and Family Studies, University of Connecticut, Storrs, CT

Ongoing access to health services, including mental health care, is a vital issue for the almost 12 million cancer survivors residing in the United States. Cancer survivors may have increased need of mental health services due to reductions in quality of life and psychological comorbidities associated with cancer diagnosis and treatment, but may also experience greater financial barriers to care. This research examines the prevalence of forgoing mental health care among adults with and without a cancer history using a nationally representative sample of US adults. We identified 7,260 adult cancer survivors (59.3% female; 48% Hispanic, 6.4% Non-Hispanic Black, 88.8% Non-Hispanic White), 6,497 individuals with no history of cancer from the National Health Interview Survey (NHIS)- 2003-2006. The NHIS is an annual, in person, nationwide survey of approximately 30,000-40,000 households assessing many health outcomes. Participants were asked " During the past 12 months, was there any time when you needed mental health care or counseling, but didn't get it because you couldn't afford it? .

To account for the weighting associated with a complex sample design, we used SUDAAN 9.0 to conduct logistic regression analyses adjusting for age, gender, education, medical comorbidities, race/ethnicity, and insurance coverage. Although only 2.6% of cancer survivors reported forgoing mental health care, weighted numbers suggest that 337,000 US adult cancer survivors did not get mental health services they needed because of cost. Adults with a cancer history were 2.5% more likely to report forgoing mental health care (OR= 1.3, 95% CI 1.1-1.6). Among cancer survivors, individuals less than 65 years old (OR= 10.7, 95% CI 5.9-19.3), women (OR=2.3, 95% CI 1.5-3.5), and persons with public (OR= 3.9, 95% CI 2.5-6.1) or no insurance coverage (OR= 8.1, 95%CI 4.9-13.5) were more likely to forgo mental health care. There were no associations with education, medical comorbidities, race/ethnicity, and time since cancer diagnosis. A substantial number of cancer survivors living in the US do not have access to needed mental health care because of cost. The increased likelihood of forgoing mental health care services among younger cancer survivors is concerning, given higher rates of persistent distress and quality of life disturbance among this group.

Paper Session: Health Risk Behaviors Across the Life Course

Abstract 1048

SECONDOHAND EXPOSURE AND DEPRESSION IN THE UNITED STATES: IMPLICATIONS FOR TOBACCO POLICY

It is well established that smoking is associated with depression. The possible explanations for this association include: (a) smoking precedes the onset of depression, (b) depression precedes smoking (self-medication hypothesis), or (c) a third factor that relates the two. However, nothing is known with regard to how secondhand smoke exposure may be related to depression. The objective of the present study was to explore the possible association between secondhand smoke exposure, home and workplace smoking rules, and depression in two nationally representative samples of United States non-smoking adults. Data were obtained from the 2006 Behavioral Risk Factor Surveillance System (BRFSS) and the 2005-2006 National Health and Nutrition Examination Survey (NHANES). The Patient Health Questionnaire was used to measure current depression; secondhand smoke workplace policies and smoking rules in the home were determined by self-report (BRFSS); secondhand smoke exposure in the NHANES was determined by respondent's serum cotinine level categorized as high (0.2-15 ng/mL), low (above the detection limit 0.2 ng/mL), or undetectable (below the detection limit). Logistic regression analyses were performed with adjustment for survey design, comorbidity, age, race/ethnicity, gender, socio-economic status, and alcohol consumption. Our findings indicated that persons living in homes where smoking was allowed anywhere were significantly more likely to be depressed with an odds ratio (OR) = 2.09 [95% confidence interval = 1.36-3.20], as were persons working in jobs where smoking was allowed in public places (2.09 [1.03-4.42]) and in work areas (2.59 [1.39-4.80]). Likewise, current depression was associated with greater exposure to secondhand smoke as measured by serum cotinine (2.42 [1.15-5.08]). Similar to firsthand smoking, it is possible that secondhand smoke exposure may have an effect on the dopamine system, which has been related to depression. Therefore, to prevent depression and other negative health outcomes, individuals may choose to implement home policies as well as having effective workplace policy regarding tobacco behaviors.

Abstract 1742

THE INTERACTION OF SMOKING VOLUME AND SMOKING CESATION ON ENDOTHELIAL FUNCTION IN CARDIAC PATIENTS
Kim L. Lavoie, PhD, Catherine Laurin, PhD, Claudia A. Flores Echaiz, BSc, Andre Arsenault, MD, Simon L. Bacon, PhD, Montreal Behavioural Medicine Centre, MHI/UCHAM/Concordia, Montreal, Canada

Cigarette smoking has been shown to be a potent risk factor for cardiovascular disease and it may do so by causing endothelial abnormalities. Although the endothelial has shown the ability to recover function after smoking cessation, it is unclear if there is a specific time after smoking cessation for which endothelial function (EF) can recover or how the frequency and intensity of cigarette consumption after this. No known study has simultaneously considered the effects of smoking volume and time after smoking cessation on EF. The objective of the current study was to assess the relationships between smoking volume (pack years: average number of packs smoked per day X number of years smoked), length of cessation and endothelial function recovery. A total of 330 patients (mean age = 60 yrs; 75% men) referred for myocardial perfusion stress testing completed a sociodemographic and medical history questionnaires on the day of their exercise stress test. The following day, patients underwent a nuclear medicine based forearm hyperaemic reactivity challenge which calculates the rate of uptake ratio (RUR) between hyperaemic and non-hyperaemic arms as an index of EF. Controlling for covariates (sex, age, history of coronary artery disease, and prescription of medication), participants who had never smoked had a significantly higher mean RUR (i.e., better function) than those who had previously smoked (4.45 versus 3.89 respectively, p=0.008). As expected, the larger the amount of pack years the worse the EF (F=3.88, p = 0.05) and the longer the years of having stopped smoking the better the RUR (F=3.94, p=0.049). There was a interaction between pack years and smoking cessation (F=12.87, p=0.026), such that, for lower levels of smoking RUR increased with the amount of years since they stopped smoking, i.e., improved endothelial function. However, for higher volume smokers, RUR did not decrease with the amount of years stopped smoking. The results of this study show that the length of cessation is directly proportional to EF, whereas smoking volume is inversely proportional to it. However, EF improves with length of cessation as a function of amount smoked. This suggests that there is a critical smoking break-point. Further studies are needed to identify this threshold, which will provide an approximate value of smoking volume that is critical for EF.
Abstract 1324

A PRELIMINARY STUDY EXAMINING SMOKING-MELANIN ASSOCIATIONS IN AFRICAN AMERICAN AND EUROPEAN AMERICAN SMOKERS

Ayodele A. Gomih, BS, Psychiatry & Behavioral Neuroscience, Rick A. Kuttles, PhD, Genetic Medicine, Andrea C. King, PhD, Psychiatry & Behavioral Neuroscience, University of Chicago, Chicago, IL

Differential smoking behaviors may play a role in some health disparities such as cardiovascular disease and cancer experienced by African Americans (AA) relative to European Americans (EA). One potential biological mechanism underlying racial differences in smoking may relate to nicotine's high affinity for the pigment melanin, which would result in longer availability of nicotine among darker pigmented persons, i.e., those of African descent. This study was a preliminary examination of smoking behavior variables and facilitative (forehead) melanin and constitutive (inner arm) melanin levels in AAs and EAs obtained using the DermalDensitometer®. Participants were n=101 adult AA and n=135 EA smokers enrolled in a comprehensive smoking cessation trial. Subjects completed several measures prior to the quit date to assess demographic, smoking, stress, and skin color. Relative to EAs, AAs were significantly older (47 vs. 42 yrs), had less education (15.4 vs. 14.2 yrs), initiated smoking at an older age (17.4 vs. 15.2 yrs), had higher perceived social status (M=0.32 vs. 0.23), and had higher facultative and constitutive melanin (all <p< .001). While AAs smoked fewer cigarettes per day than EAs (16.4 vs. 18.2; p< .05), their physical nicotine dependence scores were higher (p= .002). Interestingly, among AAs, facultative melanin and constitutive melanin were positively associated with shorter duration of quitting smoking in the past (r= .045, p< .01) and facultative melanin was associated with current smoking for tension reduction (r= .32, p< .05). No associations with smoking behaviors and melanin levels were observed among the EAs. These differences in smoking behavior and skin color may help explain why AAs exhibit more nicotine dependence even with lower smoking levels. Melanin levels may play a role in AAs' greater smoking-related health disparities and lower quit rates compared to EAs and further research is warranted.

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Abstract 1406

DO PERCEPTIONS OF STRESS AND SOCIAL STATUS DRIVE HUNGER AND OVEREATING?

Jenna R. Carl, B.A., Lisa M. Groesz, Ph.D., Doreena Rode, Ph.D., Lindsay C. Sharpness, B.A., Elissa S. Epel, Ph.D., UCSF, San Francisco, CA

Several studies have linked stress to overeating and increased consumption of high-fat foods. Social status may also affect appetite; subordinate primates prefer highly palatable food, possibly as a source of stress reduction. The current study examined perceptions of stress and social status as potential drivers of overeating. Specifically, we examined whether high perceived social status might buffer stress induced eating. We recruited 899 healthy normal-weight women, diverse in income, race/ethnicity and age (m=28.43, SD=7.14), via newspaper and internet advertisements, email lists and flyers. They completed psychometrically validated scales about their chronic stressors, perceived stress and high-fat food intake as well as about their disinhibition (lack of control over eating), hunger and stress-eating. Our participants, chronic stress and perceived stress were dichotomized at the mean into low and high categories. ANOVAs of 2 (stress) X 2 (perceived stress) = (0-1) were conducted on self-reported eating habits and consumption of high-fat items. As hypothesized, high stress predicted greater disinhibition (F=22.14, p< .01), hunger (F=23.75, p< .01), stress-eating (F=4.62, p< .05) and high fat intake (F=8.55, p< .01). Low perceived stress also predicted high fat intake (F=14.93, p< .01). Further, high perceived social status had significant moderating effects on eating behaviors during times of high stress. Under high stress, those with high perceived stress had significantly lower disinhibition (F=3.83, p< .05), hunger (F=7.88, p< .01) and stress-eating (F=3.75, p< .05) than those with low perceived stress. Under low stress, perceived social status did not influence outcomes. These results suggest that high stress and low perceived social standing are intertwined and intrinsically linked with hunger and eating. They appear to buffer those under chronic stress from appetitive drive. In contrast, objective status, as measured by income, was not a buffer. Further research is needed to experimentally examine how perceived social status buffers unhealthy eating under stress.

Abstract 1183

CHILDHOOD ABUSE AND NEGLECT ARE ASSOCIATED WITH BODY FAT DISTRIBUTION IN ADOLESCENCE

Aimee J. Midei, B.S., B.A., Psychology, Karen A. Matthews, Ph.D., Psychiatry, Epidemiology, and Psychology, Joyce T. Brumberger, Ph.D., Epidemiology and Psychiatry, University of Pittsburgh, Pittsburgh, PA

Childhood abuse and neglect are traumatic early-life stressors that may be risk factors for central adiposity. Our objective was to examine the association between childhood abuse/neglect and body fat distribution in a sample of 311 (106 Black, 205 White) women from the Pittsburgh site of the Study of Women's Health Across the Nation (SWAN). SWAN included a baseline measurement of women in midlife (mean age=57.8) and 8 follow-up visits during which waist circumference (WC) and body mass index (BMI) were measured. The Childhood Trauma Questionnaire, given at visit 8, retrospectively assessed 5 domains of abuse and neglect in childhood and adolescence: emotional, physical, and sexual abuse; emotional and physical neglect. ANCOVAs were used to determine whether a history of any abuse/neglect, or specific types of abuse or neglect, was associated with WC, controlling for age. Results showed that women with a history of any abuse/neglect had significantly higher WC at visit 8 than women with no abuse history (M=90.8, SE=1.2; M=96.1, SE=1.5; F(1, 308)=7.7, p< .01). Of the specific types of abuse, only physical abuse was significantly related to WC at visit 8 (M=91.7, SE=1.0; M=97.9, SE=2.3; F(1,308)=6.2, p< .01). A history of any abuse/neglect, or specific types of abuse or neglect, were not associated with increased WC from baseline to visit 8 (p> .05) in the full sample. However, among women with a BMI< 30, a history of any abuse/neglect, emotional abuse, physical abuse, sexual abuse, or physical neglect predicted increased WC over time. For all analyses, adjustment for BMI reduced the relationship between abuse and WC to non-significant because of a high correlation between WC and BMI (r= .91, p< .001). Additional mediation analyses indicated that Trait Anger scores mediated some relationships between abuse/neglect and WC. This study suggests that traumatic early-life stressors are associated with adulthood body fat distribution, especially among normal-weight and overweight women. Supported by NIH/DHHS AG012546 and MHS059689.

Abstract 1738

EXERCISE AND DIET BEHAVIORS AND THEIR EFFECT ON SALIVARY CORTISOL PATTERNS AMONG OLDER ADULTS

Guido G. Urizar Jr., Ph.D., Psychology, California State University, Long Beach, Long Beach, CA, Nataera Garovoy, Ph.D., Cynthia M. Castro, Ph.D., Abby C. King, Ph.D., Medicine, Stanford University, Stanford, CA

Behavioral markers of stress, such as abnormal cortisol patterns, have been associated with several health outcomes among older adults, including increased risk for cardiovascular disease. Yet, studies investigating the influence of health behaviors on cortisol patterns are rare. The current study examined whether the exercise and dietary behaviors of older adults (mean age=56+6 years; mean BMI=30+5) were associated with their salivary cortisol patterns. Our sample consisted of 54 chronically active (i.e., activity-patterned) adults who were free of major medical problems (70% women; 77% married), whom completed measures on their exercise (CHAMPS, Physical Activity Recall) and diet (Food Frequency Questionnaire), and collected their salivary cortisol at four different times during the day (upon awakening, 30 minutes after awakening, 4pm, and bedtime) over a two-day period. On average, participants engaged in 80+144 minutes of moderate-intensity exercise/week, and had diets that were high in fat and carbohydrates (41% and 42% of total kcal, respectively) and low in total fruit and vegetable consumption (mean number of servings = 4+2). Hierarchical regression analyses were conducted to examine whether exercise and diet were associated with salivary cortisol patterns, controlling for caregiver status, gender, marital status, and body mass index. Results showed that older adults who engaged in low levels of moderate-intensity exercise (R²= .20, p< .05) and had diets that were high in carbohydrates (R²=.29, p<.01) and sweets (R²=.26, A-120
3.73) were more likely to have deficit in executive function. The same
5 (OR=2.38; 95% CI: 1.76-3.22) and Phase 7 (OR=2.76; 95% CI: 2.04-
unhealthy behaviours at Phase 1 (OR=1.84; 95% CI: 1.27-2.65), Phase
midlife (mean age=44 years, Phase 1), in midlife (mean age=56 years,
midlife (mean age=61 years, Phase 7). A simple
(mean age=56 years, Phase 5) and in late midlife (mean age=61 years, Phase 7). A simple
simple score was defined as a combination of 10 health behaviours (current
vegetable consumption), ranging from 0 to 4. Deficits (worst sex-
Vegetable consumption), ranging from 0 to 4. Deficits (worst sex-
Paper Session: Asthma, Stress and Inflammation
Abstract 1082
EFFECTS OF PARENT VERSUS CHILD ASTHMA SELF-
Efficacy on Inflammatory Profiles over Time in
Children with Asthma
Jutta M. Wolf, PhD, Psychology, Brandeis University, Waltham, MA,
Meane Chan, BA, Edith Chen, PhD, Psychology, University of British
Columbia, Vancouver, BC, Canada
Little is known about the role of asthma management beliefs and specifically the role the interaction between parent and child asthma beliefs plays with regard to health outcomes in childhood asthma. Furthermore, no study has explored the biological pathways through which these beliefs are linked to asthma outcomes. The present study therefore tested the hypotheses that parents' and children's asthma management beliefs interact in predicting changes in cytokine production and that changes in cytokine production over time would be positively associated with changes in asthma symptoms. 47 children with asthma (12.7±2.6 yrs.) were investigated at two time points six months apart. At their first visit, children and parents asthma management beliefs were assessed. At both visits, asthma symptoms
and child's cytokine production were determined. For children with low asthma self-efficacy, having a parent with high asthma self-efficacy (IL-5: beta=3.46, p<.05; IL-13: beta=3.4, p=.036) resulted in greater decreases in cytokine production over time compared to having a parent with less strong beliefs. These associations were less distinct for children with high asthma self-efficacy. Changes over time in IL-5 and IL-13 production were positively related to changes in parent-reported asthma symptoms over time (beta=.394, p=.006; beta=.320, p=.027, respectively) as well as child-reported symptoms (beta=.266, p=.062; beta=.313, p=.046, respectively). The present study showed for the first time that asthma management beliefs can get under the skin, thus revealing a biological pathway linking asthma management beliefs and asthma symptoms. The findings further suggest that considering both children and parents beliefs is important, since parents can compensate for children's less strong beliefs about their asthma management abilities, while having parents with strong beliefs seemed to be less beneficial in children who already had strong beliefs of their own about their asthma management abilities.

Abstract 1438
CHRONIC FAMILY STRESS ACCENTUATES THE IMPACT OF ACUTE STRESS ON INFLAMMATORY PROCESSES IN CHILDREN WITH ASTHMA
Teresa J. Marin, MA, Edith Chen, PhD, Jennifer A. Munch, BA, Gregory E. Miller, PhD, Psychology, University of British Columbia, Vancouver, British Columbia, Canada
While it has long been known that stressful experiences can exacerbate symptoms of asthma, the biological mechanisms by which psychological stress comes to influence inflammatory behaviors in asthma remain unclear. Thus, the current study examined the relationship between acute stress, chronic family stress, and the production of asthma-related cytokines among 71 children with asthma (12.77±2.68 years, 72% male) and 76 medically healthy children (12.89±2.34 years, 53% male). Life stress was measured using a structured interview, and a sample of blood was taken using antecubital venipuncture. After mononuclear cells had been mitogenically stimulated, production of the cytokines IL-4, IL-5, IL-13, and IFN-gamma was measured. Children with asthma reported on their symptoms twice daily for 14 days following the visit. All measurements were repeated every 6 months for 2 years. Results of hierarchical linear modeling indicated that children with asthma who had higher levels of chronic family stress showed increased production of IL-4, IL-5, and IFN-gamma at times when they had experienced an acute event compared to times when they had not. In contrast, children with asthma who had lower levels of chronic family stress showed no changes in cytokine production at times when they had experienced an acute event compared to times when they had not (p's<.01). Findings also indicated that, in a subgroup of children with severe asthma (n=32), children who were exposed to both acute and chronic stress reported the most severe asthma symptoms (p's<.05). There was no consistent relationship between life stress and cytokine production among healthy controls. This pattern of results suggests that acute negative life events are particularly detrimental among a subgroup of children who are under high chronic stress. The heightened inflammatory profile in this group suggests an explanation for why children experiencing life stressors are at greater risk for asthma exacerbations.

Abstract 1240
NEUROTICISM, EXTRAVERSION, STRESSFUL LIFE EVENTS AND ASTHMA: A COHORT STUDY OF MIDDLE-AGED ADULTS
Adrian Loerbroks, MSc, Mannheim Institute of Public Health, University of Heidelberg, Mannheim, Germany, Christian J. Angellacher, PhD, Department of Clinical Social Medicine, University Hospital Heidelberg, Heidelberg, Germany, Julian F. Thayer, PhD, Mannheim Institute of Public Health, University of Heidelberg, Mannheim, Germany, Desiree Debling, PhD, German Childhood Cancer Registry at the IMBEI, University of Mainz, Mainz, Germany, Til Stürmer, MD, MPH, Epidemiology, UNC Gillings School of Global Public Health, Chapel Hill, NC
Previous studies have suggested that stressful events can trigger asthma exacerbations, but could also contribute to the development of incident asthma.

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However, the association between stressful life events and asthma has not been investigated prospectively to date. Likewise, stress-related personality traits (e.g., neuroticism and extraversion) may increase asthma risk, but this has been examined only in one prospective study. We therefore aimed to investigate the association between neuroticism, extraversion, stressful life events and incident asthma. Subject sample and methods: A population-based sample of 5114 middle-aged adults completed questionnaires between 1992 and 1995. Among those alive in 2002/2003, 4010 (83%) were followed-up by questionnaires. Exposures of interest included neuroticism, extraversion and three stressful life events (unemployment, having broken off a life partnership, and death of a close person). Associations with incident asthma were estimated by multivariable risk ratios (RR) and 95% confidence intervals (95%CIs) using Poisson regression. Results: High versus low neuroticism predisposed to developing asthma (RR=3.07, 95%CI=1.71, 5.48), but high extraversion did not (RR=1.30, 95%CI=0.70, 2.15). Having broken off a life partnership significantly increased asthma risk (RR=2.24, 95%CI=1.20, 4.21) in contrast to death of a close person (RR=1.06, 95%CI=0.64, 1.75) or unemployment (RR=1.65, 95%CI=0.72, 3.78). In conclusion, high levels of neuroticism may increase the risk of asthma in middle-aged adults. Having broken off a life partnership was the only stressful event, which was associated with incident asthma. Synthesized with evidence from earlier studies, this could reflect that interpersonal conflicts may increase asthma risk, possibly along an immunological pathway.

**Paper Session: Functional Somatic Syndromes**

**Abstract 1442**

**EFFECT OF THERAPEUTIC GUIDELINE INCLUDING PSYCHOSOMATIC APPROACH ON IRRITABLE BOWEL SYNDROME: A RANDOMIZED CONTROLLED TRIAL**

Shin Fukudo, MD, PhD, Behavioral Medicine, Tohoku University Graduate School of Medicine, Sendai, Japan, IBS Club, Research Group of IBS, IBS Club, Tokyo, Japan

Aim: Therapeutic guidelines of Irritable bowel syndrome (IBS) has been proposed but there was no trial to prove the efficacy of therapeutic guideline including psychosomatic approach for IBS in the real clinical settings. Even when some elements of guideline are proven by randomized controlled trials (RCT), meta-analysis, and/or systematic review, the efficacy of therapeutic guideline is expected but not fully proven. We tested our hypothesis that effect of guideline treatment including psychosomatic approach for IBS is superior to that of control (nonguideline-based, standard and voluntary) treatment by the primary care physicians. Methods: Rome II-defined IBS patients were randomly assigned 8 weeks with either guideline treatment or control treatment. The tested guideline of IBS consists of 2 steps, in which reassurance, correction of the patient's lifestyle and administration of high molecule bulk polymer and/or agents that modify the gastrointestinal motility at the first step and evaluation of psychosocial stress and psychiatric comorbidity and administration of antidepressants or anxiolytics with brief psychotherapy at the second step. The control treatment was performed as nonguideline-based, standard and voluntary treatment by the physicians. The primary endpoint in the study was global improvement. Results: Total 125 patients were randomized and 61 patients assigned to guideline treatment and 64 patients assigned to control treatment. In the guideline group, 24 patients were responder based on global improvement at 4 weeks and this improvement ratio (24 of 61 patients, 39.3%) did not differ from that in control group (19 of 64 patients, 29.7%, p=0.34). However, 35 patients in guideline group got responder based on global improvement at 8 weeks and this improvement ratio (35 of 61 patients, 57.4%) was significantly better than that in control group (23 of 64 patients, 35.9%, p=0.026). Response ratio [95% confidence interval] three global improvement in guideline treatment was 1.33 [0.81-2.16] at 4 weeks and 1.60 [1.08-2.36] at 8 weeks. Number of patients needed to treat was 4.7 [2.6-23.0] at 8 weeks. Conclusion: The study provides evidence that therapeutic guideline including psychosomatic approach is superior to the physian's non-guided treatment for IBS.

**Abstract 1049**

**CHRONIC FATIGUE SYNDROME: ILLNESS SEVERITY, SEDENTARY LIFESTYLE, BLOOD VOLUME AND CARDIAC STRUCTURE AND FUNCTION**

Virginia T. Coryell, M.S., Barry E. Hurwitz, Ph.D., Meela Parker, CCT, RDCS, Pedro Martin, M.D., Psychology, Arthur LaPerriere, Ph.D., Psychiatry & Behavioral Sciences, University of Miami, Coral Gables, FL, Nancy G. Klimas, M.D., George N. Sfakianakis, M.D., Martin S. Bilsker, M.D., Medicine, University of Miami, Miami, FL.

This study evaluated cardiac structure and function in Chronic Fatigue Syndrome (CFS) and non-CFS subjects, while controlling for CFS illness severity and sedentary lifestyle. In addition, we examined whether differences in total blood volume (TBV) could account for differences in cardiac outcomes. Study groups were: severe CFS (n=30), non-severe CFS (n=26), sedentary control (n=30) and non-sedentary control (n=30). Severe illness in CFS subjects was defined as >=7 of 10 CFS symptoms, self-rated as moderate or severe, that persisted for >=6 mos. Sedentary and non-sedentary physical activity status were defined, respectively, as a reported energy expenditure of <=1500 and >=2200 kca/wk. Measures were obtained from self-report of medical history, fatigue and physical activity, as well as echocardiography and dual tag blood volume testing. Among potential correlates, group differences emerged for age and sedentary lifestyle, which were controlled in analyses. The analyses showed that the severe CFS group relative to the non-CFS groups evidenced diminished cardiac index (CI) due to diminished stroke index (SI; p<.05) and not to heart rate differences. The diminished SI in the severe CFS group was due to lower end diastolic volume (EDV) and contractility (VCfc; p<.05), with no group differences in end systolic volume. Follow-up analyses showed that the percent difference from ideal TBV was lower in the severe CFS group than the non-severe and sedentary-control groups (adjusted mean±SE: -6.0%±1.3 vs. -1.6%±1.3 vs. 6.4%±1.8; p<.001). When these TBV differences were controlled, the group differences in CI, SI, EDV and VCfc were no longer significant. Notably, the cardiac measures in CFS subjects did not correlate significantly with reported fatigue. Therefore, the findings suggest that although a cardiac function deficit is more probable in severely-affected CFS persons, it is not linked to sedentary lifestyle or perceived fatigue, but is largely accounted for by a deficit in blood volume.

**Abstract 1376**

**THE NEUROBIOLOGY OF SOMATOFORM DISORDERS: A SYSTEMATIC REVIEW OF THE NEUROIMAGING STUDIES**

David A. Lovas, MD, Psychiatry, Harvard Medical School, Cambridge, MA

With the approach of the DSM-V there has been discussion regarding revision and possible dissolution or division of the existing category of somatoform disorders (SD). However, despite their many differences, there is great comorbidity among the various SD diagnoses, and patients with SD (perhaps with the exception of body dysmorphic disorder) share the common trait of experiencing one or more medically unexplained physical symptom(s). The common phenomenological features of abnormal viscero-somatic perception along with shared affective and anxiety-related abnormalities, behoove researchers to look more closely at the role of central and possibly common neural mechanisms. In spite of the relative paucity of neurobiological research, there are a growing number of neuroimaging studies, and to date they have not been examined collectively. This study systematically reviews the evidence from the neuroimaging studies on the functional neurobiology of the SD. A systematic review of neuroimaging studies published in peer-reviewed journals was performed. PubMed, Medline, PsychINFO database searches were conducted for SPECT, PET, and MRI studies for each of the 7 DSM-IV somatoform disorders. Twenty-five studies were identified and included. Common areas of abnormal activation that emerged across disorders included 1. prefrontal cortex, particularly the medial, orbitofrontal, and anterior cingulate cortex, 2. parietal cortex, 3. basal ganglia, 4. talamus, and 5. insula. Functional neurobiological commonalities exist across the somatoform disorders, which seem to involve loci along the frontosubcortical circuits that are thought to mediate monitoring of the body's internal state and regulation of emotions. However, there are still many limitations in the existing research and great heterogeneity among findings.
results have implications for the conceptualization of the disorder category in the upcoming DSM-V, as well as for the general understanding of the biology of mind and body.

Paper Session: HPA Axis I
Abstract 1241
CIRCADIAN ENDOCRINE CORTISOL SECRETION, STRESS RESPONSES AND AUTONOMIC NERVOUS SYSTEM REGULATION IN CRITICAL CARE PERSONNEL
Rahel R. Looser, MD candidate, University Childrens Hospital, University of Zurich, Zurich, Switzerland, Petra Metzenthin, PhD, School of Applied Sciences for Nursing, Berne, Switzerland, Susanne Helfricht, PhD, University Childrens Hospital, University of Zurich, Zurich, Switzerland, Britta M. Kudielka, PhD, Jacobs Center on Lifelong Learning, Jacobs University Bremen, Bremen, Germany, Shelby Yamamoto, MSc, Adrian Loerbroks, MSc, Petra Metzenthin, PhD, Joachim E. Fischer, MD, MSc, Mannheim Institute of Public Health, University of Heidelberg, Mannheim, Germany
Purpose of study: Everyday stressors elicit adaptive changes in the hypothalamic-pituitary-adrenal (HPA) axis and the autonomic nervous system. Data on the relationship between these two systems under real-life conditions is sparse. We therefore aimed at examining the association between heart rate variability (HRV) and salivary cortisol, which were recorded simultaneously in a stress-exposed prospective occupational cohort. Subject sample and methods: The study population comprised 88 nurses. We recorded heart rate (HR) and HRV during 301 working shifts. Participants provided salivary cortisol samples at the beginning of their work shift and every two hours thereafter. Samples were collected during three investigation periods spread over 9 months. Change scores for cortisol were calculated as deviations from the expected circadian baseline. Change scores from the grand diurnal mean in the time-domain based root mean square of successive differences served to index alterations in HRV. To account for the temporal delay between changes in HR/HRV and changes in salivary cortisol, we centered parameter changes in cortisol and observed 15 to 15 minutes prior to the cortisol sampling. Results: While changes in HR and HRV revealed the expected inverse correlation ($r = -0.78$, $p < 0.0001$), we did not find any correlation between changes in heart rate measures and changes in salivary cortisol (all $r = 0.06$, $p > 0.3$), except for very high cortisol levels. In conclusion, these data suggest an independence in the regulation of the HPA axis and the autonomic nervous system in response to everyday stressors, but synchrony of both systems in highly stressful situations.

Abstract 1141
TRAIT RUMINATION PREDICTS ELEVATED CORTISOL RESPONSES TO AN ACUTE PSYCHOSOCIAL STRESSOR
Peggy M. Zoccola, M.A., Jennifer R. Piazza, M.A., Jodi A. Quas, Ph.D., Ilenna S. Yon, Ph.D., Psychology and Social Behavior, University of California, Irvine, Irvine, CA
There is emerging evidence for the idea that perseverative cognition (e.g., rumination) may amplify or maintain physiological stress responses (Brosschot et al., 2006). However, results of the few studies that have examined the relationship between rumination and cortisol reactivity have been inconsistent. For example, depressive rumination has been linked to heightened cortisol responses to acute stressors (Kudielka et al., 2008), while trait rumination was associated with greater reactivity to anger (Brosschot et al., 2006) and negative emotion (r = .35, $p < .01$). The findings from the present study are consistent with the Perseverative Cognition Hypothesis (Brosschot et al., 2006) and support the notion that rumination may perpetuate the physiological stress response. An increased understanding of the psychological and physiological consequences of rumination is an important goal for future research, as it may have implications for mental and physical health.

Abstract 1674
SNPS IN THE 5HT2C RECEPTOR GENE ARE ASSOCIATED WITH CORTISOL RESPONSE TO ANGER RECALL IN MEN
S H. Boyle, PhD, Psychiatry, C F. Pookey, MA, Center for Human Genetics, B H. Brunnermeier, PhD, Psychiatry, C M. Kuhn, PhD, Pharmacology and Cancer Biology, A Georgiades, PhD, I C. Siegler, PhD, M B. Williams, MD, Psychiatry, A E. Ashley-Koch, PhD, Center for Human Genetics, Duke University Medical Center, Durham, NC
Central nervous system serotonin plays an important role in regulating cortisol release via activation of the hypothalamic pituitary adrenal (HPA) axis. There is evidence to suggest that the 5HT2C receptor modulates this effect. Thus, we hypothesized that genetic variation in 5HT2C receptor function might contribute to differences in cortisol secretion during times of emotional stress. To test this, we examined the association of single nucleotide polymorphisms (SNPs; rs17260565, rs1023574, rs11167435, rs6318) of the 5-HT2C receptor in relation to plasma cortisol response to anger recall in 41 men and 35 women. These four SNPs were selected from nine SNPs genotyped in 5HT2C, as being the effective SNPs in our population as measured by spectral decomposition (Li and Ji, 2005). Blood samples were collected during a 5 minute rest period and during a 5 minute period in which subjects were asked to recall and describe an event in their lives that made them angry. Because the 5-HT2C gene is on the X-chromosome, analyses were conducted separately for men and women. Analysis of covariance, controlling for age, race and baseline plasma cortisol levels indicated significant associations between SNPs and cortisol response to anger recall, but only for men. Those men carrying the minor allele on any of these three SNPs exhibited larger increases in plasma cortisol than those men carrying the major allele. Specifically, those men carrying the minor allele on rs6318 showed an average increase in plasma cortisol of 70 pg/ml as compared with men carrying the major allele who showed an average increase of 30 pg/ml. The association with rs6318 is particularly interesting as this is the coding SNP which results in a change from cystine to serine in the coding region of the gene. In summary, these results suggest that genetic variation in 5-HT2C receptor contributes to HPA activation during times of anger in men. Further, men possessing the minor allele of rs1023574, rs11167435, and rs6318 SNPs may be at increased risk of developing diseases caused by dysregulation of the HPA axis.
Supported by NIMH (grant P01-ML36587)

Abstract 1198
RESULTS FROM THE TRIER-TEACHER-STRESS-STUDY: EFFORT-REWARD-IMBALANCE AND OVERCOMMITMENT TO WORK ARE ASSOCIATED WITH PHYSIOLOGICAL RESPONSES TO ACUTE PSYCHOSOCIAL STRESS
Silja Bellingrath, PhD & Brigitte M. Kudielka, PhD Jacobs Center on Lifelong Learning, Jacobs University Bremen, Bremen, Germany
The aim of the Trier-Teacher-Stress-Study is to investigate potential associations between work stress and alterations in different physiological systems. Firstly, we assessed basal and feedback functioning of the HPA-axis (Bellingrath et al., 2008) and reported on parameters of the blood coagulation (Kudielka et al., 2008) and immune system (von Känel et al., 2008) and a cumulative measure of functioning of the HPA-axis (Bellingrath et al., 2008) and reported on the association of single nucleotide polymorphisms (SNPs; rs17260565, rs1023574, rs11167435, rs6318) of the 5-HT2C receptor in relation to plasma cortisol response to anger recall in 41 men and 35 women. These four SNPs were selected from nine SNPs genotyped in 5HT2C, as being the effective SNPs in our population as measured by spectral decomposition (Li and Ji, 2005). Blood samples were collected during a 5 minute rest period and during a 5 minute period in which subjects were asked to recall and describe an event in their lives that made them angry. Because the 5-HT2C gene is on the X-chromosome, analyses were conducted separately for men and women. Analysis of covariance, controlling for age, race and baseline plasma cortisol levels indicated significant associations between SNPs and cortisol response to anger recall, but only for men. Those men carrying the minor allele on any of these three SNPs exhibited larger increases in plasma cortisol than those men carrying the major allele. Specifically, those men carrying the minor allele on rs6318 showed an average increase in plasma cortisol of 70 pg/ml as compared with men carrying the major allele who showed an average increase of 30 pg/ml. The association with rs6318 is particularly interesting as this is the coding SNP which results in a change from cystine to serine in the coding region of the gene. In summary, these results suggest that genetic variation in 5-HT2C receptor contributes to HPA activation during times of anger in men. Further, men possessing the minor allele of rs1023574, rs11167435, and rs6318 SNPs may be at increased risk of developing diseases caused by dysregulation of the HPA axis.
Supported by NIMH (grant P01-ML36587)
subjects were confronted with the Trier-Social-Stress-Test (TSST). Beside blood coagulation and immune measures (currently analyzed), ACTH (5 samples), total plasma (6 samples) and free salivary cortisol (8 samples) were repeatedly measured before and after challenge. In the total group, ERI and OC were only marginally associated with HPA-axis responses to acute stress. However, in the subgroup of responders (N=30) high levels of OC were significantly associated with lower ACTH (p=.03), plasma (p=.02) and salivary cortisol (p<.001) responses. These results remained significant controlling for depressive symptoms. When additionally controlling for acute perceived stressfulness of the TSST, significant associations between OC and HPA-axis responses emerged in responders as well as the total study sample. Higher levels of ERI were solely related to significantly stronger plasma cortisol increases after TSST exposure, but this effect became non-significant controlling for depression. So far, this data supports the notion of HPA-axis hyporeactivity in highly overcommitted school teachers.

Abstract 1424

MOMENTARY STRESS AND SALIVARY CORTISOL AMONG PARENTS OF YOUNG CHILDREN
Richard B. Slatcher, Ph.D., Theodore F. Robles, Ph.D., Rena L. Reznick, Ph.D., Psychology, University of California, Los Angeles, Los Angeles, CA, Michelle D. Fellow, MA, James W. Pennebaker, Ph.D., Psychology, University of Texas at Austin, Austin, TX

For over a decade, researchers have incorporated naturalistic cortisol sampling into investigations of everyday stress; a handful of these studies have used ecological momentary assessment (EMA) to examine within-day covariation of momentary experiences and cortisol. For example, in theface of the day has been associated with higher cortisol, while positive affect has been associated with lower cortisol. However, very little is known about how specific ongoing stressors (e.g., work stress) are related to within-day fluctuations in cortisol.

Families with young children present an ideal context for studying ongoing stress and cortisol secretion in everyday life. This study investigated momentary effects of perceived stress and parenting cortisol on salivary cortisol in a sample of 52 married couples with 3-5 year-old children. Couples completed EMA questionnaires and provided saliva samples 6 times/day from Sat-Mon. Multilevel modeling analyses showed that among wives, elevated cortisol was uniquely associated with higher work stress (p = .006) and higher husbands' work stress (p = .039). The association between wives' work stress and wives' cortisol was stronger for those highest in marital satisfaction (p = .01), suggesting a more robust stress response for women's happiness marriage. Higher wives' cortisol was associated with higher pain stress (p = .037). At the same time, lower wives cortisol was associated with higher husband's parenting stress (p = .01). The negative association between husbands' parenting stress and wives' cortisol was strongest for those in unsatisfactory marriages (p = .025). Among husbands, elevated cortisol was related to greater work stress (p = .049) and greater wives' parenting stress (p = .031). The positive association between wives' parenting stress and husbands' cortisol was stronger on weekends vs. weekdays (p = .049). This work has implications for understanding how everyday experiences impact psychological stress and illustrates the importance of taking into account the psychological states of others (e.g., spouses) in naturalistic cortisol studies.

Abstract 1373

SOCIAL EVALUATIVE THREAT DETERMINES THE MAGNITUDE BUT NOT THE PATTERN OF PHYSIOLOGICAL RESPONSES
Jos A. Bosch, PhD, School of Sport and Exercise Sciences, University of Birmingham, Birmingham, United Kingdom, Eco J. de Gen, PhD, Biological Psychology, Vrije Universiteit, Amsterdam, Netherlands, Annebeth D. Goedhart, MSc, Biological Psychology, Vrije Universiteit, Amsterdam, The Netherlands, Leilah A. Anane, MsC, Doug Carroll, PhD, School of Sport and Exercise Sciences, Kate M. Edwards, PhD, Sport and Exercise Sciences, University of Birmingham, Birmingham, United Kingdom

Background: The idea that distinct psychosocial factors can provoke specific neuro-endocrine stress responses has been a topic of recurrent debate. We set out to test a recent contribution to this debate, the Social Self Preservation Theory, which predicts that stressors involving social-evaluative threat specifically activate the hypothalamic-pituitary-adrenal axis. Methods: Sixty-one healthy undergraduate volunteers (31 females) performed a challenging speech task in one of three experimental conditions that imposed increasing levels of social evaluative threat: the task was performed alone (no social evaluation), in the presence of 1 evaluating observer, or in the presence of 4 evaluating observers. Indices of sympathetic (pre-ejection period) and parasympathetic (heart rate variability) cardiac drive were obtained by impedance- and electro-cardiography. Salivary cortisol was used an index of hypothalamic-pituitary-adrenal activity. Questionnaires assessed anxiety, negative affect, shame/embarrassment and self-esteem. Results: Affective responses (negative, anxiety, shame/embarrassment, self-esteem) cortisol, heart rate, sympathetic, and parasympathetic activation all sensitively differentiated evaluative from non-evaluative task conditions (p<.001). Physiological reactivity also increased in parallel with increasing audience size (p<.001). The rise in cortisol was predicted by sympathetic activity during the task (p<.001), but not by affective responses. Conclusion: It would appear that social evaluative threat determines the magnitude, rather than the pattern, of physiological activation. It may be that this ability to potentiate a robust generalised response explains why social stressors have consistently been associated with a range of health outcomes.

Paper Session: Sleep

Abstract 1775

SLEEP-WAKE ACTIVITY AND INFLAMMATION IN THE MIDUS STUDY: MODERATION BY RACE
Elliot M. Friedman, PhD, Burton H. Singer, PhD, Institute on Aging, Carol D. Ryff, PhD, Psychology and Institute on Aging, University of Wisconsin-Madison, Madison, WI

Inflammation has been linked to impaired sleep in clinical and laboratory-based studies, but few studies have examined this association in community dwelling adults. Moreover, the relationship between daily activity levels and inflammation are unclear. This study examined the associations between daily sleep-wake activity and circulating levels of interleukin-6 (IL-6) in a sample of middle-aged and older adults. Participants were from the Survey of MidLife in the United States (MIDUS); a subsample of 295 men and women provided fasting blood samples for IL-6 analyses during an overnight stay at the General Clinical Research Center (GCRC) at the University of Wisconsin-Madison. Beginning 1-2 weeks after the GCRC stay, actigraphy data were collected continuously for 7 consecutive days. Sleep parameters included latency to sleep, sleep efficiency, and wake after sleep onset (WASO). Data from periods of wake included total wake time, average level of activity, and average activity counts per minute. Data were analyzed with multivariate linear regression analyses adjusting for potential demographic, health status, and health behavior confounds. The results showed African American participants had longer sleep latencies, lower sleep efficiency, and great WASO than white participants. In addition, sleep latency (β = .18, P<.01), sleep efficiency (β = -.19, P<.01), and WASO (β = .15, P<.05) were all associated with IL-6 levels in bivariate analyses, but not after adjusting for confounds. However, significant interactions showed that longer sleep latencies (β = -.16, P<.01) and reduced sleep efficiency (β = -.21, P<.01) predicted higher IL-6 levels in white but not African American participants while greater WASO (β = -.17, P<.01) predicted higher IL-6 levels in African Americans but not white participants. In contrast, higher levels of activity during the day were consistently associated with lower levels of IL-6. Collectively, these results suggest that both sleep and waking activity are significant predictors of inflammation in community dwelling individuals, and that activity may be particularly important in predicting lower levels of inflammation in middle-aged and older adults.
Abstract 1673

EFFECT OF SLEEP QUALITY ON THE DIURNAL CORTISOL PATTERNS OF OLDER ADULT CAREGIVERS AND NON-CAREGIVERS

Ronald E. Freche, BA, Guido G. Urizar, Jr., PhD, Psychology, California State University, Long Beach, Long Beach, CA, Natara Garovoy, PhD, Cynthia M. Castro, PhD, Abby C. King, PhD, Medicine, Stanford University, Stanford, CA

Current research has found that caregivers have significantly higher cortisol levels than non-caregivers, and as such, caregivers experience increased risk of developing a wide range of health problems. However, there are few studies investigating the relationship between sleep quality and diurnal cortisol patterns in caregivers. The current study examined whether sleep quality (Pittsburgh Sleep Quality Index) was associated with diurnal cortisol patterns among older adult caregivers and non-caregivers. Salivary cortisol samples were collected by participants at home, four times a day (awakening, 30 minutes post-awakening, 4pm, and bedtime), over a 48 hour period. We hypothesized that older adults with poor sleep quality would have more abnormal diurnal cortisol patterns. Our sample consisted of 29 caregivers and 25 non-caregivers, age 45 and older, who were experiencing chronic stress (70% female, 74% married/living with a partner). Seven percent of our sample had self-reported disturbed sleep as measured by the PSQI (total score >5). Women reported more disturbed sleep (t=-1.25, p<.05) and a more frequent use of sleep medication (t=1.85, p<.05) than men, and those who were married/living with a partner had more abnormal cortisol patterns than those who were single (t=-2.36, p<.05). Independent samples t-test analyses showed that caregivers reported more sleep disturbances (t=1.88, p<.05) and less energy during the day than non-caregivers (t=1.88, p<.001). Analyses also found that caregivers demonstrated more abnormal cortisol patterns across the day than non-caregivers (t=-1.72, p<.05). Hierarchical regression analyses showed a marginally significant association, such that older adults who reported more sleep disturbances had more abnormal cortisol patterns, controlling for caregiver and marital status (R² = 0.07, p<.05). Results provide initial evidence for the relationship between sleep quality and diurnal cortisol patterns in this population and suggests the need for implementation of health promotion programs among stressed older adults.

Abstract 1503

MEASURING SLEEP: HOW DO DIARIES AND WRIST ACTIGRAPHY COMPARE WITH POLYSOMNOGRAPHY?

Martica H. Hall, Ph.D., Psychiatry and Psychology, Isabella Soreca, M.D., Psychiatry, Karen A. Matthews, Ph.D., Psychiatry, Epidemiology and Psychology, Lewis H. Kuller, M.D., DrPH, Epidemiology, Peter J. Gianaros, Ph.D., Psychiatry and Psychology, University of Pittsburgh, Pittsburgh, PA

Sleep is a restorative behavior critical to health, including brain functioning. A recent study suggests that sleep is also important to brain structure (Riemann et al., 2007; Sleep, 30:955-8). Compared to good sleeper controls, patients with chronic insomnia showed bilateral reductions in MRI-measured hippocampal volume. We hypothesized that short sleep duration would similarly be associated with hippocampal grey matter volume in adults without insomnia. Participants were 50 post-menopausal women enrolled in the Healthy Women’s Study (mean age = 68 +/- 1) (Matthews et al., 1989; N Engl J Med, 321, 641-6). Eligibility criteria for the imaging protocol required that participants were all in good health (e.g., no history of cerebrovascular disease, diabetes, cancer, neurological or psychiatric disorders or use of anti-insomnia or hypnotic medication), without contraindications for MRI. Participants completed a daily sleep diary (Monk et al., 1994; J Sleep Res: 3: 111-120) over the 7-day period immediately preceding the MRI. These data were used to derive estimates of habitual sleep duration. Brain volumetric measures included total grey matter and semiquantitative visual ratings of diffuse brain abnormalities (white matter hyperintensities, ventricular enlargement and subcortical brain infarcts). A two-step hierarchical regression model quantified relationships among hippocampal volume, selected covariates and sleep duration. In the first step, HRT status, smoking, alcohol consumption, white matter hyperintensities and total grey matter volume explained 46% of the variance in hippocampal volume, with total grey matter volume being a significant predictor (beta = 0.61, p<.0001). Sleep duration, which was added in step 2, explained an additional 8.5% of the variance in hippocampal volume (beta = 0.33, p<.012). Results extend previous work on sleep loss and the brain by demonstrating that short sleep duration is associated with smaller hippocampal volume in healthy post-menopausal women after adjusting for other factors important to brain structure.

Abstract 1559

SLEEP-DISORDERED BREATHING AND HEALTH-RELATED PHYSICAL AND EMOTIONAL QUALITY OF LIFE IN HEART FAILURE

Paul J. Mills, PhD, Szei Hong, PhD, Laura S. Redwine, PhD, Thomas Rutledge, PhD, Joel E. Dimsdale, MD, Psychiatry, Barry H. Greenberg, MD, Medicine, UCSF, San Diego, CA

The poor quality of life in individuals with heart failure (HF) is often attributed to worse functional status and symptom burden. Sleep-disordered breathing (SDB) is common in individuals with HF and might also contribute to their poor quality of life. In the setting of a clinical research unit, in 40 stable HF patients (left ventricular ejection fraction (LVEF) <45%; mean age 57 years) and 34 healthy volunteers (mean age 55 years) we characterized SDB by polysomnography, depressed mood by the Beck Depression Inventory (BDI), and fatigue by the Multidimensional Fatigue Symptom Inventory, and determined observed between PSG and diary-assessed measures of sleep duration (Beta = -0.126, p<.01), latency (Beta = -0.38, p<.001), WASO (Beta = -3.37, p<.001) and efficiency (Beta = -0.79, p<.001). In contrast, the only actigraphy-assessed measures shown to differ significantly from PSG were sleep latency (Beta = -1.07, p<.001) and WASO (Beta = -0.63, p<.001). Compared to PSG values, diary reports underestimated the amount of time spent awake at night by over 25 minutes and overestimated sleep efficiency by approximately 7% in reference group participants (white, no hot flashes/night sweats). Actigraphy-based estimates of sleep duration and efficiency, each of which has been widely-linked to health and functioning, did not differ significantly from PSG. Supported by NIH/HDHS AG012505, AG012546, AG012554, NR04061, AG019360, AG019361, AG019362, AG019363.

Abstract 1504

SLEEP DURATION IS A SIGNIFICANT CORRELATE OF DECREASED GREY MATTER VOLUME IN THE HIPPOCAMPUS IN HEALTHY WOMEN

Martica H. Hall, Ph.D., Psychiatry and Psychology, Isabella Soreca, M.D., Psychiatry, Karen A. Matthews, Ph.D., Psychiatry, Epidemiology and Psychology, Lewis H. Kuller, M.D., DrPH, Epidemiology, Peter J. Gianaros, Ph.D., Psychiatry and Psychology, University of Pittsburgh, Pittsburgh, PA

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Abstract 1559

SLEEP-DISORDERED BREATHING AND HEALTH-RELATED PHYSICAL AND EMOTIONAL QUALITY OF LIFE IN HEART FAILURE

Paul J. Mills, PhD, Szei Hong, PhD, Laura S. Redwine, PhD, Thomas Rutledge, PhD, Joel E. Dimsdale, MD, Psychiatry, Barry H. Greenberg, MD, Medicine, UCSF, San Diego, CA

The poor quality of life in individuals with heart failure (HF) is often attributed to worse functional status and symptom burden. Sleep-disordered breathing (SDB) is common in individuals with HF and might also contribute to their poor quality of life. In the setting of a clinical research unit, in 40 stable HF patients (left ventricular ejection fraction (LVEF) <45%; mean age 57 years) and 34 healthy volunteers (mean age 55 years) we characterized SDB by polysomnography, depressed mood by the Beck Depression Inventory (BDI), and fatigue by the Multidimensional Fatigue Symptom Inventory, and determined observed between PSG and diary-assessed measures of sleep duration (Beta = -0.126, p<.01), latency (Beta = -0.38, p<.001), WASO (Beta = -3.37, p<.001) and efficiency (Beta = -0.79, p<.001). In contrast, the only actigraphy-assessed measures shown to differ significantly from PSG were sleep latency (Beta = -1.07, p<.001) and WASO (Beta = -0.63, p<.001). Compared to PSG values, diary reports underestimated the amount of time spent awake at night by over 25 minutes and overestimated sleep efficiency by approximately 7% in reference group participants (white, no hot flashes/night sweats). Actigraphy-based estimates of sleep duration and efficiency, each of which has been widely-linked to health and functioning, did not differ significantly from PSG. Supported by NIH/HDHS AG012505, AG012546, AG012554, NR04061, AG019360, AG019361, AG019362, AG019363.
quality of life in HF patients with the Minnesota Living with Heart Failure Questionnaire (MLHFQ). HF patients had more central apneas/hour (17.6 (SD=18) vs. 5.4 (SD=7.2), p<0.01) and obstructive apneas/hour (21.7 (SD=31) vs. 8.5 (SD=12), p<0.05), and had more respiratory awakenings following apneic or hypopneic events (27.2 (SD=38) vs. 4.2 (SD=6), p<0.01). More HF patients had depressed mood (BDI > 10) compared to non-HF participants (55% vs. 27.2%, p<0.01) and had worse fatigue (p<0.05). In multiple regression analysis, MLHFQ physical functioning quality of life was predicted by reduced LVEF (p<0.05), shorter distance on a six-minute walk test (p<0.05), greater fatigue (p<0.01), and obstructive apneas (p<0.05) and more central apneas (p<0.05) (model R²=.672, p<0.001). MLHFQ emotional functioning quality of life was predicted by greater fatigue (p<0.01) and had worse fatigue (p<0.05). In multiple regression analysis, MLHFQ physical functioning quality of life was predicted by greater fatigue (p<0.01) (model adjusted R²=.732, p<0.001). The findings show that SBD adversely affects health-related physical functioning independent of HF severity, associated fatigue, and depression. In addition to helping delineate associations between sleep and quality of life, the findings also provide support for the sometimes controversial position of more aggressively identifying and treating SDB in HF patients.

Abstract 1518

PLASMA LEPTIN LEVELS ARE ASSOCIATED WITH FATIGUE IN OBSTRUCTIVE SLEEP APNEA PATIENTS

Suzi Hong, Ph.D., Paul J. Mills, Ph.D., Psychiatry, University of California San Diego, La Jolla, California, Roland von Känel, M.D., Internal Medicine, University Hospital Bern, Bern, Switzerland, Joel E. Dimsdale, M.D., Psychiatry, University of California San Diego, La Jolla, California

Individuals with obstructive sleep apnea (OSA) suffer from persistent fatigue and daytime sleepiness. Leptin levels were associated with obstructive sleep apnea in individuals with OSA. Recently, inflammatory actions of leptin have been noted, which may thereby contribute to the elevated fatigue in OSA patients. We investigated the associations between plasma leptin and reported fatigue levels in 48 men and women (49 ± 8.2 years) with OSA. Blood was drawn around 6:00am after 12-hour fasting and patients completed Multidimensional Fatigue Symptom Inventory (MFSI) short form and Profile of Mood States (POMS). Plasma leptin levels were assessed using ELISA and sleep was monitored using polysomnography. On average, patients were overweight (BMI, 29.4 ± 5) and exhibited an apnea hypopnea index (AHI) of 27.3 (± 29.0). Leptin levels were correlated with BMI (r = .54, p< .001), % O2 saturation (r = -.28, p< .05), and sleep efficiency (r = -.30, p< .05) but not significantly so with AHI (r = .18) or O2 desaturation (r = .17). The associations between leptin and fatigue levels were examined using both univariate correlation and multivariate regression analyses. Leptin levels were associated with total fatigue assessed by MFSI (r = .52) and POMS (r = .56; p's < .001) and also with vigor as assessed by subscales of MFSI (r = -.49) and by POMS (r = -.43; p's < .01). After controlling for age and BMI (step 1) and O2 saturation and sleep efficiency (Step 2), regression analyses confirmed that leptin levels (step 3) explained a significant portion of the variance in vigor assessed by MFSI (B = -.37) and POMS (B = -.40; p's< .05). In patients with OSA, leptin levels were associated with hypoxemia and sleep disturbance. Furthermore, decreased levels of vigor were explained by leptin levels even after controlling for sleep quality and hypoxemia. Given its inflammatory properties and the abundance of its receptors in the brain, the role of leptin on mood disturbance in clinical populations warrants further investigation.

Paper Session: Hypertension: The Role of Environmental Stress, Genetics, and Individual Differences in Etiology, Prevention and Treatment

Abstract 1759

THE PREVALENCE OF MASKED HYPERTENSION IN A WORK SAMPLE: UNRECOGNIZED RISK FOR CARDIOVASCULAR EVENTS

Matthew M. Burg, PhD, Dorota Gruber, MS, Padmini Iyer, BA, Avilda Selpa, Albania Ventura, Ayla Steadman, Joseph Schwartz, PhD, Medicine, Columbia University Medical Center, New York, NY, Thomas Pickering, MD, Medicine, Columbia University Medical School, New York, NY

Background: Resting blood pressure measured in the clinic setting (CBP) is the recommended method for diagnosing hypertension (HT). It is known however, that CBP can misrepresent the blood pressure (BP) that prevails at other times. The introduction of ambulatory BP monitoring (ABPM) revealed 2 groups for whom CBP mis-estimates daytime BP. One group comprised of individuals showing daytime BP during ABPM above HT diagnostic threshold in concert with normal CBP have been called masked hypertensive (MHT). Overwhelming evidence shows that daytime ABP is a better predictor of cardiovascular (CV) risk than the CBP, and when considered together, CBP provides no additional predictive information. The prevalence of MHT is not known. Methods: Individuals (total n=469) without diagnosed HT were recruited from worksite settings. CBP was defined as their averaged resting BP measured 3 times over a 5-min period on 3 occasions; 24-hr ABPM was also completed on 1 separate occasion. MHT effect was defined as having average ABP during waking hours that is greater than CBP. Individuals were classified as having frank MHT if their CBP was below threshold for HT (140/90 mmHg) and their average ABP during waking hours was above threshold (135/85 mmHg). Results: Over 90% of individuals demonstrated a MHT effect, with 37% having sylvatic ABP during waking hours more than 10mmHg higher than systolic CBP. Overall systolic ABP during waking hours was 7.8±8.0mmHg higher than systolic CBP. The proportion of people classified as normotensive by CBP but with frank MHT was 16%. Conclusions: A large proportion of individuals demonstrate substantially higher daytime BP than CBP. Of greater clinical significance, the proportion with MHT classified as normotensive by resting BP alone (16%) when extrapolated to the US population implies that over 20 million people are misclassified and thus not receiving BP lowering treatment that could mitigate risk for future CV events.

Abstract 1491

THE INFLUENCE OF ENVIRONMENTAL STRESS AND GENETIC FACTORS ON AMBULATORY BLOOD PRESSURE

Katie Hunter, BSc; Nephrology, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada, Nancy Perkins, RN, Nephrology, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada, Sheldon W. Tobe, MD, FRCPC, Nancy Perkins, RN, Nephrology, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada, Lissette Gomez, BSc, Yu Feng, BSc, Karen Wigg, BSc, Cathy L. Barr, PhD, Genetics and Development Division, Toronto Western Research Institute, Toronto, Ontario, Canada

The Double Exposure Study evaluated factors associated with ambulatory blood pressure (BP) and found that job strain (by Job Content Questionnaire) was associated with elevation of 24-hr systolic BP (SBP) in 258 unmedicated workers (p = .007). We wished to examine the potential role of specific genetic factors that may affect the impact of environmental stress on sustained BP. Endothelin-1 is a potent vasoconstrictor produced in response to stress involved in the regulation of the vasculature as well as neural functions including neurotransmitter release. Methods: In this study, we examined 5 markers covering the endothelin-1 gene, including 2 markers previously associated with BP (Lys198Asn and an A insertion/deletion (ins/del) marker). One-way ANOVA was performed to determine whether any relationship existed between each genetic marker and 24-hr SBP, and two-way ANOVA for an interaction effect with the presence of job strain. Results: We observed trends for relationships between SBP and genotypes of the ins/del marker and the marker rs5369 located in exon 3 (p=0.516 and .065 respectively). More interestingly, we observed a significant interaction effect with job strain and genotype for these two markers. For the ins/del, heterozygotes for the insertion allele showed increased SBP with job strain compared to homozygotes for the deletion allele (p=.026). Similar results were seen with the marker rs5369 (p=.0267), a marker located 3.5 kb from the ins/del and in linkage disequilibrium (D = .77). Conclusion: Our results provide evidence of an interaction between an environmental factor, job strain, with genotypes of the endothelin-1 gene. Heterozygotes for the insertion allele had higher SBP with job strain than individuals homozygous for the deletion allele. These results confirm the hypothesis that this gene is a factor in the psychological
response of stress on SBP, and further, implicate the insertion allele as a possible causative variant.

Abstract 1617
CIRCADIAN REACTIVITY AND ALPHA-ADRENERGIC RECEPTOR GENE POLYMORPHISMS IN BLACK YOUTH
Robert M. Kelsey, Ph.D, Bruce S. Alpert, MD, Shelley R. Gabel, MBA, Pediatric Cardiology, Julia Krashkal Adkins, PhD, Preventive Medicine, University of Tennessee Health Science Center, Memphis, TW, Mary K. Dahmer, PhD, Michael W. Quasney, MD/PhD, Pediatric Critical Care, Medical College of Wisconsin, Milwaukee, WI

Measures of cardiovascular reactivity to stress are reliable, heritable, and predictive of future cardiovascular disease. Thus these measures qualify as intermediate phenotypes for genetic studies of cardiovascular risk. Alpha-adrenergic receptor (alpha-ARs) contribute to cardiovascular reactivity and blood pressure control. Therefore, we evaluated the associations between cardiovascular reactivity and genetic polymorphisms in the alpha-1A-AR (ADRA1A, Arg492Cys), the alpha-2A-AR (ADRA2A, -1284C>G), and the alpha-2B-AR (ADRA2B, Del301-303). Impedance cardiographic and blood pressure measures were recorded from 500 black youth (254 females, 246 males; mean age = 17.8 yr) during baseline periods and four standard stressors (math, video game, cold pressor, whole-body cold). Measures of cardiovascular reactivity were calculated by subtracting pre-task baseline levels from stress levels, and were analyzed in Sex X Genotype X Stressor MANCOVAs with age, body mass index, and task order as covariates. DNA was extracted from buccal cells. All three polymorphisms were in Hardy-Weinberg equilibrium. A significant main sex effect occurred for overall heart rate reactivity, p < .001, eta2 = .023. Heart rate reactivity was lower in males who were homozygous for the Arg492 allele (mean = 2.7 bpm) than in males who carried the Cys492 allele (mean = 3.9 bpm) and all females (mean = 4.9 bpm and 4.0 bpm, respectively). A significant ADRA2A main effect emerged for total peripheral resistance (TPR) reactivity, p < .002, eta2 = .024, which was primarily due to a linear effect of genotype on overall TPR resistance increase in TPR occurred in GG homozygotes (mean = 118.4 dynes/s/cm5), whereas the smallest increase occurred in CC homozygotes (mean = 74.3 dynes/s/cm5). These genetic associations are consistent with the roles of alpha-ARs in cardiovascular control, and may lead to improved strategies for early prevention and treatment of cardiovascular disease. (Supported by NIH under award #S HL72375 and RR-00211.)

Abstract 1757
MULTI-COMPONENT STRESS MANAGEMENT FOR HYPERTENSIVES: FOR WHOM DOES IT WORK BEST?
Lynn P. Clemow, Ph.D., Thomas G. Pickering, M.D., DPhil, Karina W. Davidson, Ph.D., Carmen Liriano, M.D., Medicine, Columbia University College of Physicians & Surgeons, New York, NY, William Gerin, Ph.D., Psychology, Penn State University, University Park, PA

Hypertension affects nearly 30% of adults in the U.S. and the burden of disease is greater for African Americans and women, and those with higher hostility and job stress. We tested a standardized psycho-educational stress and anger management intervention (the LifeSkills Workshop) for effects on blood pressure in hypertensive urban medical center employees in a randomized controlled trial (n=88). Significant effects were previously found favoring the intervention group on changes in clinic BP for both systolic and diastolic BP. We explored for this analysis subgroups who might be particularly helped by such a program, including: 1) high hostile patients (Barefoot Cook-Medley score >13) which was a stratification variable; 2) those with high job strain (above the sample median), and; 3) black participants, given the increased risk of cardiovascular disease among African Americans with psychopathology. The present study compared blood pressure levels between subjects with anxiety and depression and healthy controls. The effects of antidepressants were taken into account, since antidepressant use is associated with low cardiac vagal control and high heart rate (HR), which are known to influence blood pressure regulation. Methods: Blood pressure data were obtained in a large cohort study, the Netherlands Study of Depression and Anxiety (NESDA, N=2981). Based on the DSM-IV based CIDI interview, 590 participants were classified as controls, 2028 participants had a depressive and/or anxiety disorder; 1384 were not taking antidepressants and 644 used tricyclic antidepressants (TCAs), selective serotonin reuptake inhibitors (SSRIs) or serotonin and noradrenergic(SN)-working antidepressants. Multiple regression analyses were used to estimate the independent contribution of anxiety, depression as well as antidepressant use to diastolic and systolic blood pressure, after controlling for covariates. HR and HR variability measures were added to the equation to test whether effects of anxiety/depression or medication were mediated by vagal control over the heart. Results: Depressive subjects had significantly lower systolic blood pressure and were less likely to have hypertension (OR=0.69, CI=0.44-0.92, p=.001) than controls. Significantly higher blood pressure, however, was found among users of TCAs and they were more likely to have hypertension (OR=3.19; 95%CI=1.35-7.59, p=.008). These findings were partly mediated by the TCA effects on cardiac vagal control and HR. Also users of SN-working antidepressants had higher systolic and diastolic blood pressure and were more likely to have hypertension, which was fully explained by the effects on cardiac vagal control and HR. Conclusion: This study shows that depressive disorder is associated with low systolic blood pressure and the use of certain antidepressants associates with high blood pressure and hypertension.

Abstract 1614
EXERCISE BENEFIT ON INFLAMMATION IN HYPERTENSIVE INDIVIDUALS: LARGELY MEDIATED BY WEIGHT LOSS?
Suzi Hong, Ph.D., Julie Sadja, B.A., Kate M. Edwards, Ph.D., Barbara Woods, B.S., Psychiatry, Cynthia Knott, B.S., General Clinical Research Center, Joel E. Dimsdale, M.D., Psychiatry, University of California San Diego, La Jolla, California, Karen J. Calfas, Ph.D., Psychology, San Diego State University, San Diego, California, Paul J. Mills, Ph.D., Psychiatry, University of California San Diego, La Jolla, California

A sedentary lifestyle and obesity are major factors for elevated blood pressure (BP) that can lead to cardiovascular disease (CVD), yet exercise is beneficial in lowering BP. Although the mechanisms of exercise’s role in lowering BP remain unclear, anti-inflammatory effects of regular exercise have been recently suggested as one mechanism. In this study, we aimed to tested whether a reduction in inflammation from exercise training is largely...
mediated by weight loss. Thirty-four overweight to obese (BMI range 25-36) subjects (45.5±9.2 years) with elevated BP (average BP 143/85 mmHg) were randomly assigned to one of three 12-week interventions (exercise and low-sodium & calorie diet, exercise only, or waitlist control). BP, anthropometrics, cardiovascular fitness (VO2peak), and plasma sICAM-1 (as a marker for vascular inflammation) were assessed pre and post intervention. The exercise and diet group showed increased fitness and decreased BP (MAP) and BMI compared to the control group (p<.05). The exercise-only group showed increased fitness compared to the controls (p<.05). Correlation analyses revealed that the decrease in BMI, but not the improved VO2peak was associated with decreased sICAM-1 levels (r=.37, p<.05) and BP (r=.44, p<.01) pre to post-intervention. Multiple regression analyses further showed that the reduction in BMI (step 3; deltaR2=.13, B=.38, p<.05) accounted for the variance in the reduction in sICAM-1, even after controlling for demographic variables (step 1: age, gender, race, smoking) and improved fitness (step 2). A reduction in BP post intervention was also explained by weight loss (deltaR2=.14, B=.40, p<.05), after controlling for demographics and fitness. Weight loss from exercise and diet above fitness gain was a main factor associated with the reduction in inflammation and BP in overweight individuals with elevated BP. Given the high prevalence of obesity-related hypertension and the obesity-inflammation link, weight loss through exercise and healthy eating offer the promise of decreased vascular inflammation and thereby decreased risk of future CVD.

Paper Session: Pain

Abstract 1462

PSYCHOLOGICAL AND PHYSIOLOGICAL CORRELATES OF A BRIEF INTERVENTION TO ENHANCE SELF-REGULATION IN CHRONIC PAIN

John E. Schmidt, PhD, Psychiatry and Psychology, Heather M. Tonyan, BS, Anesthesiology, W. Michael Hooten, MD, Psychiatry and Psychology, Kevin I. Reid, DMD, Dentistry, Michael J. Joyner, MD, Anesthesiology, Mayo Clinic, Rochester, MN

The main objectives of this study were to determine if training and practice in a brief focused breathing technique is associated with improvements in physiological reactivity to a laboratory stressor (cold pressor test), and improvements in affect, self-efficacy, fatigue, sleep quality, and pain measures. The participants for this study were chronic pain patients diagnosed with fibromyalgia (n=20) or masticatory myofascial pain (n=10). Study participants completed an initial laboratory assessment including a diaphragmatic breathing training session. Participants were instructed to practice the technique for three ten-minute sessions daily, and returned to the lab for a second assessment after two-weeks. All study participants showed significant improvements in anxiety (STAI), depression (CES-D), pain severity (VAS), fatigue (MFSI), sleep quality (PSQI), self-efficacy (PSSE), cold pressor tolerance, and HRV total power (all p's<.05) between the two laboratory assessments. Interestingly, participants meeting criteria for significant PTSD symptomatology (PCL-C) showed significantly greater improvements in depression (p=.03), anxiety (p=.02), and fatigue (p=.02) compared to the non-PTSD participants. At baseline assessment, the PTSD participants reported significantly higher pain catastrophizing (p=.03), higher social constraints (p=.01), and lower social support (p=.03) compared to the non-PTSD participants. Study results suggest practice of a brief diaphragmatic breathing technique is associated with significant changes in a number of areas of physiological and psychological functioning in chronic pain patients. In particular, the increase in HRV total power may represent a significant change in post-training self-regulatory ability. The greater reduction in affective and somatic symptoms reported in the PTSD patients suggest daily use of this diaphragmatic breathing technique may significantly enhance inhibitory ability of sympathetic tone, achieving improvements in autonomic balance, physiological reactivity, and negative daily functioning for these highly distressed patients.

Abstract 1332

VAGAL NERVE STIMULATION REDUCES TENDERNESS IN FIBROMYALGIA

Gudrun Lange, PhD, Radiology, Benjamin H. Natelson, MD, Neurosciences, UMDNJ-New Jersey Medical School, Newark, NJ

We are performing a Phase I/II safety trial of vagal nerve stimulation (VNS) in Fibromyalgia funded by NIH. We started the trial because of reports that VNS can increase pain thresholds and because VNS is approved for use in refractory epilepsy and depression, which have similar treatment modalities as for widespread pain. We implanted VNS devices in 14 women with treatment-resistant FM and started stimulation 2 weeks later. The next 2 weeks were used to attain maximal tolerable dosage – i.e., currents ranging from 1 to 2 mA delivered as 30 sec trains every 5 min. None had unexpected complications from surgery or stimulation. To date, 12 participants completed the acute phase (i.e., 3.5 mo of active stimulation). After completion of the acute phase, we follow participants with clinical evaluations 6, 9 and 12 months post-implantation. As of 10/20/08, nine participants underwent the 6 mo evaluation, 6 participants the 9 month, and 3 participants the 12 month evaluation. At the end of the acute phase, only 58% still fulfilled criteria for FM, at 6 mo, 11%; and at 9 and 12 mo, 0%. The graph below lists the tender point count of each of these 12 women over time and a diagnosis of FM requires patients to have 11 or more tender points when palpated with 4 kg of force. One participant requested explantation despite substantial relief of her FM pain and tenderness. The continuing trend over time to fewer tender points argues against a placebo effect. These preliminary results, although uncontrolled, strongly suggest a role for VNS in the management of refractory fibromyalgia. We are currently planning an efficacy trial using a design to minimize placebo responding.

Number of Tender Points Over Time

<table>
<thead>
<tr>
<th>Participant</th>
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Abstract 1384

THE STRUCTURE OF INVALIDATION AS EXPERIENCED BY PATIENTS WITH FIBROMYALGIA

Marianne B. Kool, MSc, Henriët van Middendorp, PhD, Clinical and Health Psychology, Hennie Boeije, PhD, Methodology & Statistics, Utrecht University, Utrecht, The Netherlands, Rinie Geenen, PhD, Rheumatology and Clinical Immunology, University Medical Center Utrecht, Utrecht, The Netherlands

Purpose: Patients with fibromyalgia have difficulty with the invisibility and medically unexplained character of their chronic pain. Disbelief, lack of acceptance, or stigmatization by the spouse, family, colleagues, the health care system, and society are a key issue in their lives. However, the components of this phenomenon that we term ‘invalidation’ are largely unknown. The purpose of our study was to identify and clarify the underlying structure of the concept of invalidation as experienced by patients with fibromyalgia. Subjects and methods: Qualitative and quantitative techniques were combined. Interviews were carried out to obtain insight into patients’ everyday invalidation experiences. Then, patients individually sorted 95 statements about invalidation that they thought belonged together. Hierarchical cluster analysis on the sorted statements was performed to derive the structure of the invalidation construct. Results: The concept
'invalidation' had a higher-order distinction between statements reflecting 'discounting' and 'understanding.' At the next layer, 'discounting' was subdivided into the components 'denying' and 'paternalizing' (consisting of 'lecturing' and 'mothering'), and 'understanding' was subdivided into 'supporting' and 'acknowledging.' These higher-order constructs were further subdivided into fifteen lower-order clusters. Conclusion: The structure of invalidation suggests that lack of understanding (the absence of positive social responses) as well as discounting (getting negative social responses) should both be included in research to give full account of the invalidation experiences of patients. Remarkable was that discounting included paternalizing responses such as lecturing and mothering, next to denying responses that reflect rejection of the patient or the illness. These components provide a basis to quantify invalidation and the possibility to study its impact on symptom severity, quality of life, therapy adherence, therapy outcome, and other important aspects of fibromyalgia.

Abstract 1537

PAIN REACTIVITY TO INDUCED ANGER AND SADNESS IN WOMEN WITH AND WITHOUT FIBROMYALGIA AND THE INFLUENCE OF EMOTION REGULATION

Henriët van Middendorp, PhD, Rinie Geenen, PhD, Clinical and Health Psychology, Utrecht University, Utrecht, The Netherlands, Mark A. Lamley, PhD, Psychology, Wayne State University, Detroit, Johannes W. Jacobs, PhD, Johannes W. Bijlsma, PhD, Rheumatology & Clinical Immunology, University Medical Center Utrecht, Utrecht, The Netherlands

Purpose: Clinical observations and correlational research suggest that poor regulation of negative emotions amplifies pain in fibromyalgia, but experimental testing of this is rare. We examined in women with and without fibromyalgia whether experimentally induced anger and sadness amplified reported and experimentally assessed pain and whether the pain response was influenced by emotion regulation. Methods: Women (21 to 72 yrs) with fibromyalgia (n=62) and control women from the general population (n=59) recalled a neutral and anger- (n=60) or sadness-arousing (n=61) situation. Assessed were: trait emotion regulation, anger and sadness, pain report, and experimental pain threshold and tolerance (to an increasing electrical current). Repeated measures analyses of variance examined induced responses; regression analyses examined the influence of emotion regulation. Results: A manipulation check confirmed the induction of anger and sadness in the respective conditions. Both the anger and sadness recall led to a significant pain increase, i.e., higher reported pain and lower pain tolerance and threshold; all effects were highly significant (p<.001) and all but the moderate effect size of the pain threshold (partial eta2=.12) were large (partial eta2>.14). Patients had a stronger reported pain response than controls, whereas the groups did not differ on pain threshold or tolerance responses to negative mood induction. Similar pain responses to anger versus sadness were found. In the overall sample, high alexithymia (0=20, p=0.3) and internalization of anger (0=21, p=0.2) were associated with a larger reported, but not experimental pain response. Cognitive reappraisal and expression did not affect pain reactivity. Conclusions: Negative emotions appear to be able to augment pain, the primary symptom of fibromyalgia. Moreover, poor emotion regulation strategies influence the pain response to negative emotions. Therefore, in patient education and interventions, the management of potential pain-amplifying effects of negative emotions could be considered.

Abstract 1566

PROVIDER-DOCUMENTED VS. PATIENT-REPORTED PAIN MANAGEMENT IN PRIMARY CARE: WHICH PREDICTS OUTCOMES?

Erin E. Krebs, MD, MPH, Medicine, Roudabush VAMC, Indiana University, Indianapolis, IN, Timothy S. Carey, MD, MPH, Medicine, Morris Weinberger, PhD, Health Policy and Administration, University of North Carolina, Chapel Hill, NC

Purpose: Pain symptoms are among the most common problems seen in primary care, but studies have found that primary care providers (PCPs) often fail to document pain assessment and management. Our objectives were to 1) compare PCP documentation with patient report of pain treatment during a clinic visit and 2) determine whether patient-reported or PCP-documented pain treatment plans predict pain outcomes. Sample: Adult primary care patients with pain. Methods: Immediately after a primary care visit, we asked patients to report PCP treatment plans. PCPs also completed the Brief Pain Inventory (BPI) at baseline and 1 month later. We extracted PCP documentation of pain assessment and treatment plans from charts and used kappa statistics to assess agreement between patient reports and PCP documentation of treatment plans. We then used multivariable linear regression to model whether patient-reported or PCP-documented pain treatment plans predicted change in pain severity at 1 month, adjusted for demographics, depression, anxiety, pain chronicity, number of pain sites, and opioid use. Results: The mean age of 237 participants was 54 years; 66% were female and 74% had chronic pain. Baseline mean BPI severity was 5.2 (moderate pain). PCPs documented pain assessment for 83% of visits and any diagnostic or treatment plan for 73%. Overall, patients reported more new treatment plans (67%) than PCPs documented (54%). Agreement between patient report and PCP documentation was moderate for new pain medication (k=0.50) and slight for pain management advice (k=0.13). Among 199 patients with follow-up data, the mean change in BPI severity was -1.3 (SD 2.8; 0-10 possible score, lower is better). In multivariable models, PCP-documented pain treatment was not associated with change in pain. In contrast, patient-reported receipt of pain treatment predicted pain improvement (-1.3, 95% CI -2.1, -0.5). Conclusion: We found discordance between patient report and PCP documentation of pain treatment. Only patient-reported treatment plans predicted improved outcomes at follow-up. To capture the quality of pain management in primary care, asking patients about treatment received may be better than reviewing charts.

Abstract 1445

STICKS AND STONES MAY BREAK MY BONES BUT YOU DON'T HAVE TO TOUCH ME TO HURT ME

Stuart W. Derbyshire, Ph.D., Jody Osborn, MSc, Psychology, University of Birmingham, Edgbaston, West Midlands, UK, Candy McCabe, Ph.D., School for Health, University of Bath, Bath, UK, Donna Lloyd, Ph.D., Psychology, University of Manchester, Manchester, UK

Purpose: Pain without physical pathology is distressing and common but modeling this pain is difficult. Here two experiments investigate whether a control population experiencing the rubber hand illusion will experience pain when the rubber hand is 'injured' or when it moves out of sync with their real hand. A further experiment investigates whether control participants can experience physical pain empathetically. Methods: Healthy participants were sat with their left hand hidden and viewing a rubber hand synchronously stroked with their hidden hand. When the participant felt the stroking in the rubber hand, a pin was driven into it and the index finger was bent. In a second experiment, healthy participants were studied in pairs. Participant one (P1) sat with her right hand hidden and her other hand visible while participant two (P2) placed her right arm on the table in front of P1. Both participants tapped the index finger of their right hand in unison. When P1 felt as though she was now tapping P2's finger, P2 began tapping out of sync with P1. P1 described any changes in sensation during asynchronous tapping. In a third experiment, normal controls viewed pictures and short clips of injuries and reported whether they felt any physical pain sensation in response. Those that reported pain observed the same images during fMRI. Results and conclusions: Half the participants reported somatic sensations when the rubber hand was ‘injured’ with a fish, and half with mild pain. When observing synchronous movement, 5% of participants reported strong pain, rising to 12% when observing asynchronous movement. One third of participants reported a sensation of pain when viewing images involving injury. fMRI revealed primary sensory and anterior cingulate activity while viewing those images. These techniques provide good evidence for increased pain when manipulating a rubber hand felt as the participant’s own hand and when observing others’ injuries. fMRI data suggest the brain is generating pain despite the absence of disease, tissue damage or threat of tissue damage. Thus we provide an opportunity to understand functional pain as an expression of distress through the brain rather than just a misfiring pain system.
VITAL EXHAUSTION AND DEPRESSION AS INDEPENDENT PREDICTORS OF CARDIOVASCULAR DISEASE (HUNGARIAN EPIDEMIOLOGICAL PANEL 2002-2006)

Abstract 1179

Purpose of the Study: Vital exhaustion (VE) has been found to increase risk for ACS. Depression (DEP) has been implicated in the etiology and progression of CVD. VE is a psychological state characterized by energy loss, increased irritability, and demoralization. The main features of DEP are hopelessness and guilt; however, some studies suggest that the relation between VE and DEP may not be causal. Therefore, the objectives of this study were to examine the relationship between VE and DEP in ACS patients and to determine whether DEP is an independent predictor of CVD.

Methods: The study was conducted using a cohort design. ACS cases were identified through hospital records and interviewed within a few days of admission. A total of 251 ACS patients (139 men, 112 women) were included in the study. Depression was assessed using the shortened BDI (10 items) and VE by the shortened Maastricht Questionnaire (10 items). Logistic regression analysis was performed to study possible gender differences.

Results: VE was an independent predictor of CVD, adjusted for age, education, BMI, smoking, alcohol abuse, and physical activity, in men (OR=1.78, 95%CI=1.39-2.29) and in women (OR=1.45, 1.16-1.79). The final analyses also included DEP in order to study a possible interaction between the two variables. The results showed that the presence of DEP significantly increased the risk for VE (OR=1.31, 1.04-1.66) in men and (OR=1.42, 1.04-1.86) in women. The interaction term was not significant.

Summary of Results: VE and DEP were independent predictors of CVD. VE was a stronger predictor than DEP, and the presence of DEP increased the risk for VE. The results suggest that VE and DEP are important predictors of CVD, and their co-occurrence should be considered as a risk factor for long-term depression in community-dwelling persons.

Conclusion: The findings of this study highlight the importance of addressing both VE and DEP in ACS patients to improve their long-term prognosis.

IMPACT OF ACUTE CORONARY SYNDROME ON INCIDENT DEPRESSION IN THE GENERAL POPULATION

Juan F. Roy, Ph.D., Psychology, University of Zaragoza and CIBERSAM, Zaragoza, Aragon, Spain, Concepcion De la Camara, MD/Ph.D., Zaragoza, Spain, Tiro Ventura, MD/Ph.D., Medicine and Psychiatry, University of Zaragoza, Zaragoza, Spain, Antonio Lobo, Professor, Psychiatry, University of Zaragoza, Zaragoza, Spain

Background: Depression has been shown in previous studies as a risk factor for mortality and new cardiac events following an acute coronary syndrome (ACS) episode. However, no evidence has been found relating ACS as a risk factor for long-term depression in the community. Most of the existing studies utilized depression questionnaires rather than standardized structured research interviews and were carried out using clinical samples. The purpose of this study was to determine whether the presence of a previous ACS episode would increase the risk for a long-term depression in community-dwelling persons, adjusted for biological and behavioral CHD risk factors.

Method: A randomized stratified population-based sample of 4,803 individuals aged 55 or older were interviewed at the baseline wave of the ZARADEMP study. Subjects underwent detailed assessment of medical history, including cardiac status (ACS), conventional demographics, activities of daily living and biological (diabetes, hypertension JNC-VII criteria) and behavioral (smoking, alcohol) CHD risk factors. A standardized, structured research interview was conducted using the Geriatric Mental State (GMS) Examination. Depression was assessed at baseline and at 2-year (n=4,061) and 5-year (n=3,160) follow-up visits. Depression was diagnosed with AGECAT criteria. Results: The prevalence of depression at baseline was 11.5%. A previous episode of acute myocardial infarction (AMI) was detected in 139 (2.9%) subjects and unstable angina pectoris in 251 (5.3%) subjects. Multivariate logistic regression modeling showed an increased risk for depression at baseline in AMI patients (OR=1.99, 95%CI [1.03-3.86], p=.041). AMI was also significantly associated with incident depression diagnosis at the 5-year follow-up, which remained after adjustment for confounders (OR=4.02, 95%CI [1.16-13.93], p=.031). Conclusion: These results indicate that ACS is an independent long-term risk factor for late-life depression in the general population. This significant association is not modified by other CHD risk factors.
Abstract 1300

TRAJECTORIES OF ANXIETY AND DEPRESSIVE SYMPTOMS IN PATIENTS WITH AN IMPLANTABLE DEFIBRILLATOR

Krista C. Van den Broek, PhD, Robert Smith, MSc, CoRPS - Medical Psychology, Tilburg University, Tilburg, The Netherlands, Albert Meijer, PhD, MD, Department of Cardiology, Catharina Hospital, Eindhoven, The Netherlands, Marco Alings, PhD, MD, Department of Cardiology, Amphia Hospital, Breda, The Netherlands, Johan Denollet, PhD, Ivan Nylincek, PhD, CoRPS - Medical Psychology, Tilburg University, Tilburg, The Netherlands

A subgroup of patients experiences anxiety and depressive symptoms following implantable cardioverter defibrillator (ICD) implantation, but little is known about the course of these symptoms. We examined 1) trajectories of anxiety and depressive symptoms in the first year post-implantation and 2) the predictors of these trajectories. ICD patients (N=312, 16.7% females, 62.8%-60 years) completed the STAI (state-version) and BDI at baseline, and at 2 and 12 months post-implantation. Anxiety sensitivity (Anxiety Sensitivity Index), Type D personality (Type D Scale), and self-deception (Marlowe-Crowne scale) were also measured at baseline. Demographic variables included gender, age, education, and marital status and clinical variables included ICD indication, etiology, comorbidity, and appropriate ICD therapies. SAS procedure TRAJ was used to examine trajectories over a 12-month period and multinomial logistic regression to examine predictors of these trajectories. Four distinct trajectories were found for both anxiety and depressive symptoms, that is respectively very low (8.0%), low (53.2%), mildly (35.3%), and severely (3.5%) anxious and depressed groups. Parallel groups for depression (respectively, 38.1%, 36.9%, 17.0%, and 8.0%) trajectories were relatively stable, although within depression classes some statistically significant change was observed. Multinomial regression analyses showed that anxiety sensitivity (ORMild anxiety=3.76, p<.001) and Type D personality (ORMildly anxious=2.09, p=.03; ORSeverely anxious=17.46, p=.001; ORSeverely depressed=4.11, p=.005) were the most prominent predictors of anxiety and depression trajectories. Demographic and clinical variables were unimportant to trajectories. Anxiety and, to a lesser extent, depression trajectories tend to be stable in the first year post-implantation, with anxiety sensitivity and Type D personality being the most prominent predictors of these trajectories. Psychological screening may be implemented in hospitals to identify patients at risk for chronic anxiety and depression.

Abstract 1285

PROGNOSTIC ASSOCIATION OF DEPRESSION FOLLOWING MYOCARDIAL INFARCTION WITH CARDIAC PROGNOSIS: AN UPDATED META-ANALYSIS

Anna Meijer, MSc, Jerry van Riezen, Bachelor of Medicine, Psychiatry, University Medical Center Groningen, Groningen, The Netherlands, Peter de Jonge, PhD, Internal Medicine and Psychiatry, University of Groningen, Groningen, The Netherlands

Background: Depression is highly prevalent in patients after an infarction (MI) and is associated with a poorer cardiovascular prognosis. Many studies have investigated this association. The current study is an update of the meta-analysis by van Melle et al. published in 2004. Purpose of study: To investigate the association of post-MI depression with cardiac prognosis by conducting a meta-analysis of prospective studies, using the same search strategy as in 2004 but restricted to the latest studies. Subject sample and statement of methods: A systematic literature search was performed in Medline, Embase and Psychinfo (over the period January 2004 up until August 2008) combined with cross-referencing, without language restrictions. The selection involved prospective studies which investigate the impact of post-MI depression on cardiovascular outcome. Cardiovascular outcome is defined as all-cause mortality, all events (i.e.: all-cause mortality, recurrent MI, rehospitalization, current MI, revascularization) and non-fatal cardiac events within 24 months after the myocardial infarction. Depression had to be assessed within 3 months after MI using established psychiatric instruments. Summary of results: Thirteen new studies met the selection criteria. In these studies the follow-up (on average 18.5 months) was described of 7975 MI patients (12 cohorts). Post-MI depression was associated with increased mortality (OR 1.81), all events (OR 1.66) and non-fatal cardiac events (OR 1.43). Conclusion: Post-MI depression is associated with a 1.43-1.81 fold increased risk of impaired cardiovascular outcome. This risk is less pronounced than that found in the 2004 meta-analysis, which showed a 2-2.5 fold increased risk. This is congruent with the overall picture that the effects of post-MI depression on cardiovascular events has declined over the past decades.

Abstract 1296

ARE THE EFFECTS OF DEPRESSION ON CARDIOVASCULAR PROGNOSIS IN PATIENTS WITH STABLE CORONARY HEART DISEASE RESTRICTED TO SOMATIC SYMPTOMS?

Petra W. Hoen, Bachelor of Medicine, Psychiatry, University Medical Center Groningen, Groningen, The Netherlands, Mary A. Whooley, MD, Epidemiology, V.A. Medical Center San Francisco, San Francisco, California, Elisabeth J. Martens, PhD, Psychology, Tilburg University, Tilburg, The Netherlands, Peter de Jonge, PhD, Psychiatry, University Medical Center Groningen, Groningen, The Netherlands

Background: Depression in patients with stable coronary heart disease (CHD) is associated with poor cardiac prognosis. To date, it remains unclear which depressive symptoms are specifically cardiotoxic. Purpose of study: The purpose of this study was to evaluate the relationship between specific depressive symptoms and ICD therapies on cardiac prognosis in patients with stable CHD. Subject sample and statement of methods: CHD patients (n=1024) participating in the Heart and Soul study were assessed on demographic and clinical variables and completed the Patient Health Questionnaire (PHQ) to determine the presence of 9 specific DSM-IV depressive symptoms. A comparison was made on a new cardiovascular event (including congestive heart failure (CHF), myocardial infarction (MI), stroke) or cardiac death (mean follow-up duration = 4.3 years) for patients with or without each of the specific depressive symptoms. Demographic characteristics (age, sex) and cardiac risk factors (left ventricular ejection fraction, metabolic syndrome, smoking) were controlled for. Summary of results: There were 236 events attributable to cardiac death or cardiovascular events. The following symptoms were associated with adverse cardiac outcome after adjusting for demographic data and cardiac risk factors: depressed mood (OR:1.48-95% CI:1.00-2.18;p=0.047), sleeping difficulties (OR:1.47-95% CI:1.10-1.96;p=0.009), fatigue (OR:1.52-95% CI:1.15-2.00;p=0.003), appetite problems (OR:1.68-95% CI:1.21-2.34;p=0.002), and psychomotor changes (OR:1.67-95% CI:1.11-2.51;p=0.02). Conclusion: Somatic symptoms of depression, including sleeping difficulties, fatigue, appetite problems and psychomotor changes were associated with adverse cardiac outcome. These findings suggest that treatment of depression in CHD patients might improve cardiovascular prognosis when it reduces these particular symptoms. Hopefully, these findings may lead to the development of new treatments for depression in CHD patients.

Abstract 1052

TREATMENT OF POST MYOCARDIAL INFARCTION MAJOR DEPRESSIVE DISORDER AND LOW HEART RATE VARIABILITY: THE EFFECTS OF CARDIORESPIRATORY BIOFEEDBACK AND DIALECTICAL BEHAVIORAL THERAPY

Priya Chaudhri, Ph.D., Preventive Cardiology, Hartford Hospital, Hartford, CT

Post myocardial infarction (MI) Major Depressive Disorder (MDD) and low heart rate variability (HRV) are associated with increased risk of morbidity and mortality among patients with Coronary Artery Disease (CAD). Little is known if behavioral interventions can augment the effects of pharmacological treatment in post-MI patients. This study examines the effectiveness of cardiorespiratory biofeedback with Dialectical Behavioral Therapy (DBT) in conjunction with the antidepressant sertraline, for the treatment of post-MI MDD and low HRV. Sixty post-MI patients with MDD were randomized to either a biofeedback/DBT/sertraline treatment or a sertraline only control group. Biofeedback sessions consisted of daily practice using a StressEraser device and a modified DBT skills group was implemented once a week for 90-minutes. Groups were assessed at pre-treatment (1-week), post-treatment (8-week) and follow-up (12-week). HRV was measured by the standard deviation of normal-to-normal beats (SDNN).
MDD diagnosis and severity was assessed using the Depression Interview and Structured Hamilton (DISH) and the Beck Depression Inventory (BDI-II). Statistical analyses were performed using hierarchical linear model (HLM). Results indicated that the biofeedback/DBT group demonstrated a greater decrease in depression severity, as evidenced by a significant time by treatment interaction from pre-treatment to follow-up for the DISH (p<.006) and BDI (p<.0001), and a significantly greater reduction in MDD diagnosis for the biofeedback/DBT group across all time points (p<.001). In addition, the biofeedback/DBT group demonstrated larger improvements in HRV, as evidenced by a significant time by treatment interaction for SDNN (p<.004) from pre-treatment to follow-up. These findings support the efficacy of a combined behavioral-drug treatment for CAD patients. The results revealed that biofeedback and DBT in conjunction with sertraline is significantly more effective in the treatment of post-MI MDD and low HRV than pharmacological treatment alone.

**Paper Session: Stress & Heart**

**Abstract 1261**

**RELATIONSHIP BETWEEN EXHAUSTION AND DEPRESSIVE SYMPTOMS, AND CHANGES IN FIBRIN D-DIMER TO ACUTE PSYCHOSOCIAL STRESS IN TEACHERS**

Roland von Känel, General Internal Medicine, University Hospital, Bern, Switzerland, Silja Bellingrath, Brigitte M. Kudielka, Jacobs University, Bremen, Germany

Objective: Exhaustion and depression are psychosocial risk factors of coronary artery disease. A hypercoagulable state in response to acute psychosocial stress contributes to atherothrombotic events. We aimed to investigate the hypothesis that exhaustion and depression correlate with stress-induced changes in the hypercoagulability marker D-dimer.

Methods: Thirty-eight healthy and non-smoking school teachers (mean age 50±8 years, 55% women) completed the 9-item Maastricht Vital Exhaustion Questionnaire and the 7-item depression subscale of the Hospital Anxiety and Depression Scale. Within one week, subjects twice underwent the Trier Social Stress Test (i.e. preparation phase, mock job interview, and mental arithmetic that totaled 13 min). Plasma twice underwent the Trier Social Stress Test (i.e. preparation phase, mock job interview, and mental arithmetic that totaled 13 min). Plasma samples were collected immediately before and 2 hours after the stressor. The primary outcome was the change in plasma D-dimer over time controlling for sex and age. Secondary outcomes were changes in D-dimer with stress induced changes in the hypercoagulability marker D-dimer. Results: Spearman’s correlation coefficients were α = 0.68 (p=.011) and α = 0.61 (p=.013) for exhaustion and depression respectively. Univariate predictors of delta D-dimer were age (r=0.34, p=0.044) and depression (r=0.41, p=0.013) associated with increase (i.e. attenuated recovery) of D-dimer between 20 and 45 min post-stress. Controlling for stress hormone and blood pressure reactivity did not substantially alter these results. Conclusions: The findings suggest an attenuated immediate D-dimer stress response and post-stress delayed recovery of D-dimer levels with elevated exhaustion and depressive symptoms. In particular the prolonged hypercoagulability after stress cessation might contribute to the atherothrombotic risk previously observed with exhaustion and depression even at subclinical levels.

**Abstract 1118**

**PROLONGED CARDIAC EFFECTS OF MOMENTARY ASSESSED STRESSFUL EVENTS AND WORRY EPISODES**

Jo F. Brosschot, PhD, Clinical, Health and Neuropsychology, Leiden University Inst. of Psychological Research, Leiden, The Netherlands, Suzanne Pieper, MSc, Child and Education Studies, Faculty of Social and Behavioral Sciences, Leiden, The Netherlands, Rien van der Leeden, Methods and Statistics, Leiden University Inst. of Psychological Research, Leiden, Julian F. Thayer, PhD, Psychology, The Ohio State University, Columbus, Ohio

Prolonged physiological activation before or after stressors has gained recognition as a decisive element in theories that explain the link between stress and disease, specifically cardiovascular (CV) disease. We hypothesized that increased heart rate (HR) and decreased heart rate variability (HRV) are not only due to concurrent stressful events but also to stressors that occurred in the four preceding hours or were anticipated to occur in the next hour. Further, we expected worry to mediate at least part of these prolonged effects of stressors. Ambulatory HR and HRV of 73 female and male teachers were recorded during neutral standardized laboratory tasks and ambulatory for 4 days, during which they reported, on an hourly basis using computerized diaries, the number and characteristics of worry episodes and stressful events. Multilevel regression models were used, accounting for the effects of biobehavioral variables including recovery from neutral laboratory stressors assessed in advance, job stress, and negative emotional traits, including trait worry, anxiety, depression and hostility. Compared to neutral periods, stressful events were associated with an HR increase of 2.02 beats/min in the succeeding hour, while worry independently displayed concurrent (2.86 beats/min; 1.15 ms) and prolonged effects in the succeeding hour on HR and HRV (2.85 beats/min; 1.17 ms) and two hours later on HR (2.51 beats/min). These findings were largely independent of effects of emotions, physical activity, posture and biobehavioral factors, such as gender, age, body mass or negative health behaviors, and neutral lab stress recovery. Of the traits and job stress only trait worry predicted HR. Stressors can have prolonged cardiac effects up to one hour, that are however not mediated by worry. However, worry itself can have independent prolonged effects that last even longer, i.e two hours. These findings emphasize the importance of worry as a source of excessive cardiac elevations. The prolonged activation by stress and worry are probably mediated by unconscious perseverative processes. This should be addressed in future studies.

**Abstract 1315**

**ANGRY RUMINATION PREDICTS STRESS PROVOKED INCREASE IN ENDOTHELIN-1 AMONG PATIENTS WITH CORONARY ARTERY DISEASE**

Aaron B. Feinstein, MD, Section of Cardiovascular Medicine, Yale University School of Medicine, New Haven, CT, Robert Soufer, MD, Dorothea Collins, Section of Cardiovascular Medicine, Yale University School of Medicine, West Haven, CT, Hooman Ranjbaran, MD, Aaron Soufer, Brenda Graeber, Matthew M. Burg, PhD, Section of Cardiovascular Medicine, Yale University School of Medicine, New Haven, CT

Objective: Trait anger predicts incident CHD, and provoked anger can trigger acute coronary syndrome (ACS) and potentially fatal arrhythmia. The pathophysiology underlying these links is not fully established. Angry rumination has been shown to provoke increased blood pressure weeks after exposure to lab stress. Lab stress provokes prolonged vascular dysfunction mediated by endothelin-1 (ET-1). We investigated whether angry rumination predicted lab stress provoked increase in ET-1 in patients with CAD. Methods: 105 CAD patients completed the 5-item DAB-VAR (score range 0-20), a measure of likelihood to engage in angry rumination after exposure to anger provoking events. They then underwent a lab mental stress protocol (15-min resting baseline [BL], 8-min anger recall [AR]). Blood samples drawn at end of BL and AR were assayed for ET-1, and change score (AR minus BL) created. Univariate logistic regression was used to identify covariate predictors of delta ET-1 at p<0.20. Multivariate logistic regression predicting delta ET-1 and including DAB-VR and those variables found significant was then completed. Results: DAB-VR was significantly correlated with delta ET-1 (r=0.231, p<0.02). Age and use of ACE inhibitors, beta blockers and statins were significant univariate predictors of delta ET-1. In the multivariate model, DAB-VR score predicted delta ET-1 (OR=1.275, 95% CI [1.065-1.527], p=0.009), controlling for these variables. For each point increase in DAB-VR there was a 27.5% greater likelihood of an increase in ET-1 from BL to AR. Conclusions: Angry rumination significantly predicted increased ET-1 in response to anger recall stress in CAD patients. This finding demonstrates a potential role for ET-1, a potent vasoconstrictor, in the association of trait anger to incident CHD, and in anger triggered ACS events.

**Abstract 1238**

**THE FRUITS OF ONES LABOR: EFFORT-REWARD IMBALANCE BUT NOT JOB STRAIN IS RELATED TO HEART RATE VARIABILITY ACROSS THE DAY IN 35-44 YEAR OLD WORKERS**

Adrian Loerbroks, MSc, Volker Haixen, PhD, Julian F. Thayer, PhD, Joachim E. Fischer, MD, MSc, Mannheim Institute of Public Health, University of Heidelberg, Mannheim, Germany
Purpose of study: Previous research has suggested that the association between work stress and heart disease is more pronounced in young than in old employees. It might be expected that similar age-specificity applies to the relation between psychosocial work stress and heart rate variability (HRV), but data on this issue is sparse. We aimed to assess the age-specificity of the work stress-HRV association in greater detail using two predominant models of work stress. Subject sample and methods: Cross-sectional sample from an occupational cohort (n=591) of industrial employees in Germany. Psychosocial work conditions were characterized using the job content and the effort-reward-imbalance (ERI) questionnaires. HRV was recorded over 24 hours and was divided into three periods of the day (work time, leisure time, sleep time). Multivariate-adjusted partial correlation coefficients (PCCs) were calculated for four age groups (17-34 years, 35-44 years, 45-54 years, and 55-65 years). Results: No significant associations between job strain and HRV at any time of the day were found for any age group. ERI was related to HRV only in employees aged 35-44. In this group, ERI showed a significant inverse correlation with work time HRV (PCC = -0.231, p < 0.01) and with leisure time HRV (PCC = -0.195, p < 0.05), but not with sleep time HRV. In conclusion, the data suggest an inverse relation between work stress as measured by ERI and daytime HRV that is confined to workers in the middle of their career. These findings could either be explained by age-dependent declines in HRV or by age-related differences in career perspectives and career attitudes.

Abstract 1688

MOMENTARY INDICES OF POSITIVE AND NEGATIVE AFFECT ARE ASSOCIATED WITH CARDIAC PARASYMPATHETIC REGULATION

Richard P. Sloan, PhD, Peter A. Shapiro, MD, Ethan E. Gorenstein, PhD, Felice A. Tager, PhD, Catherine E. Monk, PhD, Emilia Bagiella, PhD, Psychiatry, Columbia University, New York, NY, Paula S. McKinley, PhD, Psychiatry, Columbia University, New York, New York, Ivy Chen, MA, Michael M. Myers, PhD, Psychiatry, Columbia University, New York, NY

In the laboratory, induction of negative affect leads to reduction in cardiac parasympathetic control measured as high frequency RR interval variability (HF-RRV). Little is known about the relationship of positive (PA) and negative (NA) affect and parasympathetic regulation in the field. In a trial to test the impact of a CBT-based hostility treatment program on cardiac autonomic regulation, we recruited 158 participants high in hostility as measured by standard inventories to be randomized to a 12-week treatment or wait list condition. Before and after treatment or waiting period, 24-hour ECG recordings were obtained. Every 30 min during waking hours of the monitoring day, momentary diaries measuring positive (PA) and negative (NA) affect were completed. HF-RRV was derived from the full 24-hr period and from 5-min epochs corresponding to diary entries. Hostility and trait anger were measured again after treatment or the waiting period. Mixed models regression analyses were used to evaluate the relationships among RRV, hostility and trait anger, and PA and NA. Treatment reduced hostility and trait anger but had no impact on average PA and NA or 24-hour estimates of RRV, as we have previously reported. However, we found consistent relationships between diary ratings of PA and NA and corresponding estimates of HF-RRV. As predicted, increased NA was significantly associated with decreased HF-RRV and increased HR. Correspondingly, increased PA was significantly associated with increased HF-RRV and decreased HR. Associations between affect and lower frequency RRV were nonsignificant. These data suggest a close relationship between parasympathetic regulation of the heart and affect measured on a moment-to-moment basis throughout the day. While they do not permit a causal interpretation, they are consistent with the hypothesis that changes in PA and NA drive alterations in autonomic nervous system activity. More broadly, they may provide a mechanism by which negative affective states influence the risk of heart disease and, possibly, how positive affective states afford protection.

Abstract 1599

INCREASED RESTING CORTICOLIMBIC PERFUSION PREDICTS EXAGGERATED STRESSOR-EVOKED BLOOD PRESSURE REACTIVITY

Peter J. Gianaros, PhD, L. K. Sheu, PhD, A. M. Remo, MS, I. C. Christie, PhD, Psychiatry, University of Pittsburgh, Pittsburgh, PA, H. D. Critchley, MD, Psychiatry, Brighton and Sussex Medical School, Brighton, UK, J. J. Wang, PhD, Radiology and Neurology, University of Pennsylvania, Philadelphia, PA

In recent neuroimaging studies, individual differences in stressor-evoked blood pressure (BP) reactivity --a long suspected risk factor for cardiovascular disease--have been associated with stressor-evoked activity patterns in corticolimbic brain areas involved in central cardiovascular regulation. These studies, however, have exclusively examined concomitant BP reactions and corticolimbic activity during stressor exposure. If individual differences in BP reactivity reflect variation in the expression of a central dispositional cardiovascular response tendency, then resting (pre-stressor) corticolimbic activity may directly predict subsequent stressor-evoked BP reactivity. To test this possibility, perfusion magnetic resonance imaging was used to quantify resting regional cerebral blood flow (rCBF) in healthy men (n=19) and women (n=20) aged 20-37 years who later performed cardiovascular stressor tasks. Results: Using hierarchical regression models controlling for alternative explanatory factors, including total CBF, resting BP, task-related performance, and subjective reports of unpleasantness, arousal, and perceived psychological control. Increased resting activity in areas of the cingulate, medial prefrontal cortex, and insula may partly characterize a central predisposition for exaggerated stressor-evoked BP reactivity and perhaps associated cardiovascular risk.

Abstract 1145

TRAIT SYMPTOM REPORTING, MYOCARDIAL ISCHEMIA, AND CHEST PAIN PERCEPTION IN PATIENTS UNDERGOING EXERCISE STRESS TESTING

Madeleine B. Bekkers, MD, Medical and Clinical Psychology, Uniformed Services University, Bethesda, MD, Kim L. Lavoie, Montreal Behavioural Medicine Centre, Montreal Heart Institute, Montreal, Quebec, Canada, Andre Arsenault, Blaine Ditto, Simon L. Bacon, Montreal Behavioural Medicine Centre, Montreal Heart Institute, Montreal, Quebec, Canada

Title: Trait symptom reporting and myocardial ischemia and pain perception in patients undergoing exercise stress testing Background: Patient symptom reports are necessary for treatment and diagnosis. The higher the number or salience of symptoms reported (i.e., chest pain), the more likely individuals are to seek and receive treatment. This study evaluated the relationship between symptom reporting and presence of ischemia and pain perception in patients with suspected ischemic heart disease. Methods: 727 patients presenting for standard nuclear medicine exercise stress testing completing the Pennebaker Inventory of Limbic Languidness (PILL) symptom questionnaire, a trait measure of symptom reporting. Patients were also assessed for the presence of myocardial ischemia using SPECT perfusion imaging and physician assessed clinical pain, as well as medical history. Results: GLM analyses revealed a significant effect of ischemia on PILL scores (F= 6.37, p<0.01), with those patients without ischemia scoring 102.5 (SEM = 1.7) on the PILL vs. those with ischemia scoring 95.8 (2.0). There was also a significant effect of clinical pain on PILL scores (F=17.26, p<0.001), with those patients without pain scoring 93.8 (1.1) vs. those with pain scoring 104.5 (2.3). There was a trend towards an interaction between clinical pain and ischemia (F=2.76, p=0.09) such that patients with no pain and ischemia had the lowest PILL scores, followed by those with no pain and no ischemia, pain and ischemia, and those with pain and no ischemia, who had the highest scores. Analyses were controlled for age and sex. Results: Pain with clinical pain during stress testing were more likely to have high PILL scores.
scores whereas patients with ischemia during stress testing were more likely to have low PILL scores. Patients with ischemia and no pain (silent ischemia) had the lowest symptom reporting scores and patients with pain and no ischemia had the highest scores. These results suggest that the symptom reporting trait is related to pain reporting in patients suspected of ischemic heart disease. Acknowledgements: This study was funded by grants from the Heart and Stroke Foundation and the Canadian Institute of Health Research

Paper Session: HPA Axis II

Abstract 1645

NORM DATA FOR CIRCADIAN CORTISOL SECRETION: THE CIRCORT DATABASE

Clemens C. Kirschbaum, Prof., Biopsychology, Technical University of Dresden, Dresden, Germany, Joachim E. Fischer, Prof., Mannheim Institute of Public Health, University of Heidelberg, Mannheim, Germany

Background: Circadian salivary cortisol secretion patterns offer a unique opportunity to study the functioning of the HPA axis in healthy individuals across all age groups, patient populations or individuals subjected to acute or chronic psychosocial stressors. Publicly available norm data sampled across a large number of studies using similar sampling techniques are needed. Methods: Investigators from known large datasets investigating apparently healthy populations of all ages were invited by one of the authors (CK) to provide published and unpublished datasets containing salivary cortisol levels, awakening time, gender, age and time of sampling. In the aggregated dataset, each sample was assigned to its respective sampling day. Data analysis was based on four-level random intercept random slope models with the log of the cortisol as a polynomial function of time since awakening (Cortisol samples = level 1, days = level 2, persons = level 3, studies = 4). Derivatives (area under the curve, cortisol awakening rise) were modeled as three-level models using MLWin 2.02. Results: The CIRCORT dataset comprises 101,924 samples from 16 studies obtained from 18,086 individuals during 24,599 days. The mean age of participants was 46.5 years (± 19.8 years, range 6 months to 98, 41% females). On average, participants sampled 4.1 samples per observation day. Multiple days (range 2 to 20) were collected by 3,105 subjects. This large dataset provided an 80% power to detect differences by 0.2% of the cortisol level. Data suggest a non-linear relationship of post-awakening peak levels with age (lowest values in pre-school age, highest values in mid-adulthood), very small differences across gender and possible seasonal variation with lower peak values during the months with extended daylight. Conclusion: The CIRCORT dataset provides a reference dataset for researchers being able to demonstrate small variations e.g. across seasons or age groups and to analyze naturally occurring within-person and between-person variability.

Abstract 1633

CORTISOL IN HAIR: A BIOLOGICAL MARKER OF CHRONIC STRESS

Clemens Kirschbaum, PhD, Lucia Dettenborn, PhD, Antje Tietze, Dipl.-Psych., Nadine Skoluda, (Student), Psychology, Technische Universitaet Dresden, Dresden, Saxony, Germany, Ingbjorg Jonasdottir, PhD, Institutet för stressmedicin, Institution för stressmedicin, Kungliga Hovapotorn, Sweden, Gothenburg, Sweden, Franka Borsdorf, Dipl.-Psych., Kathrin Siegert, Dipl.-Psych., Psychology, Technische Universitaet Dresden, Dresden, Saxony, Germany

Health consequences of chronic stress have been extensively studied in the past decades. While questionnaires are available to track chronic stress experiences by self report, no biological markers have been available to reflect the impact of prolonged stress on the organism. We propose that hair analysis for cortisol content is a promising tool by which hair segmental analysis may provide a retrospective calendar of cumulative cortisol exposure associated with chronic stress and clinical conditions. In a first proof of concept study, we could show that cortisol deposition in hair segments representing the third trimester of pregnancy was enhanced two-fold compared to the first two trimesters, or hair samples from non-pregnant control women, respectively (Kirschbaum et al, in press). Next, we investigated whether chronically stressful conditions were also accompanied by greater cortisol incorporation into hair. For this purpose, cortisol hair content was measured in 31 long-term unemployed individuals and compared with age and sex matched employed subjects. As predicted, unemployment was associated with increased cortisol levels in hair segments representing the last 3-6 months (p<0.05, eta2=0.07 and 0.09). Duration of unemployment was related to hair cortisol content (r=0.42 and r=0.43 for segments 1 and 2, respectively). Interestingly, BMI was related to hair cortisol content (r=0.43) but was not different between groups. In a third study, we measured cortisol deposition in hair samples of burnout patients. Results showed increased cortisol levels among burnout patients compared to controls (p < 0.05). Duration of burnout was associated with hair cortisol levels (r=0.53), as was anxiety (r=0.26) but not depression, perceived stress, or exhaustion. Additional studies were performed to investigate the effects of gender, age, hair color, and cosmetic treatment on cortisol deposition. The data suggest that neither of these factors exerted a significant effect on cortisol deposition. Further laboratory analyses were performed to confirm that also DHEA, DHEAS, testosterone, estradiol, and progesterone deposition can be measured in hair. We conclude that the measurement of cortisol in hair can provide a most useful tool for measuring long-term effects of stress in patients and healthy individuals alike reflecting a period of up to 6 months prior to sampling.

Abstract 1444

ELEVATED MACROPHAGE MIGRATION INHIBITORY FACTOR (MIF) AND FLATTENED DIURNAL CORTISOL IN INDIVIDUALS REPORTING HIGH LEVELS OF DEPRESSIVE SYMPTOMS

Kate M. Edwards, PhD, Jos A. Bosch, PhD, School of Biomedical Sciences, University of California and Chapman University, Orange, CA, Chris Dunkel Schetter, PhD, Psychology, University of California, Irvine, CA, John T. Cacioppo, PhD, Department of Psychology, University of Chicago, Chicago, IL, Philip T. Marucha, PhD, Department of Periodontics, University of Illinois at Chicago, IL.

Studies have reported associations between depression, inflammatory activity, and reduced sensitivity to the anti-inflammatory effects of glucocorticoids (GC). MIF is an inflammatory cytokine that causes GC insensitivity, and is secreted by immune cells and by the pituitary cells that also secrete ACTH. The aim of the current study was to investigate the relationship between MIF levels and diurnal HA activity in individuals reporting high or low levels of depressive symptoms. 133 healthy university undergraduates (66 women, mean age 21, range 19-30) were screened and invited to participate if they had Beck Depression Inventory (BDI) scores in the upper or lower quintile of their peer group. The prolonged nature of these symptoms was verified by re-administering the BDI on 2 occasions over a period of 3 months. Ambulatory cortisol was assessed for 5 consecutive days at 6 times each day (9am, 10.30am, 2.30pm, 3.30pm, 7.30pm, 8.30pm). MIF levels were determined from plasma. Average MIF levels were 45% higher in the high-depression group, as compared to the low-depression group (p<.05). The high-depression group also had lower morning cortisol values and a lower morning-to-evening cortisol ratio (p=.01). Further, morning cortisol was negatively correlated with MIF level and BDI score. These associations withstood adjustment for a wide range of demographic and behavioral factors, with the exception of sleep quality indices. These results suggest that MIF is a potential mediator linking dysphoria with inflammatory activity, glucocorticoid sensitivity, and HPA dysfunction.

Abstract 1189

PLACENTAL CRH AND POSTPARTUM DEPRESSIVE SYMPTOMS

Ilona S. Yin, PhD, Psychology and Social Behavior, University of California, Irvine, CA, Laura M. Glynn, PhD, Psychiatry and Human Behavior and Psychology, University of California and Chapman University, Orange, CA, Chris Dunkel Schetter, PhD, Psychology, University of California, Los Angeles, CA, Calvin Hobel, MD, Obstetrics and Gynecology, Cedars-Sinai Medical Center, Los Angeles, CA, Aleksandra Chicz-DeMet, PhD, Psychiatry and Human Behavior, University of California, Irvine, CA, Curt A. Sandman, PhD, Department of Psychiatry and Human Behavior, University of California, Orange, CA.

Postpartum depression is a major health concern that not only affects the mother, but also for the cognitive and
ATTENUATION OF THE CORTISOL AWAKENING RESPONSE OVER THE COURSE OF PREGNANCY IS ASSOCIATED WITH LENGTH OF GESTATION
Claudia Buss, PhD, Entringer Sonja, PhD, Cammack L. Allison, M.Sci, Joseph J. F. Reynolds III, PhD, Aleksandra Chiarini-DeMet, PhD, Sandanai A. Curt, PhD, Wadlwua D. Pathik, MD/PhD, Psychiatry and Human Behavior, University of California Irvine, Irvine, CA

Adverse pregnancy and birth outcomes associated with the length of gestation are the most significant problem in maternal-child health in the United States because they are the leading cause of infant mortality and morbidity. The state of pregnancy produces physiological alterations in the hypothalamus-pituitary-adrenal axis responsiveness. The CAR was modeled in reference to the individual diurnal cortisol slope in early and late pregnancy, as well as the change in the CAR from early to late gestation. Hierarchical linear model analyses revealed significantly higher cortisol concentrations in late compared to early pregnancy (p<0.01). In late pregnancy, the increase to awakening was dampened, reflected by significantly lower cortisol increase post awakening (p<0.01). Shorter gestational length was associated with altered stress responsiveness. We tested the association between physiological stress responsiveness and intra-individual changes in physiological stress responsiveness over gestation with birth outcomes. Using a longitudinal prospective design, we assessed pregnancy-related changes in the cortisol awakening response (CAR) as a measure of hypothalamus-pituitary-adrenal axis responsiveness. The CAR was assessed serially in 101 pregnant women at 16±1.4 and 31.4±1.3 weeks' gestation. At each assessment, saliva samples were collected at 7 times -- immediately, 30, 45 and 60 min post awakening as well as at 12 pm, 4 pm and 8 pm. The association was tested between the CAR and cortisol concentrations during the first hour after awakening as well as the degree of attenuation of the CAR over the course of gestation may be markers of pregnancy duration. * Supported, in part, by US PHS (NIH) grants HD-33506 and HD-041696 to PDW
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