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Abstracts

*Abstracts are listed by presentation type:
first posters, then symposia followed by paper presentations. Citation posters
are presented first and represent the highest rated posters.*

CITATION POSTERS

1) Abstract 425

SOCIAL ISOLATION IN WOMEN WITH CORONARY ARTERY DISEASE - A RISK FACTOR FOR 3-YEAR PROGRESSION OF CORONARY ATHEROSCLEROSIS, 5-YEAR CARDIOVASCULAR EVENTS AND 26-YEAR ALL-CAUSE MORTALITY - RESULTS FROM A SECONDARY ANALYSIS OF THE STOCKHOLM FEMALE CORONARY RISK STUDY

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The Stockholm Female Coronary Risk study examined behavioral and social predictors of coronary atherosclerosis progression and other cardiovascular risk factors. An important predictor in this study was to examine the importance of social isolation in CAD patients. We had hypothesized that women who are socially isolated have greater disease progression and more cardiovascular events (MACE). In this secondary analysis, we also hypothesized that socially isolated patients would have higher long-term all-cause mortality. Methods: Two hundred and ninety-two female CHD patients (mean age 56 ± 7 years) admitted for an acute coronary event between 1991 and 1994 were assessed at baseline with the Interview Schedule for Social Interaction and followed for 3 years by coronary angiography (1) to assess MACE within 5 years (2) and all-cause mortality within 26 years (3). Results: 1. Women who were both depressed and socially isolated had the greatest disease progression: Their absolute mean lumen diameter decreased by 0.18 mm [95% confidence interval (CI) = 0.11-0.24] and their percentage narrowing was 5.5% (95% CI = 3.6-7.4), while women without both psychological risk factors had a mean lumen diameter decrease of 0.04 mm and a percentage narrowing of 0.9% (1). In the second study, lack of social integration was associated with MACE, including cardiovascular mortality, acute myocardial infarction and revascularisation procedures. Taking into account age and other cardiovascular risk factors the hazard ratio (HR) associated with low (lowest quartile) versus high social integration (highest quartile) was 2.3 (95% CI 1.2-4.5; 3). During a median follow-up of 26 years, 158 (55.2 %) patients died. Patients who survived were more likely to be married. After controlling for all available influencing factors, social isolation was a significant predictor of mortality in elderly patients (HR 1.006, 95% CI 1.021-1.0). Conclusions: Socially isolated CAD patients have a high risk of coronary progression and a high proportion of MACE within 5 years. A high proportion of all-cause mortality in elderly patients confirms social isolation as an important risk factor that should be included in new concepts of cardiac rehabilitation.

1. Horsten M. et al. Eur Heart J 2000; 21:1072-1080
2. Wang HX et al. Psychother Psychosom. 2006;75(2):96-102,
3. Deter H.C. et al. PLOS One 2022 (in press)

2) Abstract 488

LONGITUDINAL ASSOCIATIONS BETWEEN SYSTEMIC INFLAMMATION AND COGNITION IN OLDER ADULTS

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Background: Inflammation may accelerate cognitive decline, even in healthy, aging populations, and this association appears strongest for women. However, few studies have examined sex-specific associations or examined both within- and between-person indices of inflammation. The present study aimed to fill this gap by examining the between- and within-persons effects of interleukin-6 (IL-6), an inflammatory biomarker, on task-switching performance in healthy, aging older adults.

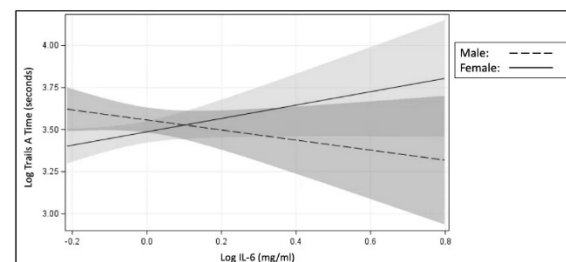
Methods: Participants (N=136) from a longitudinal study of healthy aging (Mage =75.69 years, SD=5.92; 57% female; 95% Caucasian) completed research visits every six months for up to 5 years. IL-6 was collected via venous blood draw at each visit. Cognitive function was assessed via the Trail Making Test and scores were log-transformed for normality. Models were adjusted for age, education, race, biological sex, body mass index, and cardiometabolic medication burden. Sex-specific associations were analyzed in post-hoc analyses.

Results: Baseline age was correlated with TMT-A ($r = .56$, $p < .0001$), TMT-B ($r = .45$, $p < .0001$), and TMT B-A ($r = .35$, $p < .0001$). TMT-A and TMT-B were significantly positively correlated ($r = .82$, $p < .0001$). IL-6 only correlated with medication burden ($r = .23$, $p = .005$). TMT performance did not significantly worsen over time (TMT-A: $B = .01$, $p = .03$; TMT-B: $B = .01$, $p = .04$), however within-person and between-person IL-6 were not significantly associated with TMT-A, TMT-B, or TMT B-A, even after covariate adjustment. However, the association between IL-6 and cognitive decline was significantly moderated by biological sex for TMT-A ($B = -.70$, $p = .031$; see Figure 1), though not for TMT-B ($B = -.71$, $p = .09$) or TMT B-A ($B = -.45$, $p = .20$).

Conclusions: IL-6 was not associated with Trail Making Test performance over time. However, biological sex significantly moderated the relationship between IL-6 and TMT-A. It may be that inflammation does not accelerate decline for the facets of cognition related to TMT or that IL-6 is not indicative of change in task-switching performance over time. Future studies should investigate additional facets of inflammation and cognition as they relate to cognitive decline, paying particular attention to within-person fluctuations, which are understudied in the literature.

Figure 1

IL-6 x Biological Sex



Note. Fit computed at averages for all covariates, including time, between-person IL-6, age, education, race, Body Mass Index, and cardiometabolic medication burden.

3) Abstract 181

RACIAL DIFFERENCES IN THE LINKS BETWEEN PERCEIVED DISCRIMINATION, DEPRESSIVE SYMPTOMS, AND EVERYDAY WORKING MEMORY AMONG OLDER BLACK AND WHITE ADULTS

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Recent work suggests that discrimination may underlie health disparities between older Black and White adults. Related to cognitive health, poor working memory is often linked with more frequent discriminatory experiences among Black adults. Yet, much of this work has examined working memory within diagnostic settings and thus it remains unclear how everyday working memory relates to discrimination. Furthermore, mechanisms that may explain why discrimination differentially relates to older Black adults' working memory require further attention. For instance, experiencing discrimination is a significant risk factor for depression among Black adults. Given the known association between depression and poor cognition, it is possible that depressive symptoms mediate the link between discrimination and working memory. The present research used data from the first wave of the ongoing Einstein Aging Study ($n=263$, 47.5% Black, age range: 70-90 years, $M_{age}=77.20$ years). Measures of perceived discrimination (i.e., Perceived Everyday Discrimination Scale) and depressive symptoms (PROMIS scale) were collected prior to a two-week ecological momentary assessment (EMA) protocol that included momentary assessments of ambulatory working memory completed on mobile devices. Analyses performed separately among Black and White adults examined whether depressive symptom severity mediated the link between perceived discrimination and working memory performance. Racially stratified analyses revealed that the direct path between discrimination frequency and working memory was not significant among either Black ($p=.698$) or White adults ($p=.883$). However, the indirect path through depressive symptoms was significant among Black adults ($95\%CI=[0.001, 0.022]$); More frequent discrimination was associated with greater depressive symptoms ($b=0.25$, $p=.005$) among Black adults, which was in turn related to making more working memory errors ($b=0.21$, $p=.025$). In comparison, this path was not significant among White adults ($95\%CI=[-0.002, 0.031]$). These findings suggest that depressive symptoms play an important role in the link between discrimination and working memory in everyday life among Black but not White adults. This may have important implications for racial health disparities, including the risk for cognitive impairment and Alzheimer's disease.

4) Abstract 202

PROJECT SOAR (SPEAKING OUR AFRICAN AMERICAN REALITIES): EXAMINING THE ROLE OF SPIRITUALITY AMONG BLACK WOMEN IN THE BREAST CANCER CONTEXT

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Research demonstrates a strong association of spirituality (i.e., a personal search for meaning as well as a relationship with the sacred or divine) with psychological and physical well-being. Within the context of breast cancer, Black women (compared to non-Latina White women) have higher mortality rates and worse physical and functional health-related quality of life. Although Black women report stronger spirituality than non-Latina White women, less is known about which aspects of spirituality Black women find to be effective in coping with a cancer diagnosis. Accordingly, it is critical to assess whether or not spirituality is a personal and contextual resource for Black women facing breast cancer. This qualitative study examined 1) unique facets of spirituality in a sample of Black women

diagnosed with breast cancer, including both positive and negative dimensions; and 2) whether and how spirituality is used during the breast cancer experience. Three culturally curated focus groups (termed Gatherings) were conducted as part of Project SOAR (Speaking Our African American Realities), a community-academic collaboration. These all-Black, all-women Gatherings provided a space for participants ($N=37$; age range =30-94 years) to discuss their breast cancer experience, including ways in which spirituality played a role. Through reflexive thematic analysis conducted by a team of four coders, six themes were identified: 1) faith is central to my identity even through challenging times; 2) grappling with spiritual discontent during breast cancer; 3) God is omnipotent; 4) breast cancer reflections enhanced my spiritual gratitude and growth; 5) meaningful vs. empty support from my spiritual community; 6) spiritual anchors helped me persevere through the breast cancer journey. Participants' breast cancer experiences highlight the complexities of spirituality in the face of adversity, including using spiritual connection as a resource, experiencing frustration with God and spiritual communities, and finding meaning in one's breast cancer journey through spirituality. Many Black women note that spirituality is a meaningful aspect of their lives and often serves as a resource and effective coping tool in the breast cancer context. Study findings have important implications in understanding how spirituality can be incorporated in supporting Black breast cancer survivors.

5) Abstract 242

STABILITY OF EX-VIVO STIMULATED CYTOKINES VARIES BY SUBJECTIVE HEALTH STATUS IN A SAMPLE OF OLDER ADULTS

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Circulating and stimulated cytokines are often utilized as markers of overall inflammation status. However, the temporal stability of such measures in older adults is unclear, as is whether stability reflects something meaningful for health. While levels of circulating cytokines have been found to be stable over time in both younger and older adults, the stability of stimulated cytokines has rarely been reported, and never in older adults. The present study examined the stability of circulating and stimulated cytokines in a sample of 227 older adults (aged 70 to 90 years, $M=76.7$) from the Einstein Aging Study between two blood draws spaced approximately two weeks apart. Intraclass correlation coefficients (ICCs) obtained from linear mixed models, controlling for number of days between measurements and age, were calculated as a measure of temporal stability (reliability) for a panel of circulating and lipopolysaccharide (LPS)-stimulated cytokines (interleukin [IL]-1 β , IL-4, IL-6, IL-8, IL-10, tumor necrosis factor- α [TNF- α]). Sensitivity analyses were employed that re-examined ICCs in each gender separately and in individuals high vs. low in subjective health (determined by median split of PROMIS physical functioning scale). A composite measure of circulating cytokines exhibited strong reliability (ICC: 0.854), with individual cytokines exhibiting moderate (>0.5) to very high reliability (>0.9). The stimulated cytokine composite had moderate reliability (ICC: 0.552), with individual cytokines having low (<0.5) to moderate reliability. When examined for each gender, the same pattern of results was obtained. Considerably lower reliability was seen for the stimulated composite for individuals with low (ICC: 0.457) vs. high (ICC: 0.631) subjective health; this difference was most pronounced for TNF- α and IL-6. Consistent with past research, circulating

cytokines had moderate to excellent stability across two weeks in older adults; stimulated cytokines exhibited relatively low stability, indicating that they are more likely to change over time within individuals. The higher variability for stimulated cytokines observed for individuals with lower subjective health suggests that higher variability in inflammatory responsiveness may be reflective of suboptimal health in older adults. The importance of these findings for future research broadly will be discussed.

6) Abstract 243

IS COVID-19 “OVER?”: A MULTILEVEL MODEL OF COVID-19 PROTECTIVE BEHAVIORS AND CONSCIENTIOUS IN OLDER ADULTS

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Conscientiousness is a personality trait that involves following norms and rules, being goal-directed and playful, and engaging in impulse control. Higher conscientiousness has been associated with use of protective health behaviors during the COVID-19 pandemic (e.g., social distancing, quarantining, mask-wearing). During the COVID-19 pandemic, adolescents and working adults in America and globally who had higher conscientiousness had better adherence to COVID-19 guidelines from peak- to post-lockdown times. In contrast, when public perception of COVID-19 threat began to lower and multiple variants developed during 2021 and 2022, protective health behaviors may have lapsed, even in high-risk populations, such as older adults. The present study examined the longitudinal relationship between conscientiousness and protective health behaviors among older adults during the COVID-19 pandemic from 2020 to 2022 ($N = 98$; 94 = White). Participants completed measures of personality (NEO-FFI) before the pandemic and pandemic-specific protective health behaviors (Pandemic Stress Index) in March – May of each study year. We hypothesized that higher conscientiousness would be associated with more protective health behavior and with better adherence to CDC guidelines. Multilevel models tested these hypotheses. Conscientiousness interacted with change over time ($F(1,94.4) = 7.13$, $p = .009$). Older adults high in conscientiousness had a higher intercept ($H: 5.41$, $SE = [.024]$ vs. $L: 4.48$, $SE = [.024]$), but older adults low in conscientiousness had a more positive slope ($H: -0.05[0.17]$, $p = .78$ vs. $L: 0.60[0.17]$, $p = .0007$). This relationship withstood adjustment for age, gender, and education. Conscientious older adults were more likely to engage in protective health behaviors earlier than less conscientious older adults. In contrast, less conscientious older adults started with a lower number of protective health behaviors but increased the number of protective health behaviors they engaged in over time. Examining the impact of conscientiousness among older adults in the context of a novel global pandemic helps to identify effective timing for implementing interventions to increase the likelihood of engagement in protective health behaviors and improving public health.

7) Abstract 364

ADOLESCENTS' SUBJECTIVE SOCIAL STATUS AND ALTERATIONS IN LEUKOCYTE GENE EXPRESSION

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of California, Los Angeles, Steve Cole, PhD, University of California, Los Angeles

Lower subjective social status (SSS), or one's self-perceived standing relative to their local community or society (Adler et al., 2001), is related to poorer health and elevated levels of inflammatory proteins (i.e., CRP, IL-6; Muscatell et al., 2020; Quon & McGraff, 2014). Yet, few studies have examined how SSS relates to alterations in immune cell gene expression, which has been implicated in psychopathology (Chiang et al., 2019). One study of 47 young adult women found that lower SSS was related to higher inflammatory but not antiviral gene expression (Murray et al., 2019). Therefore, the present study examined whether adolescents' SSS—relative to school peers and to society more generally—was related to proinflammatory and antiviral gene expression in circulating leukocytes. Youth with lower SSS were hypothesized to have higher proinflammatory and lower antiviral gene expression. Adolescents ($N=90$, $M_{age}=16.3$, $SD=0.7$; 51% female) reported their SSS in school and in society and provided blood samples twice, five weeks apart. Multilevel models tested associations between each form of SSS and gene expression, controlling for demographic and biological covariates and for leukocyte subset abundance. School SSS was not related to proinflammatory gene expression, $p>.9$. Interestingly, youth with lower SSS at school had higher expression of Type I interferon (IFN) response genes, $B=0.16$, $SE=0.08$, $p=.03$ (Table 1, Fig. 1). Contrary to hypotheses, SSS in society was related to neither proinflammatory nor Type I IFN response gene expression, $ps>.1$. Associations between lower school SSS and higher Type I IFN expression could stem from a greater prevalence of viral infection among low SSS adolescents (triggering more intense Type I IFN activity), but these findings are inconsistent with the Conserved Transcriptional Response to Adversity (CTRA) gene regulation pattern that relates social disadvantage to lower Type I IFN activity (Cole, 2019). Results also differ from a prior study of young adult women (Murray et al., 2019). The specificity of findings to SSS in school but not in society is consistent with findings that local status is more related to health than society status (Anderson et al., 2012). Given the limited research on antiviral gene expression, future studies should identify the health implications of the observed difference in antiviral gene expression.

Table 1. Antiviral (left) and inflammatory (right) gene expression as a function of school subjective social status.

	Antiviral		Inflammatory	
	B	SE	B	SE
Intercept	-1.63	0.91	-3.22*	0.82
School SSS	-0.04*	0.02	0.00	0.01
Time	-0.01	0.03	0.02	0.04
Age	-0.04	0.04	-0.03	0.03
Male	-0.14*	0.06	-0.01	0.05
BMI	0.01	0.01	0.01	0.00
African American	-0.03	0.09	0.06	0.07
Asian American	0.37*	0.11	0.04	0.08
Hispanic	-0.11	0.07	0.01	0.05
Middle Eastern	-0.04	0.11	0.21*	0.08
Native American	-0.14	0.17	-0.04	0.13
CD3D	-0.01	0.02	-0.01	0.03
CD19	0.04*	0.01	0.04*	0.01
CD4	0.02	0.04	-0.01	0.04
CD8A	-0.06*	0.02	-0.05*	0.02
FCGR3A	0.14*	0.03	0.20*	0.04
NCAM1	0.05*	0.01	0.05*	0.01
CD14	0.13*	0.04	0.22*	0.05

*p < .05. BMI=Body mass index. SSS=Subjective social status. The following variables were dummy-coded: Time (0 = first time point, 1 = second time point), Male (0 = Female, 1 = Male), and all racial/ethnic groups (reference group = White). School SSS, Age, and BMI were centered at the sample mean.

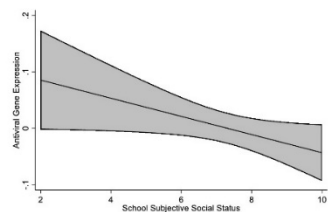


Figure 1. Antiviral gene expression as a function of school subjective social status.

8) Abstract 432

PSYCHOLOGICAL AND PHYSICAL MEASURES OF ANXIETY PREDICT STRESS-INDUCED RISE IN CELL-FREE MITOCHONDRIAL DNA

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Background: Circulating blood cell-free DNA (cf-DNA) is an emerging stress biomarker, which is also correlated with aging, cellular stress, and psychiatric symptoms. We and others previously showed that serum cell-free mitochondrial DNA (cf-mtDNA) levels increase after psychological stress and recently validated this finding in a larger cohort. Here we investigated psychophysiological predictors of cf-mtDNA stress reactivity, testing the hypothesis that trait anxiety, affect, and baseline cardiovascular activation predict cf-mtDNA stress reactivity.

Methods: As part of the ongoing Mitochondrial Stress, Brain Imaging, and Epigenetics (MiSBIE) study, 82 participants (57 women) 18-60 years of age with a broad range of mitochondrial energy production capacity, including participants with mitochondrial diseases, completed a modified version of the socio-evaluative Trier Social Stress Test (TSST).

Serum was sampled at 8 time points over a 2-hour period, in parallel with positive/negative affect. cf-mtDNA was quantified using qPCR, and reactivity defined as the maximal response relative to baseline. At baseline, participants completed the State and Trait Anxiety Inventory (STAI), Beck Depression Inventory (BDI), and fasting blood pressure and heart rate were measured. We used Spearman rank correlations (uncorrected p values) to evaluate the associations between cf-mtDNA reactivity and psychophysiological measures.

Results: cf-mtDNA reactivity was correlated with trait anxiety (r=0.25, p=0.031). Compared to participants in the lowest tertile, those in the highest tertile of trait anxiety showed a 4-fold larger cf-mtDNA reactivity. Following acute stress, higher perceived stress at 10 min (r=0.26, p=0.028) and anger levels at 20 min (r=0.26, p=0.027), but not other affect measures, predicted greater cf-mtDNA reactivity. No correlation was found between stress reactivity and BDI score, sex, or age. Higher baseline diastolic blood pressure (r=-0.30, p=0.0091) and heart rate (r=-0.29, p=0.014) predicted lower cf-mtDNA responses, validating prior findings.

Discussion: These preliminary results link trait anxiety, affect, and cardiovascular parameters to serum cf-mtDNA stress reactivity. This work deepens our understanding of the mind-mitochondria connection, which may represent a psychobiological pathway whereby chronic stress can affect disease risk.

9) Abstract 486

LOSING LOVED ONES TOO SOON AND TOO MUCH: RACIAL DISPARITIES IN LIFETIME LOSSES RELATE TO ALL-CAUSE MORTALITY

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The present study tests the utility of a novel index for loss—the first that adopts a lifespan perspective to simultaneously quantify experiencing losses “too soon” (prematurely) and “too much” (cumulatively)—and links this index to all-cause mortality. Racial/ethnic minorities are disproportionately burdened by loss throughout their lives. They experience a greater risk of grieving familial death earlier in life, greater impact from a single death, and higher rates of multiple deaths to simultaneously grieve compared to their white counterparts (Donnelly, Umberson, & Pudrovskaya, 2020; Verdery et al., 2020). However, extant work only measures exposure to deaths at a single stage of life such as late adulthood (Spahni et al., 2015) or to a single loss such as widowhood (Yu et al., 2017). Lifetime experiences of loss, along with their deleterious impacts, remain severely understudied in minoritized groups. We leveraged data from one cohort of the Health and Retirement Study (HRS) (N = 6,718), a longitudinal survey of U.S. adults over the age of 50 that spans 15 waves of data collection across 28 years. Our index assesses two typically unmeasured dimensions of grief, such that higher index scores indicate a higher burden of both experiencing losses “too soon” and “too much” over the life course. First, our index revealed racial disparities in loss burden. Black participants’ index scores were 0.27 standardized units higher than white participants’ scores, and Native participants’ index scores were 0.34 standardized units higher than white participants’ scores. This difference remained significant even after controlling for covariates such as childhood SES (p < .0001). Finally, higher participant loss index scores at age 50 related to earlier all-cause mortality at any given point in time, after controlling for covariates such as chronic conditions (HR = 1.06 [1.01, 1.13], p = .03). In other words, the mortality rate in participants

with one more premature loss is 12% higher. Our index uniquely explained variance in all-cause mortality in comparison to competing loss measurement approaches such as the cumulative risk quartile calculation. Taken together, this work is the first to statistically compare several loss measurement approaches, offering a novel index that provides insight into racial disparities in loss burden and all-cause mortality.

10) Abstract 582

PHYSIOLOGICAL STRESS RESPONSE TO DISASTER EVENT RECALL AND RESOURCE LOSS AFTER HURRICANE MARÍA AMONG SMALLHOLDER FARMERS IN PUERTO RICO

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Hurricane María radically altered biopsychosocial landscapes in Puerto Rico (PR), a stressful event with mental health impacts mediated, in part, by severe resource loss. Farmers, intimately connected to land, may cope with resource-related stress differentially. Through narrative interviews with farmers in PR, we documented stories of enduring post-hurricane damage but also of self-efficacy and resilience. While previous studies hint at possible dissociation between sympathetic nervous system (SNS) and hypothalamic-pituitary-adrenal (HPA) axis activity after natural disasters, less is known about chronic effects to stress system response. Data from a concurrent mixed methods study were obtained in 2019 from 30 smallholder farmers (≥ 21 y) living in PR during and ≥ 6 months after Hurricane María. Questionnaires captured demographics and post-hurricane household and farm resource loss. Narrative interviews asked participants to recall experiences after Hurricane María, using open-ended questions to elicit storytelling. Salivary stress biomarkers for SNS and HPA axis activity were sampled at baseline (BL) and during the interview (alpha-amylase [sAA] at 5-10 min and cortisol at 15-25 min, respectively). Multivariate linear mixed models tested differences in mean sAA and cortisol concentration adjusted for age, sex, time of day, and time between sample collection. Mean BL sAA concentrations were higher for participants without household electricity for ≥ 8 months. In contrast, lower BL sAA concentrations were observed among those with prolonged farm resource loss, including lack of irrigation water for ≥ 1 month and farm materials for ≥ 1 year. No significant associations between resource loss and BL cortisol were detected. During the narrative interview, mean sAA concentrations significantly increased by 39 (SE = 16) U/mL among participants with low BL sAA ($P = 0.02$) but not with high BL sAA. Mean cortisol concentrations decreased (0.23 vs. 0.19 $\mu\text{g/dL}$, $P = 0.0005$). Recalling disaster events two years after Hurricane María elicited a SNS response among those with initially low stress, who had also experienced prolonged farm resource loss. Overall HPA axis activity was blunted. Future studies should further elucidate differential effects of natural disaster experiences on physiological stress response and identify avenues of improving resource access and resilience.

11) Abstract 240

THE IMPACT OF CHILDHOOD EDUCATIONAL OPPORTUNITY ON EARLY STAGE FEAR CONDITIONING

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Structural inequalities in access to resources impact an individual's ability to grow, develop, and respond to their environment. The aim of the Childhood Opportunity Index is to map and measure the quality of resources available to children based on their neighborhood context. Prior research has provided substantial evidence supporting the impact of trauma on children's startle responses, indicating deficits in fundamental neurocognitive processes important to fear and safety learning and subsequent psychopathology. We examined the relationship between fear-potentiated startle (FPS) and spatially aggregated indices of childhood educational opportunity (CEO). We hypothesized that children living in zip codes with substandard educational opportunity would show differential patterns in FPS.

Ninety-one children (N Female = 43) aged nine years old were recruited from Detroit, MI (N = 66) and Atlanta, GA (N = 25) as a part of a larger study that included a fear conditioning paradigm and trauma interview. Startle response was measured from electromyograph (EMG) activity of the eyeblink muscle. FPS was calculated as the difference between startle to threat cue and noise alone (NA) trials, divided by NA and multiplied by 100. Participants were categorized into "very low" and "general" groupings based on CEO score associated with their ZIPCode.

A univariate ANOVA found significant differences in FPS between CEO groups, covarying for site, age, sex, and violence exposure, $F = 11.45$, $p < 0.01$, such that children in the very low group had lower FPS compared to other children. In fact, the children in the very low group did not demonstrate fear conditioning, since startle to the threat cue was not increased compared to baseline startle.

These results indicate that there is a difference among children who live in areas of very low educational opportunity, such that these children showed blunted startle to threat. This blunted fear response may indicate neurocognitive deficits in threat detection and safety learning. This finding provides evidence for the importance of educational opportunity and neighborhood context on a child's healthy growth and development.

12) Abstract 333

ASSOCIATIONS OF SOMATIC DEPRESSIVE SYMPTOMS WITH INFLAMMATION BIOMARKERS IN PRIMARY CARE PATIENTS WITH DEPRESSION

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Depression is an independent risk factor for cardiometabolic diseases (CMD). A candidate mechanism underlying the depression-CMD relationship is systemic inflammation. While interest has increased in whether some depression subgroups (such as those with particular somatic symptoms) have greater systemic inflammation than others, these associations remain unclear. Therefore, we analyzed baseline data from the

eIMPACT trial (NCT02458690, R01HL122245) to examine associations between somatic depressive symptoms (hyperphagia, poor appetite, hypersomnia, and disturbed sleep) and inflammation biomarkers (tumor necrosis factor- α [TNF- α], interleukin-6 [IL-6], and high-sensitivity C-reactive protein [hsCRP]) in primary care patients with depression ($N=216$; $Mean=59$ years, 78% women, 50% Black). Depressive symptoms were assessed by the Hopkins Symptom Checklist-20. TNF- α , IL-6, and hsCRP were quantified in plasma samples using enzyme-linked immunosorbent assay kits (DTA00C, HS600B, DCRP00 R&D Systems). In regression models adjusting for age, sex, race, education, and cholesterol medication use, poor appetite was associated with lower hsCRP ($\beta=-0.173$, $p=0.011$); this relationship remained after further adjustment for body mass index (BMI) and smoking ($\beta=-0.129$, $p=0.047$). Disturbed sleep was associated with lower TNF- α in both models, but the relationship only approached significance ($\beta=-0.122$, $p=0.084$; $\beta=-0.133$, $p=0.060$). There were no associations between somatic depressive symptoms and IL-6 ($ps\geq 0.142$). As in the general population, BMI was strongly associated with TNF- α ($\beta s=0.153-0.174$, $ps\leq 0.039$), IL-6 ($\beta s=0.435-0.447$, $ps<0.001$), and hsCRP ($\beta s=0.337-0.358$, $ps<0.001$). In primary care patients with depression, we observed few associations between individual somatic depressive symptoms and inflammation biomarkers. However, the inverse association between poor appetite and hsCRP, as well as the strong positive associations between BMI and inflammation, raise the possibility that increased adiposity, and perhaps depression-related weight gain, may be important drivers of systemic inflammation in depression. Future studies should assess weight gain during depressive episodes to evaluate this possibility. If confirmed, concurrent treatment of depression and depression-related weight gain could be a promising strategy for reducing excess CMD risk in people with depression.

13) Abstract 210

THE ROLE OF COPING STRATEGIES IN THE AMELIORATION OF PERCEIVED STRESS AND VITAL EXHAUSTION IN MYALGIC ENCEPHALOMYELITIS/CHRONIC FATIGUE SYNDROME (ME/CFS)

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Background: In ME/CFS, perceived stress (PS) has been linked with an exacerbation of fatigue and vital exhaustion (VE), but the role of adaptive coping strategies (problem-focused, social support) relative to avoidance and behavioral disengagement, is not clear. This study used a quantitative modeling analysis to examine whether: 1) PS mediates the associations of coping strategies with VE; and 2) these pathways differ between ME/CFS and non-ME/CFS groups.

Methods: The study enrolled 52 ME/CFS adults (18-54 years old; 23% male) and 139 healthy adults without ME/CFS (19-55 years old; 66% male). VE was measured by the Maastricht Questionnaire and PS by the Perceived Stress Scale. Coping styles were assessed via the Brief COPE subscales (active, planning, emotional support, positive reframing, denial, behavioral disengagement, humor, acceptance). Multigroup structural equation modeling was used to compare the ME/CFS and non-ME/CFS groups, controlling for age, sex, and education.

Results: The final model ($\chi^2=70$, $p=.72$) had excellent fit (CFI=1.00, RMSEA<.001). Nested model comparisons indicated overall structural model differences between the CFS and non-CFS groups ($\chi^2=43.7$, $p<.01$). In the CFS group, mediation analyses revealed a significant indirect path from less planning to lower PS ($\beta=.44$, $p<.001$), and from lower PS to lower VE ($\beta=.70$, $p<.001$). Indirect paths were observed from greater active coping ($\beta=-.25$, $p<.06$), emotional support ($\beta=-.24$, $p<.05$), and acceptance ($\beta=-.31$, $p<.03$) to lower PS, and from lower PS to lower VE ($\beta=.70$, $p<.001$). Lastly, a direct path was found from less behavioral disengagement to lower PS ($\beta=.29$, $p<.02$). By contrast, in the non-CFS group, significant indirect paths emerged from greater positive reframing ($\beta=-.25$, $p<.04$) and less denial coping ($\beta=.19$, $p<.03$) to lower PS, and from lower PS to lower VE ($\beta=.36$, $p<.001$).

Conclusions: Although it is clear that ME/CFS arises from multiple underlying biomechanisms, the present findings suggest that the extreme and debilitating stress-related fatigue experienced by ME/CFS patients may be in part affected by underlying coping strategies. Indeed, the present findings suggest coping strategies including emotional support, active coping, acceptance, planning, and behavioral disengagement may be key factors to target in interventional studies of ME/CFS fatigue.

14) Abstract 481

THE ASSOCIATIONS AMONG MORNINGNESS-EVENINGNESS, INSOMNIA, AND DEPRESSIVE SYMPTOMS IN U.S. VETERANS

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Introduction: Research has shown a well-established relationship between sleep problems and depression. Specifically, studies have suggested a relationship between eveningness chronotype (i.e., inclination for later sleep and rise times) and depression. However, there is a dearth of literature reporting mechanisms to explain this association. Individuals with an eveningness preference may experience greater insomnia symptoms as a result of irregular sleep schedules and dysfunctional sleep behaviors and beliefs. Additionally, insomnia is known to be a key symptom characterizing depression. To this end, the aim of the current study was to assess whether insomnia symptoms acted as a mediator in the relationship between morningness-eveningness and depressive symptoms.

Method: Participants were U.S. veterans ($n = 363$; 84.5% male; aged 51.7 ± 14.6 years) at risk for sleep apnea at the Miami VA Sleep Center. Self-report measures were completed on the night of their polysomnography (Mean apnea-hypopnea index (AHI) = 19). Participants rated their morningness-eveningness preference on a four-point scale (definitely morning, rather more morning, rather more evening, or definitely evening). We assessed insomnia symptoms using

the Insomnia Severity Index and depressive symptoms using the PROMIS-29 depression subscale. Analyses were conducted using SPSS PROCESS macro and controlled for AHI and participant gender.

Results: We found that tendency toward eveningness was directly related to greater insomnia symptoms ($\beta=0.64$, $p<.05$) and insomnia symptoms were associated with greater reports of depressive symptoms ($\beta=0.25$, $p<.01$). Eveningness did not have a direct association with depressive symptoms ($\beta=-0.04$, $p=ns$). However, there was a significant indirect effect such that eveningness was associated with an increase in depressive symptoms via greater insomnia symptoms ($\beta=0.16$, 95%CI [0.003, 0.415]).

Conclusion: Tendency towards eveningness was found to be indirectly related to higher levels of depression due to the presence of insomnia symptoms. Reports of evening preference was not directly associated with depressive symptoms. Future research should explore these associations using longitudinal data to allow causal inference. These results highlight delayed sleep phase and insomnia as potential targets for the prevention and treatment of depression.

15) Abstract 521

INVESTIGATING RUMINATION AND SELF-COMPASSION AS PREDICTORS OF CHANGE IN SALIVARY ALPHA-AMYLASE AFTER MINDFULNESS TRAINING

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Moving towards better biopsychosocial health calls for continued investigation of the dispositional factors that may influence individuals' responses to stress-reduction interventions, like mindfulness meditation. Although mindfulness-based interventions (MBIs) are known to consistently reduce self-reported measures of stress, effects on objective biomarkers are less well established, as are predictors of individual variation in treatment response. The present study therefore examined whether rumination and self-compassion at baseline predicted change in salivary α -amylase (sAA) – an established biomarker of sympathetic nervous system activation (Nater & Rohleder, 2009) – after an 8-week Mindfulness-Based Stress Reduction (MBSR) program. Grounded in previous findings from a brief self-compassion intervention that evaluated predictors of sAA response to a social stressor (Arch et al., 2016), we hypothesized that those lower in baseline rumination would have lower sAA level after mindfulness training, while baseline self-compassion would not significantly predict change in sAA levels. Participants were moderately stressed healthy adults ($n=30$ baseline, $n=27$ completed, age 22-67, 63% female, 70% white) enrolled in an open trial. Saliva samples were obtained in the lab pre- and post-intervention after a thirty-minute rest period during which participants completed health screening questionnaires. We found that sAA levels significantly decreased post-MBSR ($t=2.338$, $p=.028$, $d=.458$). As predicted, individuals lower in rumination pre-MBSR experienced greater reductions in sAA post-MBSR ($\beta=.419$, $p=.033$), while self-compassion did not predict the pre-post MBSR change in sAA levels. Our findings suggest that adults less prone to rumination may experience greater benefit from mindfulness meditation training as evidenced by lower sympathetic nervous system arousal. In contrast, those lower or higher in baseline self-compassion may benefit similarly from this type of intervention. Additional research in larger samples and/or using ambulatory assessment to capture dynamic processes of therapeutic change over time may further clarify the influence of dispositional traits on MBSR outcomes, as a means to promote biopsychosocial health.

16) Abstract 592

DISCRIMINATION AND SUPPORT ON SLEEP QUALITY IN AFRICAN AMERICANS: AN ACTOR PARTNER INTERDEPENDENCE MODEL

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Poor sleep is associated with adverse health outcomes, particularly for African Americans (AAs). Differential exposure to discrimination may contribute to poor sleep quality in AAs, but support from a romantic partner may have important stress-buffering effects. To test the hypotheses that 1) more experiences of discrimination are associated with poorer sleep quality; 2) spousal support will buffer against the effects of discrimination on sleep quality, a national sample of 137 AA heterosexual couples (age men $M=31.93$, $SD=3.74$; age women $M=29.01$, $SD=3.88$) completed measures of sleep quality, spousal support, recent experiences of discrimination, perceived stress, exercise, and alcohol use online. Sleep quality was assessed using the global score on the Pittsburgh Sleep Quality Index (PSQI) and partner support was assessed using the Social Relationship Index (SRI). Actor partner interdependence models (APIM) examined individual's experiences of discrimination on their own and their partner's sleep while controlling for perceived stress, exercise, alcohol use, and age. In APIM models, wives' experiences of discrimination were associated with their own ($b=0.19$; $SE=.04$; $t=4.51$; $p<.001$) and their husbands' sleep quality ($b=.11$; $SE=.04$; $t=2.70$ $p=.01$), such that more experiences of discrimination were associated with poorer sleep quality. Husbands' experiences of discrimination were not associated with their own ($b=.07$; $SE=.04$; $t=1.71$; $p=.09$) or their wives' sleep quality ($b=0.03$; $SE=.04$; $t=0.74$, $p=.46$). In support of our second hypothesis, the association between husbands' experiences of discrimination and their own sleep quality was moderated by perceiving their wives as supportive ($b=0.19$; $SE=0.09$; $t=2.05$; $p=.04$). The association between husbands' experiences of discrimination and their own sleep quality was stronger when they perceived their wives as unsupportive ($b=0.11$, $SE=0.05$, $t=2.28$, $p=.02$), and discrimination and sleep quality were unrelated in husbands who perceived their wives as supportive ($b=-0.01$, $SE=0.06$, $t=-0.19$, $p=.85$). Wives' perceptions of support did not moderate the relationship between their experiences of discrimination and their own sleep quality ($b=0.08$; $SE=0.14$; $t=0.58$; $p=.56$). These results suggest that perceived support from a partner may buffer the adverse effects of discrimination on sleep quality, especially for men.

17) Abstract 600

ANTICIPATED DISCRIMINATION IN DAILY LIFE: CORRELATES WITH PERCEIVED STRESSFULNESS AND CONTROL

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A large body of literature has detailed the deleterious effects of everyday discrimination on health, focusing on stress processes after discrimination occurs. In contrast, less work has been concerned with what occurs prior to encountering discrimination, such as whether a person anticipates it. Evidence suggests that anticipating discrimination can be harmful for health (Lewis et al., 2019), but this has rarely been

studied as discrimination experiences unfold in daily life. Using a daily diary design with 349 U.S. community adults (ages 19-74; 71% White, 10% Asian/Pacific Islander, 9% Black, 10% other racial minority/multiracial; 68% female, 29% male, 3% transgender/genderqueer), we examined sociodemographic differences in anticipating discrimination, and whether anticipating discrimination predicted perceived stressfulness and control when discrimination did occur. For 10 days, participants reported discrimination anticipation in the mornings and discrimination occurrence in the evenings. If discrimination occurred, they were asked about how stressful it was and the extent to which they perceived control over the event. Compared to White participants, racial minorities anticipated discrimination to occur more frequently over the 10 days. Multilevel models revealed a positive association between anticipating discrimination and discrimination occurrence (between-person effect: $b = 0.14$, 95% CI[0.11-0.17], $p < 0.001$; within-person effect: $b = 0.02$, 95% CI[0.00-0.05], $p = 0.042$). People who anticipated discrimination more frequently on average reported greater perceived stressfulness ($b = 0.34$, 95% CI[0.26-0.41], $p < 0.001$) and greater perceived control ($b = 0.16$, 95% CI[0.10-0.22], $p < 0.001$) regarding the discrimination events. Within-persons, anticipating discrimination on a given day (versus not) was associated with greater perceived stressfulness when discrimination occurred ($b = 0.05$, 95% CI[0.01-0.10], $p = 0.013$), but no difference in perceived control. Results indicate that racial minorities anticipate discrimination more frequently than White individuals and that anticipating discrimination is associated with increased perceived stressfulness (between- and within-persons) and perceived control (between-persons) of the discriminatory event. Future research can investigate proactive coping that may take place.

18) Abstract 248

THE POTENTIAL ROLE OF NEIGHBORHOOD DEPRIVATION-RELATED STRESS, RELATED INFLAMMATION, AND PCSK9 IN HDL-ASSOCIATED BIOLOGICAL AGING: DATA FROM THE WASHINGTON D.C. CARDIOVASCULAR HEALTH AND NEEDS ASSESSMENT

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Introduction: Neighborhood socioeconomic deprivation serves as a chronic stressor and is associated with chronic inflammation. Recent data suggest elevated high-density lipoprotein (HDL) levels can associate with cardiovascular disease (CVD) risk, especially in the setting of inflammation. However, the potential connection between neighborhood deprivation, inflammation, components of the HDL proteome, HDL subspecies, and biologic aging has not been evaluated.

Methods: D.C. Cardiovascular Health and Needs Assessment (DC-CHNA) participants were recruited to the NIH Clinical Center. Neighborhood deprivation index (NDI) was measured using US Census data (higher scores = more deprivation). We previously identified an association between NDI and the cytokine IL-1 β and noted a direct relationship between NDI and HDL trending towards significance in the study population; to

further investigate NDI and HDL subspecies, we performed NMR lipoprotein profiling. Pro-inflammatory cytokines (IL-1 β , IFN γ) and proprotein convertase subtilisin/kexin type 9 (PCSK9) (a component of the HDL proteome) were measured using ELISA. An epigenetic biomarker of aging for lifespan, PhenoAge, was measured using DNA methylation data obtained from participants' buffy coat samples. Regression modeling was used to evaluate associations of interest adjusting for atherosclerotic cardiovascular disease (ASCVD) risk score, body mass index (BMI), and statin use.

Results: The DC-CHNA consisted of 60 African American participants (mean age 61 \pm 11 years, 93% female) at risk for CVD. NDI associated with IL-1 β ($\beta=0.48$, $p<0.001$), IFN γ ($\beta=0.26$, $p=0.047$), and H7P (largest of HDL subspecies) ($\beta=0.29$, $p=0.03$). The relationship between NDI and PCSK9 trended toward significance ($\beta=0.26$, $p=0.057$). IFN γ directly associated with PCSK9; both IFN γ and PCSK9 directly associated with H7P (**Figure**). H7P then associated with PhenoAge ($\beta=0.30$, $p=0.02$).

Conclusions: Thus, we highlight potential connections between neighborhood deprivation-related stress, IFN γ , PCSK9, HDL subspecies, and biologic aging. Our findings suggest indirect pathways by which neighborhood stress and inflammation relate to HDL and biologic aging, adding to recent work that shows the pathogenicity of high HDL levels. Future interdisciplinary work is needed to determine how neighborhood stress may relate to HDL function in diverse populations.

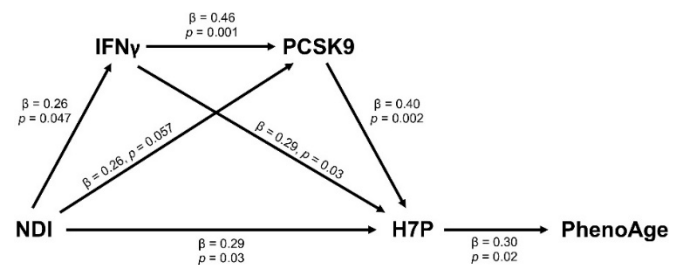


Figure. Summary figure of relationships between NDI, IFN γ , PCSK9, H7P, and PhenoAge adjusted for ASCVD risk, BMI, and statin use in the DC-CHNA cohort, 2015-2019.

19) Abstract 298

ASSOCIATIONS BETWEEN SEXUAL ORIENTATION DIMENSIONS AND CARDIOMETABOLIC DISEASES: DATA FROM THE NATIONAL EPIDEMIOLOGIC SURVEY ON ALCOHOL AND RELATED CONDITIONS (NESARC-III)

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Sexual orientation can be measured across three dimensions: identity, attraction, and behavior. Evidence suggests that sexual minorities are at increased risk of diabetes and cardiovascular disease (CVD); however, prior studies have not examined whether cardiometabolic disease risk varies across these dimensions of sexual orientation. To address this knowledge gap, we analyzed cross-sectional data from 36,303 adults (mean age=46 years, 56% female, 47% non-white) who participated in the National Epidemiologic Survey on Alcohol and Related Conditions-III (NESARC-III) study (2012-2013). Sexual orientation dimensions of identity, attraction, and behavior were assessed by structured interview. For each

dimension, participants were categorized as heterosexual (reference group), lesbian/gay, or bisexual. Prevalent diabetes and CVD (myocardial infarction, stroke, angina, or arteriosclerosis) were defined by self-report of a physician-confirmed diagnosis of the condition in the last 12 months. Logistic regression models adjusted for demographics (age, sex, race/ethnicity, and education) revealed that bisexual behavior (i.e., people reporting sexual activity with both man- and woman-identifying individuals), but not lesbian/gay behavior (i.e., people reporting sexual activity exclusively with same-sex individuals; $ps \geq .34$), was associated with an increased odds of diabetes ($OR=1.43$, 95% CI : 1.16-1.75, $p<.01$) and CVD ($OR=1.54$, 95% CI : 1.21-1.95, $p<.01$) when compared to exclusively heterosexual behavior (i.e., people reporting exclusively engaging in sexual behaviors with individuals of a different sex). In contrast, sexual minority identity (i.e., self-concept; $ps \geq .12$) and attraction (i.e., one's sexual/romantic feelings; $ps \geq .12$) were not associated with diabetes or CVD. Our results in a nationally representative sample suggest that the sexual orientation dimension of behavior is linked with cardiometabolic diseases. This finding raises the possibility that assessing multiple sexual orientation dimensions may aid in the identification of sexual minority subgroups in which efforts to prevent diabetes and CVD should be intensified. Future studies are needed to elucidate mechanisms underlying the bisexual behavior-cardiometabolic disease relationship.

21) Abstract 606

HEALTH LOCUS OF CONTROL AND PSYCHOLOGICAL DISTRESS IN TRAUMA-EXPOSED COMMUNITY ADULTS

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Trauma exposure is a risk factor for both poor mental and physical health. Despite the known effects of trauma on cognitive schemas related to locus of control, health locus of control has been largely overlooked. Consistent with social learning theory, trauma-exposed adults may generalize expectancies about the lack of controllability experienced during their trauma to their own health. While greater external health locus of control is known to predict higher psychological distress in various patient populations, no studies have examined whether the dimensions of health locus of control (Internal Control, Chance, Powerful Others) are associated with psychological distress in trauma-exposed adults. We hypothesized that lower internal and higher external (Chance, Powerful Others) health locus of control would be associated with greater psychological distress (depression, anxiety, and stress) in community adults with diverse trauma histories. As part of a larger study, trauma-exposed community adults ($N=84$; age: $M=35$, $SD=13$; 83% female; 32% racial/ethnic minority) completed a one-time study visit during which they completed several measures. The most common traumas reported on the Traumatic Life Events Questionnaire were childhood sexual assault, sudden death of a close other, and domestic violence. Participants completed Form A of the Multidimensional Health Locus of Control Scales reflecting three dimensions (Internal Control, Chance, Powerful Others) and the Depression, Anxiety, and Stress Scales. Three separate multiple regression analyses were conducted, with Internal Control, Chance, and Powerful Others simultaneously entered as predictors of depression, anxiety, and stress. Perceptions of Chance as a strong influence on one's health predicted higher anxiety, $\beta=.30$, $p=.01$, $F(3,75)=3.46$, $p<.05$, adjusted $R^2=.09$, as well as higher stress, $\beta=.29$, $p<.05$, $F(3,75)=2.66$, $p<.05$. None of the

three dimensions of health locus of control predicted depression ($ps=.08-.88$). Internal Control and Powerful Others did not predict psychological distress. Results highlight that the perception of chance as a strong influence on one's health is associated with more anxiety and stress in trauma-exposed adults. Findings underscore the potential clinical relevance of discussing health-related cognitions in patients who are trauma survivors.

22) Abstract 197

TRAJECTORIES OF AFFECT THROUGH THE CANCER CARE CONTINUUM: THE INTERVENING ROLE OF BRIEF STRESS MANAGEMENT INTERVENTIONS

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Introduction. Increased negative affect (NA) and decreased positive affect (PA) occur at various stages of the cancer experience. However, there is a lack of longitudinal research on affective change throughout the cancer care continuum spanning into long-term survivorship. Moreover, it is unknown whether a psychosocial intervention delivered in the primary treatment period might impact the trajectories of affect.

Methods. We collected 8-year follow-up data from a cohort of women with stage 0-3 breast cancer who previously participated in a trial of 5-wk, group-based stress management (cognitive behavioral therapy (CBT) or relaxation training (RT)) v. a health education control (HE). PA and NA were measured at baseline, post-intervention, 6-months, 1-year, and 8-years using the Affect Balance Scale. We used hierarchical linear modeling to test whether intervention condition predicted the trajectories of affect over time. A piecewise modeling approach was taken to reflect affective changes in the year post-diagnosis (baseline to 1-year) and during survivorship (1-year to 8-year). Covariates were age, stage, ethnicity, and adjuvant treatment receipt.

Results. On average, women were 54.3 years old ($SD=10.1$), White (Hispanic=43.7%; non-Hispanic=41.5%), with invasive disease (80.3%). Of the 183 women enrolled, 81 completed 8-year follow-up (44.3%). There was no effect of time on NA in the short- or long-term, and no effect of intervention on NA trajectory. There was an increase in PA over the year following diagnosis ($B(SE)=.16(.07)$, $p=.016$), but this significant time effect did not continue into survivorship. There was a significant RT by time interaction on PA during the survivorship period ($B(SE)=.04(0.02)$, $p=.046$): women who received RT continued to increase in PA ($b=.02$) while those who received HE decreased ($b=-.02$). There was no such effect of CBT v. HE or RT.

Discussion. PA systematically increased over the first year following breast cancer diagnosis. During long-term survivorship, women who had received RT continued to increase in PA, while those who received HE decreased and those who received CBT exhibited no effect. Our findings provide support for NA and PA as unique constructs with distinct trajectories that may be impacted differentially by a cancer diagnosis and specific interventions. Specifically, RT may have a lasting impact on PA.

23) Abstract 198

COGNITIVE AND AFFECTIVE CONSEQUENCES OF EXPOSURE TO MESSAGES REGARDING SOCIAL VALUE IN OLDER ADULTHOOD

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As social animals, human cognition and emotion is attuned to communications of our value in important social groups and society. Although it is thought that we may be most sensitive to communications regarding our social value in adolescence and young adulthood, such concerns appear to be present across the life course including in older adulthood. A previous investigation found that older adults exposed to a message regarding their contributory social value in society subsequently performed better on a test of memory function as compared to those exposed to a message regarding their burden to society. A key limitation of this earlier work was the lack of a neutral message condition to determine whether being exposed to messages regarding the positive social value of older adults enhanced cognitive performance or being exposed to negative messages regarding the social burdens of one's age group suppressed performance. This limitation was addressed in an online experiment of 300 U.S. adults age 55 and older who were randomly exposed to either a social contribution, social burden, or neutral message presented as a test of reading comprehension and recall. Participants completed other measures of cognitive ability before and after the message priming task, including a test of verbal memory, as well as post-message assessments of state emotion. An ANCOVA model including age as a covariate indicated a significant effect of message condition ($F(2,296) = 3.30, p = .038$) for verbal memory performance; performance did not vary between the neutral and social burden priming conditions but was significantly higher in the social contribution condition ($d = .29$). Conversely, greater feelings of stress and depressed affect and lower feelings of vitality, achievement, and social connection and contribution, followed the social burden prime as compared to the social contribution and neutral messages. Experimental findings provide support for the hypothesis that exposure to positive messages regarding the value of a social group to which one belongs boosts cognitive performance, and exposure to social burden messages lead to less favorable emotional states. These findings indicate that even in older adulthood one's cognitive function and emotional well-being may be affected by communications regarding the social value of groups to which one belongs.

24) Abstract 221

THE RELATIONSHIP BETWEEN POLITICAL CLIMATE STRESS AND HEALTH OUTCOMES: THE ROLES OF STIGMA CONSCIOUSNESS AND SOCIAL SUPPORT AMONG LGBTQ+ ADULTS

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Background: Political climate has a negative impact on the mental health and well-being of LGBTQ+ individuals. After the 2016 United States Presidential Election, sexual and gender minority individuals experienced increases in minority stress. Political climate can also increase feelings of stigma among LGBTQ+ individuals, and stigma consciousness leads to worse mental and physical health outcomes in these marginalized groups. However, social support has been shown to lessen the negative impact of minority stressors on mental and physical health outcomes. The current study aimed to determine whether stigma consciousness mediates the previously established relationship between political climate stress and mental and physical health outcomes. The study also aimed to determine whether social support serves as a moderator

between the relationship, as has been supported by previous research.

Methods: 153 American LGBTQ+ adults completed an online survey with the Cohen-Hoberman Inventory of Physical Symptoms, the Depression, Anxiety, and Stress Scale, the Stigma Consciousness Questionnaire for Gay Men and Lesbians, the Impact of Event Scale-Revised, and the Multidimensional Scale of Perceived Social Support. Results: Political climate stress positively predicted depressive symptoms ($r = .52, p < .001$), anxiety symptoms ($r = .61, p < .001$), physical symptoms ($r = .56, p < .001$), and stigma consciousness ($r = .33, p < .001$), and negatively predicted social support ($r = -.24, p = .002$). Contrary to the hypotheses, stigma consciousness did not mediate the relationship between political climate stress and health outcomes (depressive, anxiety, and physical symptoms), and social support did not serve as a moderator. However, post hoc analyses found that stigma consciousness moderates the relationship. For those with high stigma consciousness, there was a stronger positive relationship between political climate stress and physical symptoms, compared to those with low stigma consciousness ($p < .05$).

Conclusions: For individuals who are aware of stigma surrounding their sexuality and/or gender identity, political climate stress leads to worse physical health outcomes than for those who are not as aware of the stigma. Future research should attempt to determine the most effective ways to manage stigma consciousness, to prevent negative health effects among LGBTQ+ persons.

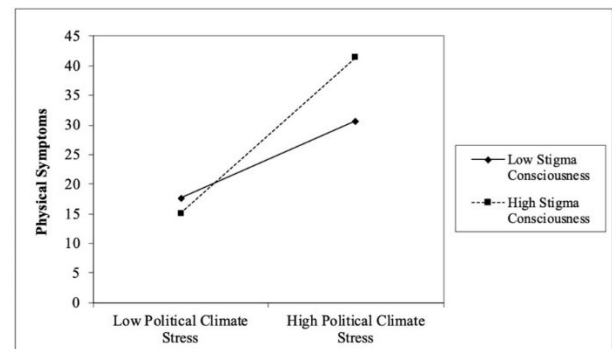


Figure 13. Simple slopes for political climate stress predicting physical symptoms, for low (1 SD below the mean) and high (1 SD above the mean) stigma consciousness.

25) Abstract 279

HIGH HEART RATE VARIABILITY BUFFERS THE EFFECT OF ATTACHMENT ANXIETY ON DEPRESSIVE SYMPTOMS

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People with high levels of attachment anxiety are characterized by hyper-sensitivity, proximity-seeking and excessive rumination. Attachment anxiety predicts depressive symptoms. Vagally-mediated heart rate variability (HRV) is a measure of parasympathetic activity; HRV has been used as a biomarker of adaptability to stress. **Methods:** A sample of 163 older adults participated in four data collection points over 10 months ($M = 66.18$ years old, $SD = 13.54$ years; 69% women; 71% white). At each visit, participants provided self-report data on demographics, health information, attachment anxiety (Experience in Close Relationships), and depressive symptoms (Center for Epidemiological Studies Depression Scale). Data collection also included a five-minute relaxation

period during which experimenters captured HRV with a 1,000 Hz sampling rate using a Polar s810 wristwatch and a Polar H10 heart rate sensor. We corrected artifacts in the HRV data with Kubios analysis software and used the square root of mean successive differences (RMSSD). We conducted linear regressions and adjusted for demographic and health-related covariates. **Results:** Attachment anxiety was positively related to depressive symptoms ($p < .001$), aligning with meta-analytic findings. There was no significant effect of HRV on depressive symptoms. In adjusted and unadjusted models, there was a significant interaction between attachment anxiety and HRV on depressive symptoms was significant. Furthermore, we find that the positive relationship between attachment anxiety and depressive symptoms existed at mean levels of HRV and low levels of HRV, but not high levels of HRV, 95% CI [-0.09, 0.29]. **Discussion:** We found that high HRV buffers the effect of attachment anxiety on depressive symptoms; this effect was stable across 10 months. Researchers have found that high HRV moderates the relationship between attachment avoidance and outcomes of perceived stress and chronic inflammation. Few studies have examined HRV and attachment anxiety. The present finding is novel, as it suggests that high adaptability might reduce one's likelihood of clinical depression. Interventions have successfully increased HRV; this finding suggests HRV interventions may be useful for reducing depressive symptoms.

Table 1
Interaction of Attachment Anxiety and Heart Rate Variability on Depressive Symptoms

	Unadjusted				Adjusted			
	Estimate	SE	t	p	Estimate	SE	t	p
(Constant)	0.60	2.42	0.25	.80	10.68 ^{***}	3.93	2.72	.007
Age					-0.14 ^{**}	0.04	-2.99	.003
Sex ¹					2.03	1.19	1.71	.09
Race ²					-2.53 [*]	1.26	-2.00	.047
Beta Blockers					0.11	1.46	0.08	.94
Attachment Avoidance					-0.07	0.05	-1.29	.20
Attachment Anxiety	0.98 ^{***}	0.28	3.56	<.001	1.04 ^{***}	0.28	3.77	<.001
RMSSD	1.87 ^{***}	0.71	2.63	.008	2.00 ^{***}	0.71	2.84	.005
Attachment Anxiety × RMSSD	-0.22 ^{**}	0.08	-2.71	.007	-0.23 ^{**}	0.08	-2.83	.005
Within-person R ²	.03				.11			
Total R ²	.67				.67			

Note: ¹For biological sex, 0 = male and 1 = female. ²For race, 0 = non-white and 1 = white. All estimates are unstandardized. In unadjusted analyses, $N_{Level 2} = 167$ participants and $N_{Level 1} = 455$ observations. In adjusted analyses, $N_{Level 2} = 165$ participants and $N_{Level 1} = 453$ observations. * indicates $p < .05$, ** indicates $p < .01$, *** indicates $p < .001$.

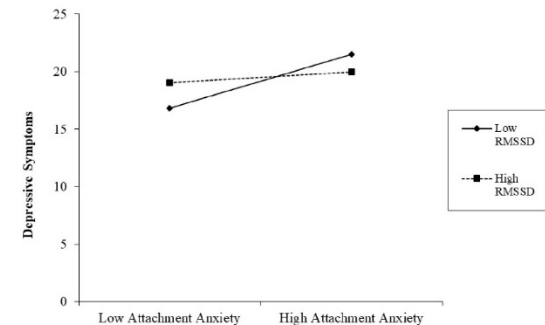


Figure 1 The interaction of attachment anxiety and heart rate variability (measured as RMSSD). Low levels refer to one standard deviation below the mean and high levels refer to one standard deviation above the mean.

26) Abstract 281

MULTIDIMENSIONAL SLEEP HEALTH AND SELF-REPORTED COGNITIVE FUNCTION IN RETIRED NIGHT SHIFT WORKERS AND RETIRED DAY WORKERS

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Objectives: Night shift work is associated with compromised cognitive function, and with chronic exposure, may place shift workers at elevated risk for dementia. Given that former night shift workers experienced long-term sleep and circadian

rhythm disruption during their work years, their sleep in retirement—after returning to a daytime schedule—may be particularly salient for cognitive function. This study examined associations between multidimensional sleep health and neurocognitive function among retired night shift workers and retired day workers.

Method: Participants (N = 61; mean age: 67.9 +/- 4.7 years; 61% females; 13% non-White) were 31 retired day workers and 30 retired night shift workers equated on age, sex, race/ethnicity, premorbid IQ, and years in retirement. Multidimensional sleep health was quantified using actigraphy measures of sleep efficiency, timing, duration, and regularity, and diary measures of alertness and satisfaction. Each component was dichotomized and summed to create a composite score. Participants completed a neurocognitive battery assessing six cognitive domains (language, visuospatial ability, attention, immediate and delayed memory, executive function) and self-reported cognitive function. Linear regression models tested associations of multidimensional sleep health and its individual components with cognitive domains in each group, adjusting for age, sex, and education.

Results: Retired night shift workers and retired day workers did not differ on sleep health or its individual components. In retired night shift workers, poorer sleep health was associated with poorer self-reported global cognitive function ($b = 0.51$, $p = .018$), and more irregular sleep timing was associated with poorer self-reported memory ($b = 0.41$, $p = .054$). Sleep health and its individual components were unrelated to cognitive function in retired day workers.

Discussion: Retired night shift workers may be cognitively vulnerable to poor sleep health in retirement, possibly due to a history of long-term sleep and circadian rhythm disruption while working. Given that self-reported cognitive difficulties often precede more objective cognitive changes, future research should determine whether associations of sleep health with cognitive function are found in more objective cognitive measures as retired night shift workers age.

27) Abstract 397

COULD STRESS SUSCEPTIBILITY BE A RESOURCE IN PROTECTIVE ENVIRONMENTAL CONDITIONS? AN EXPERIMENTAL STUDY TESTING THE MODIFYING EFFECTS OF SUSCEPTIBILITY AND NATURE EXPOSURE ON PHYSIOLOGICAL STRESS RECOVERY

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Background: Neurodevelopmental theories support the hypothesis that susceptible individuals – those who experience greater negative effects in adverse environments – also experience greater beneficial effects in protective environments. However, evidence has primarily centered on the health implications of susceptible individuals in adverse environments while the effects of protective environments on these individuals remains poorly understood. Although defining protective environments is challenging, psycho-evolutionary theories posit natural environments are health-protective via stress reduction (better recovery) relative to urban settings which are inherently stressful. The aim of this study was to determine if susceptible individuals experience better stress recovery in nature than non-susceptible individuals.

Methods: We determined differences in stress recovery (heart rate variability and autonomic activity) caused by exposure to a nature or office environment in virtual reality (10 min) after an acute stressor (Trier Social Stress Test) among individuals with varying levels of susceptibility indexed via hyper-reactivity (stress-induced cortisol reactivity, bacteria-induced inflammatory reactivity and glucocorticoid resistance).

Results: Regression models revealed direct effects of susceptibility on (worse) stress recovery ($p < .05$). However, models with interactions between measures of susceptibility and environmental exposure conditions revealed susceptibility was associated with better recovery in the nature condition and worse recovery in the office condition ($p < .05$). This trend was even consistent across non-significant models.

Discussion: Susceptibility (indexed via a hyper-reactive pro-inflammatory state) was associated with better stress recovery when individuals were exposed to nature after an acute stressor. These results support the idea that protective environmental conditions could be an ideal intervention target to curb health inequities among susceptible groups. Further research should focus on other conceptualizations and measures of susceptibility and protective environmental factors. Ultimately, our results highlight a biobehavioral mechanism through which at-risk individuals, based on susceptibility to socio-environmental factors, might experience varying levels of disease-risk or protection given their environmental context.

29) Abstract 441

DEVELOPING AND EVALUATING PSYCHOEDUCATIONAL MATERIALS TO ADDRESS THE MENTAL HEALTH EFFECTS OF RACISM

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Many individuals wish to address race-related issues in medical care but face a shortage of mental health providers capable or comfortable discussing race-related stressors, including discrimination. Psychoeducational materials can support the capacity of providers and patients to discuss discrimination and mental health. We developed and evaluated psychoeducational materials designed to support these discussions. **Methods:** The psychoeducational material communicates information about social cognitive processes linking discrimination to depression. The initial set of materials addresses discrimination facing the Black community. We report on the first four stages of research. Step 1: Four scientist-practitioners evaluated the validity of information presented in the psychoeducational materials. Step 2: A community advisory board ($n = 8$ Black adults, 6 women) provided "real-life" examples of the concepts and these were incorporated into the materials' text and illustrations. Step 3: Participants ($n = 68$, 62 women, 43 Black individuals) worked with the materials. Pre-to-post-intervention outcomes included: self-efficacy discussing and addressing depression (Patient Activation Measure; Hibbard et al., 2004), self-efficacy discussing race-related issues (adapted from Racial Socialization Competencies, Anderson et al., 2019); mental health stigma (Day's Mental Illness Stigma Scale (DMISS), 2007), and discrimination-related distress and stigma (adapted from the DMISS). Step 4. Psychiatrists ($n = 4$, residents and attending psychiatrists) from an urban medical center participated in semi-structured interviews to evaluate the feasibility and acceptability of the booklet. **Results.** Over 90% of participants rated the materials as helpful or very helpful. Repeated measures analyses revealed significant improvements in self-efficacy discussing depression ($F(1,67) = 13.22$, $p < .001$) and discussing discrimination ($F(1,67) = 19.38$, $p < .001$), and reductions in distress discussing discrimination ($F(1,67) = 7.61$, $p < .001$). All psychiatrists viewed the materials as an important and needed

resource. **Conclusions:** Psychoeducational materials can support self-efficacy in engaging in difficult conversations. Ongoing research will determine if this intervention can be scaled to support mental health interventions across the hospital.

30) Abstract 468

THE FINANCIAL IMPACT OF HURRICANE MARÍA AND THE 2020 SEQUENCE OF TREMORS ON PSYCHOLOGICAL DISTRESS IN PUERTO RICO

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Background: Puerto Rico recently experienced some of its worst natural disasters: Hurricane María in 2017 and a sequence of tremors (ST) in 2020. Studies have separately documented the psychological and financial toll of Hurricane María, but the association between the two has not been examined. Additionally, data are scarce on the financial toll of the ST as well as how it impacted psychological distress. Such knowledge is needed given the island's high burden of psychosocial distress and ongoing financial crisis. This study examined the association between the financial impact of Hurricane María and the ST and psychological distress among adults in Puerto Rico. **Methods:** This cross-sectional analysis used baseline data from PR-OUTLOOK. Participants ($n=1,484$) were between 18-29 years old and recruited between September 2020-September 2022. The study assessed symptoms of depression (CESD-10), anxiety (STAI-10), post-traumatic stress disorder (Civilian Abbreviated Scale PTSD checklist), 'ataque de nervios', and perceived stress (PSS-4). All were dichotomized according to clinical or population-based cutoffs. The financial impact of Hurricane María and the ST was assessed through two items with responses dichotomized as no/little (low impact) vs. some/a great deal (high impact). Adjusted prevalence ratios (PR) and 95% confidence intervals (95%CI) were estimated using log-binomial regressions. **Results:** Overall, 44% and 10% of the sample reported high financial impact from Hurricane María and the ST, respectively. In adjusted models, high financial impact as a result of Hurricane María (vs. low) was associated with higher a prevalence of elevated symptoms of depression ($PR=1.17$; $95\%CI=1.10-1.27$), anxiety ($PR=1.46$; $95\%CI=1.21-1.76$), PTSD ($PR=1.06$; $95\%CI=1.01-1.11$), and perceived stress ($PR=1.11$; $95\%CI=1.04-1.18$). High financial impact from the ST (vs. low) was associated with a higher prevalence of elevated symptoms of depression ($PR=1.12$; $95\%CI=1.03-1.21$). **Conclusion:** Experiencing high financial impact from Hurricane María and the ST was associated with adverse mental health outcomes among adults in Puerto Rico, with estimates being strongest for Hurricane María. Future studies of the financial impact of natural disasters on mental health of young adults are needed to inform potential interventions that build resilience, especially among vulnerable populations.

31) Abstract 501

THE ASSOCIATIONS BETWEEN LANGUAGE USE IN PERSONAL NARRATIVES AND ATHEROSCLEROTIC CARDIOVASCULAR DISEASE RISK

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Previous studies have shown that expressed positive affect (PA) is associated with lower cardiovascular disease (CVD) risk, a critical finding as CVD remains the leading cause of death in the United States. PA has also been shown to be correlated with lower heart rate and blood pressure, thereby potentially impacting cardiovascular health. Previous PA-health work focused primarily on self-report measures of PA, which can be problematic given known response and demand biases, expectancy effects, and more. This study explored whether an unobtrusive approach to detecting differences in PA could be utilized to detect CVD risk-relevant PA. We linguistically coded open verbal life story narratives generated by participants for affective content. Participants were healthy adults drawn from the Orange County, California region ($n = 107$, mean age = 35.6) who completed a health history and spoke about the high, low, and memorable points of their life for 20-25 minutes, followed by a series of baseline vital signs and statistics. Transcripts of these stories were analyzed using the Linguistic Inquiry and Word Count software. Long-term atherosclerotic cardiovascular disease (ASCVD) risk was calculated using the ASCVD risk algorithm, which accounted for biological (e.g., age, height, weight, blood pressure) and behavioral characteristics (e.g., smoking, exercise). After controlling for age and body mass index, we found that narratives that showed positive emotion that resulted from behavioral activation (e.g., saying words like powerful and admire) is associated with higher ASCVD risk. Next, we found a negative association between ASCVD risk and enjoyment due to effort exerted (e.g., using words like affirm and refreshed). Finally, there was also a negative correlation between ASCVD risk and language-coded satisfaction (e.g., accomplish, encourage). Current methods of determining ASCVD risks depend on extensive questionnaires (relying on patient cooperation) or invasive measures (laboratory draws). Results from our study suggest that training clinicians to be cognizant of patients' language use during encounters could be an additional non-invasive, objective measure to assess their emotional state. This narrative assessment can have significant clinical utility in various settings as valuable predictors for patients' cardiovascular health.

32) Abstract 330

RELIGIOUS AFFILIATION STATUS MODERATES NON-LINEAR ASSOCIATIONS OF INTERPERSONAL DISCRIMINATION TO ARTERIAL STIFFNESS IN AFRICAN AMERICAN WOMEN AND MEN.

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This study examined the interactive relations of self-reported discrimination, religious affiliation, and sex with pulse wave velocity (PWV). Interpersonal discrimination is a salient and chronic stressor among African American (AA) adults; religious affiliation is often cited as protective for AAs; and PWV is a non-invasive measure of arterial stiffness and prognostic for subclinical cardiovascular disease. Data were drawn from 797 AA midlife adults (52.3% women; mean age = 48.4 years old; 44.2% below poverty; 60% religiously affiliated mostly as Christian or Catholic) in the Healthy Aging in Neighborhoods of Diversity across the Life Span epidemiological cohort study in Baltimore, Maryland. Participants underwent a carotid-femoral PWV assessment via transcutaneous Doppler probes, self-

reported multiple dimensions of interpersonal discrimination (social status-based, lifetime burden, gender, and racial). Multivariable linear regression examined potential interactive relations of linear and quadratic discrimination, religious affiliation status, and sex to PWV in models adjusted for age and poverty status. Findings revealed a significant interaction of quadratic discrimination, religious affiliation status, and sex with PWV ($p = .004$). Simple effects analyses indicated that the associations between quadratic discrimination and PWV were only significant for religiously affiliated men ($p = .008$) and resembled a U-shape such that both lower and higher levels of discrimination were related to *higher* PWV among men who were religiously affiliated. The relations were nonsignificant among women and unaffiliated men. Sensitivity analyses for other psychosocial (e.g., depression) and biomedical (e.g., blood pressure) risk factors did not alter results. Results suggest that for AA men, having a religious identity might either increase their susceptibility to and salience of felt interpersonal discrimination; or that by way of their religion, unwanted memories are suppressed or forgotten but can still manifest as adverse cardiovascular health outcomes. Black-affirming religions and churches often speak out against racism, but in so doing, perhaps engender a hypervigilance that contributes differential effects across multiple *intersectional* identities that can also exacerbate cardiovascular disease risk.

33) Abstract 294

EXAMINING THE ASSOCIATION BETWEEN TRAIT EMOTION REGULATION AND CARDIOVASCULAR RESPONSES TO REPEATED ACUTE PSYCHOLOGICAL STRESS

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Background: Poor emotion regulation has been associated with cardiovascular disease (CVD) through maladaptive cardiovascular responses to psychological stress. However, there has been scant research examining the relationship between emotion regulation and habituation of cardiovascular responses to recurrent stress, which may be more realistic to the experience of stress in daily life.

Aim: The aim of the current study was to examine the associations between trait emotion regulation and habituation of cardiovascular reactivity across repeated stressors.

Method: Participants ($N = 453$, Mean (SD) age = 19.5 (1.3) years, 62% female, 66% Caucasian, 18% Hispanic) completed a repeated stress paradigm, which consisted of two 10-minute baseline periods and two identical 4-minute stress tasks, separated by a 10-minute recovery period. Heart rate (HR) was measured continuously; systolic/diastolic blood pressures (SBP/DBP) were measured every two minutes. Averages were calculated within each study phase. Reactivity was calculated separately for HR, SBP, and DBP (stress – baseline). Participants completed the Emotion Regulation Questionnaire (ERQ) and Difficulties in Emotion Regulation Scale (DERS).

Results: Repeated-measures ANCOVAs demonstrated significant time-by-DERS total score interactions for HR, $F(1, 440) = 4.68$, $p = .03$, $\eta^2 = .01$, but not SBP or DBP ($ps \geq .66$). When controlling for confounders, results remained significant for HR, $F(1, 434) = 5.02$, $p = .03$, $\eta^2 = .01$. Separate inclusion of DERS subscales revealed that the significant outcome for DERS total score was largely driven by impulse control difficulties, $F(1, 434) = 8.12$, $p = .005$, $\eta^2 = .02$ and limited access to emotion regulation strategies, $F(1, 434) = 5.57$, $p = .02$, $\eta^2 = .01$. In other words, poor impulse control and lack of effective regulatory strategies were both associated with less

HR habituation across the stress tasks. None of the ERQ subscales (cognitive reappraisal, expressive suppression) were associated with habituation of cardiovascular reactivity. **Conclusion:** The outcomes of this study demonstrate the importance of extending traditional cardiovascular reactivity laboratory stress protocols to include multiple exposures of the same stress task. These results identify a potential underlying physiological pathway through which poor emotion regulation contributes to CVD risk.

34) Abstract 430

HOPE AND BEHAVIORAL WEIGHT LOSS: HIGHER “WAYPOWER” (PATHWAYS) MAY LEAD TO GREATER WEIGHT LOSS THAN HIGHER “WILLPOWER” (AGENCY)

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Hope is defined as a motivational state comprised of agency and pathways thinking. Agency can be likened to “willpower” - the internal motivation needed to reach goals. Pathways has been termed “waypower” - the perceived ability to find routes toward goals. Theoretically, both facets of hope would relate to success in a behavioral weight loss trial, but empirical evidence is limited. This study examined hope and its subscales as predictors of weight loss in an intensive behavioral treatment trial. Enrolled adults ($n=108$) with BMI ≥ 25 (kg/m^2) participated in a 6-month weight loss treatment program (post-treatment $n=88$) with 12-month follow-up ($n=76$; ClinicalTrials.gov NCT02786238). Hope was assessed at baseline using the Adult Hope Scale-Revised (AHS-R) total and subscale scores (agency & pathways). We calculated percent weight lost (%WL) = $((\text{Baseline weight} - \text{Subsequent weight}) / \text{Baseline weight}) \times 100$ for post-treatment and follow-up. Covariates were the Positive and Negative Affect Schedule (PANAS), Gratitude Questionnaire (GQ-6), Life-Orientation Test-Revised Optimism Scale (LOT-R), BMI, Adverse Childhood Experiences (ACEs), age, sex, and education. Linear regressions tested the relationship between AHS-R total and %WL post-treatment and at follow-up adjusting for covariates. Second, AHS-R subscales and their respective prediction of %WL were examined. Higher AHS-R total scores predicted greater %WL at post-treatment ($\beta=.42$, $p=.014$) and follow-up ($\beta=.61$, $p=.003$) after adjusting for covariates. The relationship between AHS-R total and higher %WL was driven by the pathways subscale for both time-points ($\beta=.62$, $p<.001$ post-treatment; $\beta=.83$, $p<.001$ follow-up) whereas the agency subscale was unrelated to %WL at either time-point ($p \geq .73$). Lower baseline BMI ($\beta=-.26$, $p=.029$) and GQ-6 scores ($\beta=-.56$, $p=.001$) also predicted higher %WL at post-treatment, but only GQ-6 predicted follow-up %WL ($\beta=-.43$, $p=.020$). Higher hope independently predicted greater weight loss at 6 and 12 months in a weight loss treatment after adjusting for covariates. This hope-weight loss relationship was driven by the waypower facet of hope, while willpower was unrelated. Lower gratitude also predicted more weight loss, suggesting that dissatisfaction with one's current state - combined with belief in pathways toward a better future - predicted greater weight loss success.

35) Abstract 435

NEIGHBORHOOD STRESS IMPACTS MENTAL HEALTH SYMPTOMS AMONG BLACK AND HISPANIC, BUT NOT WHITE, US VETERANS WITH SLEEP DISORDERS

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Introduction: Adverse neighborhood characteristics have been associated with poor mental health outcomes, which disproportionately impact minoritized people. However, whether these relationships are similar in people with sleep disorders is unknown. Here, we describe how neighborhood stress associates with mental health symptoms in a US veteran sleep clinic sample and whether this association varies by race-ethnicity.

Methods: The sample consisted of US veterans at risk for sleep apnea (SA) evaluated at the Miami VA Sleep Center. Veterans completed home polysomnography and questionnaires which queried demographics, neighborhood factors, insomnia (insomnia severity index [ISI]), and mental health symptoms (PROMIS-29 anxiety and depression). Neighborhood stress was defined as a latent factor with four indicators: perceived safety, excessive noise, dangerous traffic, and violence risk. Three race-ethnicity groups were formed (40% non-Hispanic Blacks [NHB], 19% non-Hispanic Whites [NHW], 41% Hispanic [HW]). Depression, anxiety and insomnia were regressed on neighborhood stress and apnea-hypopnea index (AHI). Analyses were controlled for age, gender, body mass index (BMI) and education. Maximum likelihood estimation assuming missing at random was used. Multigroup analyses (NHB, NHW, HW) were performed with Mplus. An unconstrained model was compared to a constrained one to determine improvement in fit statistics.

Results: The cohort consisted of 616 veterans (85% male) with mean age of 52 ± 15 years and mean BMI of 31 ± 6 m^2/kg . The means for the AHI, PROMIS depression, anxiety and ISI were 18 ± 17 , 55 ± 10 , 59 ± 11 , and 19 ± 6 , respectively. Overall model fit improved when estimates were free to vary among groups ($\chi^2_{\text{diff}} = 21.9$, $\text{df}=6$; $p<.001$) indicating that neighborhood stress predicting mental health outcomes varied among the race-ethnic groups. For both NHBs and HWs, neighborhood stress predicted depression, anxiety and insomnia (all $p<.001$). These associations were not found in NHWs. Furthermore, the AHI did not predict depression, anxiety or insomnia for any of the race-ethnic groups.

Conclusions: Independent of SA, perceived neighborhood stress was associated with greater depression, anxiety and insomnia among NHBs and HWs, but not NHWs. Thus, neighborhoods may contribute to mental health disparities among minoritized people with sleep disorders.

POSTER SESSION 1

1) Abstract 410

SLEEP QUALITY AT THE START OF THE COVID-19 PANDEMIC: EVIDENCE FOR INDIRECT EFFECTS OF OBJECTIVE AND SUBJECTIVE SOCIAL STATUS VIA PSYCHOLOGICAL DISTRESS

Jacqueline Rodriguez-Stanley, MA, Wayne State University, Tim Bogg, PhD, Wayne State University, Yanping Jiang, PhD, Rutgers University, Samuele Zilioli, PhD, Wayne State University

Objective. The COVID-19 pandemic gave rise to uncertainty and distress that covaried with socioeconomic status (SES). The Reserve Capacity Model suggests that low SES individuals are more likely to experience distress following a stressor due to reduced access to resources. In turn, sustained distress can contribute to consequential changes in health behaviors. This study investigated how SES was associated with both current levels and perceptions of change in health behaviors at the start of the pandemic, as well as whether distress mediated these associations. **Methods.** Data were collected online in the United States between April and June, 2020 ($N = 395$, $M_{\text{age}} = 36.9$ yrs., $SD = 15.7$ yrs., range 18 – 85

yrs., 75% female, 65% white). Current income, highest degree earned, and current employment informed a latent SES variable. Psychological distress was a latent variable informed by sense of control and depressive affect and cognitions. Subjective social status (SSS) was also included as an independent observed variable. Alcohol consumption was assessed as the number of drinks per week. Within the past month, participants reported their sleep quality and frequency of physical activity. Participants also reported any changes they perceived in these health behaviors compared to pre-pandemic. **Results.** In the model for current health behavior levels (i.e., since the pandemic), lower SES was associated with greater distress and lower alcohol consumption. Indirect effects showed lower SES and SSS were independently associated with greater distress which, in turn, was associated with worse sleep quality, controlling for age, race, COVID-19-related worry, and shelter-in-place orders. In the model assessing behavior change (i.e., compared to pre-pandemic), greater SES was associated with perceptions of decreased sleep quality, controlling for age, COVID-19-related worry, and current health behaviors. **Conclusion.** This study demonstrated how distress was a pathway by which the association between SES and current sleep quality could be understood. None of the associations were due to worry about contracting COVID-19 or to shelter-in-place orders, suggesting the effects of distress were unrelated to concerns about infection, but possibly due to second-order effects, such as disruptions to patterns of work, social connectedness, or caregiving.

2) Abstract 267

THE ROLE OF SLEEPINESS IN THE ASSOCIATION OF HUNGER WITH SPECIFIC FOOD CRAVINGS

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Background

Greater perceived hunger and cravings for energy-dense foods may be linked with obesity and metabolic dysregulation. In this context, the extent to which daytime sleepiness influences the association of hunger with specific food cravings has not been examined. Thus, the present study employed a 2-day overnight laboratory stay with standardized meals to examine, prior to bedtime: 1) the main effect of hunger on specific food cravings for sweet, salty, and starchy foods, fruit, meat, and dairy products; and 2) whether sleepiness moderates the relationship of hunger with cravings.

Methods

The study enrolled 143 adults (65% men, 18-55 years) with and without insulin resistance, but with no diagnosed cardiometabolic or psychiatric conditions. During the overnight stay, participants received standardized meals with caloric content based on average US national caloric intake, adjusted for sex, body surface area and the sedentary energy requirements of the laboratory. At 9 pm, subjective sleepiness, hunger, and food cravings were measured using a visual analog scale from 0 mm ("not at all") to 100 mm ("very much"). Regression analyses examined whether: 1) hunger was associated with food cravings; and 2) sleepiness moderated the relationships among hunger with food cravings, controlling for sex, age, and insulin resistance status (assessed via the hyperinsulinemia clamp).

Results

Greater hunger was associated with greater specific food cravings ($.24 \leq \beta \leq .53$, $p < .004$). Moderation analyses

indicated that the significant positive relationships of hunger with food cravings for salty and starchy foods, fruit, and dairy products were not moderated by the extent of sleepiness. However, interactions emerged among sleepiness and hunger with sweets ($B(SE) = -.01(.002)$, $p < .02$) and meat ($B(SE) = -.004(.002)$, $p = .052$). Specifically, for those with high sleepiness, lower hunger was associated with a 14-point higher craving for sweets, and a 19-point higher craving for meat.

Conclusion

In sum, study findings indicated associations of higher hunger with greater cravings for all food categories. Of note, findings further indicated that even with low hunger, higher sleepiness was associated with higher cravings for sweets and meats. Future research should examine the relevance of these findings to obesity and cardiometabolic pathophysiology.

3) Abstract 423

COMMUNITY ONLINE INFORMATION SEEKING PATTERNS PREDICT SLEEP QUALITY AND NEXT-DAY WORRY: A MEDIATIONAL ANALYSIS

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The information seeking patterns of a community provide insight into the daily concerns and interests of its members. Escalation in information-seeking during a crisis may indicate a context of greater uncertainty, which would trickle down to the individual and promote worry. The stress of being in this context might also disrupt sleep and thus provide a mechanism for the effects of community information-seeking on next-day worry. This pathway has not been tested in the COVID-19 environment despite findings of complex patterns of sleep and worry during the crisis and high levels of uncertainty. We examine whether daily levels of poor sleep quality mediate the association between community information-seeking and individual levels of worry the next day. Daily outcomes were measured via ecological momentary assessment over 14 days ($n = 56$; 81.8% female; Age $M = 20.53$; primarily Hispanic/Latinx 67.9% and White 58.2%) in early 2020, during the onset of the COVID-19 pandemic, for 1900 assessments across 600 days. Worry was assessed four times daily and aggregated into daily averages and sleep quality was assessed each morning. The individual level data was merged with community level information seeking data using daily Google search volumes of COVID-19 keywords. Multilevel modelling revealed an indirect effect of community information seeking on next day worry through sleep quality: information seeking predicted better sleep quality ($B = .013$, $SE = .003$, $p < .001$), and better sleep quality predicted less next-day worry ($B = -.156$, $SE = -.006$, $p < .001$). Moreover, sleep quality continued to predict worry even when information seeking is included in the model ($B = -.154$, $SE = -.006$, $p < .001$), and the direct effect of information seeking on worry is reduced in magnitude and is no longer significant, indicating mediation. These findings were unexpected as better sleep quality and downstream reduced worry occurred when more people in a community actively engaged in COVID-19 information seeking. This pattern suggests that information seeking itself could be a form of coping at the community level rather than uncertainty. These findings provide insight into contextual influences at multiple levels on sleep and worry, further developing the relationship between key health outcomes and highlighting the need for incorporating a contextual focus in daily health research.

4) Abstract 640

I CAN'T SLEEP, BUT I CAN'T STAY AWAKE: PARADOXICAL ELEVATIONS ON THE INSOMNIA SEVERITY INDEX AND EPWORTH SLEEPINESS SCALE IN VETERANS.

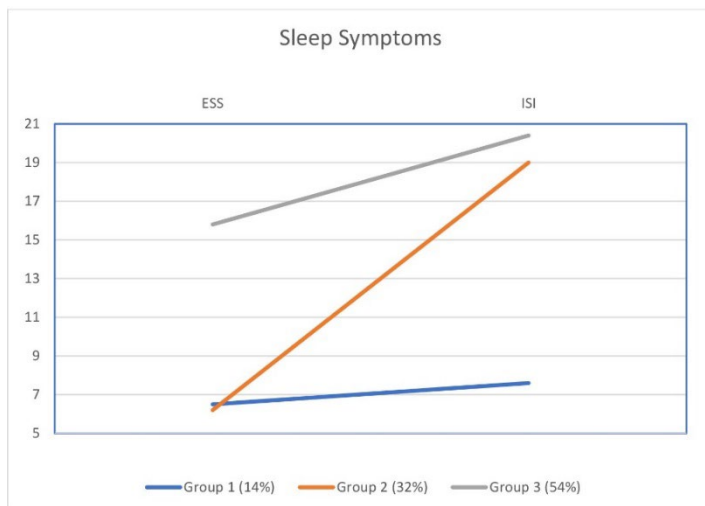
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Background: Excessive daytime sleepiness and insomnia are commonly reported symptoms in sleep clinics. Typically, these symptoms are expected to be inversely related. That is, those with elevated sleepiness struggle to remain awake, so insomnia should not be a problem. However, those with insomnia have 24-hour hyperarousal which implies that falling and remaining asleep are difficult at any time. In a clinical setting it would be unexpected to find those who complain of difficulty remaining awake with simultaneous difficulty falling and staying asleep. We hypothesized that clusters of participants would have symptom profiles of either elevated sleepiness or insomnia or no symptom elevations (absence of symptoms). We further expected that severity of sleep apnea and depression would distinguish the profiles.

Method: Participants were 608 consecutive US Veterans (Mage = 52, 85% male, 39% Black, 43% Hispanic) at risk for sleep apnea evaluated between 9/19 and 10/20 at the Miami VA Sleep Center. The PROMIS-29, Insomnia Severity Index (ISI) and Epworth Sleepiness Scale (ESS) were completed prior to a sleep study. Latent profile analysis (LPA) was conducted using ISI and ESS as indicators. Predictors of latent classes were 1) depression (subscale from PROMIS-29) and 2) apnea-hypopnea index (AHI; derived from sleep study). Age, race and ethnicity were entered as covariates.

Results: Three subgroups were identified using statistical criteria. Entropy was 0.68 for the solution. Means (and prevalence; see figure) for the ISI and ESS, respectively, for each of the 3 groups were 1) 6.5, 7.6 (14%), 2) 6.2, 19.0 (32%) 3) 15.8, 20.4 (54%). Group 1 was below clinical threshold on both scales. Group 2 had elevations on ISI, but not ESS. Group 3, with elevations on both scales, was unexpected and the most prevalent. Also unexpected, a group with elevated ESS, but not ISI was not observed (hypersomnolence group). PROMIS-depression, but not AHI, distinguished the paradoxical Group 3 from the others.

Conclusion: LPA identified three subgroups of symptom presentation in a sample of veteran's with sleep disorders. Surprisingly, the most prevalent group reported symptoms of being unable to stay awake, but also unable to sleep. Elevated depression distinguished this subgroup from the other two groups. Further exploration of this paradoxical finding is warranted.



5) Abstract 97

NONDIABETIC INSULIN RESISTANCE: THE ASSOCIATION OF HABITUAL SLEEP DURATION AND SLEEP DURATION VARIABILITY WITH GHRELIN

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Introduction: Ghrelin, the hunger signaling hormone, is elevated following experimentally-shortened sleep duration. It is currently unclear whether the relationship between sleep and pre-prandial ghrelin dysregulation: 1) generalizes to at-home, habitual sleep patterns, and 2) differs in insulin sensitive (IS) versus insulin resistant (IR) individuals. Thus, this study examined whether diabetes risk indexed by IR status moderates the relationships of habitual sleep duration and duration variability with pre-prandial ghrelin.

Methods: The study assessed 102 adults, aged 18-55 years, with no diagnosed diabetes, cardiovascular or sleep conditions. Measures included insulin sensitivity via hyperinsulinemia clamp, sleep function using at-home actigraphy data over one week, and pre-prandial ghrelin via blood samples collected across two in-patient laboratory days, wherein 4 meals per day were provided. Participants received, in randomized order, a standard U.S. caloric load on one day and a high caloric load on the other (50% greater calories). Hierarchical linear modeling examined the interaction of sleep duration and duration variability with IR status on ghrelin for standard- and high-calorie days, while controlling for age, sex, education, body mass index, fasting insulin and glucose, meal administration time, and caloric load sequence. The interaction significance was set to $p < .10$.

Results: No significant effects of sleep duration were found. However, on the standard-calorie day, the relationship between more sleep duration variability and higher ghrelin approached significance ($B(SE) = 1.1(.6)$, $p = .07$), independent of IR status and covariates. On the high-calorie day, an interaction between duration variability and IR was found ($B(SE) = -.4(.2)$, $p = .07$). Specifically, more duration variability was associated with higher ghrelin in IR, but not in IS participants.

Conclusion: The finding that the sleep-ghrelin relationship was more apparent with average caloric consumption, but was present only in persons with IR when caloric consumption was markedly elevated, suggests that sleep duration variability may have specific mechanistic linkage with ghrelin regulation and ultimately with diabetic risk. Future clinical interventions should target achieving sleep duration consistency to determine whether ghrelin regulation improvement and diabetic risk may be reduced.

6) Abstract 663

PSYCHOLOGICAL DISTRESS & SLEEP DISTURBANCE: ANTICIPATION OF RACISM AS AN EFFECT MAGNIFIER

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Sleep disturbance is an important predictor of racial disparities in health (e.g., hypertension, depression,) with numerous studies showing greater sleep disturbance among African Americans compared to Whites. A strong body of evidence has

linked psychosocial stress to poor sleep quality. Further, chronic racism-related stress has been linked with poor sleep, and may help explain racial disparities in sleep. The majority of studies examining the stress-health association focus on either the activation of or the recovery from a stress experience. A relatively unexplored component of the stress process is the anticipation of a stressor. We examined whether awareness/expectation of racism (one domain of anticipatory racism threat (aRT)), and psychological distress (Kessler-6) predicted sleep disturbance (trouble staying asleep). Data are from a nationally representative panel of 615 African American women. Data collection was from July-September 2016. Awareness/expectation of racism, psychological distress, and sleep disturbance were all measured on a 1-5 scale with higher numbers indicating higher agreement. We ran a multiple regression testing for the interaction of awareness/expectation of racism & psychological distress on sleep disturbance. We controlled for the remaining 4 aRT subscales, age, and employment. We found a significant interaction such that being high in awareness/expectation of racism ($b = 0.20$, $SE = 0.10$, $p = 0.04$, 95% CI[0.01, 0.40]) magnified the positive relationship between psychological distress and trouble sleeping. Our findings affirm the need to consider anticipatory racism threat as an important aspect of the racial stress experience among African-American women, potentially exacerbating the negative effects of stress activation on health.

7) Abstract 595

THE RELATIONSHIP BETWEEN HIGH LEVELS OF CORTISOL AND DEPRESSIVE SYMPTOMATOLOGY WITH PAIN, FATIGUE, DISTURBED SLEEP, AND NEUROPATHY IN HISPANIC/LATINA BREAST CANCER PATIENTS.

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Background. Cortisol is a known biological marker of depression in cancer patients. Cancer patients experience a series of symptoms caused by the diagnosis and the treatment that could potentially be exacerbated by depression and high cortisol levels. A cluster of symptoms that have been identified in cancer patients is pain, fatigue, disturbed sleep, and neuropathy. However, there is a gap in the literature that explores the relationship of this cluster with depression and cortisol levels in Latina breast cancer patients, especially in Puerto Rican women. **Objective.** These secondary analyses aimed to explore the relationship between the symptom cluster (pain, fatigue, disturbed sleep, and neuropathy) and depressive symptomatology, and cortisol blood levels. **Method.** A total of 122 participants were pooled for these secondary analyses. All the participants were Latina/Hispanic women diagnosed with breast cancer. The data extracted were collected from the MD Anderson Symptom Burden Inventory which measures symptom intensity, symptoms interference, and symptom burden. For the purpose of these analyses, only the intensity subscale was used. To assess depression symptomatology, we used the PHQ-8. Cortisol levels were assessed using blood samples. **Results.** Regression analyses were conducted to explore the relationship between the symptoms cluster, depressive symptomatology, and cortisol. According to the results, cortisol and depressive symptomatology predict higher scores related to pain ($p < .001$). Both were significant individual predictors (cortisol $p = .005$, depression $p < .001$). The regression models also found that cortisol and depressive symptomatology predict higher scores for fatigue ($p < .001$),

disturbed sleep ($p < .001$), and neuropathy ($p < .038$). However, cortisol was not observed as an independent predictor in these models. **Conclusion.** High cortisol levels and depressive symptomatology could predict higher intensity in the symptoms cluster of pain, fatigue, disturbed sleep, and neuropathy.

8) Abstract 581

ETHNIC DIFFERENCES IN LEVEL OF EDUCATION, PSYCHOLOGICAL DISTRESS, AND SLEEP FOLLOWING SUSPECTED STROKE/TIA: EXPLORING THE HISPANIC HEALTH PARADOX

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Introduction. The Hispanic Health Paradox refers to the observation that Hispanics tend to have better health outcomes than non-Hispanics, despite facing greater hardships, lower socioeconomic status (SES), and having more cardiovascular risk factors (e.g., high blood pressure and obesity). Behavioral (e.g., sleep) and psychological (e.g., depression) factors predict recovery after a stroke, but less is known about how these factors differ by ethnicity after a stroke. In this analysis, we tested demographic, psychological, and behavioral factors, that may underlie the Hispanic health paradox among stroke survivors.

Hypothesis. We hypothesized that Hispanic vs. non-Hispanic stroke survivors would have significantly lower education, as a proxy for SES, but would not differ in behavioral and psychological factors related to the Hispanic Health Paradox.

Methods. An observational cohort study, *ReACH Stroke*, enrolled $N = 1000$ patients with suspected stroke/TIA admitted to Columbia University-NewYork-Presbyterian Hospital. Approximately 48% of study participants identified as Hispanic. All participants completed study questionnaires during their hospitalization and at various timepoints following discharge. Independent-samples t-tests of Hispanic vs. non-Hispanic participants were conducted comparing education status, posttraumatic stress symptoms (PCL-5), depression (PHQ-8), acute stress (ASDS), anxiety sensitivity (ASI-3), sleep quality (PSQI), sleep duration (PSQI), and obstructive sleep apnea risk (STOP-BANG).

Results. As hypothesized, Hispanic ($M = 3.06$, $SD = 1.93$) vs. non-Hispanic ($M = 5.09$, $SD = 1.78$) participants had significantly lower education, $t(967) = 16.92$, $p < .05$. Hispanics vs non-Hispanics had no significant difference in post-traumatic stress symptoms, $p = 0.26$, depression, $p = 0.56$, acute stress, $p = 0.51$, anxiety sensitivity, $p = 0.17$, sleep quality, $p = 0.24$, sleep duration, $p = 0.98$, and obstructive sleep apnea risk, $p = 0.74$.

Conclusions. Although The Hispanic Health Paradox has been extensively researched it is less explored in the stroke population. It is suspected that Hispanic ethnicity may be protective against some of the effects of lower SES as well as

other contributing factors like high blood pressure and obesity; this protective effect can be seen in behavioral and psychological components of cerebrovascular health.

9) Abstract 154

THE ASSOCIATION BETWEEN NEIGHBORHOOD SOCIAL COHESION AND WORRY IN LATINOS, AS MODERATED BY SUBJECTIVE SOCIAL STATUS

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Introduction: Neighborhood social cohesion(NSC), defined as shared values and trust in the neighborhood, has been negatively associated with mental health. However, the effect on anxiety and its constructs(i.e. worry) remains understudied, particularly among Latinos. Past research has found subjective social status(SSS) may play a role in modifying the relationship between neighborhood and health. SSS represents perception of one's place in society and may be a psychological indicator of pride or shame. People with low SSS may have more limited networks than high SSS. This may magnify the association between NSC and worry due to the more prominent role local social relationships may play for the former.

Methods: Cross-sectional data from 187 healthy Latino adults in the Latino Sleep and Health Study, were used in this analysis. Worry(Penn State Worry Questionnaire [PSWQ]), has been found to have specificity for general anxiety disorder. We regressed PSWQ(continuous) on NSC(continuous) in the first model. Next, SSS measured by the MacArthur Social Ladder (MSL)(dichotomous, high SSS vs. low SSS) was added with the interaction term (MSL X NSC). We added four covariates incrementally(age, female gender, education, income). Last, the interaction term (MSL X NSC) was added to the fully adjusted model.

Results: Participants were 64.86% female, a *Mean* age of 37.27 (SE=1.01), 31.90% had <bachelor's degree, and 42.16% were of Caribbean heritage. The interaction term was statistically significant in the fully adjusted model ($p=0.037$). The main effect was not statistically significant in any models. In fully adjusted models stratified by low/high SSS, for high SSS participants NSC was negatively associated with PSWQ ($b=-0.678$, $SE=0.350$, $p=0.054$). Direction of the relationship was reversed for low SSS, but not statistically significant.

Conclusion: High SSS magnified the protective effect of NSC on worry even when adjusted for socioeconomic factors(income and education). Findings suggest that rather than attenuating the impact of NSC due to availability of social relationships beyond the neighborhood, people with high SSS may be able to better leverage NSC than those with low SSS. Future studies should consider replication in larger samples using scales that measure anxiety directly. This analysis adds to the literature on the role of SSS in Latino mental health.

10) Abstract 621

COMMUNITY PERSPECTIVES ON CHRONIC MEDICAL AND MENTAL CONDITIONS FROM THE SOUTHERN REGION OF PUERTO RICO

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Chronic medical conditions are associated with multiple risk factors, such as aging, unhealthy habits, and social determinants of health (SDH). Vulnerabilities in Puerto Rico, regarding chronic health conditions, have been reported as essential health disparities associated with governmental budget cuts in education, the healthcare system, and other SDH, such as living under poverty. This study is part of a larger project to identify the community's opinions, barriers, facilitators, and knowledge regarding chronic health conditions and constitutes the second phase of focal groups interviewed in the southern region of Puerto Rico. This study, framed on the Community-Based Participatory Research (CBPR) approach, co-developed with community partners eight focus groups ($n=61$) with adults from the southern region of Puerto Rico in person and remotely during 2021-2022. Objectives were addressed using eight open-ended questions, and discussions were recorded, transcribed, and analyzed with a content analysis computer program (ATLAS.ti V8.4.21). Analysis revealed four main dimensions: Knowledge, Vulnerabilities, Barriers, and Identified Resources. One of the most relevant topics was mental health and its relation to chronic health conditions, and the need for more resources to attend this problem. Risk behaviors and unhealthy habits were also prominent topics. Economic factors, healthcare access, and the need for preventative measures were mentioned. Participants discussed the resources found in their communities, and a common theme was the need for both the private and public sectors to bring services to the communities. These findings suggest that more rigorous studies are needed including a community assessment to formulate more generable results to attend to the community health needs. Additionally, the creation of educational intervention programs to attend to the community health needs and improve health outcomes.

11) Abstract 101

ASSESSING NEUROBIOLOGICAL RELATIONSHIPS BETWEEN CULTURAL CONTEXT, LANGUAGE USE, AND PAIN PERCEPTION AMONG SPANISH-ENGLISH BILINGUAL ADULTS

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Within bilingual persons, social and cognitive processes known to influence pain perception vary across language contexts. We previously found that Spanish-English bilingual participants rated painful heat stimulation as more intense with greater pain-evoked arousal in their culturally preferred language. This fMRI study evaluated contributions of language dominance and cultural identity to neural processing and report of pain. A sample of 39 (21 female) early Spanish-English bilingual participants rated overall intensity and unpleasantness of painful thermal stimulations intermixed between culturally evocative images during separate English and Spanish fMRI scanning runs. Skin conductance (arousal) responses were recorded throughout. Surveys of language use, completed in both languages, were combined to measure language dominance, while Hispanic cultural identity was assessed via an acculturation survey. Neural data processed in a univariate GLM were used to measure relative expression of the pain-predictive multivariate Neurologic Pain Signature (NPS), producing a per-trial metric of pain-specific brain activity. Language and cultural variables' influence on behavioral and

neural pain outcomes was tested via mixed effects models with random effects for participant in R v3.6.1. Overall, participants reported higher pain intensity (language fixed effect, $p=.024$) with greater arousal responses ($p<.001$) in Spanish. Pain-specific brain activity (NPS responses) increased in participants' dominant language (language by dominance $p=.006$). Participants reporting greater Hispanic cultural identification showed reduced cross-language changes in intensity and unpleasantness ratings (language by identity interaction $p=.074$, $p=.025$, respectively) but produced the sample's largest English to Spanish pain-evoked arousal increases ($p<.001$). These results suggest that language and cultural identity synergistically impact bilingual adults' pain experience. Our findings reveal that pain-specific neural processing differs across language contexts depending on language dominance, while culturally informed values can influence explicit pain report. This research offers insight into documented pain and health disparities among the US Hispanic population and may inform culturally targeted approaches involving language choice as a relevant factor in pain assessment and treatment.

12) Abstract 540

SLEEP DISTURBANCES, SLEEP BURDEN, AND DEPRESSIVE SYMPTOMS IN US HISPANICS/LATINOS: RESULTS FROM THE HCHS/SOL SUEÑO STUDY

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Introduction: While sleep disturbances and depression often co-occur, these associations are understudied among Hispanics/Latinos. We examined the associations of sleep disturbances and sleep burden with depressive symptoms among Hispanic/Latino adults in the United States. **Methods:** We used cross-sectional data from the Hispanic Community Health Study/Study of Latinos Sueño Ancillary study (2010-2013). The study enrolled 2072 adults (ages 18-64; 51.5% females) who completed one-week wrist-actigraphy and sleep questionnaires. Sleep burden was operationalized as the total count of sleep disturbances across six domains (duration, efficiency, midpoint, variability, insomnia, sleepiness). Depressive symptoms were assessed using the Center for Epidemiological Studies Depression scale (CESD-10). We used weighted survey linear regressions to evaluate the association of sleep disturbances and sleep burden with elevated depressive symptoms ($CESD\geq 10$) in individual models adjusted for age, gender, site, heritage, nativity, education, income, and employment. Sensitivity analyses further adjusted for behavioral health risk factors and apnea-hypopnea index. **Results:** An estimated 28.3% had elevated depressive symptoms, 8.0% had short sleep duration (<6 hours of sleep), 10.9% had long sleep duration (>9 hours), 45.2% exhibited a later sleep midpoint ($\geq 4:00AM$), 38.4% had high sleep timing variability (upper third tertile for between day

sleep midpoint), 15.3% had insomnia ($ISI\geq 10$), 17.3% had excessive daytime sleepiness ($ESS\geq 10$), 21.5% had poor sleep efficiency ($<85\%$), and 77.4% had a total sleep burden count of ≥ 0 . Insomnia ($\beta=0.49, 95\%CI:.43,.56$), later sleep timing ($\beta=0.10, 95\%CI:.04,.16$), excessive daytime sleepiness ($\beta=0.19, 95\%CI:.11,.27$), poor sleep efficiency ($\beta=0.09, 95\%CI:.02,.17$), high variability ($\beta=0.07, 95\%CI:.01,.12$), and sleep burden ($\beta=0.11, 95\%CI:.09,.13$), were each positively associated with elevated depression symptoms in individual adjusted models and sensitivity analyses. Extreme sleep durations were not associated with elevated depressive symptoms. **Discussion:** Multiple inter-related sleep disturbances, particularly those pertaining to sleep quality and timing, are associated with depression and may be targets for future interventions aimed at improving mood among Hispanics/Latinos.

13) Abstract 455

SYNERGISTIC EFFECTS OF SOCIAL SUPPORT AND SOCIAL STRAIN ON INSOMNIA SYMPTOMS AMONG LATINX WOMEN AND MEN

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Background: Social support(SS) and social burden(SB) are associated with decreased and increased insomnia symptoms, respectively. Although SS and SB are often concurrent in social ties, the synergistic effects of SS and SB on insomnia symptoms are underexplored, particularly among Latinx adults whose cultural values emphasize positive, reciprocal social ties. Additionally, although gender differences in the effects of social ties on health exist, they are understudied in insomnia. We examined the synergistic effects of SS and SB on insomnia symptoms among Latinx women and men.

Methods: We used data from a Latinx subsample of the National Latino and Asian American Study($n=575$). Two four-level categorical variables—ambivalent, indifferent, low-quality, and high-quality—were created to represent the synergistic effects of SS and SB in family and friend ties. Weighted Poisson regression analyses in aggregate and gender-stratified models were conducted to test the association of family and friend ties categories and the prevalence of experiencing insomnia symptoms adjusting for age, immigrant status, and Latinx heritage.

Results: Participants were 62.02% women with Mage of 38($SE=14.48$). About 50% were immigrants and of Mexican heritage. Most family and friend ties were categorized as "ambivalent"(38.34%; 37.31%). Most participants reported experiencing insomnia symptoms(80.02%). The synergistic effects of family and friend ties in the aggregate model were not statistically significantly associated with insomnia symptoms. Among Latinas, indifferent and low-quality friend ties were associated with 35% and 37% increased prevalence of experiencing insomnia symptoms when compared to high-quality friend ties($95\%CI:1.02-1.79$; $95\%CI:1.01-1.85$). Among Latinos, ambivalent friend ties were associated with 26% decreased prevalence of experiencing insomnia symptoms when compared to high-quality friend ties($95\%CI:0.59-0.93$).

Conclusion: These results suggest that simultaneously evaluating positive and negative aspects of friendships may help identify Latinxs at greater risk of experiencing insomnia symptoms. Future studies should replicate these models using longitudinal data to test the directionality of these associations. If replicated, incorporating elements of interpersonal psychotherapy in traditional insomnia treatments may enhance their effectiveness among Latinas.

AN EXPLORATION OF MEDICAL AND MENTAL HEALTH COMORBIDITIES IN THE SOUTHERN COMMUNITIES OF PUERTO RICO

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Mental health is considered one of the most essential components of overall health; the presence of mental illness has been associated with a higher risk of developing chronic diseases. In Puerto Rico, due to various events such as hurricanes, earthquakes, and the pandemic, chronic diseases and mental health conditions have become a central subject of discussion. This study aimed to characterize physical and mental health comorbidities in a sample of communities in the southern region of Puerto Rico. A cross-sectional survey administered to community members was conducted to assess community health needs, including mental and physical conditions, and quality of life indicators. A total of 300 participants responded from Juna Díaz (17%), Peñuelas (16%), Ponce (33%), Santa Isabel (17%), and Villalba (17%). The overall average age was 54 years \pm 16.01, 74% were female, and 40% were married. Fifty-eight percent (58%) attained only a high school or less education, 69% were unemployed or retired, and 60% reported \leq \$15,000 in annual household income. Eighty percent (80%) of individuals reported being diagnosed with a chronic medical condition or a mental illness, and from this group, 34% had a mental and physical comorbidity. In this sample, being female was associated with having more chronic diseases, while smokers were associated with having more depression. Another dimension explored was that of quality of life as self-reported by participants, 39.3% of participants classified their health as "Regular" or "Bad." Emotional well-being and Energy/Fatigue were measured, out of a possible 100, a mean score of 71.82 \pm 22.28 and 68.24 \pm 21.47 respectively, was found. These findings suggest a need for more rigorous and generalizable studies. Additionally, develop community health interventions to reduce risk factors that might be impacting the overall progression of chronic and mental conditions in these communities.

ASSOCIATION BETWEEN PERCEIVED STRESS, CHRONIC STRESS, COPING, AND RESILIENCE AND SELF-REPORTED OSTEOPOROSIS AMONG PUERTO RICAN ADULTS LIVING IN PUERTO RICO

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Background: Psychological stress affects many physiologic systems. There is emerging evidence that perceived psychological stress, both short-term and chronic, may impact bone health, which may be moderated by one's ability to cope and be resilient amidst a dynamic environment.

Purpose: To examine associations between perceived short-term and chronic stress, resilience and coping and odds of self-reported osteoporosis (OP).

Methods: Participants (n=1,055, n=338 male, n=909 female) from the baseline visit of the Puerto Rico Observational Study of Psychosocial, Environmental, and Chronic Disease Trends (PROSPECT) cohort (mean age: 52.3 \pm 11.6 y) were included. The Perceived Stress Scale (PSS, perceived stressful feelings in the past month), Chronic Stress Scale (CSS, perceived moderate or high stress in life domains in the past 6 months), Brief Coping Scale (BCS, perceived optimism and positive affect), and the Brief Resilience Scale (BRS, ability to recover from stress) were obtained. Additional data on self-reported health, health behaviors, medical diagnoses (including OP), and medication use were collected. PSS, BCS and BRS were categorized using predefined cutoffs, and CSS was tested as a continuous score. Multivariable logistic models tested associations between PSS, CSS, BRS and BCS and odds of self-reported OP, adjusting for age, sex, menopause status, height, BMI, health insurance, smoking status, alcohol use, and diabetes.

Results: Of the sample, 17% were classified with high PSS, 72% with high coping, 38% with high resilience, and 10% had OP. High (vs. low) perceived stress was associated with increased odds of self-reported OP (OR: 3.01, 95% CI: 1.63, 5.59). Each additional CSS unit (0-8) was associated with higher odds of OP (OR: 1.17, 95% CI: 1.03, 1.34). Participants with lower coping skill (vs. high) had 3.08 greater odds of OP (95% CI: 1.46, 6.51). Those with lower and moderate (vs. high) resilience had 2.73 (95% CI: 1.47, 5.09) and 1.64 (95% CI: 1.00, 2.69) higher odds of self-reported OP, respectively.

Conclusion: Greater stress and lower coping and resilience were associated with increased likelihood of self-reported OP in adults living in Puerto Rico. Psychosocial stress may be a risk factor for poor bone health. Future studies should evaluate longitudinal data to clarify directionality and assess OP by diagnostic imaging.

GREATER WORK-RELATED STRESS AND LOWER DECISION-MAKING CAPACITY DURING THE COVID-19 PANDEMIC PREDICTED INCREASES IN MARIJUANA USE

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Background: The COVID-19 pandemic resulted in an unprecedented disruption to employment, including mass layoffs, reduced working hours, and changes to workplace practices. During the COVID-19 pandemic, use of various drugs and substances increased significantly, reflecting a possible maladaptive coping strategy to deal with pandemic-related stress. We examine if changes in employment status and employment distress are associated with marijuana use at both 6-months and 1-year following the beginning of the COVID-19 pandemic.

Methods: Participants were recruited via ResearchMatch and completed surveys at 6-months (September-October 2020, n = 1240, 50.7% female, 77.4% white), and 1-year (March-May 2021, n = 898) following the beginning of the global pandemic. Participants reported any change to their employment status

(i.e., laid off, dismissed, reduced hours or other) and their self-reported employment distress (i.e., comfortableness, managerial responsibilities, decision-making capacity, and work-related stress) at both time points. Self-reported change in marijuana usage, and daily usage were assessed amongst those who identified as marijuana users.

Results: Change to employment status predicted increases in marijuana use at 6-months, Wald $X^2(1) = 37.57, p < .001$, and 1-year, Wald $X^2(1) = 26.25, p < .001$, from the beginning of the pandemic. Furthermore, greater work-related stress, Wald $X^2(1) = 4.97, p = .026$, and lower decision-making capacity at work, Wald $X^2(1) = 4.40, p = .036$, predicted perceived increases in marijuana use 6-months following the beginning of the pandemic. Additionally, greater managerial responsibilities predicted an increase in marijuana use at 1-year from the beginning of the pandemic, Wald $X^2(1) = 5.21, p = .022$. Finally, greater managerial responsibilities, $\beta = .14, t = 2.53, p = .012$, and greater work-related stress, $\beta = .14, t = 2.99, p = .003$, predicted greater use of marijuana in a single day, 1-year following the beginning of the pandemic.

Conclusion: Changes in employment status and employment distress predicted an increase in marijuana use during the COVID-19 global pandemic. These findings confirm the impact of societal stressors and epidemic crises, such as those observed during COVID-19, on escalating substance use and suggest that targeted interventions should address employment distress.

17) Abstract 70

“WE EXPERIENCE IT TOO:” ASSOCIATIONS BETWEEN COVID RACIAL BIAS AND HEALTH IN RACIAL/ETHNIC LGBTQ+

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INTRODUCTION: Racial/ethnic LGBTQ+ communities are rapidly growing populations that remain disproportionately affected by the unyielding burden of the COVID-19 pandemic in the United States. Beyond experiencing greater physical health risks associated with the ongoing pandemic, COVID racial bias has emerged as a unique psychosocial stressor experienced by communities of color. Given knowledge of racism and health, it is plausible that COVID racial bias acts via a similar psychosocial stress pathway, elevating the risk for negative health in racial/ethnic LGBTQ+. Yet, no literature exists on the associations between COVID racial bias and health among racial/ethnic LGBTQ+. Therefore, the current study takes on the biopsychosocial challenge of examining the associations of COVID racial bias and health in racial/ethnic LGBTQ+.

METHOD: Racial/Ethnic Sexual/Gender Diverse People ($N = 300$) from the U.S. were recruited online from MTurk during Summer 2020 and completed the following measures: Patient Health Questionnaire-9, COVID Racial Bias Scale; Drug Abuse Screening Test-10, Alcohol Use Disorder Identification Test-Concise, and HIV-status screener as outcomes. The PHQ-9 was covaried to account for high depression symptoms found in online samples. Three hierarchical linear regression models were used, with depression in block 1 and the COVID Racial Bias Scale in block 2, predicting each health outcome separately.

RESULTS: Participants were aged 19-68, mostly Cisgender (92%) and identified primarily as Bisexual (76%). The sample majority identified as Hispanic (72%) and non-Hispanic Black (17.2%). Results from the three hierarchical regressions showed that when controlling for depressive symptoms, CRBS scores were not associated with drug abuse risk ($\beta = .083, p =$

.203), greater CRBS scores were significantly associated with greater hazardous drinking ($\beta = .148, p = .017; R^2\Delta = .014$), and CRBS scores were not significantly associated with the HIV-status screener ($\beta = .008, p = .909$).

DISCUSSION: Findings show differential associations between COVID racial bias and health outcomes for racial/ethnic LGBTQ+, especially in alcohol use risk. These results suggest COVID racial bias may be a unique psychosocial stress mechanism involved in elevated alcohol use risk for racial/ethnic LGBTQ+ communities within the context of the ongoing COVID-19 pandemic.

18) Abstract 321

MAPPING THE PERCEPTION OF PANDEMIC BURDEN IN MEDICAL STAFF WITH OFFICIAL SARS-COV-2 CASES IN GERMANY. A NATIONWIDE SURVEY (EGEPAN-VOICE-STUDY)

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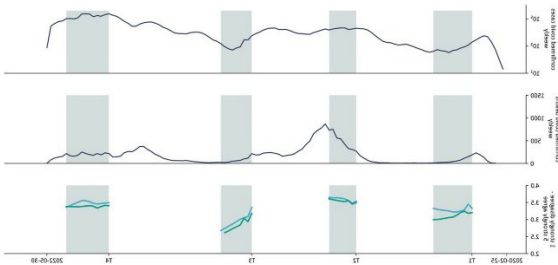
Introduction: The development of the SARS-CoV-2 pandemic is assumed to be associated with COVID-related strain and mental health in medical staff. Yet, a multitude of factors may drive the perception of pandemic severity, include availability of vaccinations, treatment protocols or medications. One strong factor shaping burden perception in medical staff might be the national incidence and death cases on the population level. The aim of the present investigation is to map the perceived burden of medical staff with official SARS-CoV-2 cases and deaths in Germany during the first four pandemic waves.

Methods: Data included 23,256 individuals (74.9% female, 0.34% diverse) from 4 online surveys (T1 N=8067; T2 N=7190; T3 N=3463; T4 N=4536) among medical staff of the egePan-VOICE network that were conducted during April 20th 2020 – May 1st 2022 in Germany. Means and standard deviation per wave were compared using Kruskal-Wallis test and linear regression with post hoc-tests. Individual questionnaire data were summarized per day to create a daily time series creating 265 observation days and matched with public federal incident case and death cases per day. Dynamic factor models were calculated per wave to estimate if the perceived pandemic burden was dependent on pandemic development.

Results: No relevant sample composition differences of age group or gender were apparent between waves (all $p > 0.1$). Staff shortages and extra work were relevantly more often reported in waves 2, 3 and 4 parallel with an increase in perceived pandemic burden (all $p < 0.01$).

The time dynamic in *cases*, *deaths*, and *death rate by cases* was coupled to COVID-related strain in wave 2, 3, and 4, but not wave 1.

Conclusions: The pandemic burden increased between the pandemic waves and was found to be coupled to cases and death incidence development in medical staff in Germany. Comparable overall low cases during the first wave may explain the uncoupling in the first wave. Influences of other factors such as occupational group and age need to be further investigated.



19) Abstract 291

COGNITIVE SELF-REGULATION IN EARLY CHILDHOOD PREDICTS ADAPTIVE EXERCISE BEHAVIOR UNDER THE INFLUENCE OF SOCIAL DISTANCING DURING COVID-19

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Objectives: The development and maintenance of healthy behaviors from childhood onward are vital to the prevention of lifestyle-driven illnesses throughout the lifespan. However, global life events, such as the COVID-19 pandemic, have challenged the maintenance of physical activity, contributing to the prevalence of sedentary behavior in multiple countries. While most individuals' lifestyle habits are susceptible to disruption, some have displayed resilience and maintained healthy habits despite life events. Using a longitudinal cohort in the U.K. that tracked behavior during multiple COVID-19 lockdowns, this study aimed to discern the mechanisms of exercise maintenance and reveal key buffers that protect health behaviors from disruption.

Method: Data were derived from the Millennium Cohort Study, a multi-purpose longitudinal study that tracked down 19,000 nationally representative cohort members from infancy to the recent COVID pandemic at age 22. The study included multidisciplinary measurements, from bio-psycho-social to socioeconomic assessments, determined to delineate the development trajectory of this generation holistically. Specifically, the current study has pinpointed cognitive self-regulation at age seven as a longitudinal predictor of exercise behavior in terms of social distancing compliance during the pandemic using linear regression analysis.

Results: The linear regression model indicated that those who complied with social distancing to a greater extent, their cognitive self-regulation at age seven positively predicted their exercise behavior during the COVID pandemic. However, this association cannot be seen by those who complied with social distancing to a lower extent.

Conclusion: The results suggested that self-regulation during early childhood observed in those with higher compliance to social distancing positively predicted exercise behavior during COVID-19. Multiple literatures on self-regulation, social cognition, and health behaviors, with a model discerning how these key dimensions help explain those who demonstrated higher compliance display better resilience and motivation during an unprecedented global challenge. Implications for

compliance with social distancing are also discussed in terms of conscientiousness and efficient adaptation.

20) Abstract 307

RESILIENT COPING AS A POTENTIAL MODERATOR OF THE EFFECT OF PANDEMIC STRESS ON WELL-BEING

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The COVID-19 pandemic has resulted in a period of prolonged stressor exposure, increasing risk for not only depression, but also lower levels of emotional well-being. There is a need to identify skills that may mitigate depression and promote flourishing despite high exposure to pandemic adversity. Participants ($n=530$) completed measures of resilient coping, pandemic stress exposure, perceived stress, eudaimonic happiness, and depressive symptoms at baseline (April 2021) and one month later during the pandemic. We tested whether resilient coping might buffer the impact of pandemic stress on well-being (eudaimonic happiness or depressive symptoms) by running moderation analyses using linear regression. We found main effects of lower pandemic stress and higher resilient coping predicting higher eudaimonia ($\beta=-.6544, p<.001$; $\beta=1.5306, p<.001$). Additionally, we found an interaction effect of resilient coping and pandemic stress on eudaimonia ($\beta=-.0952, p=.04$). High resilient copers had lower eudaimonia with high stress, but still had higher eudaimonia than low resilient copers regardless of stress. There was no interaction of pandemic stress and resilient coping on depression. There was no interaction effect of resilient coping and perceived stress on eudaimonia.

Resilient coping, an ability for creative problem solving, responding not reacting, and belief in growing from adversity, may be a critical skillset for increasing flourishing in the midst of chronic stress. This may be especially true in the context of stress exposure related to the pandemic. Interventions that foster resilient coping mindsets may be particularly beneficial in promoting higher levels of emotional well-being in the face of adversity.

21) Abstract 625

INDICES OF PSYCHOLOGICAL AND PHYSIOLOGICAL STRESS IN STUDENTS DURING COVID-19

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University students experience a disproportionate amount of stress. They encounter new experiences, living situations, pressure to perform academically, financial obligations, and post-graduation planning. A consequence of stress is an increase in depressive symptoms, anxiety symptoms, and disrupted sleep. Psychological stress is known to have a negative effect on a variety of physiological biomarkers of stress. A primary biomarker of stress is cortisol which indicates dysregulation of the HPA axis or stress response. A less

studied biomarker is urine specific gravity levels (USG) an indicator of dehydration. The current cross-sectional study examined associations between indices of psychological and physiological markers of stress in university students during the latter part of the COVID-19 pandemic. Students completed online questionnaires on stress, depression, anxiety (DASS-21) and sleep quality (PSQI) followed by home collection of saliva (8 samples for 2 days: wake, wake + 30 minutes, noon, and in the evening) and urine (first catch). Three cortisol indices were evaluated: CAR, diurnal slope, and AUC_g. Bivariate correlations assessed associations and independent t-tests were used to compare the 25th and 75th percentiles on cortisol indices and dehydration levels. Interestingly, 70.7% reported normal levels of depression, 75.8% had normal levels of anxiety, and 90.2% had normal levels of stress. Sleep quality (PSQI) was poor (9.4 ± 2.8) with 26.8% indicating that it took more than 30 minutes to fall asleep at least 3x/week. Interestingly, 71% had a negative CAR and 31.5% had a positive diurnal slope. There was a significant difference in AUC_g between the 25th and 75th percentile of anxiety ($t = -1.90, p = .037; 154.26 \pm 17.0$ vs $228.12 \pm 35.0, \text{ug/dL}$). There was also a significant difference AUC_g between good and poor sleepers ($t = -2.17, p = .019; 236.4 \pm 21.2$ vs $120.1 \pm 10.6 \text{ug/dL}$). No associations with dehydration were noted. Findings suggest that while stress, depression, and anxiety levels may have leveled off 1 ½ years into the pandemic, those with residual high anxiety and poor sleep quality may be at risk for poor health due to high levels of cortisol. The mixed findings with regards to cortisol may be a reflection of poor adherence to instructions or significant pathology. Additional studies are needed to confirm the results.

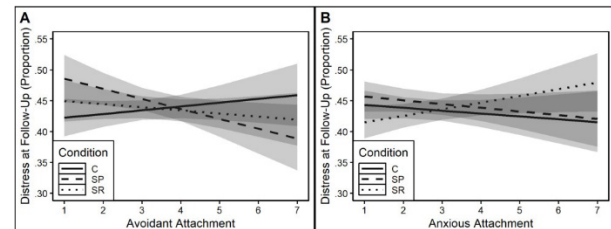
22) Abstract 576

DEVELOPMENT & INITIAL TESTING OF AN ATTACHMENT-INFORMED ONLINE EXPRESSIVE WRITING INTERVENTION DURING COVID-19

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The COVID-19 pandemic gave rise to a host of unprecedented daily stressors, putting people at an increased risk for mental health issues, and creating a need for evidence-based stress-reduction interventions. Utilizing an attachment-informed framework, we developed an online expressive writing (EW) intervention tailored to the context of COVID-19. Then, we implemented the intervention among 299 adults, who reported being 65 years or older, and/or having an underlying health condition, to test its initial efficacy in reducing distress. Participants completed baseline questionnaires and then were randomly assigned to one of three EW prompt series: Security Prime, Self-regulation, or Control. Participants responded to each of the writing prompts (3 per condition) over the course of three days for 20 minutes per day, followed by a final survey within 1 week of EW completion. We expected the security prime condition to perform the best in reducing participants' distress before and after the intervention, compared to the self-regulation, and control condition. Overall, we found no group differences in distress between the EW conditions. However, we saw a significant interactive effect between prompt series (condition) and attachment orientation. We found that the

security prime condition only performed better than the control group when the people engaging in the writing intervention were high in attachment avoidance. Further, we found that engaging in an EW intervention that uses self-regulation writing instructions may be particularly difficult for people high in attachment anxiety. For those high in attachment anxiety, being in the self-regulation condition predicted higher distress at follow-up compared to being in the security priming condition or control condition. These data suggest that the efficacy of EW during COVID-19 may depend on both the type of writing prompt and individual differences in attachment anxiety and avoidance.



23) Abstract 693

THE IMPACT OF COVID-19 ON HEALTH BEHAVIOR ENGAGEMENT AND PSYCHOLOGICAL AND PHYSICAL HEALTH AMONG ACTIVE-DUTY MILITARY ENROLLED IN A WEIGHT MANAGEMENT INTERVENTION

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The impact of the COVID-19 pandemic on health behavior engagement is not well understood. The effects of the pandemic on health behaviors is critical to understand in individuals with overweight or obesity (OW/OB) engaging in a weight management intervention. Thus, we 1) examined associations between COVID-related stress and health behaviors with body fat percentage (BF%) and psychological and physical health among military personnel pre-intervention, and 2) explored how COVID-related stress and health behaviors affect BF% post-intervention.

U.S. active-duty military personnel ($N=29$; 55% female, 69% White) with OW/OB enrolled in a behavioral weight loss program early in the pandemic. Participants completed questionnaires about COVID-19, health behaviors, and psychological functioning prior to the intervention (baseline), at week 4, and post-intervention. BF% was measured at these times and at 3- and 6-month follow-up. A series of bivariate correlations examined associations at baseline. Hierarchical linear regression was used to explore how COVID-related stress and the pandemic's effects on health behavior engagement affected BF% post-intervention.

At baseline, a) reporting exercise as easier due to the pandemic was significantly positively associated with reporting healthy eating as easier due to the pandemic and negatively associated with COVID-related stress, general stress, depressive symptoms, BF%, and emotional eating; b) reporting healthy eating as easier due to the pandemic was significantly positively associated with overall health and negatively associated with emotional eating; and c) COVID-related stress was significantly positively associated with general stress and anxiety and negatively associated with overall health.

Controlling for age, sex, and baseline BF%, endorsing exercise as easier due to the pandemic significantly predicted lower BF% at 3-month follow-up ($B=-.37$, $p<.001$), and COVID-related stress at baseline approached significance in predicting higher BF% at 3-month ($B=.14$, $p=.08$) and 6-month ($B=.21$, $p=.09$) follow-up.

These results suggest COVID-19 restrictions may have facilitated health behaviors like exercise for some military personnel, which may have enhanced weight management efforts. Further research is needed to understand the impact of COVID-19 on stress and health behaviors, as these may affect intervention outcomes.

24) Abstract 201

A PILOT INVESTIGATION OF THE RELATIONSHIP BETWEEN FINE MOTOR PERFORMANCE AND GLUCOSE REGULATION

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Background

The association between Type 2 diabetes mellitus (T2DM) and increased risk of cognitive decline is well established. Cognitive performance impairments in those with T2DM exceed the rate of usual aging-associated cognitive decline. However, there is a lack of literature on the specific relationship between glucose regulation and cognitive performance. Fine motor performance (FMP) is associated with cognitive impairment and may be an early sign of cognitive decline. We chose to explore the relationship between glucose control (A1c), a risk factor for cognitive decline that may precede the diagnosis of T2DM, and FMP (finger tapping).

Methods

Eleven participants (64% male, 55% with T2DM, age: 50.8 ± 14) were asked to tap their fingers on a button box to assess FMP. These individuals were asked to tap their fingers as quickly as possible. There were three trials, one with 1-finger tapping, one with 2-finger tapping, and one with 4-finger tapping. The participants were asked to tap just their pointer finger in the 1-finger, pointer then middle in the 2-finger, and pointer then middle then ring, then pinkie in the 4-finger. There were 4 trials of each type of finger tapping, lasting 30 seconds each. The number of errors made in each trial, as well as the number of incorrect presses made on the button box, were recorded with the total number of taps. The trials for each type of finger tapping were averaged for analyses.

Results

There were statistically significant correlations found between A1c and errors ($r=.744$, $p<0.05$) as well as the total number of incorrect presses ($r=.756$, $p<0.05$). These correlations were found in the 2-finger tapping trial. In the 1-finger tapping trial, there were almost no errors. In the 4-finger tapping trial, there were many errors, but not a statistically significant correlation with A1c levels. The correlations with total number of taps were not statistically significant across all trial types.

Conclusion

We found a relationship between glucose control and FMP. The relationships were with errors in performance, with the overall speed of the participants not related to A1c. Our sample

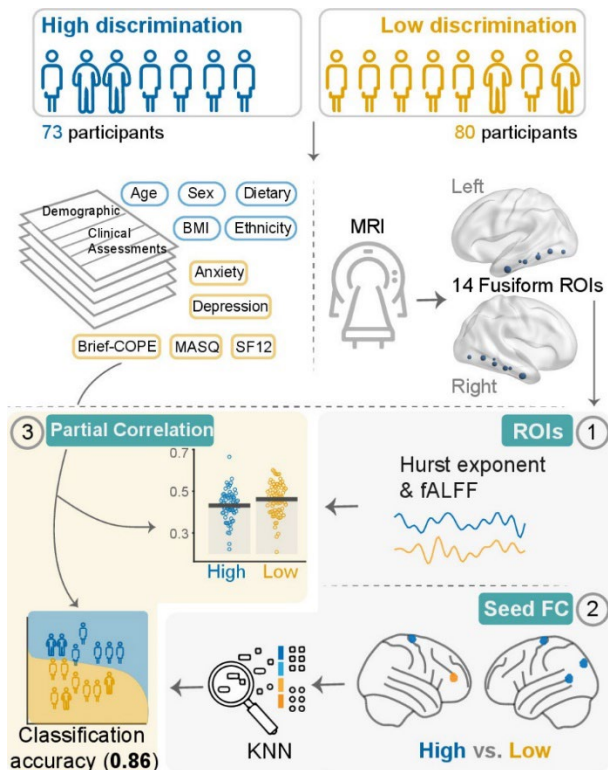
size is small since this is a pilot investigation and these results need to be confirmed in larger trials. Nonetheless, there is a statistically significant relationship between accuracy in performing finger tapping and glucose control.

25) Abstract 107

BRAIN CONNECTOME MODELING RELATED TO FACE PERCEPTION PREDICTS EXPERIENCES OF DISCRIMINATION AND PSYCHOLOGICAL SYMPTOMS

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Discriminatory information can be conveyed through viewing of faces (e.g., hostile facial expressions) and constant exposure to negative faces can alter the brain face-processing pathway. The fusiform, a core region of the face perception network, can encode affective facial information in discriminatory situations. Therefore, we compared resting-state spontaneous activity and connectivity of the fusiform, including the fusiform face area, between individuals with high and low levels of discrimination exposure, and evaluated the relationships of altered brain signatures with adverse psychological health outcomes and stress-related neurotransmitter distribution. In this cross-sectional study, 153 racially diverse individuals completed resting-state magnetic resonance imaging, the Everyday Discrimination Scale (a measure of daily-life chronic unfair treatment), and measures of psychological health outcomes. For 14 fusiform regions of interest, the fractional amplitude of low-frequency fluctuations (intensity of spontaneous activity), Hurst exponent (temporal complexity of spontaneous activity), and connectivity map were compared between groups. Altered signatures were correlated with outcomes, and exposure predictability; and molecular architecture analysis using stress-based neurotransmitters were performed. Discrimination-related group differences showed altered resting-state fusiform signal fluctuation intensity and connectivity. These alterations predicted discrimination exposure and correlated with anxiety, depression, and cognitive difficulties. Molecular architecture analysis indicated overlap between identified alterations and several stress-related neurotransmitters. Discrimination exposure associated with brain alterations in the fusiform and face processing area may reflect enhanced baseline preparedness and vigilance towards facial stimuli and decreased top-down regulation of potential threats. These alterations may contribute to increased vulnerability for the development of various mental health symptoms and disorders.



26) Abstract 567

DOES ORDER MATTER? AN INVESTIGATION OF WHITE MATTER HYPERINTENSITY VOLUME AND SERIAL POSITION EFFECTS IN HEALTHY OLDER ADULTS

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Serial position effects are a phenomenon in which individuals recall more words at the beginning (i.e., primacy) and end (i.e., recency) of a list compared with words in the middle of a list. Individuals with mild vascular dementia (VaD) had larger primacy than recency effects, the reverse pattern from that observed in Alzheimer's Disease (Orri et al., 2009). VaD is characterized by one or more cerebrovascular events, typically includes cerebral small vessel disease and results in cognitive decline. White matter hyperintensities (WMHs) are regions of high signal intensity on T2-weighted MRI that reflect "macrostructural" damage associated with cerebral small vessel disease. Older adults ($N = 223$, 62.5% women, $M_{age} = 72.21$ years) completed the Rey Auditory Verbal Learning Test annually between 2001 and 2021, and a subsample ($N = 45$, 75.6% women, $M_{age} = 69.87$ years) had T2-weighted FLAIR neuroimaging to assess WMH burden in 2019. WMH volumes were computed using a validated 4-tissue segmentation method (ADNI protocol). Primacy and recency effects in total learning were defined as correctly recalling the first 5 and last 5 sets of words in a list of 15, summed over 5 learning trials (Rey Auditory Verbal Learning Test). Multilevel models tested effects of time, word set, and WMH volume on learning. In the entire sample, total words recalled declined with time (estimate = -0.30 [CI = $-0.47, -0.13$], $p = .0008$), and the first and last sets were better recalled than the middle set ($F(2, 1587) = 342.87$, $p < .0001$), with no interaction between time and set ($p = .66$). In the imaging subsample ($N = 45$), adjusting for

intracranial volume, higher WMH volume was associated with fewer words recalled, but the effect was not statistically significant (-0.40 [$-1.24, 0.45$], $p = .35$). There was no evidence of differential effect by set ($F(2, 171) = 0.03$, $p = .97$), or by time ($p = .92$). Although these preliminary data did not associate WMH volume with serial position effects, the WMH association with total learning (-0.40) was of similar magnitude to annual change in learning (-0.30), albeit the WMH effect was consistent with both much larger negative effects (-1.24) and similarly sized but positive effects (0.45). WMH volume data will be available in this study from a larger sample of older adults and longitudinally, which will provide a more definitive test of the hypothesis.

27) Abstract 476

A SYSTEMATIC REVIEW OF THE RELATIONSHIP BETWEEN PHYSICAL ACTIVITY, CARDIORESPIRATORY FITNESS, AND WHITE MATTER MICROSTRUCTURE IN THE AGING BRAIN

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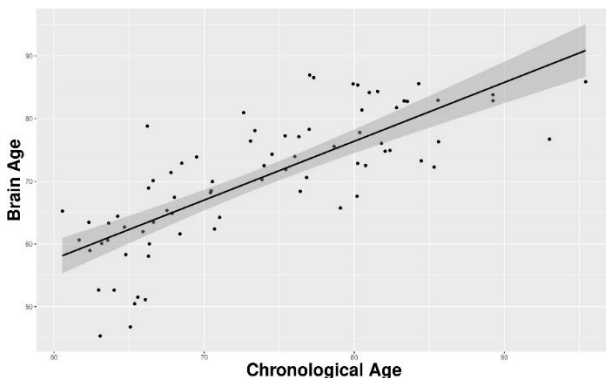
White matter, a type of brain tissue which consists primarily of axons and glial cells, plays an essential role in supporting cognitive function and is vulnerable to aging-related deterioration. Higher levels of physical activity (PA) and cardiorespiratory fitness (CRF) have a well-demonstrated beneficial effect on gray matter, or brain tissue comprised of cell bodies and dendrites, in older adults. However, the association between PA, CRF, and the white matter of the aging brain is far less clear. The purpose of the current study was to provide a qualitative systematic review of the literature on the relationship between PA, CRF, and white matter microstructure in older adults with healthy cognitive function or mild cognitive impairment (MCI). To be eligible for inclusion, studies were required to have: (1) included a sample of adults (mean age ≥ 60 years) not recruited due to a specific medical diagnosis, apart from MCI; and (2) measured PA using self-report, accelerometry, or via an aerobic exercise intervention, or objectively tested CRF levels. Four electronic searches were conducted in EMBASE, PsycInfo, Pubmed, and Web of Science Core Collection in December 2021. In total, 36 citations were eligible for inclusion in the review: 21 cross-sectional studies, 6 longitudinal observation studies, and 9 interventions. Overall, cross-sectional studies that examined CRF levels reported overwhelmingly significant, positive associations, across wide-spread white matter tracts. By contrast, cross-sectional and longitudinal studies that measured physical activity using questionnaires and accelerometry yielded mixed findings. Aerobic exercise interventions reported largely null findings, but also contained considerable heterogeneity in sample and intervention parameters. Ultimately, we concluded that CRF appears to be a key correlate of white matter integrity in late adulthood. However, additional well-controlled interventions and longitudinal studies with extended follow-up periods are needed to evaluate the therapeutic benefits of increasing PA and CRF on white matter health in older age.

28) Abstract 253

LATENT INFECTION AND BRAIN AGE IN OLDER ADULTS

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Latent infections may affect brain health either via direct infection of the brain or indirect, proinflammatory effects. One measure of global brain health is brain age, a statistical derivation of the structural MRI inputs best predicting chronological age. Individual brain age can deviate from the overall derived slope, indicating either accelerated or delayed brain aging (brain age above or below the slope). Older adults ($N = 77$, 33% women) underwent structural MRI for calculation of brain age. Latent infection serostatus (CMV, *T. gondii*, HSV-1, and EBV) was determined from longitudinal assessments. Chronological age predicted 60% of the variance in brain age ($b = 0.95$, $p < .0001$), with residuals appearing both above and below the overall slope (see Figure). Latent infection serostatuses accounted for an additional 1% of the variance in brain age after adjusting for chronological age, but there were no statistically significant effects of individual ($p = .83 - .97$ for individual estimates) or cumulative ($F(4,67) = 0.02$, $p = .99$, for model improvement) infections. Likewise, there were no statistically significant interactions with gender ($F(4,62) = 1.31$, $p = .28$, for model improvement) or education ($F(4,62) = 1.25$, $p = .30$, for model improvement). Latent infections did not significantly accelerate brain aging, a whole-brain indicator of brain health, but there may be effects of infection on more specific brain regions. In this sample, CMV and *T. gondii* seropositivity predicted worse self-reported self-regulation but not worse executive function, suggesting such specificity. This analysis was preregistered at <https://osf.io/hnyvz/>



29) Abstract 249

NEUROREGULATION PARADIGM TO TARGET BRAIN DYSREGULATION ON A STROKE PATIENT: A CASE STUDY

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Stroke is the fifth leading cause of death and the first cause of long-term disability in Puerto Rico. Brain dysregulation involved in behavioral and motor functions is highly prevalent and persistent in stroke survivors. Therefore, targeting both focal cortical tissue damage and non-focal global changes in brain function should be considered when developing therapeutic strategies to improve brain responses, recovery rate, and the quality of life of brain injury survivors. In this regard, the use of QEEG-guided Low-Resolution Electromagnetic Tomography Analysis (LORETA) Z-Score neurofeedback (NFB) is a promising approach have been reported to be effective for stroke as it targets dysregulation in networks in deep cortical locations. The main goal of this study was to explore the effects of QEEG-guided Z-score LORETA NFB (LZLNB) in the

optimization of behavioral performance and brain electrophysiological activity on a 57-year-old male who suffered a stroke in the central/right part of the parietal lobe (severe speech difficulties due to apraxia, left hemiparesis, and intense headaches were presented). The study used a pre-experimental design with pre-post comparison. To this end, LZLNB was applied to affected brain areas for 25 sessions. Baseline and posttreatment measurements were made on QEEG metrics, Event-related potentials at Pz (oddball paradigm), attention, memory, executive function, reaction time, and cognitive flexibility. Behavioral improvements were found in executive function, cognitive flexibility, processing speed, and reaction time after 25 sessions of LZLNB on computerized tasks (at the post-measurement, the patient could complete the tasks with both hands). Significant changes were found on lower frequencies and connectivity variables across all brain areas, as observed in the QEEG Z-score maps. Greater discrimination and less latency for auditory stimulus were also found on P300 ERP component analysis at Pz after the intervention. In addition, significantly improved speech, mood, and motor function were also observed in session #6. These findings suggest the potential effectiveness of LZLNB on cognitive performance improvement among stroke sufferers. Further studies with a larger number of patients and control groups may be required to evaluate the full potential of this type of training in stroke patients.

31) Abstract 218

PHYSICAL ACTIVITY MEDIATES THE ASSOCIATION BETWEEN LIFE-COURSE SOCIAL CONNECTEDNESS AND LATER-LIFE FUNCTIONAL LIMITATIONS

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Older adults are particularly susceptible to functional limitations and disability, although many maintain high levels of function well into later life. Despite the extensive heterogeneity in the rate of disability and functional limitations in middle- and later-life, the factors that contribute to high levels of function and the mechanisms by which they operate are unclear. Good quality social relationships are known to predict better health, including lower rates of functional impairment. In earlier work we examined social connectedness across the life course (parental relationships in childhood; diverse aspects of social connectedness in adulthood) and found that having high quality social relationships across the life course (optimal) predicted fewer functional limitations than any other profile (e.g., high parental affection but low-quality adult relationships; low parental affection and low-quality relationships in adulthood; etc.). This project builds on these findings by examining 1) the potential mediating role of physical activity, and 2) the moderating role of education. Data were from three waves of the Midlife in the United States (MIDUS) study ($n = 6,909$). Relationship variables (parental affection, parental discipline, social support, social strain, and positive relations with others (PRWO)) and education were from wave 1, moderate-to-vigorous physical activity was self-reported at wave 2, and functional limitations were measured at wave 3. We hypothesized that 1) greater social connectedness would predict fewer functional limitations through a positive association with physical activity (e.g., mediation), and 2) education would moderate this pathway. Results revealed that physical activity partially mediated one of the group contrasts (optimal vs. least optimal; $p = .02$) and fully mediated another group contrast (optimal vs. average + low PRWO; $p = .03$). There were no moderated-mediation effects. Results therefore suggest that observed differences in later-life functional limitations based on life-course social connectedness can be at

least partially explained by physical activity, but these associations do not vary by education. Practical implications include an emphasis on physical activity, particularly for people who have less-than-optimal social relationships, and consideration of other behavioral or biological mechanisms.

32) Abstract 295

THE INTERPLAY BETWEEN PHYSICAL ACTIVITY AND AFFECT IN CAREGIVER-CHILD DYADS

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Background: In daily life, being physically active boosts positive affect and alleviates negative affect. These relations occur within families and are regulated through circularly causal processes: caregiver negative affect reduces their own movement but at the same time may transmit to their child, resulting in heightened negative affect and decreased movement in the child. Caregivers respond to their child's behaviors: when the child experiences positive affect and increased movement, the caregiver may alter their behavior and affect in response to the child's states. The present study examined the interplay between caregiver and child physical activity and affect.

Methods: Seventy-one caregivers (*Mean age* = 35.9 years, *SD* = 6.6) reported on their affect (happy, sad, angry, anxious, calm), their child's affect (*Mean age* = 5.6 years, *SD* = 1.7; 1=extremely bad to 100=extremely good) and physical activity for both via smartphone 10 times daily over 14 days. Caregivers reported a modal family income \leq \$35,000; 34% were African American/Black, 38% were white, 12% endorsed multiple race/ethnicities, 6% were Asian/Asian American, and 10% were Hispanic/Latino. We used a multilevel vector autoregressive model to estimate the temporal (lag-1) and contemporaneous (same time point) interplay between physical activity and affect within units (e.g., child physical activity predicting child affect) and across units (e.g., caregiver physical activity predicting child affect).

Results: Caregiver physical activity predicted better affect ($b = 0.54$, $p = 0.022$) and lower physical activity ($b = -0.37$, $p = 0.016$) in children at the next moment. Child physical activity predicted higher caregiver happiness ($b = 0.24$, $p = 0.04$) and lower caregiver anxiousness ($b = -0.43$, $p = 0.045$) at the next moment. At the same moment, caregiver physical activity predicted higher child physical activity ($r_p = 0.64$), higher caregiver anger ($r_p = 0.31$), higher caregiver anxiousness ($r_p = 0.36$), and better child affect ($r_p = 0.43$). Child physical activity predicted lower caregiver anger ($r_p = -0.43$) and lower child affect ($r_p = -0.38$) at the same moment.

Conclusion: These findings suggest that activity-supporting interventions that encourage caregiver and child physical activity concurrently may be effective for lowering negative affect and augmenting positive affect in families in daily life.

33) Abstract 332

TIME OF DAY DOES NOT INFLUENCE LIKELIHOOD TO EAT IN RESPONSE TO STRESS BUT DOES INFLUENCE STATE IMPULSIVITY

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Eating-associated factors, including appetite, desire for snack foods, and stress-induced ghrelin release, are all elevated later in the day. However, it is not yet determined if eating in response to a stressor elevates later in the day. When

examining this possibility, we wanted to determine if impulsivity acted as a mediator between time of day and likelihood to stress eat. Many studies have shown a positive association between trait impulsivity and unhealthy eating. In addition, high trait impulsivity was associated with increased caloric intake after a stressor. Therefore, we predicted that the reported likelihood to eat in response to stress would become higher throughout the day and that the change in likelihood to stress eat would be mediated by state impulsivity. A secondary hypothesis was that wanting and liking of unhealthy and healthy food items would also be higher as the day progressed and that this effect would be mediated by impulsivity. Participants were sent a set of questionnaires that asked them to estimate how likely they would be to eat in response to a stressor at that moment. Then they were shown a series of pictures of unhealthy and healthy food items and asked how much they wanted to eat those food items and how much they thought they would like those food items. Finally, they took an assessment of state impulsivity. This set of questionnaires was sent to each participant on three consecutive days at either 10:00 am, 3:00 pm, or 8:00 pm. Surprisingly, it was found that likelihood to eat in response to a stressor, wanting of unhealthy or healthy food, or perceived liking of unhealthy or healthy food did not change over the course of the day. State impulsivity, however, increased over the course of the day ($\beta = 0.22$, $t(60.00) = 3.07$, $p = .003$). In addition, impulsivity was positively associated with unhealthy food wanting ($\beta = 0.15$, $t(138.31) = 2.81$, $p = .006$), healthy food wanting ($\beta = 0.12$, $t(127.99) = 2.91$, $p = .004$), unhealthy food liking ($\beta = 0.11$, $t(124.06) = 2.10$, $p = .038$), and healthy food liking ($\beta = 0.10$, $t(127.67) = 2.56$, $p = .012$). Therefore, although we did not find any influence of time of day on our eating-associated measures, we did find that impulsivity can change over the day, which suggests that this is an important factor to consider when studying eating behavior over time.

34) Abstract 643

SCREENING FOR PHYSICAL SYMPTOMS AND PSYCHOLOGICAL DISTRESS AMONG INDIVIDUALS WITH SUBSTANCE USE DISORDERS MAY INCREASE PARTICIPATION IN PSYCHOTHERAPEUTIC INTERVENTIONS

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Background: While substance use interventions focus on reducing substance abuse, there is less emphasis on providing concurrent intervention for co-morbid physical symptoms and psychological distress (e.g., depression, anxiety). Furthermore, untreated distress perpetuates substance abuse. Integrating screening for physical and psychological distress with substance use across healthcare settings results in earlier detection and timely intervention. However, our understanding of characteristics that portend individuals with substance use disorder to participate in psychotherapeutic intervention is limited.

Methods: 225 participants (51% male; age: $M = 40.05$ years, $SD = 1.75$ years; 77% White) across three treatment settings (residential, outpatient primary care, medication-assisted treatment) provided baseline anxiety, depression, and somatic symptoms at screening; attendance of at least one individual psychotherapy session was tracked. Latent class and univariate ANOVA analyses determined possible classes of participants based on physical and psychological distress, age,

gender, education, and setting that were more likely to participate in therapy.

Results: 66.5% of individuals screened participated in therapy. Latent class analyses identified three classes of individuals (no distress, mild-moderate distress, and moderate-severe distress) (AIC=1667.46, BIC=1776.913). There were significant main effects of class ($F(2,204)=3.317, p=.038$) and treatment setting ($F(2,204)=15.482, p<.001$), such that individuals with no or mild-moderate distress were more likely to participate in therapy, while individuals seeking care at a medication-assisted and residential treatment facilities were more likely to participate in therapy. There were no main effects of age, gender, and education.

Conclusion: Individuals were more likely to participate in therapy at substance use-focused treatment facilities, suggesting an interplay between the availability of care, psychological distress, and substance use intervention. Furthermore, the likelihood of participating in therapy was not dependent on age or gender. Results provide insight that psychological screening allows for early detection and timely referral for intervention. Expanding the provision of behavioral health and psychotherapeutic interventions to individuals recovering from substance use may improve treatment outcomes.

35) Abstract 527

THE EFFECTS OF PILATES AND OPEN-LABEL PLACEBO ON SEVERE PRIMARY DYSMENORRHEA – A RANDOMIZED CONTROLLED PILOT STUDY

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Background: Menstrual pain is very common and can significantly affect women's daily lives. The aim of this randomized controlled pilot study was to explore the effectiveness and feasibility of Pilates training and open-label placebos (OLP) in women with severe primary dysmenorrhea.

Methods: 34 participants (23.8 ± 2.7 SD years) were randomly assigned to a Pilates group ($n=13$), an OLP group ($n=11$), or a control group ($n=10$). Five patients dropped out (4 due to covid-19 infection, 1 due to hormone use). Over the course of one menstrual cycle, the Pilates group performed a 50-minute online workout twice a week, the OLP group knowingly took a placebo capsule twice a day, and the control group received no treatment. For 1.5 menstrual cycles participants kept an online diary with 11-item numeric rating scales for pain (minimum, maximum, average), expectations, and well-being. Before and after the intervention, they completed standardized questionnaires (DASS-12, SF-12) and collected saliva samples to determine prostaglandins PGF2 α and PGE2. Physical activity (BSA), treatment expectations (TEX-Q), and belief processes (Credition Form) were also assessed.

Results: The primary outcome parameter was the pre-post change in the composite score of minimum, maximum, and average period pain on the first three days of the menstrual cycles. Both the Pilates group (-3.3 ± 3.9 SD) and the OLP group (-2.7 ± 4.4 SD) showed a greater decrease in composite score compared with the control group (-0.4 ± 2.9 SD); p -values were non-significant, while Cohen's d effect sizes were moderate to large (Pilates vs. control: $p = 0.087, d = 0.83$; OLP vs. control, $p = 0.198, d = 0.6$). Possible treatment effects vs. control at moderate effect sizes were also observed for depression scores, perceived stress, PGF2 α , and PGE2 in the

Pilates group and for physical quality of life and PGF2 α in the OLP group. Both treatments were positively evaluated.

Conclusions: The data provide preliminary evidence that Pilates and OLP may improve dysmenorrhea and accompanying inflammatory processes. Pilates could also have a positive impact on psychological well-being. Results of this pilot study are promising and warrant a large randomized controlled trial with a longer intervention period.

36) Abstract 78

RACIAL SIMILARITIES AND DIFFERENCES IN MINORITY STRESS AMONG SEXUAL AND GENDER MINORITY ADULTS - IMPLICATIONS FOR DIURNAL CORTISOL

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Background: Minority stress may contribute to poor health in sexual and gender minorities (SGM) by dysregulating stress response systems, including diurnal cortisol rhythms. Our previous work showed that, controlling for relevant covariates, individuals who reported more minority stressors across the week displayed elevated cortisol levels relative to individuals who reported fewer minority stressors. However, to date, there has been a general lack of studies examining minority stress in racially minoritized Individuals and its association with biomarkers such as diurnal cortisol. Given the well documented poor health outcomes among SGM in general, but especially in racially minoritized SGM, it will be important to examine any potential racial differences in the association between minority stress and biomarkers such as diurnal cortisol.

Methods: Eligibility criteria included being at least 18 years old; identifying as Black or white SGM individual living in Franklin County, Ohio, US, and having reliable Internet access. This study consisted of an initial baseline phase and a week-long daily diary and cortisol collection phase. The baseline survey included questionnaires on demographic information, heterosexist discrimination, stigma consciousness, and internalized homophobia. Those that completed the baseline survey were invited to participate in the week-long saliva collection and daily diary phase of the study. This phase consisted of collecting saliva 4 times a day and completing 10-20 minute daily online diaries for 7 consecutive days. A total of 45 individuals (29 Black and 26 white) completed the baseline assessment of which 24 (9 Black and 15 white) completed the additional week-long portion.

Results: Both groups scored similarly on stigma consciousness and the and heterosexist discrimination, but for the internalized homophobia scale, Black SGMs ($M = 2.09, SD = 0.83$) scored higher than white SGMs ($M = 1.60, SD = 0.57$), $t(29.97) = -2.25, p = .032$, indicating greater internalized homophobia. MLM will be used to explore relationships between minority stress and cortisol.

Conclusions: Preliminary results indicate that racial groups have differing experiences with internalized homophobia, but report similar experiences in all other measures of minority stress. Further analysis will use MLM to explore differences in diurnal cortisol between racial groups.

37) Abstract 87

EXAMINING INFLAMMATION IN THE CONTEXT OF EMOTION REGULATION: IMPLICATIONS FOR ADAPTIVE AND MALADAPTIVE SKILLS USE

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The biobehavioral model of negative emotionality posits that poor emotion regulation skills may disrupt normal biological function by increasing inflammation, thus putting an individual at risk for long-term health problems. These risks are amplified as individuals age, and accelerated biological aging poses a significant threat to longevity. This study examined several emotion regulation skills, as well as emotion dysregulation broadly, and their relationship with inflammation among a diverse sample of physically healthy adults. Community members ($N=75$; $M_{age} = 30.88$, $SD = 11.4$; 62.4% female; 39.2% white) completed a laboratory visit where they had their blood drawn to test for basal inflammation (interleukin 6; IL-6). They also self-report completed questionnaires of trait mindfulness, emotion dysregulation, and rumination. Sociodemographic information such as age and gender and a brief medical history were also collected via self-report. Regression models adjusted for body mass index, medications, gender, and race. Inflammation data was log transformed prior to analysis. Findings revealed that among older participants, greater mindfulness, considered to be an adaptive emotion regulation strategy, was related to lower IL-6 ($b = -.005$, $SE = .002$, $p = .03$). Conversely, greater rumination, a maladaptive regulation strategy, corresponded to higher IL-6 ($b = .03$, $SE = .02$, $p = .03$). Further, emotion dysregulation was related to higher IL-6 ($b = .004$, $SE = .002$, $p = .02$). Across each of these models, the simple slopes for the younger participants were not significant ($ps > .29$), highlighting that relationships between emotion regulation and inflammation were only robust for older, but not younger, participants. These data highlight how emotion regulation strategies, both adaptive and maladaptive, might influence inflammation. Given how inflammation increases with age, using these strategies may be protective against accelerated biological aging and promote greater overall wellness throughout adulthood.

38) Abstract 136

THE INFLUENCE OF MARITAL QUALITY ON RESOLVING DAILY ARGUMENTS WITH AND WITHOUT SPOUSES AND SAME-DAY AND NEXT-DAY AFFECT

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Daily arguments can disrupt daily and long-term health, in part by influencing individuals' negative affective reactions. Less is known, however, about which characteristics of daily arguments (e.g., resolution status, spousal involvement) may dampen negative affect associated with daily arguments and for whom this may be strongest (e.g., people with poor marital quality). Informed by the daily stress process model, we aimed to identify how perceived resolution and spousal involvement moderated associations between daily arguments and negative affect in a sample of middle-aged married adults. We also tested if affective reactions to daily arguments were exacerbated among those with poorer marital quality, operationalized as low affectual solidarity. **Method.** Different-gender married participants from the second wave of the Midlife in the United States Study (MIDUS; $N = 1,335$, $M_{age} = 55.98$, $Range = 33-83$) – completed measures on marital quality (assessed through affectual solidarity or

perceived emotional closeness) and demographic information. Participants (93.33% White, 51.76% women) completed eight days of diary assessments consisting of measures of daily stressors (including arguments), affect, and health in the daily diary subset of MIDUS—the National Study of Daily Experiences. Data were analyzed using multilevel models (days nested within people) and covaried for age, race, marital duration, gender, education, health status, and neuroticism. **Results.** Perceived resolution significantly dampened the effect of arguments on same-day negative affect, regardless of if spouses were involved. Further, affectual solidarity interacted with resolution status to modify daily argument-affect associations. Resolution significantly dampened the effect of arguments on next-day negative affect among those with low affectual solidarity, but it had no dampening effect on those with higher affectual solidarity. **Discussion.** Our results support previous literature suggesting that resolution status dampens associations between daily arguments and affect and suggests the benefits of resolution depend on both person- and argument-specific characteristics. This work suggests that interventions to promote the resolution of daily arguments may help improve adults' health and well-being, particularly for people with poorer marital quality.

40) Abstract 205

MULTIPAROUS PREGNANT WOMEN HAVE SMALLER INCREASES IN HEART RATE VARIABILITY DURING AN ONLINE MINDFULNESS EXERCISE

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Pregnancy can be transformative in many ways. The experience exerts a powerful influence on the maternal cardiovascular system, with literature suggesting that changes during the prenatal period may influence post-partum outcomes in mothers. Recent research indicates that such effects may be exacerbated in a dose-dependent manner by recurrent pregnancies. Though a mechanistic pathway remains under investigation, diverse findings suggest a critical role of the autonomic nervous system (ANS). The present study sought to investigate whether parity influenced heart rate variability (HRV) and heart rate (HR) in pregnant women completing an online, mindfulness intervention experiment. During remote sessions held using Teams, heart rate data were collected by the participants using a mobile phone application (HeartRate+ Coherence) that converts the phone camera into a photoplethysmograph. Data were obtained from 27 pregnant women (mean age = 32 years; $n=9$ primiparous, $n=18$ multiparous) before and after 1) a brief meditation session and 2) a control session involving listening to an audiobook. Changes in HRV and HR were then compared between- and within- groups, controlling for maternal age. Analyses revealed a significant 3-way interaction amongst parity, intervention-type, and timing (pre- vs. post- intervention) on the root mean square of successive differences (RMSSD; $F(1,24) = 4.83$, $p = 0.038$) of participants. A similar, marginal effect was seen on mean HR ($F(1,24) = 3.95$, $p = 0.058$). Post-hoc analyses suggested that, in general, multiparous pregnant participants had lower RMSSD and higher HR compared to women who were pregnant for the first time. Additionally, cardiovascular activity of multiparous women did not change significantly over either the meditation or control conditions ($p's > 0.350$). Contrarily, in women with first-time pregnancies, RMSSD increased ($t(8) = 2.96$, $p = 0.018$) and HR decreased ($t(8) = -2.41$, $p = 0.043$) with the meditation intervention. Taken together, these results suggest that multiparity may influence ANS activity, such that women with recurrent pregnancies may

have reduced parasympathetic activity that is also less responsive to targeted interventions. Future studies should consider the multiple factors that may be contributing to enhanced stress reactivity in women with multiple children in order to best support this population.

41) Abstract 226

A WEB-BASED COMPANION TO TELEHEALTH COGNITIVE BEHAVIORAL STRESS MANAGEMENT FOR OLDER WOMEN WITH BREAST CANCER: SALIVARY CORTISOL PREDICTS INITIAL ENGAGEMENT

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Introduction: Presenting patient characteristics impact response to psychosocial interventions among patients with cancer, and preliminary evidence points to a relationship of subjective stress levels on engagement with web-based interventions. However, few studies have examined predictors of web engagement among older patients undergoing cancer treatment. No studies evaluate the impact of cortisol levels, an objective stress marker, on web-engagement. This study tested whether cortisol output predicts initial engagement with a website companion to a cognitive behavioral stress management (CBSM) telehealth intervention among older women being treated for breast cancer (BC). We hypothesized that greater cortisol output would predict greater system engagement.

Methods: This waitlist-controlled trial tested a virtual, group CBSM intervention for women presenting after primary surgery for BC (stage 0-III). Participants were randomized to receive CBSM and access to a companion educational website immediately or after 6-months. Daily engagement was captured via breadth (number of features used) and depth (number of total clicks) over the first week of CBSM. Salivary cortisol was collected at waking, 30-min later, 4pm, and 9pm for two consecutive days prior to CBSM, regardless of condition. Cortisol was represented by area under the curve relative to ground (AUCg) for each day, averaged, and log transformed. Covariates included age, disease stage, condition, race, and ethnicity. Multi-level modeling estimated effects.

Results: Women (n=75) were on average 61.2 years of age (SD=7.13) and primarily non-Hispanic (64.0%), White (78.7%) with stage I (60.0%) BC. AUCg predicted depth ($b=0.01$, $SE<0.00$, $p=0.02$) and had a trending effect on breadth ($b=0.001$, $SE<0.00$, $p=0.07$). Women with greater daily cortisol levels exhibited greater engagement with the companion website during the first week of CBSM.

Conclusions: Daily cortisol output predicted initial CBSM web engagement in older women undergoing primary treatment for BC. Women presenting with greater cortisol, an objective measure of stress, may engage more to manage existing challenges. Further research should explore the effect of engagement on changes in cortisol and other stress markers after intervention.

42) Abstract 232

STIGMA AND BARRIERS TO SEEKING MENTAL HEALTH CARE AMONG EMERGENCY DEPARTMENT CLINICIANS

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Background: High psychological distress and depression are common among clinicians working in emergency departments [ED] in the United States. Yet, ED clinicians rarely seek treatment, contributing to the higher prevalence of burnout and well-being consequences. This in part reflects concerns about negative consequences (e.g., stigma, that seeking care may negatively impact professional credentials, etc.). We examined the prevalence of self-reported depression, perceptions, and beliefs of, and barriers to, seeking help for mental health concerns.

Methods: A web-based survey was provided to all ED physicians, nurse practitioners, physician assistants and medical residents employed at a US academic medical center (N=111). The survey assessed demographics, depression (PHQ-9), self-stigma about seeking mental health care, and an assessment of perceived barriers to seeking care.

Results: The respondent sample included 20 physicians, 10 APPs, and 13 residents (an overall survey response rate of 39% of all ED clinical staff). 26.8% of respondents scored in the moderate to severe depression range on the PHQ-9. Reports of self-stigma regarding seeking care were common: 48.8% indicated a possible threat to self-confidence and 45.2% a negative change in self-concept if they sought help. Common barriers reported included lack of time (72%), privacy concerns (49%), worry about negative impact on medical licensing/credentialing (37%), and belief that treatment would not help (37%).

Conclusion: In addition to lack of time, a substantial proportion of ED clinicians reported self-stigmatizing beliefs about and/or worries about negative professional consequences for seeking care for mental health issues. These data underscore the pervasive impediments to seeking help in ED culture that may influence clinician well-being and performance over time.

43) Abstract 265

CHILDHOOD POSITIVE PSYCHOLOGICAL WELL-BEING AND YOUNG ADULTHOOD DEPRESSIVE SYMPTOMS: 12-YEAR ASSOCIATIONS FROM THE NATIONAL CHILD DEVELOPMENT STUDY

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Background

Young adulthood can be challenging as individuals navigate issues of independence, identity, and relationships. It is also a time when depression or other forms of distress can emerge. Such distress may have origins during childhood. This study examines if childhood positive psychological well-being predicts distress in young adulthood. Childhood positive psychological well-being is often assessed with parent and teacher reports, but informant reports can be limited as they are not privy to a child's internal world. Thus, we assessed positive psychological well-being via written text collected from youth. We posited children with more positive psychological well-being would have fewer depressive symptoms as adults.

Methods

Data are from 4,599 children in the 1958 National Child Development Study. Children wrote an essay at age 11 on how they expected their life to be at age 25. Judges rated essays

for positive psychological well-being domains (e.g., purpose in life, positive affect, life satisfaction, optimism), which were averaged to create a total score ($\alpha = .82$). At age 23, depressive symptoms (yes/no) were self-reported on the 24-item Malaise Inventory. Depressive symptoms were modeled continuously (range = 0-24) and as a binary variable (depressed = scores ≥ 8). Using logistic and linear regression, we ran models that were unadjusted and then also included child covariates (sex, father's social class, cognitive ability, essay word count, and teacher-reported internalizing and externalizing behaviors).

Results

Unadjusted logistic models showed a 1-SD higher child positive psychological well-being score was associated with reduced risk of being depressed as a young adult (OR = .83, 95% CI = .75, .93, $p = .001$). Associations remained when adjusting for all covariates (OR = .88, 95% CI = .78, .98, $p = .03$); patterns were similar when considering depressive symptoms continuously.

Conclusions

Lack of positive psychological well-being in childhood may be an early warning sign of psychological distress in adulthood. Positive psychological well-being assessed via text written by children was informative, with findings independent of teacher reports of children's internalizing and externalizing behaviors. This work suggests children's own perspectives provide valuable information about health trajectories beyond that provided by adult informants.

44) Abstract 282

PSYCHOSOCIAL FACTORS ASSOCIATED WITH PARENTAL PSYCHOLOGICAL DISTRESS DURING LATE PREGNANCY

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Parental psychological distress during pregnancy is highly prevalent and adversely impacts health outcomes among parents and their offspring. The relationship between certain psychosocial factors such as discrimination and partner distress with perinatal mental health remains understudied, particularly among men. This study examined men and women's prenatal psychological distress during late pregnancy and identified psychosocial factors associated with their psychological distress. A total of 147 expecting couples (women $M_{age} = 32.9$ yrs, ± 5.5 yrs and men $M_{age} = 33.8$ yrs, ± 7.8 yrs) completed standardized online self-report questionnaires measuring demographic and psychosocial factors during the third trimester of pregnancy. The Depression Anxiety Stress Scale-21 was used to assess symptoms of depression, anxiety, and stress. T-tests indicated greater mean levels of anxiety ($d = .37$) and stress ($d = .24$) for women compared to men, but no significant difference for depression. Multiple linear regressions were computed to identify factors associated with men and women's levels of psychological distress, controlling for demographic factors. During the third trimester, greater depression, anxiety, and stress in partners were associated with men and women's own elevated levels of depression, anxiety, and stress (Standard $bs > .17$). Lower perceived social support ($b = -.19$), greater covid-related stress ($b = .16$), and a history of a psychological disorder ($b = .24$) were independently related with greater depression among men. Perceived discrimination ($b = .25$) and covid-related stress ($b = .17$) were associated with elevated anxiety in men. History of a psychological disorder ($b = .16$) and covid-related

stress ($b = .32$) were related with greater stress in men. For women, greater perceived discrimination was associated with elevated depression ($b = .19$) and stress ($b = .19$), whereas covid-related stress was independently related with greater stress ($b = .19$). While fathers' psychological distress during pregnancy has too often been overlooked in research, results of this study underline how each partner's well-being is associated with the other's and sheds light on modifiable factors associated with prenatal mental health. The psychosocial factors identified can help inform screening and interventions to optimize parental well-being during the transition to parenthood.

45) Abstract 305

RACIAL DISCRIMINATION AND HYPOTHALAMIC-PITUITARY-ADRENAL AXIS DYSREGULATION IN ADOLESCENTS WITH OVERWEIGHT AND OBESITY: DOES CONTEXT MATTER?

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BACKGROUND: Racial discrimination has been identified as a pervasive, widespread chronic stressor associated with cortisol awakening response (CAR) and may be an indicator of hypothalamic-pituitary adrenal (HPA) axis dysregulation observed in adolescents with overweight/obesity. The role of context, circumstances that form the setting for which a discriminatory event occurs, on CAR dysregulation in this vulnerable group is unclear. **PURPOSE:** To perform a cross-sectional analysis examining the association between racial discrimination (cumulative, peer, educational, and institutional) and CAR in adolescents with overweight/obesity. **METHODS:** One-hundred adolescents [ages: 13–19 years; 49% non-Hispanic Black, 45% non-Hispanic White, and 6% Hispanic; 65% female; body mass index percentile: 93.9 ± 0.4] were included in this analysis. Racial discrimination context was measured using the self-reported Adolescent Discrimination Distress Index. Salivary cortisol collected across three days at awakening and 30 min post-awakening was used to calculate the CAR area under the curve with respect to ground (CAR AUCg). Eight separate multiple linear regression models were performed to analyze the relationship between CAR AUCg and racial discrimination while controlling for covariates. **RESULTS:** Cumulative racial discrimination and peer discrimination were associated with a lower CAR AUCg (cumulative: $\beta = -0.006 \pm 0.002$; $p = 0.013$; peer: $\beta = -0.018 \pm 0.007$; $p < 0.01$); and remained significant after adjusting for baseline cortisol (cumulative: $\beta = -0.004 \pm 0.002$; $p = 0.029$; peer: $\beta = -0.013 \pm 0.005$; $p < 0.01$). There were no significant associations between institutional and educational discrimination with CAR AUCg (all p 's > 0.05). **CONCLUSIONS:** Findings from this study identified cross-sectional associations between racial discrimination experienced among peers and HPA dysregulation in adolescents with overweight/obesity. If long-term exposure to peer discrimination does indeed accelerate HPA dysregulation in adolescents at increased weight status, policymakers and interventionists should consider implementing programs that limit exposure to this toxic stressor.

46) Abstract 344

EXPLORING STRESS MINDSET IN RELATION TO DEPRESSIVE SYMPTOMS, MOOD, AND INFLAMMATORY REACTIVITY IN ADOLESCENT GIRLS

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Adolescence is a sensitive developmental period when social stressors become more salient and the likelihood of experiencing depression increases, disproportionately in girls. Individual differences in how youth perceive stressors may affect the extent to which these stressors impact mental health. In particular, stress mindset—conceptualized as whether an individual perceives the effects of experiencing stress as being enhancing vs. debilitating for health, learning, and performance—may affect adolescent girls' likelihood of experiencing depression and known correlates of depression including dysfunctional attitudes, negative mood, and inflammatory responses to social evaluation. Using a sample of 52 adolescent females (12-16 years old; Mage= 15) from the Psychobiology of Stress and Adolescent Depression (PSY SAD) Study, we investigated (1) how stress mindset was cross-sectionally associated with depressive symptoms and dysfunctional attitudes, a predictor of depression, and (2) how stress mindset related to acute social evaluation-induced changes in depressive mood and levels of key pro-inflammatory cytokines IL-6, IL-1 β , and TNF- α . Stress mindset was significantly associated with social evaluation-induced changes in depressive mood (R-squared change = 0.08; β = -0.28; p = 0.046; 95% CI [-2.13, -0.02]). In addition, stress mindset was marginally related to changes in social evaluation-induced changes in IL-6 (R-squared change = 0.08; β = 0.29; p = 0.052; 95% CI [-0.12, 29.79]) and TNF- α (R-squared change = 0.06; β = 0.24; p = 0.098; 95% CI [-2.04, 23.29]). No other associations were significant (ps > 0.05). These findings suggest that stress mindset may play a role in regulating momentary depressive mood and immunologic reactivity to social evaluation but may not influence more enduring forms of depressive symptoms and attitudes. Future research should aim to replicate these findings and elucidate the pathways by which stress mindset influences immunological and depressive responses to social stressors.

47) Abstract 347

SLEEP QUALITY AND DEPRESSION AMONG HIGH-RISK PERINATAL WOMEN

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Perinatal mood disorders are at an all-time high. Several deleterious outcomes are associated with PPD including poor healthcare practices, increased anxiety, reduced quality of life, and substantial impacts on the infant including poorer infant sleep, impaired emotional and behavioral development, and diminished maternal-infant bonding. Novel interventions are needed to mitigate postpartum mood disorders (PPD). One potential target may be via maternal sleep, as poor maternal sleep is associated with PPD. The SNOO is a robotic, responsive bassinet that promotes healthy infant sleep, and therefore may result in better maternal sleep quality, and less PPD. Sleep quality and mood were compared between two groups of women recruited from two different studies during the pandemic: SNOO group (N = 92) and the non-SNOO group (N = 85). All had a history of depression. Sleep quality was characterized by the Pittsburgh Sleep Quality Index (PSQI) using a cutoff of >5 and depression by the Edinburgh Postnatal Depression Scale (EPDS) using continuous scores from late

pregnancy, and 2 and 3 months postpartum. Descriptive statistics were used to compare the samples, whereas hierarchical regression analyses were conducted to assess whether there was a difference in clinical depression scores. The two samples differed slightly in age: 31.1 (4.3) vs 33.2 (3.4) years of age (P < .001). All were primarily Caucasian, married, and highly educated. Sleep quality on average was poor but only differed at Month 2 PP with the SNOO group having better sleep quality (6.5 (2.9) vs 7.9 (3.4), p = .009). EPDS scores could not be compared at there was a substantial number of missing values at Month 2 and 3 PP (N = 40) for the non-SNOO group, and all available scores were < 11. However, linear regressions indicate an association between poorer sleep quality at 2- and 3-months PP with greater depressive symptoms at month 2 (β = .463, p < .001) and at PP month 3 (β = .294, p = .001). Although there are some limitations with the data, the current findings corroborate previous reports of an association between poor sleep quality and depressive symptoms. The identification and modification of maternal sleep, possibly with the use of the SNOO, may mitigate PPD via improved sleep quality. These findings need additional corroboration and must be considered within the context of the COVID-19 pandemic.

48) Abstract 408

INTERACTIVE AND NON-LINEAR RELATIONS OF PULSE WAVE VELOCITY AND SOCIODEMOGRAPHIC VARIABLES TO COGNITIVE FUNCTIONING IN URBAN DWELLING AFRICAN AMERICAN AND WHITE ADULTS

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Greater pulse wave velocity (PWV)—a non-invasive indicator of arterial stiffening—has been associated with diminished cognitive function and increased cognitive decline. To our knowledge, no prior studies have examined sociodemographic effect modifiers of PWV-cognition relations in a diverse midlife sample of urban-dwelling adults. We examined interactive relations of PWV (linear and nonlinear), race, and poverty status to tests of attention, executive functions, memory, and perceptuo-motor speed in 1899 participants (56% women, 55% African American, M age = 48.8, SD = 9.2, 40% living in poverty) from the first wave of the Healthy Aging in Neighborhoods of Diversity across the Life Span epidemiologic study. Participants underwent carotid-femoral PWV and neurocognitive assessment. Multivariable regression analysis, adjusted for age, sex, education, substance use, and cardiovascular risk factors, revealed significant three-way interactions of quadratic PWV, race, and poverty status with Brief Test of Attention (BTA; p < .05). Simple effects revealed an inverted U-shaped relation. Both low and high levels of PWV were associated with worse BTA performance among White adults living in poverty (b = -.32, p < .001). Significant two-way interactions of quadratic PWV and poverty status were noted for California Verbal Learning Test (CVLT) delayed recall (p < .03), and Verbal Fluency (p < .03). Simple effects revealed a similar inverted U relation of PWV and CVLT delayed recall (b = .14, p = .01) among those in poverty. In contrast, higher PWV was associated with slightly higher Verbal Fluency scores (b = .23, p = .02) among those in poverty. No associations were seen for Digit Span, CVLT total or short delay, Benton Visual Retention Test, or Trails A/B. Results suggest an

absence of relation of PWV and cognition on 7 of 10 outcomes, perhaps due to the lower average age and PWV of this sample compared to others. However, preliminary findings suggest that both higher and lower levels of PWV may relate to poorer delayed verbal memory and divided attention among those in poverty and White adults in poverty, respectively. Relations with higher PWV are well documented. For lower PWV, it is possible that poverty is associated with correlated risk factors (e.g., nutritional deprivation, better glycemic profile) that may increase arterial compliance, yet result in decreased cognition.

49) Abstract 440

CULTURALLY ADAPTED BRIEF INTERVENTIONS IMPROVE SLEEP AMONG CHINESE IMMIGRANT BREAST CANCER SURVIVORS

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Background: Poor sleep has detrimental consequences including higher mortality, poor quality of life, and impairment of functional status. Chinese immigrant breast cancer survivors report high levels of sleep disturbances and poor sleep efficiency, highlighting the need to improve sleep. Expressive writing has been shown to improve sleep among non-Hispanic White cancer survivors, however, interventions that are culturally adapted to improve sleep among minoritized groups are lacking. The objective of the current study tested the efficacy of two culturally adapted expressive writing interventions on sleep outcomes, and explore the role of intrusive thoughts and arousal as potential mediators of the intervention on sleep among Chinese immigrant breast cancer survivors (CIBCS).

Methods: A community based participatory research approach was used to incorporate community input at every stage of the study. 136 CIBCS (Mtime since diagnosis=27.17 months, SD=19.31) took part in a randomized control trial that examined the effect of an expressive writing intervention. Participants were assigned to one of three writing conditions (e.g., enhanced self-regulation, self-regulation, and control) and completed a baseline questionnaire. The enhanced self-regulation prompted cognitive reappraisal first and emotional disclosure second, whereas the self-regulation condition prompted emotional disclosure first and cognitive reappraisal second. At 1, 3, and 6 months after finishing the last writing session, participants completed follow-up questionnaires.

Results: Those in the enhanced self-regulation group reported improved sleep quality (OR = 4.00, 95% CI: [1.01, 15.83]) and less daytime dysfunction (partial η^2 = .065) compared to the control group at the 3-month follow-up. Participants in the self-regulation writing group reported reduced sleep aid use at 1-month follow-up (OR = 0.09, 95% CI: [.02, .55]).

Conclusions: The findings suggest that expressive writing is an effective method of improving sleep quality among minoritized and immigrant cancer survivors. The intervention facilitated cognitive reappraisal first appeared to have more benefits than the intervention facilitated emotional disclosure first among a group with a cultural norm of emotional suppression, underlining the importance of culturally-adapted interventions.

50) Abstract 442

EFFECTS OF DISCRIMINATION EXPERIENCES ON WHITE MATTER ALTERATION

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Exposure to experiences of discrimination including racism are well established as a high-risk factor for physical and mental health problems¹. Self-reported discrimination is consistently associated with poor mental health². Previous evidence has suggested that experiences of discrimination lead to adverse neurophysiological reactions related to chronic stress, such as changes in the hypothalamic-pituitary-adrenal axis³. Exposure to discrimination and chronic activation of HPA axis may impact alterations of the neural substrate. Surprisingly, however, the effect of discrimination in minorities on brain structure has not received much attention. Previous research has indicated that sex moderates the association between racial discrimination experiences and mental health, but the understanding of sex differences in the association between discrimination and brain health is not clear. The current study aims to examine the effect of a discrimination scores on white matter alteration using DTI imaging in a sample across races including Hispanic, American Indian, Asian, Black and White, and the effect of sex differences. We studied 152 participants (43 men and 109 women; age 31.4 ± 10.3 years) without any significant medical or psychiatric conditions. Participants underwent diffusion tensor imaging (DTI) and completed assessments of discrimination score using Everyday Discrimination Scale (EDS). Tract-based spatial statistics (TBSS) was used to analyze DTI data. Fractional anisotropy (FA) values were extracted from major white matter tracts across the whole brain. Voxel-wise t-test DTI results showed that experiences of discrimination were associated with significantly lower FA in overall white matter tracts, including Inferior fronto-occipital fasciculus, Inferior fronto-occipital fasciculus, Anterior thalamic radiation ($p < .05$). Mean FA values extracted from those significant clusters showed sex differences (men > women, $p < .05$) in the high EDS group. These findings suggest that experiences of discrimination are associated with alterations in white matter structure throughout the brain. Individuals who have experienced more discrimination will have greater negative impact on white matter integrity. We will discuss further findings as a potential mechanism of mental health disparities related to experiences of discrimination.

51) Abstract 446

VALIDATION OF THE GERMAN VERSION OF THE STRESS MINDSET MEASURE (SMM)

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Introduction: Stress mindset, defined as the extent to which an individual believes that the effects of stress are either enhancing or debilitating, has been reported as one pivotal parameter shaping physiological and mental stress response in experimental studies. The stress mindset measure (SMM) has been translated to several languages but a German translation and evaluation of its psychometric properties has been lacking. The aim is to validate a German translation of the SMM in across different populations.

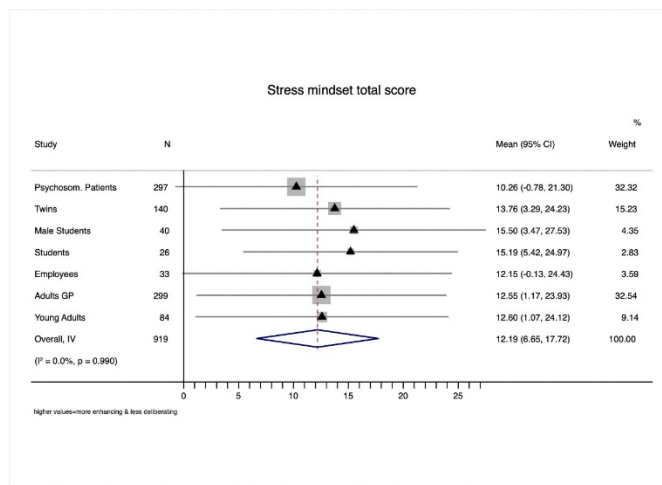
Methods: Three independent researchers translated the English 11-item SMM version into German language and back to English to ensure accuracy of translation. The translated version has been applied in over seven studies in different populations such as students, psychosomatic patients and adults from the general population between 2019-2022. The mean score, positive and negative scales of the SMM and the PHQ4 scale (2 items to screen for each depression and anxiety) were calculated for external validation. Cronbach's

alpha, Pearson's Correlation and Kendal tau B coefficients were calculated.

Results: Seven studies with healthy participants as well as psychosomatic patients (N=994) were included. The overall age span was 18-74 years with a mean age of 33 years (SD = 14). The overall female proportion was 47 %. SMM total score was 12.2 (SD 5.9), positive 5.7 (SD 3.3), negative 8.0 (SD 3.6). See figure one for sample breakdown The PHQ4 sum score was 3.5 (SD 3.0). Cronbach's alpha for the total sample was 0.81 (range 0.50 – 0.93 in the individual samples). SMM sum and PHQ4 sum were negatively correlated with -0.20 ($p \leq 0.0001$). The positive score was also negatively correlated with -0.087 ($p = -0.025$), the negative SMM score 0.110 ($p < 0.001$).

Conclusions:

The SMM score had a good internal reliability and sufficient external correlation in the expected direction: Persons who believe that stress is enhancing show less depression and anxiety. Therefore, believes about stress could be a target for therapeutical interventions, but should be further investigated in interventional studies. The studies included students, psychosomatic inpatients and outpatients, as well as adults from the general population. Differences between samples will be presented at the conference.



52) Abstract 487

PSYCHOLOGICAL FACTORS OF CHRONIC PAIN

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Oswald Barral, Ph.D., HealthQb Technologies Inc., Guy Davis,
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Pain feels like tissue damage, whether it is caused externally (e.g., bumping your head against a kitchen cabinet) or internally (e.g., a stress headache). We now know that pain does not require actual tissue damage [1], and that the intensity of pain is affected by psychological and social factors as well as biological ones [2-4]. Here we measure key psychological factors in the same participants to uncover the latent structure in their impact on experienced pain intensity. Pain catastrophizing, alexithymia, low interoceptive awareness, lower psychological wellbeing, and depression have all been associated with chronic pain in previous studies [5-9]. The present study measured these traits in the same group of primary chronic pain patients. We hypothesized that some or all these factors may have a unique impact on experienced pain. Alternatively, these traits might all be closely correlated with each other, forming only one latent factor to influence pain intensity.

85 participants with chronic pain filled out the questionnaires of pain catastrophizing [10], alexithymia [11], interoceptive awareness [12], psychological wellbeing [13], and depression [14]. Pain intensity was measured daily on a numeric rating scale [15] for 2-3 months, and average of those ratings was used to estimate each participant's pain.

Principal component analysis (PCA) was performed on a total of 21 items that constituted the subscales of the questionnaires. Three primary components accounted for 51.7% of the total variance in the data: self-regulation, pain catastrophizing, and depression.

We then computed component scores for each participant and regressed those on pain intensity. The three components accounted for nearly a quarter of variance in pain intensity, $R^2 = .226$, with significant unique influences for self-regulation, $= -.26$, $t = -2.67$, $p = .009$, and pain catastrophizing, $= .37$, $t = 3.79$, $p < .001$; depression was not reliable, $p > .14$.

These results suggest that pain intensity in chronic pain patients is associated independently with pain catastrophizing [5] and self-regulation. This implies that different interventions will likely be appropriate for individuals wishing to manage their pain by mitigating catastrophizing or by improving self-regulation. We will present tentative avenues to explore in keeping with this finding.

References

1. Raja, S. N., Carr, D. B., Cohen, M., Finnerup, N. B., Flor, H., Gibson, S., ... & Vader, K. (2020). The revised IASP definition of pain: concepts, challenges, and compromises. *Pain*, 161(9), 1976.
2. Blyth, F. M., Macfarlane, G. J., & Nicholas, M. K. (2007). The contribution of psychosocial factors to the development of chronic pain: the key to better outcomes for patients?. *Pain*, 129(1), 8-11.
3. Cormack, B., Stilwell, P., Coninx, S., & Gibson, J. (2022). The biopsychosocial model is lost in translation: from misrepresentation to an enactive modernization. *Physiotherapy Theory and Practice*, 1-16.
4. Jensen, M. P., Moore, M. R., Bockow, T. B., Ehde, D. M., & Engel, J. M. (2011). Psychosocial factors and adjustment to chronic pain in persons with physical disabilities: a systematic review. *Archives of physical medicine and rehabilitation*, 92(1), 146-160.
5. Quartana, P. J., Campbell, C. M., & Edwards, R. R. (2009). Pain catastrophizing: a critical review. *Expert review of neurotherapeutics*, 9(5), 745-758.
6. Aaron, R. V., Fisher, E. A., De La Vega, R., Lumley, M. A., & Palermo, T. M. (2019). Alexithymia in individuals with chronic pain and its relation to pain intensity, physical interference, depression, and anxiety: a systematic review and meta-analysis. *Pain*, 160(5), 994.
7. Di Lernia, D., Serino, S., & Riva, G. (2016). Pain in the body. Altered interoception in chronic pain conditions: A systematic review. *Neuroscience & Biobehavioral Reviews*, 71, 328-341.
8. Topcu, S. Y. (2018). Relations among pain, pain beliefs, and psychological well-being in patients with chronic pain. *Pain Management Nursing*, 19(6), 637-644.
9. Arnstein, P., Caudill, M., Mandle, C. L., Norris, A., & Beasley, R. (1999). Self efficacy as a mediator of the relationship between pain intensity, disability and depression in chronic pain patients. *Pain*, 80(3), 483-491.
10. Sullivan, M. J., Bishop, S. R., & Pivik, J. (1995). The pain catastrophizing scale: development and validation. *Psychological assessment*, 7(4), 524.
11. Bagby, R. M., Taylor, G. J., & Parker, J. D. (1994). The twenty-item Toronto Alexithymia Scale—II. Convergent, discriminant, and concurrent validity. *Journal of psychosomatic research*, 38(1), 33-40.
12. Mehling WE, Acree M, Stewart A, Silas J, Jones A (2018) The Multidimensional Assessment of Interoceptive Awareness, Version 2 (MAIA-2). *PLoS ONE* 13(12): e0208034.
13. Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of personality and social psychology*, 69(4), 719.
14. Radloff, L. S. (1977). The CES-D scale: A self report depression scale for research in the general population. *Applied Psychological Measurements*, 1, 385-401.
15. Breivik, H., et al. (2008). Assessment of pain. *British Journal of Anaesthesia*, 101(1), 17-24.

53) Abstract 523

INVESTIGATING CORONASOMNIA IN A SAMPLE OF DIVERSE VETERANS

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Objective

Veterans have rates of insomnia that are 2-3 times higher than in the general US adult population. Veterans with insomnia are highly likely to have comorbid mental health disorders, like

depression and anxiety. The COVID-19 pandemic produced changes in social, work, and leisure activities, which all have had major impact on sleep and psychological well-being. This study examined the relationships among depressive, anxiety, and insomnia symptoms before and during the COVID-19 pandemic in veterans.

Methods:

This sample consisted of 647 US veterans (M = 51 years) at high risk for sleep disordered breathing evaluated between 09/2019 to 10/2020 at the Miami VA Sleep Center. Approximately 85% were male and 43% identified as Hispanic. Participants completed type III home polysomnography, deriving AHI, and self-report questionnaires. Questionnaires queried sociodemographic information, insomnia symptoms, and mental health symptoms. Current medications were confirmed by electronic medical record.

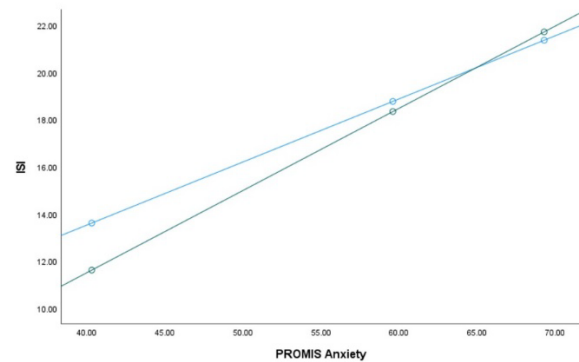
Results

To investigate the relationship among depression, anxiety, and insomnia before and during the COVID-19 pandemic, a simple moderator analysis was conducted using PROCESS. The outcome variable was insomnia, the moderator was the COVID-19 pandemic, and the predictor variables were depressive and anxiety symptoms. After controlling for AHI, age, race, ethnicity, gender, and antidepressant medication, the interaction between depressive symptoms and COVID times was statistically significant [$B = .096$, 95% CI (0.01, 0.18), $p < .05$], as well as the interaction between anxiety symptoms and COVID times [$B = .090$, 95% CI (0.02, 0.17), $p < .05$]. Using the Johnson-Neyman technique, the region of significance was for those below the threshold for clinical depressive ($T < 49$) and anxiety symptoms ($T < 53$).

Conclusions

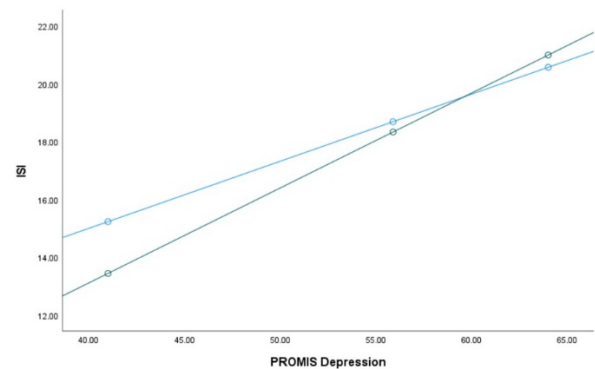
The findings suggest that the association among depressive, anxiety, and insomnia symptoms were significantly stronger during the COVID-19 pandemic when compared to pre-COVID-19 times. Surprisingly, those without depression and anxiety slept better during the pandemic than before. It is possible that the lived experience of the pandemic (social isolation, work-environment changes, etc.) allowed for the opportunity to catch up on chronic sleep loss accumulated in the pre-pandemic period.

The Relationship Between Insomnia and Anxiety Pre and Peri Pandemic



¹Blue line is pre-pandemic
²Green line is peri-pandemic

The Relationship Between Insomnia and Anxiety Pre and Peri Pandemic



¹Blue line is pre-pandemic
²Green line is peri-pandemic

54) Abstract 536

PATHWAYS TO RESILIENCE OF CHILDHOOD ADVERSITY: INTEGRATING THE NOVEL DEVELOPMENTAL MITIGATORS OF MORAL REASONING AND CHARACTER FORMATION

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Objectives Decades of research about the health consequences of childhood adversity have revealed that ~45% of children follow a risky trajectory, displaying an increase of emotional and physical disorders, while the others showed resilience. Key mitigators uncovered include social support and maternal warmth. However, less is known about how other factors within child development fosters resilience and pivot deteriorating trajectories. This study adds to resilience biology literature by expanding current health models to include moral reasoning and character formation, two concepts heavily discussed in holistic education, but rarely examined in behavioral medicine.

Method 195 families from a public elementary school participated in a longitudinal study that collected comprehensive measures at 6-month intervals from both the child and the primary caregiver, including adjustment, mental health symptoms, social cognition, neurodevelopment, interpersonal relationships, and health behaviors. In addition to resting state, *naturalistic* psychophysiological measures collected from the child include heart rate variability, sleep, and diurnal cortisol. Moral reasoning and character formation were

measured by questionnaires that tap into its different facets, such as fairness and care.

Results Multilevel models were applied to test different pathways. Results replicated previous literature that the psychobiological consequences of childhood adversity can be buffered by positive close relationships, but the effect of maternal warmth was especially pronounced, possibly due to the cultural dynamic of East Asian families. Consistent associations were found between health, wellbeing, and the different indices of moral reasoning and character formation, eg, children who believed in fairness also displayed better emotional and physiological health parameters, despite adversity.

Conclusion Adding to our understanding of critical buffers that mitigate the deleterious health outcomes of childhood adversity, this current model points to key pillars that have been central to holistic child development, but less investigated in the context of psychobiological health. Given that risk and resilience are both inherent to lifelong human development, future efforts that dive further into other aspects of a holistic individual can be fruitful to intervention and policy directions.

55) Abstract 555

TIME VARYING EFFECT OF POLYGENIC PREDISPOSITION TO DEPRESSIVE SYMPTOMS: HEALTH AND RETIREMENT STUDY

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BACKGROUND: Depression is a rapidly growing public health problem. While twin studies suggest that a substantial level of depression is heritable, this genetic impact has been largely unquantifiable for an individual. Polygenic score (PGS), which quantifies one's genetic predisposition, can be used for identifying a high-risk population before the onset of depression. However, it is unclear at what age PGS exerts the strongest effect.

OBJECTIVE: We examined the time-varying effect of PGS of major depressive disorder (PGS_{depression}) on depressive symptoms in retired Americans. We hypothesized that the association between PGS_{depression} and depression may differ by age.

METHODS: We used longitudinal data from the Health and Retirement Study with 6,977 European Americans (57% women) from 1994 to 2018 (mean age 68.5±10.4 in 2018). PGS_{depression} was assessed by Health and Retirement Study staff using PRSice software and results from a 2013 genome-wide association study (GWAS) conducted by the Psychiatric GWAS Consortium. Depressive symptoms were assessed by the Center for Epidemiological Studies Depression (CESD) scale, composed of questions asked biennially, with a higher score indicating more depressive symptoms (range=0-8). To examine the time-varying association between normalized PGS_{depression} and CESD, we used time-varying effect models, adjusting for sex and the 5 principal components.

RESULTS: CESD scores appear to decrease from early ages of retirement until age 65 (e.g., from 1.34 ± 1.9 at 50 years to 1.02 ± 1.7 at 65 years) and then increase as participants age (e.g., 1.19 ± 1.64 at 75 years). The association between PGS_{depression} and CESD score weakened as participants aged. At 50 years of age, a one unit increase in standardized PGS_{depression} was associated with a mean CESD score of 0.26 higher ($p=0.005$, partial- $R^2=0.018$), which was reduced to 0.14 higher average CESD score ($p=0.008$, partial- $R^2=0.006$) at age 65, and was no longer significant at age 75 ($p=0.77$, partial- $R^2<0.001$).

CONCLUSIONS: The genetic predisposition to depressive symptoms may be weakened around retirement age. Overall, PGS explained a small proportion of variation in depressive symptoms, and the strength of this association differed by age-group. Research using PGS_{depression} with stronger predictability in a wider age-range warrants future investigation.

56) Abstract 566

SOCIAL GROUP MEMBERSHIPS AND ADJUSTMENT TO UNIVERSITY: EXAMINING DEPRESSIVE SYMPTOMS AND CORTISOL AWAKENING RESPONSE.

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For many students, the transition to university is a stressful life change. Considerable research demonstrates that social group memberships can have positive effects on psychological well-being, particularly during life transitions. In Ireland, approximately 43% of students report moderate-to-severe depression symptoms, and this appears to be further magnified by the current COVID-19 pandemic. This research examined if social group memberships could predict cortisol awakening response (CAR) and depressive symptoms in first year undergraduate students, controlling for sex and total groups belonged to before university (number of groups and connectedness with these groups). 163 first undergraduate year students (117 females, $M_{age} = 18.55$, $SD = 1.28$) completed measures during their fourth week of university. The total number of social group memberships participants held pre-university, the number of group memberships maintained since starting university, and number of new group memberships formed since starting university were computed. Connectedness with each of these group types was assessed via the Exeter Identity Transition Scales (EXITS). Depressive symptoms were assessed via the Beck Depression Inventory. Participants provided eight saliva samples across two days (upon awakening, +15 mins, +30 mins, +45mins). Mediation analyses demonstrated that the number of pre-university groups maintained predicted greater CAR, controlling for new groups joined and sex. New group memberships were not associated with CAR. However, the number of new groups joined since starting university predicted fewer depression symptoms, in particular for people who reported a greater sense of connectedness with these new group memberships. A focus on maintaining group memberships held before starting university, and on developing and strengthening connections with new groups may promote positive adjustment to university.

57) Abstract 580

INTERPLAY BETWEEN POLYGENIC PREDISPOSITION TO SMOKING AND EARLY PSYCHOSOCIAL FACTORS: NATIONALLY REPRESENTATIVE EUROPEAN- AND AFRICAN-AMERICANS FROM HEALTH AND RETIREMENT STUDY

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BACKGROUND: Cigarette smoking remains a public health burden. Twin studies have shown a substantial level of smoking behavior to be heritable, but this genetic effect has not been quantified for an individual. Polygenic score (PGS),

which quantifies one's genetic predisposition, can be useful for identifying high-risk populations for smoking. However, as most genome-wide association studies (GWAS) are conducted in European descent, PGS poorly predicts phenotypes in African descent, whose smoking related mortality in the US is higher than European Americans (EA). Few studies have examined the interaction between PGS and psychosocial factors (PF), undermining PGS's clinical relevance.

OBJECTIVE: We examined early PF as effect modifiers of the genetic predisposition to ever smoking in EA and African Americans (AA). We hypothesized that some psychosocial experiences before 18 years old will modify genetic influence on smoking.

METHODS: We used data from the Health and Retirement Study with 6,969 EA (mean age=68.4±10.34, 57% women) and 2,141 AA (mean age=64.9±7.5, 61% women). PGS for ever smoking (PGS_{smoke}) was assessed by Health and Retirement Study staff using PRSice software and results from a 2010 GWAS conducted by the Tobacco and Genetics Consortium. "Ever smoking" was assessed by biennial questions (ever smoked? Yes/no) from 1992 to 2018. Early PF include education of mother or father (>8 yrs? yes/no), perceived financial status (before age 16), parental warmth (before age 18), and stressful events (before age 18). To assess odds ratio (OR) related to normalized PGS_{smoke} with ever smoking, we used logistic regression models adjusted for sex and the 5 principal components in EA and AA separately. Survey weights were applied.

RESULTS: Proportion of ever smoking was 56 % in EA and 61 % in AA. One standard deviation increases in normalized PGS_{smoke} was associated with a greater likelihood of ever smoking in EA (OR=1.21, 95%CI=1.13-1.29; partial- R^2 =0.008) and AA (OR=1.08, 95%CI=1.00-1.16; partial- R^2 =0.002). None of the early PF modify the PGS-smoking association (p-interaction>0.05).

CONCLUSIONS: The early PF examined did not modify genetic predisposition to ever smoking. Overall, PGS explained small proportion of variation in ever smoking. Future work using PGS_{smoke} with stronger predictability in diverse populations that elucidates early PF are needed.

58) Abstract 602

THE PERCEIVED STRESS SCALE AS A MEASURE OF STRESS: STATE-LIKE AND TRAIT-LIKE COMPONENTS

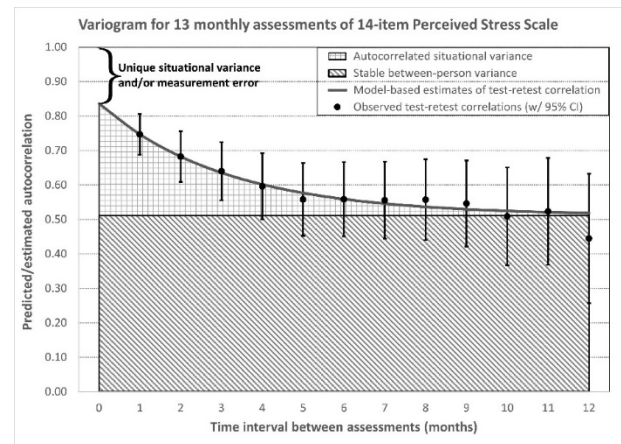
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Background: The Perceived Stress Scale (PSS) is a measure widely used to assess perceptions of recent stress, usually over the past 2 or 4 weeks. However, high test-retest correlations over longer intervals have been observed, introducing the possibility that the PSS may, to a substantial degree, be measuring a relatively stable, trait-like characteristic of stress perception.

Purpose: Determine the degree to which variability in repeated PSS assessments is attributable to stable between-person (B-P) differences versus two types of within-person (W-P) fluctuations (one exhibiting AR1 serial autocorrelation, the other exhibiting no autocorrelation) in two different populations. **Methods:** Secondary analyses were conducted utilizing data from two studies, each with 13 PSS assessments: an observational study of 127 patients with heart failure followed for 39 months (Study 1; mean age 56, 24% female, 70% BIPOC), and one of 73 younger, healthy adults followed for 12 months (Study 2; mean age 32, 59% female, 58% BIPOC).

Participants completed the 10-item PSS at baseline, semi-monthly through month 3 (6x), and then at 6-month intervals through month 39 in Study 1, and the 14-item PSS at baseline and monthly for 1 year in Study 2. Multilevel linear mixed modeling was used to decompose the total PSS variance. **Results:** B-P variance accounted for a substantial proportion of the total variance in PSS in both Study 1 (42.3%) and Study 2 (51.1%); W-P variance comprised the remainder. When examining only the first 12 months of assessments in each study the proportion of B-P variance was comparable (52.9% vs. 51.1%); the autocorrelated component of W-P variance accounted for 21.3% and 32.4% of the total variance, respectively, and the 1-month autocorrelation parameter was ~0.70 in both studies. The Figure shows a variogram for Study 2, including the observed and model-based estimates of the test-retest correlation as a function of the interval between assessments.

Conclusion: In two samples differing in demographics and health status, B-P variance accounted for approximately half the total variation in PSS scores. While W-P variance was observed, the PSS may substantially reflect a more stable, trait-like characteristic of how stressful an individual perceives her/his life circumstances than previously appreciated. Implications for designing future studies will be discussed.



59) Abstract 616

POSSIBLE ROLE OF ENDOTHELIAL CELL-SELECTIVE ADHESION MOLECULE IN STRESS-INDUCED HEMODYNAMICS AROUSAL

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Objective. Acute psychological stress has been linked to adverse cardiovascular health. Endothelial cell-selective adhesion molecule (ESAM) is a member of the family of adhesion molecules that regulates angiogenesis, endothelial permeability, and leukocyte transmigration. However, the link between cardiovascular reactivity and ESAM has not been addressed in humans. We hypothesize that acute mental stress affects hemodynamic responses via ESAM regulation. **Method.** Eighteen volunteers (aged 30 to 48 years) participated in the study, which encompasses an experimental visit including 30 minutes of stress during which they were exposed to a car driving video combined with mental arithmetic. Before and during stress, we measured several established and novel biomarkers, including BP, CO, ANP, ESAM, and galectin-3. **Results.** At the baseline, the mean age was 37.78 (± 5.90). There were 61% males and 50% African Americans. The average BMI was 30.48 (± 5.75) kg/m². The time effect indicated that subjects exhibited significant

increases in systolic BP, while the rise in DBP and TPR did not reach statistical significance. ESAM showed a trend to increase while atrial natriuretic hormone and galactine-3 remained unchanged. No significant relationships were found at rest between ESAM and hemodynamics, whereas greater CO was associated with increased ESAM during stress ($p < 0.05$). At the univariate level, the strongest predictive relationships were found between ESAM and diastolic BP and MAP (p 's $< .001$). Linear regression analyses showed a trend of the predictive relationship between ESAM at stress and hemodynamic factors ($R^2 = .467$; $F = 2.63$, $p = .09$).

Conclusion. These results provide preliminary evidence that ESAM may play a role in human stress-induced changes in hemodynamics.

60) Abstract 658

MENTORING BLACK WOMEN STUDENTS FROM A FEMINIST RELATIONAL EPISTEMOLOGY THE CASE OF THE HOLISTIC FAMILIES LAB

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This paper's inception derived from a genuine conversation between a Black woman junior investigator (laboratory director) and one female and male medical student candidate, where we discussed the lack of cultural representation among mentees and their research mentors. We examined the strength of these figures in having first-hand experience of the obstacles and hardships faced by their mentees, making a profound impact on their interest in their field of research and the quality of their training. As a minority student with no prior history of research assistantship or genuine mentoring experiences, entering the academic medicine and behavioral sciences field can be intimidating and challenging. Without proper guidance on navigating the realm of research, one can fall into mundane work under principal investigators who have no desire to connect with their supporting staff while taking advantage of conducting research on these vulnerable populations. It is imperative that in academia, extra consideration is taken into account when cultivating the next generation of clinicians and scientists who often begin in assistant roles and need to strengthen their aspirations to continue pursuing a career in behavioral and biomedical research. Medicine can provide this platform, but it is often neglected, and the results in disheartened students who struggle to find the motivation to care for minority groups when working under those who are in the role of fulfilling their personal endeavors rather than genuinely building long-lasting connections with their population of interest and the individuals in their laboratories.

In agreement with the Holistic Families Laboratory students, the Director has decided to formally reproduce the aforementioned conversation with a group of 6 female students. Building on feminist relational epistemology, the main goal was to allow them to put words on their minority experience navigating behavioral and biomedical sciences studies; share their views on Black women's future in academic medicine and the research laboratory of their dreams.

61) Abstract 642

THE RELATIONSHIP BETWEEN SLEEP AND PERCEIVED

CONTROL IN MID- TO LATE LIFE: RESULTS FROM A PILOT STUDY.

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Perceived control – the beliefs people hold about their own influence over important outcomes in their lives – is a modifiable psychological resource associated with well-being and physical health across the lifespan. Perceived control may be essential in order for people to try to exert influence over their health behaviors, including sleep. Perceived control is a promising health intervention target, but relatively little research has examined associations between perceived control and sleep.

We used data from a pilot study of mid- to older-adults with one week of daily diaries and actigraphy ($N = 20$, 60% female, $M_{age} = 54$, range 40-70). Sense of control in general was more strongly related to sleep (with sleep duration, $r = .40$; with efficiency $r = .27$; with wake after sleep onset $r = -.17$) than was goal engagement (with sleep duration, $r = .04$; with efficiency, $r = .16$; with wake after sleep onset, $r = -.13$). Notably, associations for sense of control in general were more robust than those for positive affect (r s for duration, efficiency, and wake after sleep onset are .44, .02, and .08) and negative affect (r s are -.32, -.18, and .12). Considering the small sample size, associations were not statistically significant.

Overall, results of this small pilot study in mid- to older adults suggest a sense of control over one's life may be related to better actigraphy-assessed sleep characteristics. Additional studies in larger samples may shed light on the dynamics between perceived control and sleep across the lifespan.

62) Abstract 690

INTERACTION OF EMOTION REGULATION NETWORK AND FAMILIAL SOCIAL SUPPORT IN BUFFERING PSYCHOLOGICAL DISTRESS AMONG OLDER ADULTS

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Socio-emotional interactions are integral for regulating emotions and buffering psychological distress. Social neuroscience perspectives on aging suggest empathetic interpersonal interactions are supported by the activation of brain regions that regulate negative affect. The current study tested whether resting-state functional connectivity of a network of brain regions activated during cognitive emotion regulation, i.e., emotion regulation network (ERN), statistically mediates the frequency of social contact with friends or family on psychological distress. Here, a 10-minute resting-state functional MRI scan was collected along with self-reported anxiety/depressive, somatic, and thought problems and social networking from 91 community-dwelling older adults (aged 65–85 years). The frequency of social interactions with family, but not friends and neighbors, was associated with lower psychological distress. This effect was reduced by 17.2% to non-significant upon adding a path from familial interaction to ERN connectivity and a negative path from ERN connectivity to distress. Follow-up whole-brain graph network analyses revealed that efficiency and centrality of the left inferior frontal gyrus and the right middle temporal gyrus relate to greater family interactions and lower distress. These hubs may help buffer older adults' psychological problems through interactions involving empathetic and cognitive emotion regulation with close family.

Table 1

The percentage of descriptive information for the sociodemographic of the sample

Demographic Variables (N=91)	
Characteristics	
Age	71.05(11.53)
Sex (%)	
Male	35.2
Female	64.8
Ethnicity (%)	
Hispanic	3.3
Non-Hispanic	96.7
Race (%)	
American Indian or Native Alaskan	1.1
Asian	3.3
Black or African American	5.5
White	90.1
Native Language	
English	93.4
Spanish	1.1
Indian Dialect	2.2
Other	2.2
Marital Status (%)	
Married	62.6
Single	37.4

Table 2 Mean and standard deviation for the psychosocial measures of the sample

Variables (N=91)	Mean	SD
Family Network		
Family members in contact with	3.19	1.39
Personal Contact	3.24	1.33
Phone Contact	3.81	0.98
Email Contact	2.58	1.56
Text Contact	2.01	2.01
Do your relatives care about you? (%yes)	14.3	
Can you rely on relatives for help? (%yes)	79.1	
Can you relax with your relatives? (%yes)	81.3	
Friends & Neighbor Network		
Friends/neighbors in contact with	3.41	1.19
Personal contact	3.66	0.99
Phone Contact	3.13	1.23
Email Contact	2.19	1.56
Text Contact	1.31	1.64
Do your friends and neighbors care about you? (%yes)	0.30	
Can you rely on friends & neighbors for help (%yes)	62.0	

Table 3

ERN Region	Dosenbach Node	MNI Coordinates, x, y, z
L somatomotor area	41	10, 5, 51
L inferior frontal gyrus	37	-55, 7, 23
L precentral gyrus	51	46, -8, 24
L middle temporal gyrus	68	-54, -22, 9
L angular gyrus	124	-48 -63 35
R somatomotor area	43	0, -1, 52
R inferior frontal gyrus	25	51, 23, 8
R precentral gyrus	53	44 -11 38
R middle temporal gyrus	60	59, -13, 8
R angular gyrus	117	51, -59, 34

64) Abstract 711

AUTONOMIC NERVOUS SYSTEM DYSFUNCTIONS IN PATIENTS WITH STRESS-RELATED AND FUNCTIONAL SYNDROMES VS. HEALTHY CONTROLS

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University of Leuven, Katleen Bogaerts, PhD, Hasselt University

Background: It is hypothesized that a dysregulated autonomic nervous system is an important mechanism underlying stress-related disorders (SRD) and functional syndromes. The aim of our study was to examine ANS dysfunction by measuring heart rate, skin conductance, and skin temperature in response to and during recovery from psychosocial stressors in patients with SRD, fibromyalgia (FM)/chronic fatigue syndrome (CFS), and healthy controls (HC).

Methods: Patients with SRD (overstrain or burnout; n=59), FM/CFS (n=26) and HC (n=30) went through a stress test consisting of a resting phase (120s), the STROOP color word task (120s), a recovery (120s), a mental arithmetic task (120s), a recovery (120s), a stress talk (120s) and a recovery (120s). Heart rate, skin conductance, and skin temperature were monitored continuously.

Results: On average, heart rate ($p = 0.003$) and skin conductance levels ($p < 0.001$) were higher in FM/CFS and SRD patients compared to healthy controls at rest. Additionally, the average heart rate during rest was higher in FM/CFS compared to SRD ($p = 0.032$). There was a larger cardiac response to stress in both patient groups compared to HC (FM/CFS: $p = 0.029$, SRD: $p = 0.003$), while there was a *smaller* SC response to stress in FM/CFS patients compared to HC ($p = 0.032$), possibly due to a ceiling effect. ST could not differentiate between the different groups.

Conclusion: Our results showed indications of a dominance of the sympathetic nervous system in patients compared to HC which was most pronounced in FM/CFS. This suggests the possibility of autonomic nervous system dysfunction as an underlying working mechanism for SRD and functional syndromes.

65) Abstract 712

ACUTE PSYCHOLOGICAL STRESS AND THE AGE-RELATED MARKER GROWTH DIFFERENTIATION FACTOR 15 (GDF15) IN HEALTHY ADULTS: A PRELIMINARY STUDY

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Background: How chronic stress-related multisystem responses increase disease risk and accelerate biological aging is not fully resolved. Recent studies have identified growth differentiation factor 15 (GDF15) as the most highly upregulated protein with human aging, as a marker of mitochondrial diseases associated with energetic alterations in

the brain and body, and as elevated in some psychiatric disorders. In the present study, we investigated whether acute psychological stress affects blood GDF15.

Method: Healthy adult participants from the Mitochondrial, Stress, Brain Imaging, and Epigenetics Study (MiSBIE, $n = 53$, 74% female, ages 22–58) were exposed to a modified Trier Social Stress Test (TSST). Blood was collected at 8 time points before and after stress (-5, 5, 10, 20, 30, 60, 90, 120 minutes). Plasma GDF15 levels were quantified by high-sensitivity ELISA on a total of 645 samples. The association between GDF15 and age was determined using Spearman rank correlation. Reactivity was operationalized as % change from baseline at each timepoint, and a mixed effect model was used to test whether stress affected GDF15 over time. Average % change in GDF15 values were compared using Hedge's g for the maximum positive (10 minutes) and maximum negative change (30 minutes) after stress.

Results: Plasma GDF15 levels were positively associated with age ($r^2 = 0.33$, $p < 0.0001$), confirming that GDF15 increases in an age-dependent manner. In response to the TSST, there was a significant effect of time on GDF15 (mixed effects model, $p < 0.0001$). On average, plasma GDF15 level peaked at 5.3% above baseline at 10 minutes after stress onset ($g = 0.46$), before dipping to 3.7% below baseline at 30 minutes ($g = -0.41$). As for neuroendocrine markers of stress reactivity (e.g., cortisol) to the TSST, GDF15 exhibited large inter-individual differences in reactivity ranging from 0–76% increase at 10 minutes.

Discussion: These data demonstrate that psychological stress induces moderate changes in plasma GDF15, an important marker of human aging and metabolic stress. This finding calls for replication in larger studies, in parallel with other state and trait psychobiological measures to better understand the source of inter-individual differences in GDF15 reactivity to stress and its potential contribution to multisystemic stress-disease pathways.

66) Abstract 718

CARDIAC EVENT-INDUCED PSYCHOLOGICAL DISTRESS PREDICTS COGNITIVE IMPAIRMENT AT TIME OF HOSPITAL DISCHARGE IN PATIENTS SURVIVING CARDIAC ARREST

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Background. Elevated posttraumatic stress disorder (PTSD) symptoms are experienced by roughly 30% of patients in the aftermath of a cardiac arrest (CA). The literature on PTSD induced by non-CA events has shown that PTSD is associated with deficits in cognitive function. CA patients may be especially susceptible to cognitive impairment because of direct neurological damage as well as high psychological distress. Research is needed to determine the prevalence of cognitive status impairment in CA survivors at the time they leave the hospital and to ascertain its association with PTSD symptoms.

Method. The PACE Study recruits eligible patients who recently experienced a cardiac arrest and were admitted to NewYork-Presbyterian Hospital. In 89 enrolled patients ($Age = 55.22$, range: 24–85 years), interviews were conducted at the time of hospital discharge. Cognitive impairment was measured with the Modified Telephone Interview for Cognitive Status. Cardiac event-induced PTSD symptoms were assessed via PTSD Checklist for DSM-5 (PCL-5). PTSD symptoms due to traumatic events prior to the CA were assessed via the 4-item Primary Care PTSD Screen for DSM-IV (PC-PTSD). Age was calculated from date of birth.

Results. Most patients (51.7%) showed evidence of impaired cognitive status at discharge. In a linear regression model ($F [3, 84] = 5.94$, $R^2 = .18$, $p < .01$), each 10-point increase in cardiac event-induced PTSD symptoms (possible range: 0–80) was associated with lower cognitive ability (possible range: 0–55), $B = -1.04$ points, 95% CI [-1.92, -0.16], $p = .02$. In the same model, higher age also predicted lower cognitive status, $B = -0.16$ points per year older, 95% CI [-0.25, -0.07], $p < .01$. Notably, prior PTSD did not predict cognitive status, $p = .73$.

Conclusion. Building upon previous literature showing that long-term cognitive deficits are relatively common in CA survivors, the present findings demonstrate that half of these patients have significant cognitive impairment upon hospital discharge. Furthermore, CA-induced PTSD symptoms may explain variance in these deficits over and above associations with age and PTSD due to prior trauma. These findings have potential implications for interventions that aim to reduce patients' psychological distress and improve their cognitive recovery after the debilitating experience of a sudden CA.

67) Abstract 526

CARWATCH – AN OPEN-SOURCE SMARTPHONE APPLICATION FOR IMPROVING THE QUALITY OF CORTISOL AWAKENING RESPONSE SAMPLING

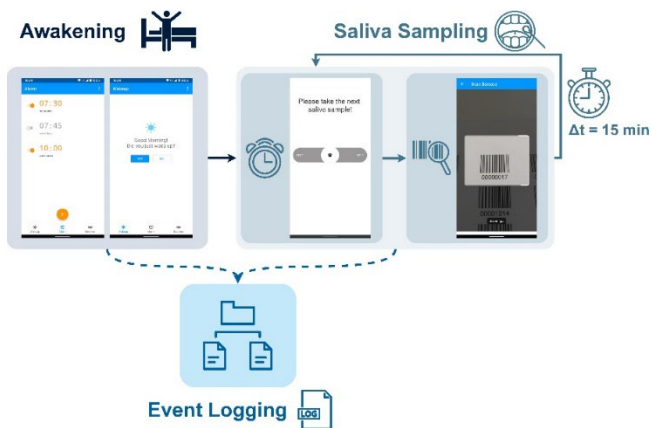
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Objective: Many studies investigating the cortisol awakening response (CAR) suffer from low adherence to the study protocol and from the lack of precise and objective methods for assessing saliva sampling times resulting in measurement bias on assessing the CAR. While some approaches to addressing this methodological gap have been presented in the past, most of them significantly complicate the study protocol and drastically increase study costs, often making them infeasible for large-scale studies and requiring a trade-off between scientific precision and sample size. Attempts have been made to address this issue, however, no technical solution has been validated and made widely available to the psychoneuroendocrinology (PNE) community.

Methods: For that reason, we developed *CARWatch*, a smartphone application for the objective recording of saliva sampling times at low cost. *CARWatch* requires study participants to scan a barcode attached to the saliva sampling tube before performing the saliva sampling and records these timestamps. *CARWatch* additionally sets alarms prompting the user to provide the saliva samples according to the sampling schedule, which can only be turned off by scanning a barcode on the saliva sampling tube, to enforce more precise sampling. We validated *CARWatch* by assessing the CAR of $N = 117$

healthy participants (24.2 ± 8.7 years, 79.5% female) on two consecutive days and compared awakening and saliva sampling times reported from self-reports and *CARWatch*. **Results:** While the median sampling delays were similar for both reporting types, the use of *CARWatch* seemed to considerably decrease the interquartile ranges (IQR) throughout all saliva samples, indicating a more consistent sampling behavior compared to self-reports. Sampling delays showed only small accumulations over the course of saliva samples. Moreover, individuals tended to “round” self-reported awakening and sampling times to times ending with ‘0’ or ‘5’, leading to sampling errors.

Discussion: *CARWatch* improves CAR sampling by reducing variation and inconsistency in sampling delays compared to self-reports and can be used in large-scale CAR studies with potentially restricted budget. By publishing the application under an open-source license, we make it freely accessible to every researcher and encourage them to contribute to improving the application for the PNE community.



68) Abstract 104

INVESTIGATING THE USABILITY AND ACCEPTABILITY OF AN ONLINE THEORY-BASED INTERVENTION TO ADDRESS COVID-19 VACCINATION HESITANCY IN CANADIAN ADULTS

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BACKGROUND: 6.5 million COVID-19 deaths have occurred worldwide since the WHO declared a global pandemic. Reducing the impact and severity of COVID infections will require booster immunizations until the pandemic is over. While 85% of Canadians aged 5 and older have received two doses of a Canada-approved COVID-19 vaccine, only 51% have received a booster dose. Self-determination theory (SDT) is an evidence-based framework describing how to enhance individual motivation for behaviour change in a variety of healthcare contexts through the promotion of autonomy,

competence, and relatedness. An SDT-driven intervention could reduce hesitancy associated with the COVID-19 vaccine and promote vaccine uptake, reducing morbidity, mortality, and healthcare system burden.

AIMS: This study is the first phase of a multi-phasic project to evaluate an online SDT-driven intervention, guided by a motivational communication style to decrease COVID-19 vaccine hesitancy. The present study aims to explore intervention usability and acceptability.

METHODS: Canadian adults (18+) were recruited (Spring and Fall 2022) online via a web-based research recruitment platform and invited to participate in a 1-hour one-on-one virtual semi-structured interview. The Think Aloud method and semi-structured prompts were used to elicit real-time feedback while navigating the intervention. Interviews were audio and screen recorded and transcribed verbatim. Thematic analysis is being used for data analysis.

RESULTS: Eighteen participants (55% men, 35.56 ± 10.45 years, 55% white, 66% with a booster dose and 22% with two doses of a COVID-19 vaccine) completed interviews. Preliminary findings provide input on 3 overarching considerations: (1) overall usability of the intervention (sub-categories include: ease of intervention navigation, acceptance of visual aesthetics, amount of text used, and COVID-19 vaccine information); (2) general acceptability of the intervention (meeting the needs of the intended audience and providing helpful information about vaccination) and (3) suggestions for intervention refinement (reducing redundancy, clarifying text-based questions, and suggestions for informational videos).

CONCLUSION: Results will inform intervention refinements needed prior to a randomized controlled trial evaluating intervention efficacy to increase COVID-19 vaccination uptake.

69) Abstract 214

SLEEP AND CIRCADIAN DYSREGULATION AMONG INTEREPISODE YOUTH DIAGNOSED WITH BIPOLAR I DISORDER: A MATCHED COMPARISON STUDY

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Bipolar disorder (BD) is a severe illness affecting approximately 2-4% of the population. A large body of work links BD to sleep and circadian dysregulation. Using 24-hour objective activity monitoring, multiple studies have found that adults with BD show several differences in their diurnal rhythms as compared to control participants: lower activity levels within 24-hr cycles, less robust and more unstable patterns, and phase advanced 24-hr activity rhythms. Less is known about these patterns among adolescents. Because BD leads to profound changes in educational, social, and occupational function, with overall diminishing engagement in these key areas, it is important to consider which facets of circadian dysregulation can be identified early in the course of the disorder or preceding onset. Thus, we sought to address these gaps with pre-registered analyses by identifying circadian profiles in 37 interepisode youth diagnosed with BD-I and 46 matched controls. Following initial screening and baseline measures, participants completed continuous actigraphy via Actiwatch for 21 days along with the completion of daily logs including subjective sleep, affective, and social measures. We hypothesized that when compared to psychiatrically healthy controls, interepisode youth with BD-I would show 1) lower activity levels within 24-hr cycles and 2) less robust and more unstable activity patterns. We performed Morse Wavelet and Fourier analyses to examine rhythmic

amplitude and stability and generated activity profiles for each participant through Non-Parametric Circadian Rhythm Analysis to obtain three parameters: Relative Amplitude (RA), Interdaily Stability (IS), and Intradaily Variability (IV). By use of independent-samples t-test, interepisode youth diagnosed with BD-I showed a flattened activity amplitude, lower overall wake time (in minutes), and heightened overall sleep time (in minutes) as compared to the matched controls. We also assessed group differences across weekdays and weekends to examine potential changes in *sleep* and *wake* intervals. These findings were consistent across weekends and school days among youth with BD when compared to matched controls. Given that the adolescents with BD were euthymic, our findings indicate that sleep and circadian disruptions can be observed early in the course of disorder, during periods when symptoms are minimal.

POSTER SESSION 2

1) Abstract 479

PATIENTS WITH FUNCTIONAL POST-COVID SYMPTOMS SHOW RELEVANT SCORES AND PREVALENCE IN PSYCHOLOGICAL SCREENING QUESTIONNAIRES

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Background: Patients with long lasting symptoms after an infection with the SARS-CoV-2 virus not only complain about physical symptoms such as pain or smell/taste abnormalities, but also about psychosomatic symptoms. However, they consult and are more often treated by general physicians and specialists, and standardized psychological questionnaires are rarely assessed to describe these patients. To better understand psychosomatic burden in patients with long lasting symptoms after Covid-19 disease without organ cause, so called "functional post-covid syndrome", and implications for clinical care.

Methods: One year after their presentation at a post-covid ambulance in a university hospital in Germany, 537 patients with functional post-covid symptoms were asked to fill in an online questionnaire. They rated 8 common symptoms of post-covid (e.g. difficulties breathing, fatigue, brain fog, smell/taste abnormalities) on a 0 to 4 scale (range 0 to 32), and filled in questionnaires about depression (PHQ-9), anxiety (GAD-7), fatigue (FSMC), and screenings for PTSD and drug/alcohol abuse.

Results: 293 (55%) contacted patients aged 49 ± 14 years (62% female) filled in the online survey. They reported high burden of post-covid symptoms (6.8 ± 6.0) as well as of psychosomatic symptoms such as depression (6.3 ± 5.0), anxiety (4.7 ± 4.3), and fatigue (52.6 ± 21.0). Furthermore, high percentages of patients showed values equal to or greater than the respective cut-off for moderate severity of depression (21%), anxiety (13%), and fatigue (52%). At least 3% of patients were above the cut-off in the PTSD screening (0.4 ± 0.8), and 12% showed signs of drug or alcohol abuse. All values are significantly correlated with the post-covid

symptoms score (all p 's < 0.001): depression ($r=0.437$), anxiety ($r=0.343$), fatigue ($r=0.507$), and PTSD ($r=0.418$).

Discussion: A high percentage of patients with functional post-covid symptoms without organ cause shows relevant scores and prevalences in psychological screening questionnaires. Physicians of other specialties than psychiatry, psychosomatic medicine or psychotherapy, should be more aware of the psychosocial burden of these patients, and possibly advise their patients to consult one of those specialists.

2) Abstract 583

DEMOGRAPHIC DIFFERENCES IN SELF-REPORTED PHYSICAL AND MENTAL HEALTH OVER TIME: THE IMPACT OF THE COVID-19 PANDEMIC

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Throughout the COVID-19 pandemic, research has reported increases in anxiety, stress, and depression (Abbott, 2021; Moore, 2021; Spence, 2020), and that marginalized groups (e.g., women, Southern Appalachia etc.) may be disproportionately impacted by the pandemic (ARC, 2017; CDC, 2021; OXFAM, 2021). However, the possible impact of the pandemic on physical and mental health outcomes within these populations were unknown. The current study hypothesized that women and individuals from Appalachia would experience worse mental health outcomes and rate their overall physical health and quality of life as poorer over a six-month period. A total of 73 participants were assessed on levels of stress, anxiety, and self-assessed health. They were primarily female (74%) and lived within Appalachia (74%), with a mean age of 43.77 ($SD = 18.94$). Results showed that region was not a significant factor related to physical or mental health changes. However, interactions between gender and self-assessed health were discovered. Men reported significant increases in overall health ($F(1,72) = 4.752, p = .033$), health related to others ($F(1,72) = 4.03, p = .048$), quality of life ($F(1,72) = 8.244, p = .005$), physical health ($F(1, 72) = 7.44, p = .008$), and overall mental health ($F(1, 72) = 6.799, p = .011$). Women, however, reported moderate to poor levels on all self-assessed health measures with no changes over time. Surprisingly, men did report significant increases in anxiety, $F(1, 66) = 5.551, p = .021$; whereas females reported consistently high levels of anxiety. An interaction with stress and gender was also found, with females displaying significantly higher levels of stress at time point one with modest decreases six-months later ($F(1, 60) = 4.154, p = .046$). These findings suggest that while males were improving, females seemed disproportionately affected by the pandemic. Future studies are warranted to determine if these measures of self-assessed health correspond to changes in physiological measures related to heart health (e.g., cholesterol, BMI, BP, etc.) and stress (e.g., cortisol reactivity). Furthermore, future research should also examine underlying reasons for women to be disproportionately affected and if interventions to improve health could be implemented.

3) Abstract 622

TRADITIONAL MEDICINE DURING COVID-19 ERA IN HAITI: PATIENTS CLAIMS IN THE SOUTHERN PENINSULA OF HAITI

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Background: The pandemic of COVID-19 first appeared in China during December 2019. With no dedicated treatment or preventative measures in place, populations from the Low- and middleincome countries (LMIC's) adjusted to fight the disease. In Haiti, the population has turned to traditional medicine as a means of prevention and cure against COVID-19. The aim of our study is to report the use of plants used by the Haitian population during the pandemic.

Methods: We retrieved data from the medical charts of patients diagnosed and admitted for COVID-19 at the southern peninsula of Haiti from May to October 2021. A total of 52 patients' records, fulfilling the inclusion criteria of the study, were screened out of the 177 admissions during the period. Data were transferred to Microsoft Excel 2016 and descriptive statistics were run to report the patients' use of the plants.

Results: The median age of our population was 58 years old (IQR: 69 - 43) and 42% (22) were women. More than two thirds of the patients were from the Southern and Western regions of the country, 36.54% and 32.69% of them respectively.

Hypertension was the predominant comorbidity in about 36.5% of the patients, followed by diabetes (5%) and cardiovascular diseases (5%). The most common symptoms on admission were cough (59.62%), shortness of breath (53.85%) and fever (19.3%). The median duration between the first symptoms and the hospital visit was 8 days (IQR: 12 - 5) and the median length of stay was 5 days (IQR: 7 - 3). The median Oxygen Saturation was 90% (IQR: 94.5 - 86). Among the herbs used in the infusions: Zingiber officinale (Jenjanm) accounted for 63.58%, then Momordica charantia (Asowosi) represented 55.77%, followed by Syzygium aromaticum (Jiwöf) in 25%; Allium sativum (Lay) in 13.46% of the cases were the most frequent. Compared to patients who reported no plant usage, mortality was significantly lower (7.60%) than the overall mortality rate (16%).

Conclusion: About 30% of the patients admitted for COVID-19 during the period used at least one plant or root in the preparation of the infusion. Under the current conditions, it is difficult to measure the real impact of traditional medicine in the prevention of COVID-19 or other diseases. However, this study sets the stage for researchers and pharmaceutical companies to scientifically investigate the effectiveness of such treatments.

4) Abstract 551

STRESS MEDIATED THE RELATIONSHIP BETWEEN VACCINATION ATTITUDES AND DEPRESSION DURING THE COVID-19 PANDEMIC

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Individuals with mental illnesses are at high risk for COVID and related complications; they are also more likely to harbor negative attitudes/hesitate regarding vaccinations (Pan et al., 2022; Smith et al., 2021). Anti-vaccination attitudes have been

found to be higher in individuals experiencing stress and depression (Wu et al., 2022). Nevertheless, there is a dearth of information that explains whether or not anti-vaccinations attitudes can impact mental health outcomes. It was hypothesized that participants who indicated more anti-vaccination attitudes would report decreased depression one year later. Further, anti-vaccination attitudes would be associated with less stress at an intermediate assessment, and perceived stress would mediate the relationship between vaccination attitudes and depression. A total of 32 participants completed the necessary measures at each assessment point. They were primarily female (71.9%) and held at least a bachelors degree (59.4%), with a mean age of 48.66 ($SD = 20.02$). Participants completed questionnaires regarding vaccination attitudes, perceived stress, and depression at three time points (six months apart) over a one-year interval. All analyses controlled for age, gender, and education. Results showed that initial vaccination attitudes did not predict depression at one year, $\beta = -.07$, $t = -.96$, $p = .346$. However, perceived stress at six months predicted depression at one year, $\beta = .44$, $t = 3.35$, $p = .003$. To test for mediation, Hayes' PROCESS macro (model 4) was used. As expected, initial vaccination attitudes were significantly related to perceived stress at six months, $\beta = -.25$, $t = -2.50$, $p = .019$. There was also an indirect effect of initial vaccination attitudes through perceived stress at six months on depression at one year, $\beta = -.11$, 95% CI [-.242, -.008], $p < .05$. These findings suggest that vaccination attitudes predicts depression through perceived stress. Future research is warranted to determine if vaccination attitudes and the behavioral immune system indirectly impact immune function via negative affect, since both stress and depression are known to impair immune functioning. Additionally, anti-vax attitudes have been associated with less analytical reasoning (Caravaggio et al., 2022), therefore future research could examine if the lack of analytical reasoning acts a buffer against perceived stress.

5) Abstract 653

CONCERNS IN PEOPLE AT HIGH RISK FOR COVID: A CONTENT ANALYSIS OF PATIENT EXPERIENCES USING TWITTER

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Background: The COVID pandemic has brought about new stressors and compounded existing stressors for many; however, those with medical comorbidities have faced unique challenges as the pandemic served as a salient reminder of their vulnerability and mortality. The present study characterized stressors for high-risk individuals through the framework of the Minority Stress Model, which suggests that both distal (*i.e.*, external events experienced due to minority group membership) and proximal (*i.e.*, internal stressors related to individual perceptions) affect mental health outcomes within the minority group of those who remain at risk for serious illness, hospitalization, and death from COVID.

Methods: The present study aggregated anonymized Twitter post data for approximately one month (23 April 2022 – 31 May 2022) from users who tweeted using the hashtag "#HighRiskCOVID19." All data aggregation and analysis were conducted using R. Tweets were manually coded according to the health condition, distal stressors, and proximal stressors mentioned within the Minority Stress Model framework. Prior to data cleaning, the analysis returned 1,833 tweets. These

tweets were then reduced to approximately 400 unique tweets (once repeats and retweets were screened out).

Results: Of those who did disclose their condition, the vast majority (80.8%) mentioned a condition that put them at high risk for COVID by the CDC. Individuals identified within broad categories, such as “immunocompromised” (28.2%), “chronically ill” (24.5%), “disabled” (11%), and “clinically extremely vulnerable” (5.6%). Examining tweets within the framework of the Minority Stress Model revealed that the majority of tweets could be categorized as a response to distal (77.6%) or proximal (12.8%) stressors (Table 1).

Conclusions: Findings demonstrate that those who remain at high risk for COVID experience distal and proximal stressors consistent with the Minority Stress Model. Results suggest that targeted interventions that reduce stress within these high-risk groups could improve mental health outcomes. Findings provide potential targets for patient and policy-level interventions to reduce downstream adverse mental health effects associated with chronic stress.

Table 1. Tweet content ratings based on the Minority Stress Model.

Minority Stress Model Category	Total Tweets	Percent of Sample Tweets
Distal stressors, all	278	77.6%
Proximal stressors, all	46	12.8%
Specific Stressors		
Regional or National Health Policy	145	40.5%
Pre-exposure Prophylaxis (Evusheld)	97	27.1%
Ableism	95	26.5%
Community health behaviors	60	16.8%
Mask mandate repeal or mask noncompliance	49	13.7%
Downplaying of pandemic risks by others	35	9.8%
Hypervigilance	27	7.5%
Negative thoughts about oneself	21	5.7%
Anti-virals (PAXLOVID, Molnupiravir) & Test-to-Treat Programs	21	5.7%
Needing or Requesting Accommodations	16	4.5%
Job security or occupational exposure	13	3.6%
None of the above categories	66	18.4%

Note: N = 358 Tweets. Sums exceed 100% because each Tweet was coded on based on whether each overall and specific stressor was present (coded as 1) or absent (coded as 0) within the Tweet.

6) Abstract 100

THE EFFECT OF ACUTE AND CHRONIC STRESS ON HUMORAL IMMUNITY DURING SARS-COV-2 PANDEMIC AMONG HEALTHCARE WORKERS

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Introduction

Toward the end of 2019, a virus swept through the world and collective panic ensued, exacerbating both physical and mental burdens as word of lockdowns spread and people adapted to the “new normal” of the SARS-CoV-2 pandemic. Both acute and chronic stress can influence the brain and behavior over time, though the relationship between stress and immunomodulation remains poorly understood and under-explored. Despite the unprecedented success of the SARS-CoV-2 vaccine campaigns, it remains unclear to what degree anxiety and stress affect vaccine-induced humoral immunity. Additionally, effective methods of therapeutic interventions for acute and chronic pandemic-related stress have been poorly characterized.

Methods

Participants in a longitudinal cohort study (n=189) completed a validated measure (GAD-7) and experimental 10-instrument stress measure (SM-10) to assess the severity of acute and chronic stress and anxiety following SARS-CoV-2 vaccination. Serum was collected and processed at each visit to obtain SARS-CoV-2 antibody titer levels following infection and/or vaccination. Demographics and relevant health histories were also collected.

Results

Overall, participants experienced an increase in stress due to the SARS-CoV-2 pandemic. There was no relationship between peak antibody titers following double vaccination and self-reported anxiety or stress, though healthcare workers (HCW) were more significantly affected by anxiety than controls. Younger age was associated with higher acute and chronic stress. The GAD-7 and experimental SM-10 measure for acute stress produced reproducible results.

Conclusion

Younger adults and HCWs are at increased risk for higher stress and anxiety, emphasizing the importance of mental health-focused resources for these groups. Young and healthy individuals may be able to adapt to increased stress levels without a significant change in humoral immunity to SARS-CoV-2.

7) Abstract 475

POST-COVID SYMPTOMS AND THEIR ARBITRARY NATURE AMONG ACUPUNCTURE SERVICES SEEKERS

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Post-COVID Symptoms and their Arbitrary Nature Among Acupuncture Services Seekers

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Abstract

Introduction: The purpose of our descriptive study is to present a series of 10 cases seen in an Acupuncture Clinic in Tampa with extended COVID-19 symptoms.

Methods: Data come from a total of ten Acupuncture seekers. Five Caucasian females, one African American female, and four Caucasian males between the ages of 21-72. An electronic medical records (EMR) system conducted a complete Acupuncture systems check. Follow up intake information and SOAP notes were noted in the EMR. Differential diagnosis and ICD codes are also housed in the system.

Results: All patients had COVID between December 2021 and October 2022 and were treated for their post-COVID symptoms and previous symptoms during that time. All patients were vaccinated. One patient was diagnosed after the vaccination. Follow-up diagnosis directly relating to their post-COVID symptoms are as follows. 21-year-old female differential oligomenorrhea and migraines seen three months after COVID with fatigue. 51-year-old female differential perimenopause and jaw pain seen twelve months after COVID with trigger finger pain. 53-year-old female differential perimenopause seen twelve months after COVID with histamine/allergy issues. 32-year-old female differential bulging disc seen three months after COVID asymptomatic. 59-year-old female differential low back pain seen twelve months after COVID with loss of smell. 23-year-old male differential

shoulder pain seen three months after COVID with neuropathy. 40-year-old male differential low back pain, rib pain, and anger issues seen three months after COVID asymptomatic. 72-year-old male differential unilateral hip pain seen twelve months after COVID hip pain moved bilaterally. 72-year-old male differential polyuria and plantar fasciitis seen twelve months after COVID with tachycardia. 44-year-old female differential digestive issues seen twelve months after COVID digestive issues worsened.

Conclusion: Longitudinal studies are necessary to understand both short and long-term COVID-19 symptoms.

Source of funding: 5R01HL142066-05

Keywords: COVID, post-COVID, long haul, Acupuncture

8) Abstract 289

EDUCATION AND TIME SINCE TRANSPLANT ARE ASSOCIATED WITH ADHERENCE TO MEDICAL TREATMENT AND COVID-19 SAFETY RECOMMENDATIONS IN ORGAN TRANSPLANT PATIENTS

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Background: Adherence to medical recommendations in solid organ transplant patients is crucial for the wellbeing of the patient and the longevity of the newly transplanted organ. Shorter time since transplantation (TST) and higher education level have been associated with better general treatment and medication adherence. It is unclear if these factors are also associated with greater adherence to COVID-19-specific safety recommendations (i.e., washing hands, social distancing, etc.). The current study examined the interaction of education level with TST adherence to general treatment and COVID-19-specific recommendations.

Method: Organ transplant patients ($N = 99$, 65% female, 82% White) completed an online survey during June-August 2020. Education level was dichotomized as having completed high school or below (40%) or education beyond high school (60%). TST was measured in years ($M = 6.8$, $SD = 7.4$). The Medical Outcomes Study scale measured general treatment adherence ($M = 83.3$, $SD = 14.4$, 0 represents no adherence, 100 perfect adherence) and pandemic safety adherence was measured by percentage of time patients adhered to safety recommendations (washing hands, social distancing, covering nose/mouth, etc.) from 0 to 100% ($M = 86.9$, $SD = 11.2$).

Results: There were significant main effects of TST on general adherence ($\beta = -1.62$, $p = .024$) and COVID-19 specific adherence ($\beta = -1.20$, $p = .045$), no main effects of education on either outcome (p 's $> .27$), and a trend towards a moderation effect for general adherence ($p = .069$) and COVID-19 specific adherence ($p = .068$). Examination of conditional effects revealed that for patients who completed high school or below, greater TST was associated with lower general treatment adherence ($\beta = -0.82$, $p = .012$) and lower COVID-19 specific adherence ($\beta = -.535$, $p = .050$), but for patients with higher education, TST was not associated with either form of adherence (p 's $> .59$).

Discussion: Greater TST was associated with poorer general and COVID-19 specific adherence only for patients with relatively less education. In other words, higher education may buffer the impact of TST on adherence. Particular attention and adherence support should be offered by care teams to patients with relatively less education and greater TST (e.g., 4+ years post-transplant) to ensure adequate medical adherence in this vulnerable population.

9) Abstract 366

EMOTIONAL WELLBEING IS STRESS PROTECTIVE: REPORTED COVID-19-RELATED IMPACT IN OVARIAN CANCER SURVIVORS

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Introduction: Ovarian cancer (OC) survivors navigate multiple stressors during treatment and survivorship. Non-cancer stressors appear to impact some survivors more severely than others, suggesting potential differences in psychological resources. One such stressor that highlighted the need for resiliency was the COVID-19 pandemic. This study examined different profiles of pandemic impact in a group of OC survivors and investigated how survivors differed on risk and protective factors at diagnosis. Given recent research suggesting that positive and negative psychological functioning are distinct, we evaluated these separately. Of particular interest was how positive psychological resources at diagnosis related to later functioning.

Methods: 93 OC survivors were recruited from existing longitudinal studies and examined for patterns of impact by the COVID-19 pandemic as part of a larger project on pandemic stress and resilience. Latent class analysis identified different impact groups among the survivors using a COVID-19 survey assessing practical and psychological impact of COVID-19, and the groups were compared on baseline risk factors assessed at time of diagnosis using general linear models. Participants had all completed surveys assessing emotional wellbeing (FACT-G EWB), perceived stress (PSS), and depressive symptoms (CESD).

Results: OC survivors were divided into high- ($n=52$, 56%) and low- ($n=41$, 44%) COVID-19-impact groups. High-impact survivors reported more psychological distress and more practical disruption by the pandemic; low-impact members reported low levels of practical concerns and psychological distress. The two groups did not differ on depressive symptoms at diagnosis ($p=.79$). However, the high-impact group ($M=22.79\pm6.94$) reported higher levels of baseline perceived stress than the low-impact group ($M=19.41\pm6.23$, $p=.05$). Additionally, the high-impact group ($M=15.29\pm4.44$) reported significantly lower levels of emotional well-being than the low-impact group ($M=17.68\pm3.91$, $p=.02$) at diagnosis.

Discussion: Patients who later reported less impact from the COVID-19 pandemic also had higher emotional wellbeing and lower perceived stress but no differences on depressive symptoms at the time of diagnosis. This suggests that screening for wellbeing resources at time of diagnosis may be relevant along with screening for depression.

10) Abstract 409

LONELINESS AS A MEASURE OF POSITIVE AND NEGATIVE RELATIONSHIP QUALITY DURING THE COVID PANDEMIC

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Background: Positive and negative relationship qualities could affect perceptions of connection or loneliness within

relationships. Because loneliness is associated with mental health, it is important to understand it in the context of the pandemic. It has been found that indifference (low positive, low negative) and ambivalence (high positive, high negative) are relationship patterns that are associated with distress. The purpose of this study is to determine whether associations between loneliness and positive and negative relationship qualities and the positive-by-negative interaction term depend on how relationship quality is operationalized, that is in a general context (support, conflict) or within a support seeking context (helpful or upsetting support efforts).

Methods: Baseline data were used from a longitudinal study of social relationships and mental health during the COVID-19 pandemic ($N = 343$, recruited between Apr and Jul 2020). Participants completed measures of relationship conflict, overall support, help when seeking support and upset when seeking support thinking about either their partner, other adults in the household (not partnered), or their closest friend or family member (not partnered, no other adults in the house). At the same time, they completed a measure of loneliness. Two linear regression models tested associations between positive and negative relationship quality and positive-by-negative interaction terms and loneliness symptoms for general or support-seeking contexts. Covariates were socio-demographics and type of relationship considered (i.e., partner).

Results: Higher help, $b(SE) = -0.395(0.087)$, $p < 0.001$, and lower upset, $b(SE) = 0.740(0.333)$, $p = 0.027$, during support seeking were independently associated with lower loneliness. Higher general support was associated with lower loneliness, $b(SE) = -1.041(0.192)$, $p < 0.001$, but conflict was not independently associated with loneliness, $b(SE) = -0.346(0.186)$, $p = 0.064$. None of the interaction terms were associated with loneliness, p 's > 0.285 .

Conclusions: Positive and negative relationship quality specifically during support-seeking contexts were more consistently associated with loneliness during the pandemic. This suggests that focus on relationship quality during support seeking could be a more productive target for preventing loneliness during a pandemic.

11) Abstract 691

IMPACTS OF COVID-19 ON STUDENT WELL-BEING: EXPERIENCES & RECOMMENDATIONS FROM DIVERSE STEM UNDERGRADUATES

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Objective: This mixed-methods study highlights undergraduate STEM students' experiences adjusting to the COVID-19 pandemic, namely impacts on individual well-being, barriers and facilitators to learning, and student recommendations for moving forward in a post-pandemic world.

Background: Recent studies on the impact of COVID-19 highlight how the transition to online learning negatively impacted student engagement and student efficacy, particularly for STEM courses and labs (Chirikov et al., 2020; Wester et al., 2021). In particular, STEM, first-generation, and underrepresented minority students (URM) perceived the transition to remote learning as significantly more challenging than their peers (Barber et al., 2021).

Method: Participants include 340 undergraduate STEM students (51% men, 81% self-reported non-White) at the University of Maryland, Baltimore County. Participants were members of the Meyerhoff Scholars Program, a program supporting URM students in pursuing undergraduate degrees

in STEM. Students completed online questionnaires between May 2020-August 2021. Surveys consisted of a 20-item CES-D scale, and 10 open-ended questions related to COVID-19. Analyses were conducted using SPSS version 27, and NVivo (IBM Corp, 2020; QSR, 2020). Qualitative data were analyzed using an inductive approach consistent with community-based research methods.

Results: Since the start of COVID-19, nearly half of the sample ($N = 160$) reported scores placing them at risk for clinical depression (i.e., CES-D sum scores greater than 15) ($M = 16.67$, $SD = 10.36$). Among these participants, 21% ($N = 72$) displayed mild to moderate levels, and 26% ($N = 88$) displayed high levels of depressive symptoms associated with major depression. Additionally, students displayed significant differences in depression scores by gender, $F(2, 337) = 9.67$, $p < .001$, $\eta^2 = 0.05$.

In a series of interview questions, students reported physical and mental health complications and overall changes in motivation and energy due to the COVID-19 pandemic. Students additionally reported experiencing a positive, smooth transition from in-person to online learning, however, identified several challenges including difficulties with technology and challenges connecting with classmates, faculty, and program staff. Students also provided feedback on how universities can adapt and move forward post-COVID-19.

12) Abstract 620

LONELINESS MEDIATES THE RELATION BETWEEN PERCEIVED SOCIAL SUPPORT AND DEPRESSIVE SYMPTOMS THROUGHOUT THE FIRST 10 MONTHS OF THE COVID-19 PANDEMIC

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During the first 10 months of the COVID-19 pandemic (March 2020–January 2021), individuals in Quebec (Canada) were subjected to fluctuating social distancing guidelines implemented by the government. This included a temporary state of emergency lockdown (March – mid-June), progressive easing of restrictions (mid-June – October), another lockdown (October – January), and the addition of curfew orders (January 2021). These conditions generated an increase in social isolation and feelings of loneliness. High levels of loneliness have been previously linked to increased symptoms of depression, anxiety and substance abuse. Moreover, perceived social support has a negative association with psychopathology and loneliness. Therefore, this study assessed whether the prospective association between low social support satisfaction and later depressive symptoms may be mediated by loneliness throughout the first 10 months of the COVID-19 pandemic. Data were collected every 3 months between May 2020 and January 2021, for a total of 3 time points. A total of 188 participants (130 female) at time 1, 125 (85 female) at time 2, and 103 (73 female) at time 3 completed a battery of questionnaires, including the 12-item Multidimensional Scale of Perceived Social Support, 20-item UCLA Loneliness Scale, and 21-item Beck Depression Inventory. Two simple mediation analyses were conducted. The first used time 1 social support (X), time 1 loneliness (M) and time 2 depression scores (Y). The second used the time 1 social support (X), time 2 loneliness (M) and time 3 depression scores (Y). The indirect effect of perceived social support on depressive symptoms was found to be statistically significant for the first [Effect = -2.41, 95% C.I. (-3.68, -1.32)] and second mediation [Effect = -1.62, 95% C.I. (-3.2, -.087)]. Therefore, individuals with low perceived social support reported

increased loneliness at time 1 and 2, which led to a rise in depressive symptoms by time 2 and 3, respectively. In conclusion, these data highlight an important pathway to depression during societal disruptions that arises from inadequate social support and the development of chronic feelings of loneliness. Moreover, these data show the importance of promoting social support during periods of social isolation, which can prevent the development of depressive symptoms by reducing loneliness.

13) Abstract 571

THE ASSOCIATION OF DEPRESSIVE SYMPTOMS AND OBJECTIVE VS. SUBJECTIVE STRESS WITH DIAGNOSED VS. UNDIAGNOSED TYPE 2 DIABETES IN THE HISPANIC COMMUNITY HEALTH STUDY/STUDY OF LATINOS (HCHS/SOL) SOCIOCULTURAL ANCILLARY STUDY (SCAS)

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Most existing research has focused on sociodemographic differences between persons diagnosed vs. undiagnosed with type 2 diabetes (T2DM), to better inform screening and management of disease. Psychosocial factors also play a critical role in disease management, but it is unknown if these factors differ by diagnosis status, particularly among minoritized populations such as Hispanic/Latinos. We examined the association of depressive symptoms, and perceived and chronic stress with T2DM diagnosis status in the Hispanic Community Health Study/Study of Latinos (HCHS/SOL) Sociocultural Ancillary Study (SCAS). Participants were 977 Hispanic/Latino adults (mean(SD) age: 54(11) years, 55% female) considered to have T2DM based on American Diabetes Criteria for glycated hemoglobin (HbA1c), fasting plasma glucose, or 2-hour oral glucose tolerance test. Individuals self-reporting T2DM or on medication were categorized as diagnosed. Individuals completed the Center for Epidemiologic Studies Depression Scale (CESD-10), Perceived Stress Scale (PSS), and an 8-item chronic stress scale.

Roughly only two-thirds of the participants (68%; N = 666) were diagnosed. Multivariate logistic regression models adjusted for demographic (age, sex, Hispanic/Latino background, income, education), and confounding (hypertension, waist circumference, family history of diabetes, and insurance status) factors revealed that neither CES-D (OR=1.02, 95% CI: 0.99, 1.05) nor PSS (OR=1.01, 95% CI: 0.98, 1.03) scores were significantly different between the diagnosed and undiagnosed groups. However, having a greater number of chronic stressors was associated with a higher likelihood of having diagnosed vs. undiagnosed T2DM (OR=1.21, 95% CI: 1.07, 1.38), even after adjusting for CES-D scores (OR=1.20, 95% CI: 1.05, 1.38).

Number of chronic stressors, but not perceived stress, was associated with a 20% increased likelihood of having diagnosed vs. undiagnosed T2DM, suggesting that number of stressors, rather than perceived stress or depressive symptoms is of greater relevance to T2DM diagnosis among Hispanics/Latino adults. The burden of a T2DM diagnosis and its self-management may be associated with increased

recognition of life stressors. In turn, timely assessment and treatment of chronic stress may improve patients' adherence, and abilities for T2DM self-management, improving clinical outcomes.

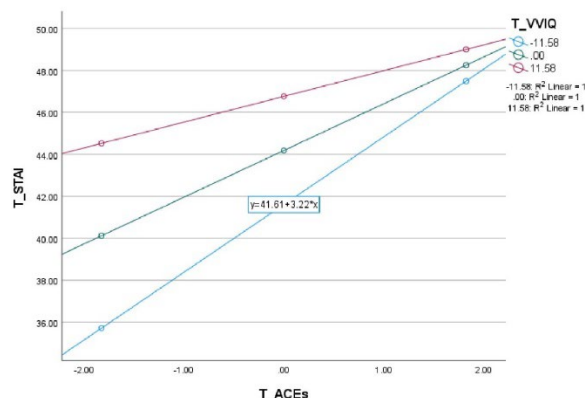
14) Abstract 510

THE MODERATING ROLE OF VIVIDNESS OF VISUAL IMAGINARY ON THE RELATIONSHIP BETWEEN ADVERSE CHILDHOOD EXPERIENCES AND ANXIETY

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Anxiety disorders are one of the most commonly diagnosed psychopathologies in recent decades, and previous studies have established that individuals with more exposure to adverse childhood experiences (ACEs) show higher prevalence of anxiety and anxiety-related symptoms. Nearly half of American children suffer one or more ACEs, which are defined as early-life adversity, including trauma and abuse. The link between ACEs and increased anxiety in adulthood has been established, but there are few studies investigating potential psychosocial moderators of this association. Recent investigations have shown vividness of visual imagery, which refers to the clarity of creating mental images, influences the maintenance of anxiety in that a more precise visualization of previous traumatic events may heighten anxiety-related symptoms. Thus, it is hypothesized that individuals with more imaginary vividness may experience increased anxiety after exposure to ACEs relative to individuals with lower VVI. Data for the current study was derived from 201 participants who completed an online assessment of VVI, ACEs and State Anxiety. Current feelings of anxiety were assessed using the State-Trait Anxiety Inventory. ACEs were derived from the Adverse Childhood Experiences Questionnaire and VVI from the Vividness of Visual Imagery Questionnaire. Moderation analyses were conducted using a hierarchical multiple regression model controlling for demographic covariates (age and race). Results reveal that both higher ACEs ($B = 2.22, p < .001$) and greater VVI ($B = .23, p = .007$) were associated with higher anxiety $R^2 = .14, F(4, 181) = 7.87, p < .001$. VVI significantly moderated the relationship between anxiety and ACEs, $\Delta R^2 = .02, p < .001$. There is a ceiling effect such that VVI is related to higher anxiety among individuals with low exposure to ACEs. However, the impact of VVI on anxiety in the context of greater exposure to ACEs is reduced. Thus, higher VVI is associated with higher anxiety, but when its effect is combined with other anxiety risk factors, the effect is diminished. Findings support that VVI affects negative emotions, such as anxiety, and should be considered in various therapeutic approaches to treating anxiety. However, studying the impact of clear visualization on anxiety may be more advantageous among individuals exposed to fewer adverse experiences in childhood.

Figure 1
Impact of VVI on anxiety at the different levels of ACEs



15) Abstract 586

HIGHER ENGAGEMENT IN EMOTIONAL AND UNCONTROLLED EATING IS ASSOCIATED WITH HIGHER PREVALENCE OF OBESITY AND TYPE 2 DIABETES AMONG ADULTS IN PUERTO RICO

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Background: Emotional (EE) and uncontrolled eating (UE) have been associated with higher obesity and type 2 diabetes (T2D) among adolescents and European and mainland US populations. These associations remain unknown among adults in Puerto Rico, where prevalence of disordered eating behaviors, obesity, and T2D are high. We aimed to evaluate the association between EE and UE and obesity and T2D. **Methods:** This cross-sectional analysis used baseline data from participants (30-75y; n=874) of the Puerto Rico Observational Study of Psychosocial, Environmental, and Chronic Disease Trends (PROSPECT) during 2019-2022. The Three Factor Eating Questionnaire R18-V2 measured EE (6 items on the tendency to eat in response to negative emotions) and UE (9 items on the tendency to eat more than usual due to loss of control); higher scores indicate greater engagement in the behavior. Anthropometric data and fasting blood samples were used to classify participants with overweight (BMI=25-29kg/m², obesity (BMI≥30kg/m²), central obesity (waist circumference>102cm men; >88cm women), prediabetes (plasma glucose=100-125mg/dL or HbA1c=5.7-6.4%), and T2D (plasma glucose≥126mg/dL or HbA1c≥6.5% or T2D medication). Poisson regression models with robust variance error and adjusted for socio-demographic and behavioral factors estimated prevalence ratios (PR) and 95% CI. **Results:** Of the sample, 28% were classified with overweight, 54% with obesity, 75% with central obesity, 37% with prediabetes, and 29% with T2D. In adjusted models, each unit increase in the EE score was associated with a higher prevalence of obesity (PR=1.08; 95%CI=1.04, 1.13), central obesity (PR=1.09; 95%CI=1.06, 1.13), and T2D (PR=1.10; 95%CI=1.02, 1.19). Similarly, each unit increase in the UE score was associated with a higher prevalence of obesity (PR=1.07; 95%CI=1.01, 1.13), central obesity (PR=1.09; 95%CI=1.04, 1.14), and T2D (PR=1.14; 95%CI=1.03, 1.25). There were no associations between EE and UE and overweight and prediabetes. **Conclusion:** Higher EE and UE scores were associated with a higher prevalence of obesity, central obesity, and T2D. Longitudinal studies should confirm directionality of

these findings. Disordered eating behaviors may be considered biobehavioral mechanisms that dysregulate physiological traits, opening the potential to address them in clinical interventions to help reduce obesity and T2D.

16) Abstract 539

EXISTENTIAL PHENOMENOLOGICAL APPROACH IN EGREGIOUS INDIVIDUALS OF THE THIRD AGE IN CARACAS, VENEZUELA.

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Background: individuals who suffer the humanitarian crisis by the pandemic, climatic disasters are at risk of cardiovascular diseases. Phenomenology is based on the observation of the phenomenon that occurs in an individual, it is based on three principles; epoché (the narrative), phenomenological reduction (Placing in parentheses what is intuited comes from inner consciousness) and eidetic variation (common essence). **Methodology:** this is a qualitative observational research using the Existential Phenomenological Method on 9 adults 3 men and 6 women, each subject made a narrative describing their experiences since on humanitarian crisis, confinement, pandemic and floods. **Results (The essence):** 1) **68 years old man**, married, He made use of his literary conscience and passion for politics and social justice, writing on these topics and creating children's stories for his absent grandchildren. 2) **66 years old women**, lawyer, married, using readings and spiritual retreats via Zoom and participating in activities at home with family. 3) **65 years old woman**, architect, she developed activities such as the art of cooking and help the neighbors in the condominium, and cultural activities. 4) **65 years old woman**, lawyer, who received very hard emotional blows in her narrative demonstrates a great capacity for resilience and personal anti-fragility. With her "We" made up to overcome the difficult moments that have touched her. 5) **64 years old woman**, Business Administrator, dedicated to her mother who died during Pandemic but by paintings, jewelry, gardening, recycling, overcame her grief. 6) **66 years old man**, Engineer, visualizes his isolated country in the political, social and economic, he has contributed to the nutrition of sectors of of Caracas. 7) **65 years old woman**, doctor, married and mother of one exiled son that despite the insufficiency of medical services she arranged an office to attend the patients at her home. 8) **66 years old engineer man**, accepted the changes imposed by the crisis, generating jobs. 9) **65 years old entrepreneur women** married with children who faces the pandemic and humanitarian crisis and saves her business and workers, creates her own method to combat stress using the maternal bond with her children. **Conclusions:** 1) The common essence to all the individuals of this sample was the family values.

17) Abstract 549

MICROAGGRESSIONS ARE ASSOCIATED WITH TRAUMA SYMPTOMS IN PREGNANT BLACK WOMEN

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Introduction: Black women face persistent health disparities regardless of socioeconomic status and improved access to care. A potential mechanism for these disparities is concurrent race- and gender-based discrimination. Microaggressions are subtle or indirect discrimination experiences that may also contribute to overall experiences of stress and trauma. In this study, we investigated the frequency and appraisal of gendered racial microaggressions and their relationship to trauma. We hypothesized that frequency and appraisal of experiences of gendered racial microaggressions are positively correlated with symptoms of post-traumatic stress disorder.

Methods: Self-identified Black women were recruited at routine prenatal care visits at 24-32 weeks in their pregnancies. Participants completed survey instruments for the Gendered Racial Microaggressions Scale (GRMS), PTSD Checklist DSM-5 (PCL5), and Brief Trauma Questionnaire (BTQ). Pearson's correlation analysis was used to determine the correlations between the GRMS and PCL5 and BTQ total scores.

Results: A total of 50 participants were recruited into the study and 48 participants had complete data for the GRMS and PCL5 measures. GRMS frequency was positively correlated with PCL5 ($r=0.56$, $p=0.0001$). GRMS appraisal was positively correlated with PCL5 ($r=0.45$, $p=0.001$). GRMS frequency was not significantly correlated with the BTQ score ($r=0.25$, $p=0.08$). GRMS appraisal was also not significantly correlated with the BTQ score ($r=0.27$, $p=0.06$).

Conclusion: In Black pregnant women, gendered racial microaggressions were correlated with PTSD symptomatology. These findings support a connection between microaggressions and trauma symptoms. Future work is needed to understand the potential for associations between gendered racial microaggressions and adverse pregnancy outcomes in this population.

18) Abstract 445

STRONG BLACK WOMAN STEREOTYPE ENDORSEMENT AND DEPRESSIVE SYMPTOMS PREDICT BIOLOGICAL STRESS REACTIVITY IN BLACK WOMEN

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Background: Black women experience greater cardiovascular mortality and morbidity compared to their racial/ethnic counterparts. Growing evidence suggests stress processes serve as a critical nexus for understanding Black women's vulnerability to cardiovascular disease (CVD). The Strong Black Woman Stereotype (SBWS) reinforces beliefs that Black women must maintain strength, emotional containment, and service to others. SBWS is linked with self-reported depressive symptoms and perceived stress, yet the relationship between SBWS endorsement and biological stress reactivity has not been explored.

Method: 34 women aged 18-22 ($M = 19$, $SD = 1.25$) who self-identified as African American or Black completed the Stereotypic Roles for Black Women Superwoman subscale and the Center for Epidemiological Studies Depression Scale (CESD) before undergoing a standard Trier Social Stress Test (TSST) protocol to induce stress reactivity. Biological stress response was measured via cortisol reactivity to the TSST. A repeated measures ANOVA was conducted to determine whether depressive symptoms attenuated the link between SBW stereotype endorsement and cortisol reactivity.

Results: The interaction between SBW stereotype endorsement and depressive symptoms on cortisol reactivity

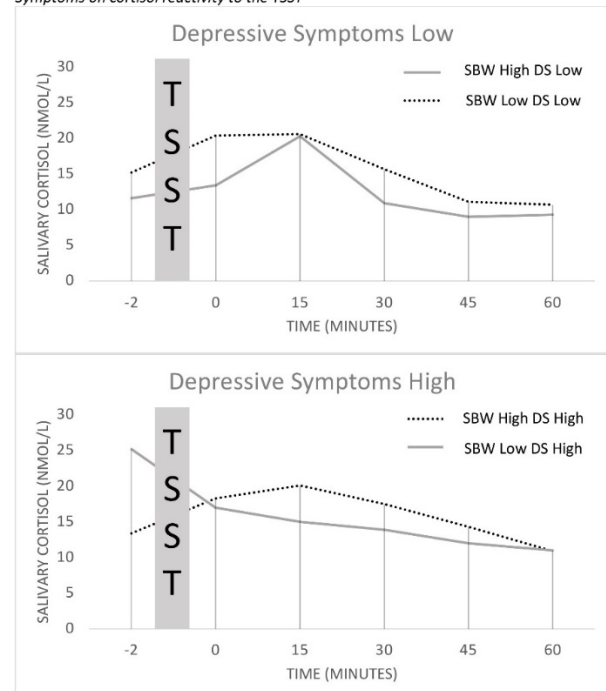
was significant [Greenhouse-Geisser corrected $F(3.20, 95.93) = 3.44$, $p = .02$, $\eta_p^2 = .10$], controlling for body mass index. There was no significant main effect of depressive symptoms on cortisol reactivity to the TSST. The current study was underpowered to test group effects at different levels of the moderator, however, nonsignificant graphic representations of the data suggest that when both SBW stereotype endorsement and depression are high, cortisol reactivity may be blunted (Figure 1).

Conclusion: Our findings provide evidence that previous associations between SBW stereotype endorsement, depression, and stress hold true in a biological stress reactivity context. Follow-up studies will include large samples to assess group differences in trends and confirm the effects at conditional levels of depression.

Strong Black Woman Stereotype endorsement and depressive symptoms predict biological stress reactivity in Black women

Figure 1.

Trends in interactive effects of Strong Black Woman Stereotype Endorsement and Depressive Symptoms on cortisol reactivity to the TSST



Note. This figure depicts nonsignificant interaction trends in changes in cortisol across time points before and after the Trier Social Stress Test (TSST) at different levels of Strong Black Woman (SBW) stereotype endorsement and Depressive Symptoms (DS) scores.

19) Abstract 462

ASSESSING FINANCIAL VULNERABILITY AND AMBULATORY BLOOD PRESSURE IN AFRICAN-AMERICAN WOMEN UTILIZING REGRESSION TREES

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African-American women are the most impacted by the wage gap, the least likely to be in a dual-earning couple, and the most likely to be single parents, relative to other race-gender groups. Thus, researchers have argued that they may experience a high degree of financial precarity; however existing research typically focuses on a single scale, which may not fully capture overall financial vulnerability. We examined the association between scales assessing financial

vulnerability and ambulatory blood pressure (ABP) in African-American women. Participants were N=353 African-American women aged 30-46. Measures of self-reported debt, difficulty paying basic expenses, financial adjustments, serious financial events (e.g. bankruptcy) and debt stress (worry about debt) were assessed via validated scales. Daytime and nighttime systolic BP (DSBP and NSBP) were assessed via ABP. Regression trees were used to identify subgroups using the variables above along with education and income.

For DSBP, we identified 4 groups (Figure1). Among women with no debt, those with 0-2 financial adjustments (group1) had higher mean DSBP than those with >2 financial adjustments (group2). Among women with moderate or high debt, those reporting no to moderate worry about their debt (group3) had lower mean DSBP compared to those with high levels of worry (group4). The largest mean difference between groups (group4 vs. group2) was 12 mm/Hg. For NSBP, we also obtained 4 groups (Figure2). Among women with no to moderate debt, those with 0 to 2 financial adjustments (group1) had higher mean NSBP than those with >2 financial adjustments (group2). Among women with high debt, those with 0-4 financial adjustments (group3) had lower mean SBP compared to those with >4 financial adjustments (group4). The largest mean difference between groups (group4 vs. group2) was 14 mm/Hg. No other financial measures emerged as strong predictors of SBP.

Women reporting moderate to high debt, with high levels of worry about that debt, had the highest DSBP levels. For NSBP, the highest levels of SBP were observed in women reporting moderate to high levels of debt and high levels of financial adjustments. Findings provide support for more comprehensive assessments of financial vulnerability, particularly in populations with moderate to high debt.

Figure 1: Regression Tree for Average Daytime Systolic Ambulatory Blood Pressure – Mean (SD)

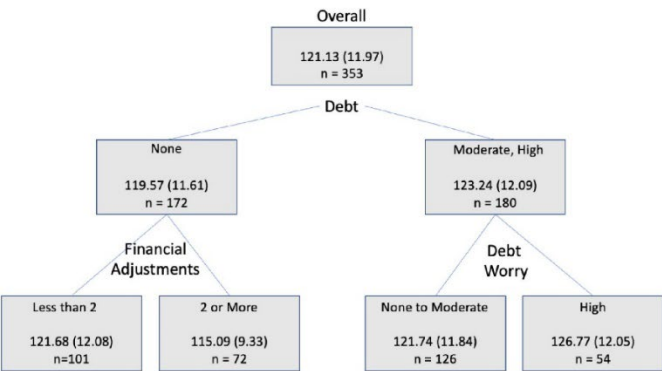
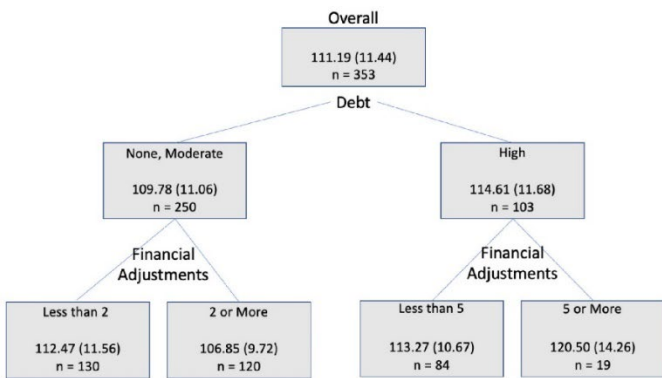


Figure 2: Regression Tree for Average Nighttime Systolic Ambulatory Blood Pressure – Mean (SD)



SEXUAL VICTIMIZATION EXPERIENCE AND LEVEL OF SEXUAL RESPONSE PREDICTING SEXUAL FUNCTIONING PROBLEMS
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Background: Sexual victimization experience among women has been associated with later sexual functioning problems. Factors associated with the negative experience of sexual victimization may increase risk for negative outcomes (van Berlo & Ensink, 2000). One such factor could be sexual response during victimization experience, but research on this topic has been scant. Levin & van Berlo (2004) estimated that 4-5% of women have experienced sexual arousal/orgasm during sexual assault but suggested the rate is likely higher due to underreporting. Indeed, Bunderson (2020) found 31% of female victims reported arousal during assault. In the present study, sexual functioning problems were examined based on sexual victimization experience and perceived sexual response during that experience. If sexual response is associated with the negative experience of victimization, risk for sexual functioning problems may be greater. Women with victimization experience were expected to report more sexual problems than nonvictims, especially those who reported arousal/orgasm during their experience. **Methods:** College women (n = 395, mean age 18.76, SD = .87; 68% European American) completed the Sexual Experiences Survey-Short Form Victimization (Koss et al., 2007) and the Medical Outcomes Study Sexual Problems Survey (Sherbourne, 1992). Respondents were categorized as “nonvictims” (n = 163) or one of three victim groups based on responses to a question about feeling sexually aroused or having an orgasm during victimization experience (i.e., “victims-yes,” n = 32; “victims-no,” n = 169; “victims-not sure,” n = 31). **Results:** The main effect (ANOVA) was significant, $F(3, 391) = 3.71, p = .012, \text{partial } \eta^2 = .028$. As predicted, pairwise comparisons revealed that victims-yes had more sexual problems than nonvictims, $p = .002, \text{partial } \eta^2 = .049$, victims-no, $p = .017, \text{partial } \eta^2 = .028$, and victims-not sure, $p = .007, \text{partial } \eta^2 = .112$. Unexpectedly, no differences emerged among these latter three groups. **Conclusions:** Sexual victimization experience was associated with more sexual functioning problems, but only for women who reported arousal or orgasm during their victimization experience. Sexual response during victimization may increase risk for sexual functioning problems, potentially through associating sexual response with the negative experience of sexual victimization.

PSYCHOLOGICAL CONTROL, PHYSIOLOGICAL COSTS: EFFECTS OF PERCEIVED CONTROL ON THE RELATIONSHIP BETWEEN DISCRIMINATION AND INFLAMMATION
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BACKGROUND: It is well known that discrimination can increase risk for serious health conditions that disproportionately affect racial/ethnic minority adults in the U.S. Inflammation may act as an integral physiological mechanism through which discrimination stress impacts health. As such, it is necessary to explore potential psychosocial factors that may influence the relationship between discrimination and inflammation. Perceived control is a promising relevant variable to explore in this context given that it has already been shown to moderate the relationship between other psychosocial stressors and physiological outcomes. The current study thus explored the role of perceived control as a

moderator of the relationship between discrimination and inflammation among middle-aged racial/ethnic minority adults.

METHOD: Participants came from the Midlife in the United States (MIDUS) II and Refresher I projects ($N = 209$, $M_{age} = 50.98$, $SD = 12.64$). Perceived control and daily discrimination were assessed via self-report and circulating levels of inflammatory markers (interleukin-6, IL-6; C-Reactive protein, CRP; tumor-necrosis factor- α , TNF- α) were assayed from blood plasma. The interaction effect of perceived control and discrimination on inflammatory markers was assessed via linear regression with age, gender, BMI, and smoking status included as covariates.

RESULTS: Perceived control significantly moderated the relationship between discrimination and inflammation. Specifically, among individuals higher in perceived control, greater experiences of discrimination predicted significantly higher levels of IL-6 ($b = .079$, $t(7,200) = 2.37$, $p = .018$). A similar trend was found with TNF- α and a composite score of all three biomarkers, but these results were marginally significant ($p = .064$ and $p = .057$, respectively). This pattern of results was only observed among individuals high in perceived control.

CONCLUSION: While perceived control is traditionally associated with greater psychological well-being, these findings suggest that the inherently uncontrollable nature of experiencing discrimination may be especially physiologically taxing among those with high perceptions of control. This study highlights the need to delve deeper into the nuances of potential protective/resilience factors in the context of discrimination and health.

22) Abstract 574

THINKING MORE CRITICALLY ABOUT INTERSECTIONALITY: UNDERSTANDING DIFFERENCES IN CVD RISK AMONG SEXUAL AND GENDER MINORITIES OF COLOR.

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There are significant disparities in cardiovascular disease (CVD) risk between males and females and between different racial/ethnic groups. Further, some research shows disparities in CVD risk among sexual and gender minorities (SGM). Yet, there remains a dearth of research aimed at understanding the ways in which being at the intersection of multiple stigmatized social identities is associated with CVD risk. This is vital considering the differences in minority stressors (e.g., discrimination) based on being at such an intersection (e.g., Black and lesbian). Thus, we aimed to assess differences in high-sensitivity C-reactive protein (CRP; a biomarker of CVD risk) among different races in SGM populations. All of Us (AoU) data were selected from 2021 and our final study sample included electronic health record (EHR) data from 2,440 participants. CRP was measured in mg/L via EHR, restricted below 500mg/L, and filtered through unusual white blood cell count. Demographic variables included race, cisgender identity, age, education, and sexual orientation. Control variables included smoking, alcohol use, BMI, glucose, cholesterol, systolic/diastolic blood pressure, and report of a sleep disorder. Linear regression models were used. Model 1 explored main effects, model 2 included an interaction term between sexual orientation and race, and model 3 included an interaction term between gender and race. In model 1, cisgender males had lower CRP compared to cisgender females ($\beta = -0.48$, $p = .03$). In model 2, the interaction between sexual orientation and race was trending towards statistical significance indicating that Black sexual minorities had higher

CRP compared to Black heterosexuals ($\beta = -2.27$, $p = .08$). In model 3, the interaction between gender and race was statistically significant, implying women of Other race had higher CRP compared to men of Other race ($\beta = -2.80$, $p = .03$). Minority identity like race/sexual orientation may lead to CVD risk via exposure to minority stress by increasing physiological response and ensuing inflammation. Our findings show that there may be unique differences in CVD risk among different subpopulations of sexual and gender minorities. Researchers and clinicians should adopt an intersectional perspective when investigating how social determinants influence CVD risk to improve CVD prevention interventions among sexual and gender minorities.

23) Abstract 355

APPALACHIAN HEALTHCARE: PERCEIVED HEALTH, ACCESS, USE, AND STIGMA

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Although 52.9 million adults were living with mental illness in 2020, only 24.3 million (46.2%) received mental health services (NIMH, 2022). This discrepancy is exaggerated in Appalachian regions where there are higher rates of depression and fewer mental health providers, making them vulnerable to poorer health outcomes (Heisler, 2018). The NAMI (2022) suggests that stigma surrounding mental illness may also limit access to mental health care. The current study examined regional perceptions of health and access to mental healthcare, as well as usage and stigma. Participants ($N = 857$) were primarily Appalachian ($n = 591$) and Caucasian ($n = 705$). They completed online surveys related to mental and physical health, access to care, general and self-stigma. Results revealed participants from Northern Appalachia rated their mental and physical health as better than other regions; Mult. $F(6, 863) = 18.23$, $p < 0.001$, $\eta^2 = .122$. Differences in perceived access to mental health care throughout the region were also found, $\chi^2(24, N = 879) = 116.99$, $p < .001$ (e.g., Northerners have more access to private insurance than expected, Central has more access to VA services, South Central were unsure about their access). When examining mental health usage, fewer than expected Northerners had visited a mental health provider, $\chi^2(6, N = 860) = 21.158$, $p = 0.002$. Finally, there was a significant effect of region on both general stigma and self-stigma; Mult. $F(6, 850) = 27.97$, $p < 0.001$, partial $\eta^2 = .165$. Participants from the North Central and Central Appalachian regions displayed higher levels of general mental health stigma compared to the South Central, Northern, and non-Appalachia regions. Participants from the Northern, North Central, and Central regions of Appalachia reported higher levels for self-stigma when compared to those outside Appalachia and in South Central Appalachia. The present study suggests there are regional discrepancies within Appalachia in relation to perceived health, mental healthcare use, perceived access to care, and stigma surrounding using mental health resources. This suggests that health beliefs and stigma may be possible contributing factor to lower levels of mental health service usage and poorer mental health outcomes. Future research is warranted to determine if these regional differences influence physiological health outcomes.

24) Abstract 605

EVERYDAY DISCRIMINATION IN ASSOCIATION WITH PERCEIVED HEALTH SATISFACTION: RESULTS FROM THE HEALTH AND RETIREMENT STUDY

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Aim: Higher levels of discrimination are associated with poorer health behaviors and greater risk for disease. Little is known about whether perceived health satisfaction is associated with discrimination as a potential explanation for the impact on health behavior. To address this gap, our study aimed to understand the effect of discrimination on overall perceived health satisfaction.

Methods: Data are from adults surveyed in 2016 of the Health and Retirement Study (HRS), a longitudinal, nationally representative study of U.S. adults aged 18 and over. Psychosocial measures (i.e. everyday discrimination and health satisfaction) were examined among a subsample of participants who completed the 2016 leave-behind questionnaire (n=6,217). A weighted generalized linear regression model was performed to estimate the association between everyday discrimination and perceived health satisfaction. The assumption of normality was assessed using the Shapiro & Wilk statistical test.

Results: Of adults who completed the HRS leave behind questionnaire, greater discrimination was associated with lower perceived health satisfaction. Results of the regression indicate that discrimination explained 4% of the variation in overall perceived health satisfaction ($F(1,1)=244.95, p<0.001$).

CONCLUSION: Preliminary crude findings suggest that everyday discrimination is inversely associated with perceived health satisfaction. Future research will explore potential confounding variables and effects of interaction within groups of race and ethnicity.

25) Abstract 140

IS EMODIVERSITY ASSOCIATED WITH LAPSE AMONG AFRICAN AMERICAN SMOKERS TRYING TO QUIT?

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Background: Smoking is the leading preventable cause of chronic disease, increasing risk for cancer, cardiovascular disease, and overall mortality. Although most smokers want to quit, most quit attempts are unsuccessful. Identifying protective factors against lapse risk is imperative for promoting successful quit attempts. Emodiversity (the experience of having a rich and diverse emotional life) has been associated with better health and wellbeing outcomes, as a diverse array of emotions may facilitate successful adaptation to one's environment. Although it is possible that emodiversity may facilitate a successful quit attempt by affording the emotional repertoire to deal with the challenges of quitting, cessation attempts in themselves are stressful and may change emodiversity. To date, however, no studies have examined whether emodiversity changes during a quit attempt, or if emodiversity protects against smoking and lapse. We hypothesized that emodiversity would decrease pre to post-quit, and that positive and negative emodiversity would be associated with lower smoking pre-quit and lower lapse post-quit.

Method: Data are from the Break Free II study, which incorporated a 14-day ecological momentary assessment component to examine emotion and smoking lapse pre- (days 1-4) and post-quit (days 5-14). Black and African American smokers (N=254) participated in the study (ages 18-81, 50% female, 64% reported household incomes of <\$25k). Positive and negative emodiversity were calculated from 23 emotion items using Simpson's index.

Results: Changes between positive or negative emodiversity were not significant pre to post-quit, thus we collapsed emodiversity measures across the assessment period. There were significant interactions between positive (but not negative) emodiversity and quit period. Positive emodiversity was strongly associated with higher odds of smoking pre-quit (OR 11.34, 95% CI: 6.74, 19.08) and higher odds of lapse at post-quit (OR 2.36, 95% CI: 1.42, 3.93).

Discussion: Contrary to expectations, more diverse positive emotions are robustly associated with greater odds of smoking prior to a quit attempt and greater risk of lapse during a quit attempt. Results are consistent with previous work showing associations between positive emotion and addiction, and suggests that momentary positive emodiversity may constitute a risk for smoking lapse.

26) Abstract 594

TIKTOK USE AND ADDICTION ARE RELATED TO IMPAIRED MENTAL HEALTH OUTCOMES

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Social media has been widely studied for its biopsychosocial impacts on users (Dailey et al., 2019). TikTok, a unique platform, has revolutionized content sharing by featuring short video clips, including soundtracks and open captions, making the posts highly accessible/immediately rewarding for consumers (Montag et al., 2021). TikTok amassed more than 465 million users by 2020; 62% are a young audience between the ages of 10-29 (Statista, 2022). A lack of research on the biopsychosocial impacts of TikTok exists, but studies have found that TikTok users use the platform in uniquely risky ways, such as for anxiety relief (Gu et al., 2021) and as an avenue to self-diagnose of mental health conditions (Gilmore et al., 2021). According to content analysis (Basch et al., 2022), nearly half of the assessed TikTok content reported or expressed symptoms of mental distress. While this open discussion of mental health may increase/improve awareness, it also has the potential to put vulnerable users at risk. Therefore, it was predicted that TikTok users would report worse mental health than non-users. An online survey was administered in the spring of 2022 to a snowballing convenience sample. Questions investigating mental health (stress/anxiety/depression) and TikTok use/addiction were completed by 287 individuals. Participants were primarily female (68.6%), 18-25 (70%, M = 29.45), and students (62.4%). Results of the study indicated that there was a significant effect of TikTok use on the DASS scale, $F(1, 284) = 9.190, p = .003$, partial $\eta^2 = .031$, when using age as a covariate. As expected, TikTok users scored higher on the DASS ($M = 5.477, SE = 0.196, 95\% CI [5.091, 5.864]$) compared to nonusers ($M = 4.523, SE = 0.231, 95\% CI [4.069, 4.978]$). Additionally, there was a correlation between TikTok addiction and mental health, $r(287) = .367, p < .001$. Findings suggest that TikTok use is associated with worse mental health when accounting for age, supporting previous research on the potential risk of distress in social media users. Additional research is needed to elucidate the link between TikTok use/addiction and impaired mental/physical health. Future research investigating how consumers are using TikTok (e.g., entertainment, information, diagnosis, escapism) and whether or not the purpose behind use impacts effects on emotional and physical health are warranted.

27) Abstract 644

MIXED METHODS EVALUATION OF REASONS FOR REFERRAL AND RATES OF TESTING FOR HIV AMONG SUBSTANCE ABUSE DISORDER PATIENTS AT AN URBAN OUTPATIENT PUBLIC CLINIC.

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Background: Bridge Clinic, located at Zuckerberg San Francisco General Hospital is an outpatient clinic that treats the full spectrum of substance use disorders. Researchers had not previously conducted an assessment of reasons for referral for HIV testing. The purpose of this research was to examine the frequency of HIV testing among substance use patients at Bridge clinic. **Methods:** Using mixed method analysis, this study analyzed 148 patients between January 2021 to July 2022 and interviewed 5 providers to assess potential promoters for and barriers to testing. **Results:** Of those who were HIV negative and eligible to be tested, 63% were tested for HIV and 37% were not tested. Different protocols were found among providers regarding referral for HIV testing. Common reasons for referral included sexuality and substance use. **Conclusion:** This study examines the rate at which Bridge substance use clinic attendees are referred for routine HIV testing and common reasons for referral. Further studies are needed to explore a larger patient population and to examine the effect of COVID-19 on referral rates.

29) Abstract 414

A PATIENT-CENTERED INTERVENTION PLATFORM TO SUPPORT HEALTH BEHAVIOUR CHANGE AND THE CONTINUUM OF CARE IN PATIENTS WITH CORONARY ARTERY DISEASE: THE TIMELY RANDOMIZED CONTROLLED TRIALS

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Background: Despite substantial evidence showing the health benefits of cardiac rehabilitation (CR) post cardiac event referrals and adherence to CR across Europe remain low. This has hampered the long-term benefits (e.g. improved quality of life and lower mortality rates) of CR. The TIMELY platform includes artificial intelligence (AI), Natural Language Processing (NLP), and behavior change theory-driven support to increase adherence and long-term benefits of CR.

Objectives: To evaluate the efficacy and acceptability of the TIMELY platform.

Methods: Cardiac patients (with stable coronary artery disease and who underwent recent (< 10 weeks) percutaneous coronary intervention or experienced recent (< 12 weeks) myocardial infarction) will be recruited at three study sites (Elisabeth-TweeSteden Hospital, Tilburg, The Netherlands (N=120); Klinik Koningsfeld, Ennepetal, Germany (N=120); Servizo Galego De Saude; Santiago de Compostela, Spain (N=120)). Per site, patients will be randomized (1:1) to either the intervention condition or care as usual.

Results: The AI supported TIMELY intervention (duration: 6 months) will include adaptive and highly personalized chatbot-assisted lifestyle coaching (physical activity, diet, stress management, medication adherence, smoking cessation) informed by demographic, biomedical / physical, psychosocial,

and behavior change data. Questionnaire data will be collected at baseline, 3-, 6-, and 12-months post enrollment. Ambulatory device data (physical activity, ECG, blood pressure) will be collected during the intervention, as well as mood states and psychosocial factors.

Conclusions: The TIMELY platform integrates new computational technologies with effective behaviour change techniques in order to increase the uptake of the TIMELY program so as to improve long-term outcomes of cardiac patients.

30) Abstract 681

CHANCES OF PREDICTING THE COURSE OF THERAPY IN MENTAL DISORDERS

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Introduction

Depression is a common but severe mental disorder with a notable chronification risk. Even though adequate treatment leads to high remissions rates, a substantial portion of patients show a chronic course. Therefore, a prediction of chronification risk early in treatment would be valuable to adapt treatment strategies adequately.

Objective of the study was the derivation of a short screening tool to predict chronification risk on an individual level by therapy response and symptom severity four months after entrance in health care services.

Methods

In a longitudinal design, 208 patients ($n=102$ psychosomatic rehabilitation inpatients, $n=45$ psychotherapeutic outpatients clinic, $n=62$ psychiatric outpatients psychiatric practice; 47 ± 11 year; 75% female) were included at admission to treatment site (baseline) and measured three times (1, 4, 7 months) after baseline. Comprehensive assessments included psychometric and biological measurements. In a subsample of $n=66$ complete cases, baseline measures were used for three different prediction models (psychometric measures, biological measures, and both combined) to classify low- and high-risk patients ($BDI < / \geq 14$ points; (1)) and to predict the course of depression at 4-months follow-up.

Results

Eight psychometric variables were derived as most predictive for a 4-months prognosis. Prognosis error (RMSE) was 7.03 in the development sample and 7.39 in the validation sample. The ROC curve showed an apparent AUC of 0.89 (95%CI: 0.80-0.97). The Youden's Index cut-off in the development sample was 15 with a sensitivity of 0.89, specificity of 0.75, PPV of 0.89 and a NPV of 0.75.

Discussion

We derived a screening tool (DEPRI) with eight variables that are predictive for chronification risk in depression by classifying patients into a low vs. high risk group at therapy start. Chronification risk was defined as an ongoing depressive episode four months after baseline, indicated by the BDI. A prognosis error (RMSE) of 7.03 implies that an individual 4-months prognosis of depression severity varies by 7 points on average on the 0-to-63-point BDI scale. In addition, the RMSE of 7.39 found in the validation sample indicates a robust model. Thus, this pattern set might be a promising short screening tool for the estimation of the therapy response and possible individual therapy needs.

EFFECTIVENESS OF BEHAVIOR CHANGE TECHNIQUES IN EHEALTH INTERVENTIONS FOR CAD PATIENTS. A SYSTEMATIC REVIEW

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Background: Behavioral risk factors are major determinants of coronary artery disease (CAD) morbidity, recurrent cardiovascular events, and rehospitalization. Modern health technology can assist in improving CAD patients' health behavior through eHealth interventions while simultaneously reducing costs and increasing time efficiency of healthcare.

Objective: To establish effective behavior change techniques (BCT) in eHealth applications that focus on six primary health behaviors relevant to CAD.

Methods: A systematic review was conducted using PRISMA guidelines. Databases (CINAHL, PubMed, PsychINFO, and MEDLINE) were searched from 2011 up until July 2021. Search terms related to CVD, eHealth, physical activity, medication adherence, smoking cessation, dietary behavior, sleep improvement, and perceived stress reduction were used. Studies focusing on the effectiveness of eHealth interventions on behavior change aimed at patients with CAD were included. BCTs used in each intervention were coded following the Behavior Change Taxonomy. BCTs were considered effective if at least two more interventions resulted in behavior change compared to not.

Results: A total of 82 studies were included in this systematic review. The BCTs eliciting positive changes in physical activity were goal setting, action planning, biofeedback, instructions on how to perform the behavior, self-monitoring of behavior, and feedback on behavior. As for medication adherence, only social support could be considered a facilitator. Instructions on how to perform the behavior were effective in successful smoking cessation but only to a small extent. No discernible differences were observed between BCTs in studies that targeted dietary habits, sleep and stress reduction. Figures 1a to 1f show the BCTs used in interventions for each health behavior.

Conclusions: Several BCTs have been shown to elicit positive health behavior changes in the setting of eHealth interventions for patients with CAD, especially in physical activity. Positive effects in other health behaviors were less common and some of the differences were small. In general, the effects between studies varied widely as BCTs were implemented through different applications. Future studies are needed to investigate the effectiveness of BCTs in eHealth interventions in patients with CAD and other cardiovascular diseases.

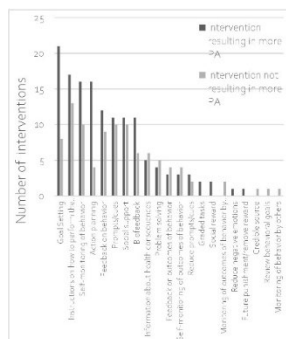


Figure 1 BCTs used in physical activity interventions.

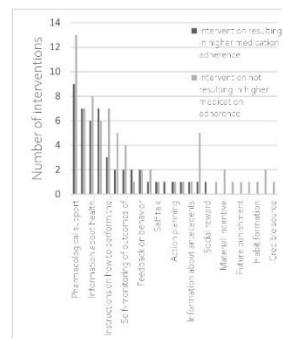


Figure 2 BCTs used in medication adherence interventions.

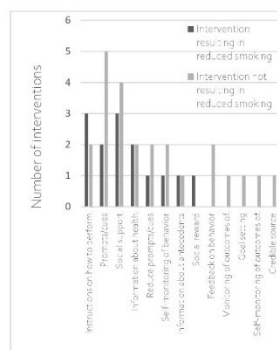


Figure 3 BCTs used in smoking cessation interventions.

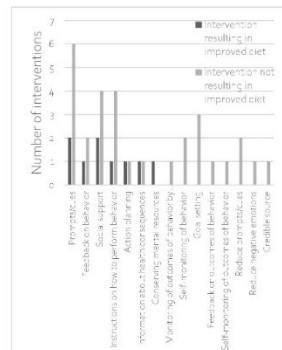


Figure 4 BCTs used in dietary behavior interventions.

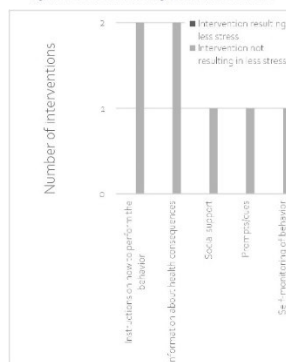


Figure 5 BCTs used in stress interventions.

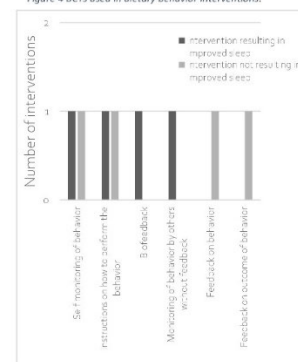


Figure 6 BCTs used in sleep interventions.

32) Abstract 703

FEASIBILITY OF MORNING LIGHT EXPOSURE AND EVENING LIGHT AVOIDANCE TO IMPROVE SLEEP FOLLOWING ACUTE CORONARY SYNDROME: THE SLEEPWELL PILOT AND FEASIBILITY STUDY

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Background

Sleep disturbances are common after acute coronary syndrome (ACS) and may contribute to worsened outcomes. Short sleep duration after ACS is linked to increased risk of

hospital readmission and recurrent cardiovascular disease events or mortality. Thus, improving sleep may improve patients' prognosis. Light influences the circadian system and exposure can be leveraged to improve sleep-wake regulation. We test the feasibility, acceptability, and appropriateness of a circadian-based intervention aimed to optimize daily light exposure to improve sleep in patients with post-ACS sleep disturbances in an open-label pre-post study.

Method

The 4-week intervention consisted of daily bright light therapy (via a wearable light visor for 30 minutes after awakening) and reduced exposure to short-wavelength light (via orange-tinted frames worn from 20:00 to bedtime). Patients also received standard sleep hygiene education. Eligible patients had ACS within 3 months and insomnia symptoms based on the Insomnia Symptoms Questionnaire and/or reported frequently (at least 3-4 times/week) experiencing short sleep (≤ 6 hours/night). This was a single-arm open-label trial enrolling $n=5$ to test feasibility (primary) and sleep (secondary) outcomes.

Results

Out of 26 patients approached, 5 enrolled and 4 completed. No side effects, adverse events, or unanticipated problems were reported. Ratings on the 4-item Intervention Acceptability, Appropriateness, and Feasibility measures, respectively, were ≥ 4 (indicating sufficient level) in 2 patients, 3 patients, and 3 patients. Ratings on the 10-item System Usability Scale were ≥ 68 in all 4 patients. Scores on the Insomnia Severity Index from baseline to 4-week follow-up showed a response to treatment (i.e., score change ≥ 8) in 3 patients. Insomnia symptoms showed remission (i.e., score < 8) in 2 patients. Global scores on the Pittsburgh Sleep Quality Index improved in all 4 patients.

Discussion

The intervention was found to be safe and feasible, and associated with improved sleep. We will further test feasibility and efficacy in a follow-up pilot randomized clinical trial consisting of the intervention plus sleep hygiene education vs. sleep hygiene education alone. Subsequent work should determine mechanisms of action (e.g., changes in circadian phase markers) and include objective measures of intervention adherence.

33) Abstract 251

A LONGITUDINAL INVESTIGATION OF DIFFERENT FORMS OF BODY DISSATISFACTION AND INFLAMMATORY HEALTH

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Chronic stress is associated with elevated inflammation, which is, in turn, predictive of various negative health consequences (e.g., cardiovascular disease). In recent years, body dissatisfaction, generally, has been investigated as a form of chronic stress and has been shown to negatively influence markers of inflammation. However, different forms of body dissatisfaction have not been explored in relation to inflammation. The aim of this study is to investigate possible longitudinal relationships between different forms of body dissatisfaction in emerging adulthood (baseline) and the inflammatory marker C-reactive protein (CRP) at 14-year follow-up. Data were drawn from a subset of individuals ($N = 3824$) at Waves III and V of Add Health— a national longitudinal database. Body dissatisfaction-type was measured via weight goals in emerging adulthood: drive for thinness (DFT) ($N = 1407$), drive for muscularity (DFM) ($N = 490$), maintenance ($N = 588$), or not currently doing anything about weight ($N =$

1339). CRP was collected via a blood sample during a home-visit at 14-year follow-up. Covariates included age, gender, and Wave V body mass index (BMI). One-way ANCOVA revealed that those in different weight goal groups had different levels of CRP 14 years later ($F(3, 3824) = 24.066, p < .001$) after adjusting for age and gender. Post-hoc analyses showed those with the DFT ($M = 5.00$) had higher CRP than those with a DFM ($M = 2.35$), those striving for maintenance ($M = 3.10$), and those not doing anything about their weight ($M = 3.56$). Additionally, those with a DFM had lower CRP than those not doing anything about their weight. However, with BMI as a covariate, differences in follow-up CRP across weight goal groups became non-significant ($p = .491$). Of note, although all weight goal groups showed increases in BMIs at follow-up, those with a DFT had a higher BMI than other groups at both baseline ($F(3, 14307) = 918.058, p < .001$) and follow-up ($F(3, 4465) = 180.506, p < .001$), and baseline BMI predicted follow-up CRP ($p < .001$). Thus, the onset of higher BMI vs. the onset of body dissatisfaction in relation to inflammatory health still needs to be disentangled. Future research should be conducted to parse out the timing of onset to draw more precise conclusions about the pathways from body dissatisfaction and higher BMIs to elevated inflammation.

34) Abstract 252

THE RELATIONSHIP BETWEEN PRENATAL SLEEP QUALITY, STRESS, AND MATERNAL FETAL ATTACHMENT

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Prior studies highlight sleep as essential for pregnant women to support a healthy pregnancy. Research finds that poor sleep quality is often associated with reduced mental health, specifically in areas of depression and anxiety, which are known to increase stress. Elevations in these areas also decrease attachment between the mother and the infant. This decline is vital because decreased attachment can affect the child's cognitive and emotional development post-partum. Unfortunately, an alarming number of pregnant women experience diminished sleep quality in their third trimester of pregnancy, which may put maternal-fetal attachment at risk. This study investigated whether prenatal stress influenced the relationship between sleep quality and maternal-fetal attachment during the third trimester of pregnancy. With a sample of 90 low-income pregnant women (71% Latina, 29% non-Latina, 30 weeks gestation), participants' sleep quality was measured using the Pittsburgh Sleep Quality Index Scale, their stress with the Perceived Stress Scale, and their maternal-fetal attachment with the Maternal Fetal Attachment Scale. Regression analyses showed that stress significantly moderated the relationship between pregnant women's sleep quality and maternal-fetal attachment. Specifically, among women reporting less stress during pregnancy, those with better sleep quality reported feeling more attached to their fetus compared to women reporting more stress during pregnancy ($R^2 = .12, \beta = -.15, p = .01$). Interestingly, for women reporting more stress and good sleep quality during pregnancy, their maternal-fetal attachment remained low. These findings suggest that there may be other co-morbidities, such as anxiety and depression, which may hinder the attachment between mother and fetus. Future interventions should consider screening for co-morbidities, such as stress, depression, and anxiety, when using sleep as a catalyst for maternal-fetal attachment.

35) Abstract 257

EARLY SELF-REGULATION SKILLS AND HEALTHY LIFESTYLE MAINTENANCE DURING THE TRANSITION TO ADULTHOOD: A PROSPECTIVE STUDY

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Background: Maintaining a healthy lifestyle during the transition to adulthood can mitigate cardiometabolic disease risk later in life but is often difficult to achieve. Studies on individual health behaviors (e.g., smoking, physical activity) find that early self-regulation skills help youth avoid engaging in unhealthy behaviors and start or maintain engagement in healthy ones, but less work has considered longitudinal associations with composite measures of healthy lifestyle. This prospective study evaluated the impact of early self-regulation skills on healthy lifestyle maintenance defined using 5 biobehavioral outcomes assessed repeatedly across the transition to adulthood. We hypothesized better self-regulation would be related to a greater likelihood of maintaining a healthy lifestyle, and that cumulative associations would be apparent across different regulatory domains. **Methods:** Data came from the Panel Study of Income Dynamics' Child Development and Transition to Adulthood Supplements (N=3,563). In 2002 (ages 5-19 years), 4 self-regulation domains (emotion, attention, behavior, and social regulation) were assessed using parent responses to the Behavior Problems Index and Positive Behavior Scale. In 2005-2019, participants ages ≥18 years completed biobehavioral surveys biennially through age 28. Maintaining a healthy lifestyle was defined as having optimal levels of ≥4 self-reported outcomes across all available follow-up assessments (range=1-6): body mass index, sleep, smoking, physical activity, and alcohol use. All associations were evaluated using logistic regression. **Results:** Across each domain, a 1-SD higher self-regulation score was comparably associated with healthy lifestyle maintenance, even after adjusting for baseline age, sociodemographic characteristics, and health-related covariates ($OR_{Emotion}=1.42$, 95% CI=1.02, 2.00; $OR_{Attention}=1.39$, 95% CI=1.05, 1.81; $OR_{Behavior}=1.33$, 95% CI=1.03, 1.71; $OR_{Social}=1.32$, 95% CI=0.95, 1.84). Associations were also evident when considering the number of self-regulation domains in which individuals had high levels (≥75th percentile; range 0-4) ($OR_{Linear\ trend}=1.17$, 95% CI=1.03, 1.32). **Conclusions:** Self-regulation skills are early assets related to maintaining a healthy lifestyle during the transition to adulthood. Future research should consider their enduring impact on chronic disease risk later in life.

36) Abstract 287

THE ENDURING EFFECTS OF EARLY LIFE ADVERSITY ON THE DYSREGULATION OF THE STRESS AWAKENING RESPONSE AMONG DEPENDENT TOBACCO USERS

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Early life adversity (ELA) is associated with stress system dysregulation during adulthood. Adults with ELA are more likely to smoke to cope with stress; however, chronic smoking may exacerbate pre-existing ELA-related stress system dysregulations. The aim of the present study was to determine if ELA interacts with adult smoking status to influence the cortisol awakening response (CAR). Smokers were randomly

assigned to 24-hr withdrawal or ad libitum smoking. A nonsmoking group was also included. Groups were subdivided into low and high ELA exposure based on the number of ELA events: Ad Lib smoking-low ELA (n=25), Ad Lib smoking-high ELA (n=12), smoking withdrawal-low ELA (n=29), smoking withdrawal-high ELA (n=26), nonsmoker-low ELA (n=27), and nonsmoker-high ELA (n=12). To assess CAR, saliva samples were collected immediately upon awakening as well as 30 and 60 minutes after awakening. The following measures of CAR served as the DVs: peak reactivity: change in cortisol level from awakening to 30 minutes after awakening (peak cortisol reactivity), and AUC_i: area under the curve with respect to increase. Two-way ANOVAs with smoking status and ELA as IVs were conducted separately for each CAR measure (DV). Results indicated a significant main effect of smoking status and a significant interaction between smoking status and ELA level on peak reactivity and AUC_i. Post-hoc tests indicated that AUC_i was significantly higher among ad lib-high ELA smokers compared to the withdrawal-high ELA and the ad lib-low ELA groups. The overall finding was that smoking status interacted with ELA history such that smoking resulted in an exaggerated cortisol increase during CAR among smokers with a history of ELA while smoking withdrawal among those with a history of ELA was associated with a blunting of the cortisol-related increase that typifies the CAR response. The results of the present study highlight a previously unobserved relationship between ELA and smoking status. The implications of these findings suggest that individuals with a history of ELA should be aware that smoking may further exacerbate underlying HPA-related stress system dysregulations.

39) Abstract 328

THE ROLE OF DISTRESS TOLERANCE IN THE RELATIONSHIP BETWEEN INTRUSIVE THOUGHTS AND PERCEIVED COGNITIVE ABILITIES IN OLDER WOMEN WITH BREAST CANCER

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Introduction: Cancer-related cognitive impairment (CRCI) is a common complaint among women with breast cancer (BC) and may be especially challenging in older patients. Past research has shown the link between psychological distress and CRCI, and suggests distress tolerance as a potential protective factor for CRCI in this population. This study sought to understand whether lower distress tolerance helps explain the relationship between BC-specific distress (intrusive thoughts), and perceived cognitive abilities (PCA) among older women initiating BC treatment.

Methods: Older women (≥ 50yrs) recently diagnosed with Stage 0-III BC who enrolled in a virtual cognitive-behavioral stress management trial completed a baseline assessment after surgery, but prior to starting adjuvant treatment. We assessed subjective cognitive functioning using the Functional Assessment of Cancer Therapy-Cognitive Functioning PCA subscale, intrusive thoughts related to their BC using the Impact of Event Scale-Intrusion Subscale, and distress tolerance using the Distress Tolerance Scale. We looked at baseline associations to test whether the effect of intrusive thoughts on PCA operated through distress tolerance, controlling for age using PROCESS macro in SPSS.

Results: The majority of women (n=87) were White (90%) and non-Hispanic (61%) with an average age of 61.3 years (SD=7.87). There was a significant direct effect of intrusive thoughts on PCA ($B=-.24$, $SE=.12$ $p=.04$). Additionally, higher

distress tolerance was associated with better PCA ($B=.20$, $SE=.05$ $p<.01$). There was a significant indirect effect of intrusive thoughts on PCA through distress tolerance ($B=-.11$ $SE=.06$, 95% CI [-0.23, -0.01]).

Conclusion: Women who reported greater intrusive thoughts reported worse PCA, and distress tolerance partially explained this relationship. This study suggests that women with greater intrusive thoughts related to their BC may have less ability to tolerate distress, contributing to diminished cognitive functioning. Future interventions should target intrusive thoughts and enhance distress tolerance skills in order to mitigate stress effects on CRCI.

40) Abstract 331

LONG TERM BULLYING AND PSYCHOLOGICAL DISTRESS AMONG ADOLESCENTS IN THE FRAGILE FAMILIES STUDY (FFS)

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BACKGROUND: Bullying is a common psychosocial stressor experienced by children and adolescents that is associated with higher risk of serious psychological distress. However, less is known about the protective factors that may buffer this association within school settings. Thus, the current study examined the association between prior-, recent-, and long-term peer bullying with psychological distress (depression and anxiety) and examined school connectedness and extracurricular involvement among adolescents as protective factors. **METHODS:** Data from 818 adolescents (aged 15.4 ± 0.47 years; 48% Black; 51% female) from the FFS were analyzed. Peer bullying was assessed and self-reported at age 9 and 15 years using the Peer Bullying Scale. Prior-bullying was defined as bullying at age 9 only, recent-bullying as bullying at age 15 only, and long-term bullying as bullying experiences in both years. Depression and anxiety were measured at age 15 using the Center for Epidemiologic Studies Depression Scale and the Brief Symptom Inventory, respectively. School connectedness and extracurricular involvement were queried at age 15 using the 4-item FFS School Connectedness scale and the 6-item Adolescent Extracurricular and Community Involvement Scale, respectively. Multivariable linear regression was used to measure associations between key study variables. **RESULTS:** A total of 41.3% of adolescents had no experiences with bullying, 40.6% with prior bullying, 6.1% with recent bullying, and 12% with long-term bullying. Prior- ($B: 0.99\pm0.28$, 95%CI:0.44, 1.55), recent- ($B:1.77\pm0.55$, 95%CI:0.70, 2.84), and long-term ($B: 2.26\pm0.42$, 95%CI: 1.44, 3.08) bullying were each associated with higher anxiety scores when adjusting for sociodemographic and school-environment characteristics, however, school connectedness and extracurricular involvement were not significant moderators ($p>0.05$). Prior-, recent-, and long-term peer bullying were not associated with higher depression scores ($p>0.05$). **CONCLUSION:** Our findings suggests that past, present, and long-term cumulative experiences of bullying are associated with heightened anxiety among youth. Given the increased number of social stressors encountered at school, consideration of other school-related protective factors are

needed to buffer the effects of bullying on adolescent mental health.

41) Abstract 335

CARDIOMETABOLIC AND MENTAL HEALTH AT AN ACADEMIC INSTITUTION

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Rates of depression in the US have jumped dramatically over the past several years (8.7% in 2017-2018 to 14.4% in 2020; Daly et al., 2021). Previous research has shown that depression is associated with stress (Hammen, 2005), quality of life (QoL; Sivertsen et al., 2015), and physiological outcomes (Shin et al., 2008) in specific populations. The purpose of this study was to examine depression and its impact on physical and mental health in an understudied academic population. Individuals ($N = 37$) were recruited from a small liberal arts university in the Southeastern US. Participants, mean age 47.53 years ($SD = 10.20$), primarily identified as female ($n = 20$), as well as faculty ($n = 20$). They completed questionnaires on depression, anxiety, stress, and QoL, as well as had biological indicators taken. Screenings revealed that females trended towards worse mental health outcomes but scored better on indicators of heart health than males; hence, sex was used as a covariate. There were no differences based on job classification. Of these participants, 9 (24.3%) met the conditions for having a probable presence of depression and 27 did not. Results revealed that there was a significant effect of depression on mental health and QoL; Mult. $F(3, 30) = 4.331$, $p = .012$, partial $\eta^2 = .302$, and Mult. $F(8, 26) = 3.098$, $p = .014$, partial $\eta^2 = .488$, respectively. Physiological (cholesterol levels) and measured (BMI and waist-to-hip ratio) indicators of heart health were not significant; Mult. $F(8, 18) = 1.640$, $p = .182$, partial $\eta^2 = .422$ and Mult. $F(2, 32) = 1.150$, $p = .329$, partial $\eta^2 = .067$. As expected, depressed participants had higher levels of perceived stress ($M = 20.85$, $SE = 1.96$, 95% CI [16.86, 24.83]) and anxiety ($M = 21.61$, $SE = 1.69$, 95% CI [18.17, 25.05]) compared to individuals without ($M = 13.38$, $SE = 1.06$, 95% CI [11.22, 15.54] and $M = 15.25$, $SE = 0.92$, 95% CI [13.39, 17.12]). Depressed participants also fared worse on the SF36 subscales: physical and social functioning, fatigue, well-being, pain, and general health. Overall, these findings suggest increased rates of depression in academia are associated with worse self-reported health and QoL outcomes, but not biological markers of health. Future longitudinal research is warranted to determine if depression rates remain elevated and if physiological health outcomes decline in these participants.

42) Abstract 336

PSYCHOLOGICAL DISTRESS AND STRESS REACTIVITY IN WOMEN WITH TAKOTSUBO SYNDROME

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Takotsubo syndrome (TS) is an acute, reversible systolic heart failure often triggered by stress in post-menopausal women. Psychological distress has been associated with altered stress reactivity in healthy populations, but no study has examined this relationship in women with TS.

This is an exploratory analysis of data collected for an ongoing prospective study of patients with a new validated diagnosis of TS (Mayo clinic criteria). Because of the small sample size, our goal was to examine the direction of each association and effect sizes, rather than hypothesis testing. We expected that TS women with higher (vs. lower) symptoms of psychological distress would show an altered blood pressure (BP) response to stress.

At baseline, participants self-reported symptoms of depression and anxiety (Hospital Anxiety and Depression Scale; >7 =high), PTSD (PTSD Checklist-Civilian; >30 =high), and stress (Perceived Stress Scale-10; median split). At a second visit 2 weeks later, participants underwent a standardized mental stress protocol. BP (mmHg) was measured every 5 minutes during rest (5 minutes), mental stress (10 minutes), and recovery (20 minutes) periods according to standard procedures. Stress reactivity was calculated as the area under the curve (AUC_i) of systolic (SBP) and diastolic (DBP) over 7 measurements. Differences in SBP and DBP AUC_i between those with high vs. low scores on each measure were analyzed using ANCOVAs (controlling for age).

Participants ($N=22$) were older (65 ± 8.8 years), mostly white (91%) women with a new TS episode. For SBP, lower reactivity was observed in participants with high (vs low) symptoms of depression ($p=.06$, $\eta_p^2=.20$), anxiety ($p=.20$, $\eta_p^2=.09$), PTSD ($p=.47$, $\eta_p^2=.13$), and stress ($p=.68$, $\eta_p^2=.18$), with medium-to-large effect sizes. Similarly, for DBP, lower reactivity was observed in those with high (vs low) symptoms of depression ($p=.39$, $\eta_p^2=.04$), anxiety ($p=.55$, $\eta_p^2=.02$), stress ($p=.25$, $\eta_p^2=.08$) and PTSD ($p=.03$, $\eta_p^2=.25$), with small-to-large effect sizes.

These findings suggest that greater psychological distress is associated with a blunted response to acute stress in women with TS. This finding, which is entirely novel in the TS literature, needs to be confirmed in larger studies. Future research should examine the clinical implications of blunted reactivity to stress in women with TS and high psychological distress.

43) Abstract 356

THE EFFECTS OF A BODY SCAN MEDITATION ON MOOD, STATE MINDFULNESS AND CARDIOVASCULAR ACTIVITY IN PREGNANCY: A VIRTUAL LABORATORY STUDY

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Mindfulness-based interventions have been generally shown to be useful as preventative treatments for both psychological and cardiovascular disorders of pregnancy. However, little work has examined the in-the-moment effects of mindfulness meditation on mood and cardiovascular function in pregnancy. In addition, trait mindfulness has been proposed as a moderator of the effects of interventions, though this question has yet to be examined using a short-term intervention in this period. The present study investigated the acute effects of a body scan meditation on mood, heart rate (HR) and heart rate variability (HRV) in pregnant women completing an online, within-subjects controlled trial. Forty-three pregnant women were recruited online through pregnancy-related Facebook groups. At baseline, participants completed the Five Facet Mindfulness Questionnaire as a measure of dispositional mindfulness. In virtual laboratory visits approximately one week apart, participants were asked to follow a guided body scan

meditation or to listen to an audiobook. In the pre- and post-intervention periods, participants obtained measures of HR and HRV using a cellular phone application that converts the camera to a photoplethysmograph. They also provided ratings of state mindfulness and positive and negative affect.

Repeated measures analyses showed that state mindfulness increased equally in both conditions. The more mindful mothers seemed to benefit more from both relaxing activities in terms of HRV, as they experienced greater decreases in low frequency HRV and greater increases in high frequency HRV. On the other hand, the less mindful participants reported a greater decrease in negative affect post-activity. In general, women experienced a greater reduction in HR in the meditation condition than the audiobook condition. These results suggest that a brief, mindfulness-based body scan meditation may have beneficial effects on cardiovascular health and mood, though these effects may be moderated by trait mindfulness. Further research should be conducted to determine the duration of these effects, particularly in more diverse samples. Also, while there were several interesting associations with mindfulness, causal relationships with variables such as heart rate remain unclear and require further research.

44) Abstract 373

CARDIOMETABOLIC RISK IS ASSOCIATED WITH DAYTIME SLEEPINESS, INDEPENDENT OF NIGHTLY SLEEP CHARACTERISTICS, IN HEALTHY MIDLIFE ADULTS

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Sleep related factors, including nightly sleep characteristics and daytime sleepiness (DS), may be bidirectionally related to cardiometabolic risk (CMR), a cluster of risk factors known to predict the development of type II diabetes and cardiovascular disease. While CMR has been shown to be associated with DS, these effects have not been examined using momentary self-report measures of sleepiness. Moreover, the extent to which these effects may be accounted for by objective sleep characteristics is unknown. Finally, the extent to which CMR may moderate the impact of daily activities on DS has not been explored. We examined these questions in the context of an ambulatory assessment study.

452 healthy, employed, middle-aged adults (M age = 42.9, 54% female, 22% non-white, shift workers excluded) completed a week-long ambulatory assessment protocol, including hourly self-reports of DS and meal consumption as well as actigraphy-derived measures of nighttime sleep and PA. Participants also completed a fasting blood draw, and anthropometric and blood pressure (BP) assessments. CMR was calculated from BP, glucose, HDL cholesterol, triglycerides, and waist circumference using a composite z score approach. We hypothesized that individuals at higher CMR would experience more DS, on average, and feel sleepier after recent meal consumption and PA than individuals at lower CMR.

In multilevel models adjusted for age, sex, race, education, and correcting for correlated error between adjacent timepoints, greater CMR was associated with greater self-reported DS ($\gamma = 0.123$, $p = .039$). This relationship remained significant after controlling for average sleep duration and sleep efficiency by actigraphy ($\gamma = 0.13$, $p = .036$). Recent meal and caffeine consumption and PA were each associated with lower DS ($\gamma = -0.07$, $p < .001$, $\gamma = -0.12$, $p < .001$, $\gamma = -0.20$, $p < .001$, respectively). Contrary to predictions, those with greater CMR

did not show greater DS after meals, caffeine intake, or bouts of PA. In sum, CMR is associated with DS in healthy midlife adults, and this association is not explained by other key health behaviors including sleep, meals, and physical activity.

45) Abstract 386

AGING, INFLAMMATION, AND SELF-REPORTED HEALTH IN AFRICAN AMERICANS

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Objective. Research has shown that immunosenescence, dysfunctions in the immune system due to aging, can account for older adults' increased susceptibility to medical morbidity and mortality. One aspect of immunosenescence is inflammaging, the increase in systemic inflammation due to aging, which is reflected in high levels of C-reactive protein (CRP) and white blood cell (WBC) count. Previous studies have shown that perceptions of one's health correlate with increased systemic inflammation. Collectively, these associations are understudied among African Americans, who are at greater risk than Whites for cardiovascular disease. In this study, we tested associations between age, CRP, and WBC count. Further, we tested the extent to which elevated CRP, WBC count, and age would predict poorer subjective and objective health. **Method.** Data was derived from the Health among Older Adults Living in Detroit (HOLD) study ($N = 210$, $M = 67.6$ yrs., $SD = 8.5$, range 50 – 89; 73.0% female). Participants donated blood, which was used to assess WBC count and CRP. Participants reported on their chronic health conditions (16 items) and subjective health (one item). Covariates included sex, socioeconomic status, and waist-to-hip ratio. **Results.** Age was significantly negatively associated with WBC count ($r = -0.26$, $p < .001$) and was not significantly associated with CRP ($r = -.10$, $p = .25$). CRP ($\beta = -.21$, $p = .01$), but not WBC count ($\beta = -.08$, $p = .37$) and age ($\beta = .14$, $p = .10$), significantly predicted worse self-reported subjective health in contrast. After controlling for covariates, CRP ($\beta = -.16$, $p = .06$), WBC count ($\beta = -.05$, $p = .57$), and age ($\beta = .03$, $p = .76$) did not significantly predict subjective health. Only age ($\beta = .24$, $p = 0.01$) significantly predicted more chronic conditions [WBC count ($\beta = -.004$, $p = .97$) and CRP ($\beta = .03$, $p = .76$)]. Once controlling for covariates, age ($\beta = .16$, $p = .09$), WBC count ($\beta = -.05$, $p = .61$), and CRP ($\beta = -.01$, $p = .91$) did not significantly predict chronic conditions. **Conclusion.** In our study, age was associated with lower WBC count but not CRP in a sample of middle aged and older African American adults. Higher CRP was associated with worse subjective health ratings, and older age was associated with more chronic conditions; however, these results were no longer significant after controlling for covariates.

46) Abstract 407

PSYCHOLOGICAL ASPECTS OF SEXUALITY IN ADULTS WITH SOCIAL ANXIETY DISORDER: A CROSS-SECTIONAL STUDY

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Sexuality is one of the most natural phenomena in humanity. However, there is, surprisingly, rather scarce research regarding sexuality and its psychological aspects among individuals with social anxiety disorder (SAD).

SAD individuals were recruited for the project "Social Phobia Research" and completed an online version of the German questionnaire "Multidimensional Sexuality Questionnaire" (MSQ; Brenk-Franz & Strauß, 2011). The MSQ has 12 subscales, each consisting of five items. Out of 271 SAD individuals, a final sample of 242 SAD individuals (40.7 ± 13.4 years, 58.7% female) was considered for further analysis after removing cases with too many missing values. No significant differences were found between included and excluded SAD individuals regarding age, biological sex and partnership. Data from a non-clinical sample was derived from Brenk-Franz & Strauß (2011) and served as controls. Inspired by their approach, potential differences among SAD individuals concerning biological sex (female; $n = 142$), current partnership (yes; $n = 110$) and further, comorbid avoidant personality disorder (APD; $n = 167$) were analyzed. Due to SAD symptoms revolving around fear of negative evaluation and feedback from others, SAD individuals should score lower (and for certain scales, higher) than non-clinical controls. No assumptions were made regarding biological sex. We speculated a buffering effect of having a partnership and a strengthening effect of APD on SAD symptoms, which could lead to subscale differences.

One tailed Bonferroni-corrected t -Tests showed significant differences between controls and SAD individuals in all MSQ subscales (Cohen's d .39 – 1.87) except for "self-monitoring". However, one tailed t -Tests for partnership and APD did not withstand Bonferroni-correction. Two tailed Bonferroni-corrected t -Tests based on biological sex revealed that SAD males had higher sexual-preoccupation ($p < .001$, $d = .91$), -consciousness ($p < .001$, $d = .55$), -motivation ($p < .001$, $d = .68$) and self-monitoring ($p < .001$, $d = .47$) than SAD females. To our knowledge, this study is the first one to highlight psychological deficiencies of sexuality of SAD individuals compared to non-clinical individuals. Biological sex seems to further influence certain sexual aspects of SAD individuals. These findings could play an integral role of sexual therapy for SAD individuals.

47) Abstract 411

INTRA-INDIVIDUAL VARIABILITY IN SLEEP AND MENTAL AND PHYSICAL HEALTH OUTCOMES IN SPOUSAL BEREAVEMENT

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Background: Literature examining associations between sleep and health has estimated habitual sleep by averaging repeated measures of sleep parameters. Few studies have focused on day-to-day intra-individual variability (IIV) in sleep. Growing evidence suggests IIV may have detrimental effects on health above and beyond the impact of habitual sleep. In this study, we characterize IIV across several sleep domains in spousal bereavement and examine its association with mental and physical health after adjusting for habitual sleep. **Methods:** Participants were 32 spousally bereaved adults (68.75% female, $M_{age} = 65.59$, [$SD = 10.75$], $M_{days\ since\ loss} = 57.56$ [24.83]) enrolled in the REST to Overcome loss and REduce Risk (RESTore) Study. Sleep parameters included

total sleep time (TST, mins), sleep quality (1-5), and circadian midpoint (midpoint between sleep and wake time in mins) reported in a 7-day sleep diary. Outcomes included scores on the Center for Epidemiologic Studies Depression Scale (CES-D), the Inventory of Complicated Grief (ICG), and the general health, physical functioning and emotional well-being subscales of the 36-Item Short Form Survey (SF-36). Intra-individual standard deviations calculated across 7 days were used as the measure of IIV and included as independent variables in multiple regression models. **Results:** Mean IIV in TST, sleep quality, and circadian midpoint was 72.36 mins (48.05), 0.71 (0.36), and 35.53 mins (22.43), respectively. After adjusting for age, sex, race, education, and days since loss, IIV in TST was significantly associated with poorer general health ($\beta=-0.19$, $p=0.049$) and physical functioning ($\beta=-0.20$, $p=0.040$), only. IIV in circadian midpoint was also associated with poorer general health ($\beta=-0.17$, $p=0.029$) and physical functioning ($\beta=-0.16$, $p=0.043$). Associations remained significant after adjustment for mean values on each parameter, except for the association between IIV in TST and general health which was slightly attenuated ($\beta=-0.19$, $p=0.057$). Sleep quality was not significantly associated with any outcome. **Conclusion:** Greater day-to-day variability in TST and circadian midpoint were associated with poorer general and physical health in spousal bereavement. These findings suggest the importance of examining variability in sleep/circadian measures as a potential correlates of health outcomes in spousal bereavement.

48) Abstract 457

ADIPOSY IS ASSOCIATED WITH EFFECT OF ACUTE EXERCISE ON EXECUTIVE FUNCTION

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- Acute moderate-intensity exercise may improve executive function (EF) by increasing accuracy and accelerating reaction time. Competing hypotheses exist regarding the impact of adiposity on these effects. Higher body weight is linked to lower EF under resting conditions, creating more opportunity for clinical improvement with acute exercise but physiological differences in fuel mobilization during exercise among individuals with higher adiposity may limit the EF benefits of acute exercise. However, the impact of adiposity on acute EF responses to exercise remains inadequately examined.
- This is a secondary analysis of an acute exercise study comparing the effect of 30-minutes of moderate intensity cycling (60%VO₂max) on EF among $n=60$ middle-aged adults (47% female, 55.9 ± 5.8 years, Body Mass Index (BMI) 28.2 ± 2.9 kg/m²). Attention (Flanker task) and working memory (2-Back task) accuracy and reaction time were assessed pre- and post- exercise. Drift-diffusion modeling was used to assess latent decision-making processes for each task including strength of evidence from the stimuli (drift rate), favoring one response over another (bias), caution, and non-decision time. Median regression analysis was used to evaluate adiposity using BMI and percent body fat (%BF) as baseline predictors of change in EF following exercise (adjusted for sex, age, hypertension.)
- On the 2-back %BF was not associated with change in accuracy, but higher BF was associated with slowed reaction time post-exercise (Wald=4.6, $p=.03$). Further, higher %BF was associated with improved

drift rate for non-matches (extracted stronger evidence from non-match stimuli; Wald=6.17, $p=.01$) and was trending for drift rate for matches post-exercise (Wald=3.66, $p=.06$). BMI was associated with improved 2-back discriminability post-exercise (Wald=10.58, $p<.01$). BMI and %BF were not associated with changes in Flanker performance.

- Findings suggest adiposity is associated with greater improvements in latent decision-making processes relevant for working memory after acute aerobic exercise, but benefits appear at the cost of slowed reaction time. Further, direct measurement of adiposity may be important as BMI appeared less related to changes in EF after exercise. Although preliminary, these data highlight the potential role of adiposity in moderating the cognitive benefits of acute aerobic exercise.

49) Abstract 460

INTERPERSONAL STRESS PREDICTING INFLAMMATION IN ADOLESCENTS: MODERATION BY EMOTION REGULATION AND HEART RATE VARIABILITY?

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Hypothesis: Parental and peer rejection are positively associated with inflammatory parameters and their change over 1 year. Herein, adaptive emotion regulation and parasympathetic system activity are protective moderators. Strengths of the current study are the longitudinal design in adolescents with multiple inflammatory parameters, while testing moderation.

Methodology: Longitudinal data from the Flemish ChiBS cohort was used from the 2017 ($n=185$, 50.8% boys, 10-18y of age) and 2018 ($n=99$) wave. At both moments, C-reactive protein, TNFalpha, IFN-gamma, IL6, IL8 and IL10 were measured in serum. Peer rejection was measured via the Klasgenoten Relatie Vragenlijst and Parental rejection via the parental rearing styles questionnaire. Emotion regulation was reported via the FEEL-KJ. Heart rate variability (HRV) was measured during 5-minute rest and a Trier Social Stress Test to estimate stress reactivity and stress recovery. Following potential confounders were considered: age, sex, socio-economic status, physical activity, smoking and body mass index. Results: A good fitting latent factor for inflammation was found in 2017 (CFI=0.99) but not for 2018. Interpersonal stress was not significantly related to that latent factor 'inflammation', but it was negatively related to TNFalpha in 2017 and TNFalpha, IFN-gamma and IL6 in 2018. HRV was a significant moderator herein.

Conclusion: The significant results are rather counterintuitive since interpersonal stress was related to higher levels of certain cytokines. Further sensitivity analyses will be done

50) Abstract 464

ARE AFFECTIVE STATES AND AFFECTIVE IDEALS LINKED TO MITOCHONDRIAL HEALTH INDEX

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Background. Mitochondrial energy production capacity underlies most energy-based adaptive processes underlying physiological functions. Given the energetic properties of affective states (e.g., high-energy anger or excitement versus low-energy calm or fatigue), it seems plausible that affect-related processes may be supported by these biological

mechanisms, or that these might provide an orienting response towards desired affective states given their possible role in producing energy that allow these states to arise. In this study, we explore whether ideal affect (i.e., how individuals want to feel) and actual affect (i.e., how individuals actually feel) are associated with mitochondrial health index (MHI). **Methods.** A cohort of 151 healthy participants (66% females) with ages ranging from 24 to 63 years old ($M = 35.61$) took part in our study. Self-reports on demographics and actual-ideal affect were collected at baseline. Blood samples were drawn ~1 day later to isolate mixed peripheral blood mononuclear cells and measure a ratio of enzymatic and molecular markers of energy production capacity (i.e., respiratory chain activities) to mitochondria content (i.e., citrate synthase activity and copies of mitochondrial genome per cell) used to calculate MHI. **Results.** Pearson correlation analyses (adjusted by age) revealed that higher ideal positive affect ($r = -.23$) and actual positive affect ($r = -.19$) predicted lower MHI ($p < .05$). In contrast, both ideal ($r = .25$) and actual negative affect ($r = .24$) correlated positively with MHI ($p < .05$). Similarly, elevated scores in ideal ($r = .32$) and actual low-arousal neutral affect ($r = .26$) also predicted higher MHI ($p < .05$). **Conclusion.** Here we found that experiencing and wanting higher positive affect are unexpectedly linked to leukocyte mitochondria with lower energy production capacity, but possibly optimized for other signaling functions. While the opposite was true for negative and low arousal neutral affect measures, pointing out that the profile of these subcellular mechanisms may be different depending on the valence and arousal levels of what people feel and strive to feel, which could distinctly influence health outcomes. These findings point to a mind-mitochondria connection and call for further experimental-based research to understand the origin and implications of this association.

51) Abstract 467

SEX DIFFERENCES IN THE ASSOCIATION OF EMOTIONAL APPROACH COPING WITH PERCEIVED STRESS AND DIURNAL CORTISOL SLOPE AMONG PATIENTS WITH RENAL CELL CARCINOMA: WHAT'S GOOD FOR THE GOOSE MAY NOT BE GOOD FOR THE GANDER

Robin Semelsberger, BS, Sam Houston State University, Chelsea Ratcliff, PhD, Sam Houston State University, Lorenzo Cohen, PhD, MD Anderson Cancer Center

Background: Emotional Approach Coping (EAC), comprised of emotional expression (EE) and emotional processing (EP), is an important way for cancer patients to manage stress. However, EE may be more important for reducing stress in women than men. Understanding how sex differences impact the association of EAC with stress among patients with renal cell carcinoma (RCC) can help tailor interventions to improve patients' health and QOL.

Method: The present study uses baseline data from a randomized clinical trial examining the effects of an expressive writing intervention on QOL for patients undergoing treatment for RCC. Males ($n = 105$) and females ($n = 72$) completed the Perceived Stress Scale (PSS) and provided saliva samples for diurnal cortisol slope 5x/day over two consecutive days at initial consult prior to RCC treatment. The PROCESS macro (model 1) for SPSS was used to conduct simple moderation, examining the EE x sex interaction effect on PSS and diurnal cortisol slope. Analyses covaried for age, stage, treatment type, and surgery status. ANOVA was used to examine sex differences in EAC, PSS, and cortisol slope. Exploratory analyses examined the EP x sex effect on PSS and cortisol slope.

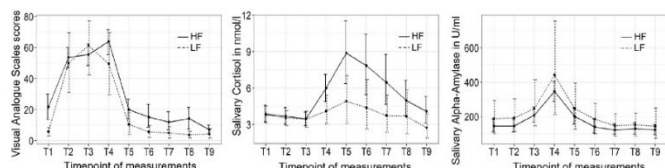
Results: Findings revealed that sex moderated the association between EE and PSS ($p = .031$), such that greater EE was associated with decreased PSS for women ($B = -1.01$, $p < .001$), but not men ($B = -.29$, $p = .191$). Sex also moderated the association between EE and cortisol slope ($p = .044$), such that for women, EE was not significantly associated with cortisol slope ($B = -.003$, $p = .337$), but for men, greater EE was associated with a blunted cortisol slope (indicating worse cortisol regulation; $B = .005$, $p = .055$). Additionally, men reported lower EE, EP, and PSS (p 's $< .04$) but similar cortisol slope ($p = .276$) compared to women. There were no significant findings in the moderation models examining EP x sex. Discussion: Results demonstrated that the association of EE with indices of stress depends on sex. Specifically, EE may be beneficial for women's self-reported stress. However, in men EE may be associated with a flatter cortisol slope, suggesting possible deleterious effects of EE for men. Understanding how sex differences impact coping and stress in RCC patients may help guide providers when choosing psychological interventions and may improve individualized psychosocial care.

52) Abstract 484

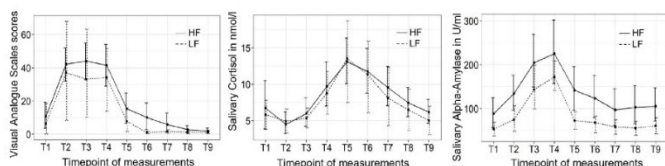
LISTENING TO MUSIC FOR RELAXATION PURPOSE DOES NOT HELP WITH STRESS RECOVERY

Yichen Song, MA, University Of Vienna, Ricarda Mewes, PhD, University Of Vienna, Nadine Skoluda, PhD, University Of Vienna, Urs Nater, PhD, University Of Vienna

Studies have suggested that listening to music can reduce psychological and biological responses to a stressor. However, it is unclear whether music has the same effect on stress recovery. Field studies indicate that it is very common for individuals to use music in daily life for the specific purpose of relaxation. We explored whether people who were generally using music for relaxation purposes would show improved recovery from an acute stressor. Twenty-seven healthy female participants ($M_{age} = 24.07$) (Study 1) and twenty-one healthy male participants ($M_{age} = 23.52$) (Study 2) were separated into two groups, based on their frequency of using music for relaxation purposes (low vs. high). All underwent a lab-based psychosocial stress test. Subjective stress levels were measured via visual analogue scales, whereas endocrine and autonomic stress responses were measured via saliva cortisol and saliva alpha-amylase, respectively. Chronic stress levels were assessed via Perceived Stress Scale and Screening Scale of Chronic Stress. The results of Study 1 showed that the low frequency participants had significantly better recovery reflected by visual analogue scales scores ($p = 0.01$, $r = 0.49$) and slightly better recovery reflected by cortisol ($p = 0.09$, $r = 0.36$) compared to the high frequency participants. The results of Study 2 showed that the low frequency participants had slightly better recovery reflected by saliva alpha-amylase activity ($p = 0.07$, $r = 0.41$) compared to the high frequency participants. Further analyses showed that increased use of music for relaxation purposes was related to more chronic stress, but only in Study 2 ($p = 0.03$, $r = 0.60$). Contrary to our expectations, our results indicate that listening to music for relaxation purposes is not associated with improved recovery from a stressor.



Study 1 Female participants



Study 2 Male participants

Coping Confidence and Assertiveness) but not Awareness of Tension had a significant impact on SFWB, suggesting certain CBSM skills may be leveraged to promote SFWB. ADI did not moderate these relationships, suggesting that resource deprivation does not impact these cognitive and interpersonal skills among BC patients.

54) Abstract 499

CHILDHOOD ADVERSITY RELATED TO ANXIETY AND CHRONIC PAIN IN ADULTHOOD, AND TO C-REACTIVE PROTEIN LEVELS

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Background: There remains a lack of understanding on the complex pathways linking adverse childhood experiences (ACEs) to poor adult health outcomes such as chronic pain. Despite a clear link between ACEs and anxiety, the role of anxiety in this pathway to chronic pain is not yet understood. Potentially, inflammatory markers such as C-Reactive Protein (CRP) are involved.

Objective: First, to examine the relationships between reported ACEs, anxiety, and chronic pain. Second, to assess the associations between ACEs, anxiety, and CRP levels, and also the link between CRP and chronic pain.

Methods: The first analysis involved data from 24,172 adults who participated in the UK Biobank (UKB). Poisson regressions were conducted to assess the relationships between ACEs, anxiety, and chronic pain. Second, in the sample of participants with CRP data who also met inclusion ($n = 2007$), similar models were run between ACEs, anxiety, and CRP, as well as CRP and chronic pain.

Results: In the first analysis, three statistically significant interactions were found to predict chronic pain: the frequency of physical abuse experienced as a child \times reported muscular symptoms during anxiety ($p < 0.01$); the frequency in which they felt hated as a child \times having discussed anxiety with a professional ($p = 0.028$), and the reported frequency of sexual abuse \times difficulties relaxing during anxiety attacks ($p = 0.028$). For the second analysis, the frequency of sexual abuse in childhood and informing a professional about anxiety significantly interacted to predict elevated CRP. When examining potential correlations, the largest significant correlation was between the number of times pain was reported over the years ($p < 0.01$) and CRP, followed by the reported frequency of sexual abuse in childhood ($p < 0.05$) and CRP. Finally, ACEs (physical abuse, sexual abuse, whether taken to a doctor when needed as a child) significantly interacted with CRP to predict pain.

Conclusion: Our findings illustrate that ACEs significantly interact with anxiety and CRP to predict the occurrence of chronic pain in adults.

Implications: Although the implications of the results warrant further study, it may be worth investigating a cohort of patients with anxiety that could potentially benefit from individualized therapy with anti-inflammatory drugs, such as those with chronic pain and a history of ACEs.

55) Abstract 513

SHARING HEALTH TECHNOLOGY DATA: ASSOCIATIONS WITH PERSONALITY FACTORS

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53) Abstract 498

STRESS MANAGEMENT SKILLS AND SOCIAL AND FAMILY WELL-BEING IN WOMEN UNDERGOING BREAST CANCER TREATMENT FROM DIFFERENT SOCIODEMOGRAPHIC REGIONS

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Introduction: Socioeconomic disadvantage, measured by Area Deprivation Index (ADI), contributes to cancer health disparities. Women undergoing breast cancer (BC) treatment may face heightened distress which may be compounded by greater ADI. In turn, women with BC may require greater coping skills. Social and family well-being (SFWB)—reflecting satisfaction with social support received—is a valuable resource for patients moving through cancer treatment and has been linked to better health outcomes in BC. Little is known about specific skills (e.g., assertiveness) that can optimize SFWB and whether their association differs as a function of ADI. We assessed whether ADI moderated the relationship between perceived stress management skills and SFWB in women undergoing BC treatment. **Methods:** At enrollment in an ongoing virtual cognitive behavioral stress management (CBSM) intervention trial, older women (>50 yrs) recently diagnosed with Stage 0 – III BC completed a baseline psychosocial assessment after surgery and prior to adjuvant treatment. Women reported SFWB via the Functional Assessment of Cancer Therapy - Breast (FACT-B) and CBSM skills via the Measure of Current Status (MOCS), containing subscales for Relaxation and Coping Confidence, Awareness of Tension, and Assertiveness. ADI, a multifactorial indicator of disadvantage coded at the block group level, was categorized as low vs high (i.e., 1-3 vs 4-10). Multiple regression tested the interaction of ADI and CBSM skills as predictors of SFWB, controlling for age, race, ethnicity, and marital status. **Results:** On average, participants ($n = 86$) were 61 years old ($SD = 7.64$), White, Non-Hispanic (43%), married (57%), and low ADI (69.8%). MOCS subscales (Relaxation and Coping Confidence and Assertiveness) were significantly associated with greater SFWB ($b = .164$, $t = 3.460$, $p < .001$; $b = .481$, $t = 3.446$, $p < .001$), versus Awareness of Tension ($b = .290$, $t = 1.862$, $p = .066$). ADI did not moderate any of the MOCS skill associations with SFWB. **Discussion:** CBSM-related skills (Relaxation and

Health technology data are increasingly obtained via wearable devices such as smartwatches. These data can be used for individual purposes but also as part of health promotion and prevention in the health care system. Despite the potential benefits of these data, a subgroup of people remains reluctant towards sharing the data, mainly due to privacy sensitivity. In order to better understand individual differences, this study examined the association of several psychological factors with the willingness to share health technology data.

Data were obtained from a cross-sectional age- and sex-stratified non-randomized community-based sample ($N = 868$; mean (SD) age = 49.1 (16.96); 52.2% women). Psychological variables were assessed using validated questionnaires for optimism (LOT-R), psychological flexibility (PFQ), negative affectivity (DS14: NA), social inhibition (DS14: SI), general anxiety (GAD-7) and depressive symptoms (PHQ-9). Attitudes about sharing health technology data were assessed using a modified 8-item version of the SUTAQ. Data were analyzed using correlation and multiple linear regression analyses adjusting for age, sex, and level of education. Unadjusted results indicated that psychological flexibility was associated with willingness to share health technology data ($r = .11$, $p = .001$) and higher levels of social inhibition were associated with lower willingness to share health technology data ($r = -.10$, $p = .003$). Other factors associated with a higher level of willingness to share data were older age, self-identified male sex and lower education level. After adjusting for age, sex, and education level in multiple regression models the association with psychological flexibility became non-significant ($\beta = 0.127$, $p = .072$) while the association with social inhibition remained significant ($\beta = -0.099$, $p = .012$).

Current results show that people scoring high on social inhibition might be less likely to share health technology data. This indicates that people with certain personality profiles are more hesitant to use health technology, next to age, education level and self-identified sex. These findings help to identify which populations might need extra attention with regard to the acceptance of using health technology, for example by giving extra information on how privacy is ensured or by adapting the health technology based on their concerns.

56) Abstract 515

RELATIONS BETWEEN FUNCTIONAL BRAIN PLASTICITY AND CLINICAL IMPROVEMENTS AFTER EDUCATION AND EXERCISE THERAPY IN PEOPLE WITH CHRONIC SPINAL PAIN: A RANDOMIZED CONTROLLED TRIAL

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Background and Aims: A subset of chronic spinal pain (CSP) patients experience clinically relevant decrease in pain and disability after education and exercise therapy. Underlying brain changes can be hypothesized. This randomized controlled trial examined brain plasticity in response to pain education plus exercise therapy with a neuroscientific biopsychosocial focus compared to education and exercise therapy with a biomedical focus, and associations with clinical improvements.

Methods: 120 CSP patients were randomized into the experimental (biopsychosocial) or control (biomedical) education plus exercise treatment. T1 and resting-state functional Magnetic Resonance (MR) images were acquired at

baseline and post-treatment, and analyzed using CONN. Preprocessing and denoising was performed. Seed-to-voxel resting-state functional connectivity (rsFC) analyses were performed with treatment group as between-subject factor and time as within-subject factor (cluster-defining threshold: $p < .001$, cluster-level threshold: $p\text{-FDR} < .05$). Seeds were amygdala, hippocampus, and nucleus accumbens. First-level analysis estimated bivariate correlation coefficients between the seeds and their targets. Analyses focused on main effects of time across groups and interaction effects between time and group, and associations between changes in rsFC and changes in pain and disability.

Results: Across both treatment groups, bilateral hippocampus rsFC with precuneus/posterior cingulate cortex (PCC) and frontal medial cortex decreased from pre- to post-treatment. Also, rsFC between amygdalae and parahippocampal gyrus, frontal pole, and insula decreased from pre- to post-treatment. Across both groups, greater pain relief was associated with greater increase in rsFC between left hippocampus and left postcentral gyrus ($p < .001$, $r = -.50$). Greater pain relief was associated with more decreases in rsFC between right amygdala and left supramarginal gyrus posterior ($p < .001$, $r = .58$). Also, greater disability decrease was associated with more increase in rsFC between right amygdala and right superior frontal gyrus ($p < .001$, $r = -.53$).

Conclusions: We found evidence for functional brain plasticity in response to education and exercise therapy in CSP patients. These findings provide insight in the involvement of neural circuitry in pain and disability relief after mind-body treatments.

57) Abstract 517

INDIVIDUAL DIFFERENCES IN EMOTIONAL ABILITIES PREDICT PHYSIOLOGICAL RESPONSES TO ANGER INDUCTION IN PEOPLE WITH CHRONIC LOW BACK PAIN

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Introduction: Chronic pain is often influenced by interpersonal stress and the experience of certain emotions, particularly anger. However, there are individual differences in patients' responses to anger-inducing experiences, and the ability to recognize and process emotions may be relevant. In this study, we examined how patients' levels of alexithymia and emotional approach coping predict their cardiovascular and electromyographic responses to a controlled anger-induction experience.

Methods: Patients with chronic low back pain ($N = 183$; Mean age = 46.2 years, range: 21-69; 50.8% female, 49.2% male; 68.9% Black; 26.2% White, 4.9% other) had two laboratory sessions. First, they completed emotional ability measures (Toronto Alexithymia Scale-20 and Emotion Approach Coping Scale). One week later they underwent a laboratory-based anger induction experience in which, after resting (baseline), they had to complete a 5-min "maze task" guided by the instructions of "another patient" (a study confederate), who became increasingly critical and dismissing of their performance during the task. Blood pressure (SBP and DBP), heart rate (HR), and paraspinal (low back) muscle tension (EMG) were recorded at rest and during the task.

Results: At rest, the only association was that alexithymic difficulty identifying feelings (TAS-20 subscale DIF) was positively correlated with DBP ($r = .18$, $p = .015$). With respect to the change from rest to anger induction, DIF was inversely related DBP change ($r = -.16$, $p = .032$). The TAS-20 total and DIF were inversely related to EMG change (both $r = -.16$, $p = .03$). The EAC subscale of emotional processing was positively

correlated with DBP change ($r = .18, p = .01$). Alexithymia and EAC were unrelated to SBP and HR.

Conclusions: These results suggest that patients with alexithymic characteristics have less physiological reactivity during an anger-inducing interpersonal encounter, perhaps because of deficits in their ability to recognize their emotions and be activated by such interactions. In contrast, people who are more emotionally attuned (high EAC characteristics) experience interpersonal threats more powerfully and respond physiologically. Findings illuminate our understanding of individual differences in physiological responses to interpersonal emotional regulation and stress/anger in people with chronic back pain.

58) Abstract 563

DISPARITIES IN DIALYSIS PSYCHOSOCIAL OUTCOMES AMONG PATIENTS FROM WELL-RESOURCED CLINICS

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Dialysis is typically initiated once patients reach end-stage kidney disease (ESKD), and may be conducted in-center or at home. Benefits of home v. in-center dialysis include better clinical outcomes, improved health-related quality of life, and reduced healthcare costs. However, in the US, rates of in-center dialysis are higher than home dialysis. We sought to examine differences in long-term decisional satisfaction following the dialysis modality selection process, and satisfaction with dialysis, according to dialysis modality, race, ethnicity, and healthcare experiences, among a sample of patients undergoing in-center or home dialysis receiving care from a well-resourced nephrology clinic. The objective was to assess whether disparities in psychosocial outcomes existed, despite the availability of education materials for ESKD treatment options to all participants. We analyzed participant characteristics according to dialysis modality, and race and ethnicity, and examined associations with decisional satisfaction and satisfaction with dialysis. Ninety participants ($n = 46$ in-center, $n = 44$ home) responded to surveys. Thirty participants identified as underrepresented racial or ethnic minorities (URM). More participants identifying as URMs were undergoing in-center dialysis over home dialysis compared to Whites [$\chi^2(1, N = 90) = 6.43, p = .011$]. We found no differences by dialysis modality regarding healthcare access. URM participants were more likely to report barriers to pre-ESKD healthcare and higher perceived discrimination in healthcare compared to White participants. Participants undergoing home dialysis reported greater decisional satisfaction compared to participants undergoing in-center dialysis. Linear regressions suggested that greater perceived quality of nephrology care and undergoing home dialysis predicted greater decisional satisfaction; lack of pre-ESKD barriers to healthcare, lower perceived discrimination in healthcare, and undergoing in-center dialysis predicted greater overall satisfaction with dialysis. Findings identified differences in dialysis psychosocial outcomes according to dialysis modality and experiences in healthcare. Prioritizing the development of culturally competent interventions to mitigate the effects of pre-ESKD structural and interpersonal barriers to healthcare could promote equity in dialysis outcomes.

59) Abstract 564

POST-TRAUMATIC SYMPTOMS AND HEALTH

BEHAVIORS: THE MODERATING ROLE OF SOCIOECONOMIC STATUS

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Post-traumatic stress increases risks for earlier mortality and health problems. Unhealthy behaviors such as poor-quality sleep and diet may serve as mechanisms, but the empirical evidence is mixed. Socioeconomic status may moderate the association, such that those with higher status have resources that buffer against the effects of trauma on health behaviors, whereas those with lower status may be more vulnerable to this risky link. To examine the link between post-traumatic stress symptoms and health behaviors (diet and sleep quality), and to test socioeconomic status as a moderator, 204 community participants ages 25-91 ($M = 50.8$) rated their posttraumatic symptoms, diet, sleep quality, and education as part of a larger study on couples' relationships and health. Post-traumatic symptoms were measured with the PTSD Checklist for DSM-5 (PCL-5). Diet quality was measured with the Rapid Eating Assessment for Patients (REAP-s) which is a food frequency questionnaire that assesses past-week intake of calcium, whole grains, fruits, vegetables, fat, cholesterol, sugary beverages, sodium, and alcohol. Past-month sleep quality was measured using the Pittsburgh Sleep Quality Index (PSQI). Multilevel models accounted for the nesting of individuals within dyads. The education variable was comprised of 3 levels: up to high school degree with partial college ($n = 49$), college graduation ($n = 87$), and graduate training ($n = 68$). Controlling for age, gender, and race-ethnicity, greater post-traumatic symptoms was significantly associated with poorer sleep quality ($B = 0.07, SE = 0.02, p < .0001$). This effect was moderated by education ($B = 0.07, SE = 0.03, p = .046$), such that the link was significantly stronger among those with a bachelor's degree ($B = 0.10, SE = 0.02, p < .0001$) compared to those with graduate training ($p = .226$). There was a nonsignificant trend among those with high school or partial college ($B = 0.06, SE = 0.03, p = .080$). There was neither a significant main effect nor interaction between post-traumatic symptoms and education on diet quality. In sum, greater post-traumatic symptoms were related to worse sleep quality, and the effect was stronger in those with comparatively less education. Future studies should recruit more low-SES people in longitudinal designs to determine whether low SES compounds the effects of trauma on health behaviors.

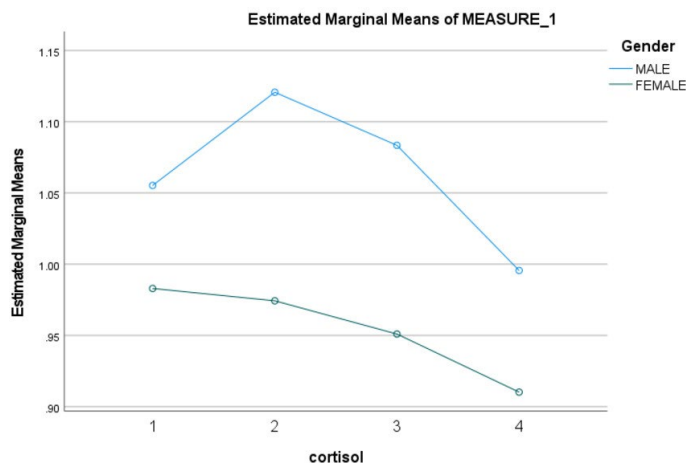
60) Abstract 568

GENDER DIFFERENCES IN CORTISOL RESPONSES TO ACUTE STRESS IN THE MIDUS II STUDY: CONTRIBUTIONS OF MEASURES OF EXECUTIVE FUNCTIONS

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Stress is a transdiagnostic vulnerability factor for mental and physical health problems, with recent research linking executive functioning to stress responses. The present study examined two types of executive functioning - inhibitory control/attentional switching and trait emotion regulation - as they relate to acute stress appraisals and physiological measures of stress. We hypothesized that poorer inhibitory control would be associated with less adaptive emotion regulation, greater stress appraisals and greater cortisol responses to stress. The present study utilized data from the Midlife in the United States (MIDUS) 2 study, a nationwide study of healthy aging. Participants (~1100 midlife adults; Mage = 55; 56% female) completed a Stop and Go Switch

Task, a measure of switching and inhibitory control, by phone. At a separate visit, participants completed an acute cognitive and physiological stressor, with salivary cortisol measured at 4 times across the session. Given gender differences on the Stop and Go Task, we stratified analyses by gender. Inhibitory control, measured as a switch cost, was correlated with stress appraisals for the physiological stressor only and was unrelated to trait emotion regulation. General linear models suggested that cortisol changed across the experimental session in a quadratic fashion among men ($p < .001$), suggesting cortisol increased from baseline to post-cognitive and post-physiological stressor before declining at the fourth sample. However, there was a non-significant linear decline in cortisol for women ($p > .05$), suggesting high cortisol at baseline and after the cognitive stressor. For women, there were associations between one measure of inhibitory control and cortisol, controlling for age, medication use and number of chronic conditions. Overall, hypotheses were only partially supported. One explanation may be that MIDUS 2 uses a non-affective cognitive task as well as physical and cognitive stressors, whereas most of the previous literature has used affective stimuli and psychosocial stress. Findings of the present study suggest that inhibitory control contributes little to stress responses among men, though more research is needed for women. Better understanding how executive functioning relates to stress and physiological measures of stress may inform treatment targets from a biopsychosocial lens.



61) Abstract 572

RELATIONSHIP BETWEEN SLEEP DISTURBANCE AND BLOOD PRESSURE IN EMERGENCY DEPARTMENT HEALTHCARE WORKERS

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Background: Emergency Department (ED) healthcare workers (HCWs) may be at risk for cardiovascular disease (CVD) due to a high stress work environment, mental health strain, and disturbed sleep. We examined the relationship between sleep disturbance and elevated blood pressure (BP), a primary marker of CVD risk, in ED HCWs.

Methods: Between 12/2020-2/2022, ED HCWs completed a 2-week data burst consisting of daily home BP assessment,

continuous sleep tracking via Fitbit, and the Pittsburgh Sleep Quality Index (PSQI). Poor quality sleep was defined as PSQI global score >5 , short sleep was defined as mean 2-week sleep duration <7 h, and hypertension (HTN) was defined as mean 2-week systolic BP ≥ 130 and/or diastolic BP ≥ 80 mm Hg. Binary logistic regression, including age, sex, and race/ethnicity, was conducted, for adjusted odds ratios (OR) on the relationship between poor quality and short duration sleep with HTN. We also conducted covariate-adjusted linear regressions on the relationship between continuous measures of sleep duration and PSQI scores with systolic and diastolic BP.

Results: The sample included $N=81$ ED HCWs (mean age [SD]=38.6 y [8.1], 63% female, 61.7% Non-Hispanic White). Mean systolic and diastolic BP were 115.5 (12.1) and 75.5 (7.5) mmHg. Twenty-six percent of participants had HTN. Mean PSQI global score was 6.5 (2.6), with 55.6% reporting poor sleep quality. Mean sleep duration was 7.1 (1.0) h, with 38.3% reporting short sleep across the burst period. Poor sleep quality vs. not poor sleep was significantly associated with odds of HTN (OR: 4.48, 95% CI: 1.17, 17.08, $p=0.03$), whereas short (vs. not short) sleep was not (OR: 2.74, 95% CI: 0.83, 9.06, $p=0.10$). Sleep duration was not significantly associated with systolic BP ($B[SE]=-0.03[0.02]$, $p=0.18$), but higher sleep duration was significantly associated with lower diastolic BP ($B[SE]=-0.03[0.01]$, $p=0.04$). Worse PSQI sleep quality was significantly associated with higher systolic BP ($B[SE]=0.93[0.44]$, $p=0.04$), but PSQI score was not significantly associated with diastolic BP ($B[SE]=0.43[0.32]$, $p=0.18$).

Conclusions: Both sleep quality and duration were associated with elevated BP in ED HCWs. Because sleep disturbances can impact both physical and mental health outcomes, efforts to improve sleep in ED HCWs should be promoted to ensure clinician health and wellbeing.

62) Abstract 584

EXAMINING THE INFLUENCE OF PHYSICAL FITNESS GROWTH TRAJECTORIES ON ACADEMIC ACHIEVEMENT ACROSS THE TRANSITION TO ADOLESCENCE

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Physical fitness is a powerful marker of physical and cognitive health, but it tends to decline across adolescence in sex- and race/ethnic-specific ways. Using a large, diverse sample of urban public-school students, the current study employed latent growth mixture modeling (LGMM) to examine longitudinal patterns of physical fitness from 4th to 8th grade and explored how distinct physical fitness trajectories predicted mathematics and reading test scores in 8th grade. Data from this study was obtained from the New York City Department of Education. All youth in enrolled in fourth grade in 2012 were included in this study and assessed yearly through 8th grade. Fitness was measured with a yearly indicator of aerobic capacity. Academic achievement was conceptualized as test performance on standardized math and reading assessments in 8th grade. Sex, race/ethnicity, and economic disadvantage (i.e., free/reduced lunch status) were included in these analyses as covariates of interest. The final analytic sample included 61,669 youth (51.3% male). LGMM was employed to group youth according to longitudinal aerobic capacity patterns. Fit indices suggested that a four-class model provided the best fit. The four distinct classes were characterized as: *persistently fit* (3.8%), *persistently unfit* (61.7%), *increasing fitness* (16.3%), and *decreasing fitness* (18.2%). Class membership was regressed onto math and reading test scores, controlling for gender, race/ethnicity and economic disadvantage. Belonging to the *persistently*

fit class predicted significantly higher 8th grade test scores compared to all other classes. Belonging to the *increasing fitness* class predicted significantly higher 8th grade test scores compared to being in the *persistently unfit* or the *decreasing fitness* class. Being in either the *persistently unfit* class or the *decreasing fitness* class predicted significantly worse Mathematics scores (see Table 1). Fitness positively predicted academic achievement. However, findings suggest that remaining physically fit is not the *only* path to academic success. Those who improved their fitness levels later in adolescence demonstrated higher math and reading scores as well. Thus, the *trajectory* of fitness is an important indicator of academic achievement. Future work in this area will include an examination of demographic characteristics on class membership .

Table 1. Descriptive Information

	N	%
Student Gender		
Male	31,666	51.35
Female	30,003	48.65
Ethnic/Racial Identity		
White	8,843	14.34
Black	17,063	27.67
Hispanic	25,239	40.93
Asian	9,925	16.09
Native American/Alaskan	434	0.70
Native		
Multi-racial	165	0.27
English Language Learner	8,735	14.16
On an individualized education plan (IEP)	10,744	17.42
Free/reduced lunch status	49,865	80.86
	Math	ELA
	β	β
Fitness Trajectories		
Class A: Persistently Unfit (n = 36,108)	-	-
Class B: Persistently Fit (n = 2,066)	78.7 ^{a**} , c ^{a*} , d ^{a*}	65.54 ^{a**} , c ^{a*} , d ^{a*}
Class C: Decreasing Fitness (n = 10,259)	-23.79 ^{b**} , d ^{a*}	-32.89 ^{b**} , d ^{a*}
Class D: Increasing Fitness (n = 9,440)	74.87 ^{a**} , b ^{a*} , c ^{a*}	54.09 ^{a**} , b ^{a*} , c ^{a*}

Notes: Subscripts indicate where there are significant differences. ^{a,b,c,d} indicate class comparison (i.e. a indicates the regression weight is significantly different class A); Controlling for sex; race/ethnicity; economic disadvantage; * $p < 0.05$; ** $p < 0.01$; Math = Mathematics standardized test score in 8th grade (2017); ELA = English Language Arts standardized test score in 8th grade (2017).

63) Abstract 599

THE ROLE OF SPOUSAL EMOTIONAL SUPPORT AND PERCEIVED RESPONSIVENESS IN THE LINK BETWEEN DAILY RUMINATION AND SLEEP: FINDINGS FROM THE MIDLIFE IN THE UNITED STATES STUDY.
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Poor sleep can contribute to the development of chronic illness and earlier mortality. Thus, it is critical to understand the psychosocial contributors to poor-quality sleep and identify factors that can neutralize the risks. For example, prior work suggests that rumination interferes with sleep. However, recent evidence from longitudinal studies indicates that spousal support may buffer this association over a two-year interval. Yet, it is unclear whether spousal support would moderate the link in daily life. The current work set out to test the association between daily rumination and sleep quality moderated by two forms of spousal support: daily received emotional support and trait-level perceived partner responsiveness (PPR). Partnered participants (n=736, M_{age}= 61.97, SD=9.73) in the Midlife in the United States Survey (MIDUS) completed an 8-day diary study, during which they rated their sleep quality, rumination levels, and received emotional support from the spouse each day. Trait PPR was reported in the primary survey prior to the

diary study. In multilevel models that controlled for sex, age, race, education, and marital status and included random person-level intercepts, a significant interaction arose between daily rumination and received support on self-rated sleep quality (b = -0.035, SE = 0.015, $p = .02$), such that participants reported poorer sleep when they ruminated more than usual only on days when they received emotional support from the partner. Trait-level PPR was not a significant moderator. These findings offer new insight into the links between rumination and sleep quality in everyday life. The buffering role of trait partner responsiveness was not evident in this work, indicating that the protective effect may only manifest over longer periods of time. Although seemingly counterintuitive, the exacerbating role of daily received support aligns with prior work that has uncovered the negative consequences of received support. Future work should continue to investigate this daily dynamic to understand any implications for long-term sleep quality and health.

64) Abstract 612

EMOTION RECOGNITION IN PATIENTS WITH FUNCTIONAL NEUROLOGIC DISORDER: A COMPARISON BETWEEN ALEXITHYMIA AND FACIAL EMOTION RECOGNITION.
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Background and aim: Functional Neurologic disorder (FND) is known to be correlated with difficulties in emotion recognition and processing. Prior research indicates higher levels of alexithymia: having trouble giving words to emotions, but little is known about recognizing and naming emotions expressed by other people.
Method: As part of the EMIN-FND study, we analyzed data from 24 patients with FND (sensory, motor or combined subtypes; mean age = 42.9 (SD = 15.4) years, 50% women) and 24 controls (mean age = 50.6 (SD = 15.7) years, 58% women). The Bermond-Vorst Alexithymia Questionnaire (BVAQ) was used to measure alexithymia and the Ekman 60 faces test to measure facial emotion recognition in others.
Results: Patients with FND had a higher alexithymia total score (BVAQ = 73.5 [SD 21.4] versus 58.6 [SD 22.9] points, $p=0.028$, Cohen's d = 0.66). The subscale examining internal emotion identification showed a similar difference (13.0 [SD 6.6] versus 8.2 [SD 5.9, $p=0.01$, Cohen's d = 0.77]). In contrast, there were no differences between FND vs. controls on the Ekman 60 faces test (mean number of facial emotions recognized by patients with FND was 46.5 (SD 5.9) versus 48.6 out of 60 in controls (SD 5.8), $p=0.22$, Cohen's d = -0.360). Higher levels of alexithymia (BVAQ total score) were associated with poorer facial emotion recognition in others, but these relationships were not statistically significant (FND $\beta = -0.29$; Control $\beta = -0.08$; p -values > 0.35).
Conclusion: The current data confirm prior observations that patients with FND have higher levels of alexithymia than controls without FND. The difficulties recognizing personal emotions seems to apply to internal emotions and not to the emotions that can be observed in other people's faces. These findings require replication in larger and more diverse samples but indicate that in patients with FND, processing of internal emotions is more likely to be dysfunctional than processing of emotions in other individuals.

65) Abstract 617

CONDITIONED PLACE AVOIDANCE IS ASSOCIATED A

DISTINCT HIPPOCAMPAL PHENOTYPE, ALTERED PATTERN SEPARATION, AND REDUCED ROS PRODUCTION

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Stress is associated with contextual memory deficits, which may mediate avoidance of trauma-associated contexts in post-traumatic stress disorder.

These deficits may emerge from impaired pattern separation, the independent representation of similar experiences by the dentate gyrus-Cornu Ammonis 3 (DG-CA3) circuit of the dorsal hippocampus, which allows for appropriate behavioral responses to specific environmental stimuli. Neurogenesis in the DG is controlled by mitochondrial ROS production, and may contribute to pattern separation performance. In Experiment 1, we performed RNA sequencing of the dorsal hippocampus 16 days after stress in rats that either develop conditioned place avoidance to a predator urine-associated context (Avoiders), or do not (Non-Avoiders). Weighted genome correlational network analysis showed that increased expression of oxidative phosphorylation-associated gene transcripts and decreased expression of gene transcripts for axon guidance and insulin signaling were associated with avoidance behavior. Based on these data, in Experiment 2, we hypothesized that Avoiders would exhibit elevated hippocampal ROS production and degraded hippocampally-dependent object pattern separation (OPS) compared to Non-Avoiders. Stress degraded pattern separation performance compared to Control in both Non-Avoider and Avoider rats, but surprisingly, Avoiders exhibited significantly lower ROS production compared to Non-Avoiders. Lower ROS production was associated with better OPS performance in Avoiders and Non-Avoiders, while there was no association of ROS production to OPS performance in Controls. These results suggest a stress-induced shift from no relationship to a strong negative relationship between hippocampal ROS production and pattern separation performance, which may be associated with the expression of conditioned place avoidance.

66) Abstract 657

HEART RATE VARIABILITY AND CONFLICT DISCUSSIONS AMONG COLLEGE-AGED HETEROROMANTIC COUPLES

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Heart rate variability (HRV), an important indicator of emotion regulation and cardiovascular health, has been shown to play an important role in heteroromantic relationships, such that HRV indexes the degree to which self-regulatory synergy occurs in couples, which is known to differ between women and men. Yet, research has not examined how HRV is

differentially impacted following a conflict discussion between women and men, which would illuminate a possible psychophysiological pathway underlying relationship-benefits in men relative to women. We addressed this in 70 college-aged heteroromantic couples (50% women, 81% White American, mean age of 19 years). High frequency HRV data was calculated during baseline (5-min), conflict discussion, (10-min), and recovery (5-min) experimental phases. Several self-report measures were also assessed. Adjusting for race, age, and both self-reported relationship satisfaction and perceived relationship longevity, repeated measures ANOVA suggested gender differences in HRV patterns throughout the experiment ($F(2, 266) = 3.05, p = .049$). Women showed a quadratic trend, in which HRV increased from baseline to conflict discussion, and began trending downward at recovery. In contrast, men showed a linear increase in HRV from baseline to recovery, but not from baseline to conflict discussion. Exploratory analyses suggest lower self-esteem ($r = -.329, p = .005$) was associated with a greater change from baseline to recovery in men but not in women ($r = -.010, p = .934$). In other words, women appear to engage in emotion regulation, marked by higher HRV during the conflict discussion, whereas men tend to not engage, as their HRV trajectory remains relatively flat. Following the conflict discussion, men appear to reap more benefits, marked by higher HRV, especially when lower in self-esteem. In sum, these novel data suggest women may engage in emotion regulation in the context of relationship conflict, which ultimately may benefit men via higher HRV following said conflict. Future research should examine these psychophysiological associations in relation to relationship satisfaction and other well-being measures differentially between women and men. Future directions and implications will be discussed.

68) Abstract 704

DO PURPOSE IN LIFE AND SOCIAL SUPPORT MEDIATE THE ASSOCIATION BETWEEN RELIGIOUSNESS/SPIRITUALITY AND MORTALITY? LONGITUDINAL EVIDENCE FROM THE MIDUS NATIONAL SAMPLE

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A growing literature supports salubrious associations between religiousness/spirituality (R/S) and health outcomes, including lower mortality. However, much of the research on R/S and health involving nationally representative cohorts relies on crude measures of R/S, often involving a single item on the frequency of attendance at religious services. Psychological mechanisms that may help explain R/S and mortality relationships have not been thoroughly examined in national longitudinal studies. Aspects of psychological well-being, in particular purpose in life and positive social support, are potentially cultivated by R/S and may also promote better health and longer lives.

Using data on psychosocial aspects of R/S (i.e., religious/spiritual identity and importance; use of religion/spirituality in decision-making), this project examines prospective associations between R/S and mortality in the core Midlife in the United States (MIDUS) national sample, including whether purpose in life and positive social support are indirect pathways through which R/S may associate with mortality. We examined religious service attendance, psychosocial aspects of R/S, and purpose in life and positive social support from the

baseline wave (1995-1996; n = 7,108), and mortality status was ascertained via linkages to the National Death Index through 2020 (n=2,124 decedents). Cox proportional hazards models showed that weekly service attendance was associated with lower mortality risk compared to attending monthly or never, controlling for age, gender, race, and education (monthly vs. weekly, HR (95% CI) = 1.22 (1.10, 1.36); never vs. weekly, HR (95% CI) = 1.41 (1.23, 1.60). Psychosocial aspects of R/S were associated with lower mortality risk (HR (95% CI) = 0.91 (0.86, 0.97). Coefficients reflecting associations between R/S and mortality were attenuated approximately 15% when purpose in life and positive social support were included in the models. Findings highlight the importance of multidimensional aspects of R/S in understanding mortality risks in the population and point to specific aspects of psychological well-being (i.e., purpose in life, positive social support) as underlying pathways between R/S and mortality.

69) Abstract 710

ASSOCIATIONS BETWEEN SUBJECTIVE SOCIOECONOMIC STATUS AND BRAIN AMYLOID BETA DEPOSITION

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Background: Lower traditional indices of socioeconomic status (SES), such as income and education, are associated with a variety of chronic health conditions and risk for developing Alzheimer's disease (AD). However, it is unknown whether one's perception of their socioeconomic status (subjective SES) may likewise relate to risk for AD. The current study addressed this gap by examining the relationship of subjective SES with amyloid beta (A β) pathology in cognitively normal older adults. We hypothesized that lower subjective SES would associate with more A β pathology.

Methods: Data were collected as part of a multi-site, randomized clinical trial: Investigating Gains in Neurocognition in an Intervention Trial of Exercise (IGNITE). The current analyses used a subsample (n = 352) of cognitively normal older adults (Mean age = 69.37 \pm 3.53) with available structural MRI and ¹⁸F-Florbetaben (FBB) PET images. A composite standardized uptake value ratio (SUVR) was calculated using pipelines in MATLAB and SPM12 to quantify average A β deposition throughout the brain. The whole cerebellum was used as the reference region. Individuals were considered positive for A β if their composite SUVR exceeded a literature based a priori cutoff of 1.10. Subjective SES was measured using the United States (US) ladder from the MacArthur Socioeconomic Status Index.

Results: Hierarchical linear and logistic regression models revealed that, after controlling for age, APOE genotype, and study site, subjective SES was negatively associated with A β levels (B= -0.163, p = 0.001) and likelihood of meeting criteria for A β positivity (OR= .77; 95% CI =.67-.89). When adding annual income and years of education as covariates, the association between subjective SES and A β levels and positivity remained significant (B= -.147, p = 0.010; OR = .80; 95% CI = .68-.93, respectively).

Conclusion: These findings suggest that subjective SES explains significant variation in A β levels in cognitively normal older adults, which may confer risk for cognitive impairment and help explain disparities in AD diagnosis attributable to social inequalities.

70) Abstract 688

THE ROLES OF PSYCHOLOGICAL AND SOCIAL FACTORS IN THE DEVELOPMENT OF ADOLESCENT CHRONIC PAIN: EMERGING FINDINGS FROM A BIRTH COHORT

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Chronic pain (i.e., pain lasting > 3 months) is an intergenerational problem; it is transmitted across generations and is powerfully influenced by adversity and pain experienced in early life. Pain and mental health are inextricably linked. Youth with chronic pain and their parents experience trauma, anxiety, and depression at much higher rates than non-pain populations and mental health issues drive chronic pain and disability in a reciprocal fashion. We recently argued that living a life with pain, which disproportionately impacts marginalized and minoritized individuals, can be a source of toxic stress arising from the absence of protective social relationships (Nelson et al., Lancet Child and Adolescent Health). Biopsychosocial and mutual-maintenance conceptual models of chronic pain posit that neurobiological, cognitive-behavioral, and social factors drive the chronic pain-mental health relationship across generations; however, this has not yet been empirically shown in prospective research during adolescence, the period during which chronic pain often first emerges. We have new emerging data providing compelling evidence that early adversity, mental health, and social factors underlie the development of chronic pain in adolescence and its intergenerational transmission. We will present new data from a large birth cohort [n=3000] showing that early mental health of parents and youth influence the later development of chronic pain and these relationships are either buffered or exacerbated by social factors (e.g., parenting behaviors, social support). Findings will be tied to new evidence from preclinical rodent models, demonstrating how early life stress (caused by neglect) before (in mothers during pregnancy) and at birth (in pups) leads to pain problems in adolescence through key epigenetic, inflammatory, neurobiological and microbiome changes. Implications for tailored, integrated interventions and prevention approaches to break the intergenerational cycle of pain will be discussed.

71) Abstract 689

EXPLORING THE DIFFERENCES IN PHYSIOLOGICAL AND BIOLOGICAL STRESS MARKERS DURING A TRAUMA SCREENING INTERVIEW (CAPS) IN AT RISK POLICE OFFICERS

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Introduction: Changes in physiological and biological signals are of core interest to most stress researchers, but they are rarely reported simultaneously. The aim of the present analysis was to map relative reactivity of heart rate (HR), HR variability, Breathing frequency (BF), Cortisol and α -amylase (AA) during rest and a CAPS interview.

Method: The present study recruited 120 police officers (age 44 ± 9 years, 53% male) between April 2021 and June 2022. Participants were fitted with an ambulatory Faros180 ECG using chest belts with dry electrodes. A 20-minute seated resting period was followed by a 90min CAPS-interview conducted by a trained psychologist, and another 20-minute seated post-rest period. Adjuncting 5-minute segments of HRV (RMSSD, SDNN, HF, LF, TP), HR and BF were calculated using Kubios Premium 3.4.3 software. Saliva samples were taken at the end of each period. The first measurement was set to baseline (100%), the following segments were calculated as relative change to segment 1. For each parameter, a mixed linear model was calculated to determine the relative change in biomarkers across 14 segments or 3 timepoints (Saliva markers). Models were adjusted for age and sex. Marginal mean predictions with covariate at means were exported to visualize the trajectories of the biomarkers.

Results: A total of 113 police officers were included in the final analysis, with the main reasons for exclusion being technical failure of the ECG device, high ECG artifact rate, or insufficient saliva specimens. Relative change of the observed biomarkers differed. HF-Power and BF decreased during the interview and increased during the post rest period. Cortisol decreased continuously. AA, LF, TP, SDNN, RMSSD increased during CAPS, and decreased post rest. HR changed the least during all periods, while TP changed the most. Four participants were diagnosed with mild PTSD, all others scored lower. Sex differences were apparent during CAPS with women showing larger decrease in HF, and larger increase in LF.

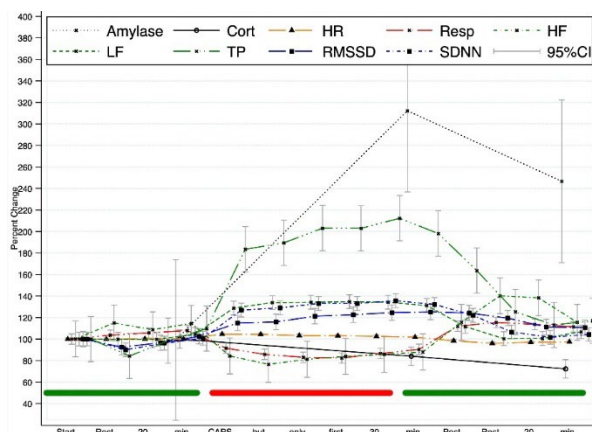
Discussion: The study found a rather complex course of the various physiological and biological signals that respond differently to the CAPS interview, with some sex differences apparent. More details and course of absolute values will be discussed.

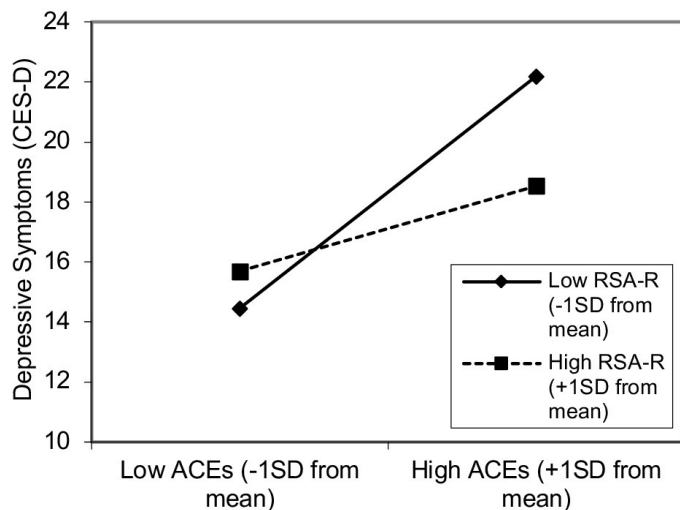
72) Abstract 217

THE MODERATING ROLE OF RESTING RESPIRATORY SINUS ARRHYTHMIA ON THE RELATIONSHIP BETWEEN ADVERSE CHILDHOOD EXPERIENCES AND DEPRESSIVE SYMPTOMS IN ADULTHOOD.

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Adverse childhood experiences (ACEs) are associated with an increased risk for developing depressive symptoms. However, not all individuals with ACEs develop depressive symptoms. This may be attributed in part to individual differences in physiological characteristics such as resting respiratory sinus arrhythmia (RSA). RSA is used as an index of parasympathetic nervous system functioning and has been proposed as a biomarker for vulnerability to psychopathology. New evidence in a sample of young adults suggests that lower levels of RSA are associated with higher levels of depressive symptoms among those reporting one or more ACEs. These findings have yet to be shown to extend into adulthood. The goal of this study was to examine the role of RSA as a moderator of depressive symptoms among adults with ACEs, and whether RSA predicts changes in depressive symptoms over time. Our sample consists of 222 middle-aged (mean 46.83 years old) caregiving mothers of adolescents with developmental disabilities ($n=125$) and mothers of typically developing adolescents ($n=97$) who were part of a larger project examining the effects of chronic caregiving stress on health outcomes. Participants reported depressive symptoms using the Center for Epidemiological Study-Depression scale (CES-D) at three time points spanning 24 months. At Time 1, retrospective accounts of ACEs were assessed using the Childhood Trauma Questionnaire (CTQ) and measures of RSA were collected. Multilevel modeling was used to test interactions between RSA, ACEs, depressive symptoms, and trajectories of change over time in depressive symptoms. Education, income, and chronic caregiving stress were included as covariates in the models. Results showed that levels of depressive symptoms did not change across a 24-month period and RSA was not correlated with ACEs. More ACEs, lower income and chronic caregiving stress were associated with higher self-reported depressive symptoms overall. RSA moderated the association between ACEs and depression: among individuals who reported more ACEs, those with lower RSA had significantly higher levels of depressive symptoms compared to individuals with higher RSA. These findings support RSA as a moderator of depressive symptoms among adults who have been exposed to ACEs, supporting the role of physiological factors in understanding mental health outcomes among those with ACEs.





BEHAVIORS, AND INTERVENTION PREFERENCES IN ADOLESCENT AND YOUNG ADULT CANCER SURVIVORS

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Background: Adolescent and young adult (AYA) cancer survivors have an increased risk of chronic diseases, such as diabetes and cardiovascular disease. However, this population tends to have low physical activity levels and poor adherence to dietary guidelines. AYA cancer survivors also experience age-dependent stressors, including independent living challenges, that may influence health behaviors. This qualitative study aimed to understand experiences and unmet needs regarding stress, coping, and health behaviors in AYA cancer survivors aged 18-39 years to inform behavioral intervention development.

Methods: Twenty-three semi-structured interviews were conducted with a purposive sample of AYA cancer survivors (n=12 aged 18-29 years; n=11 aged 30-39 years; 43% racial/ethnic minority) between May and July 2022 via Zoom. A coding reliability approach to thematic analysis was applied to the data.

Results: Preliminary analysis highlighted stressors that aligned with social determinants of health, including health care, economic stability, and social and community context. The most common coping strategies were physical activity, faith, and taking breaks. Older participants (30-39 years) reported more diverse coping strategies, e.g., therapy, getting enough sleep, relaxation, and music. Peer support and personalized, interactive content were salient themes regarding intervention preferences. Younger participants (18-29 years) preferred multiple formats, including Zoom, a website, and tracking logs. **Conclusions:** Our findings highlighted unmet needs regarding psychosocial stress and social economic stressors in AYA cancer survivors, as well as preferences for tailored, interactive components in stress management-enhanced behavioral interventions. For AYA cancer survivors, behavioral interventions may be tailored for specific age groups (e.g., 18-29 years vs. 30-39 years) to account for differences in stress experiences and intervention preferences.

2) Abstract 588

BRACING FOR THE WORST? A LONGITUDINAL EXPERIENCE SAMPLING STUDY OF HOW EXPECTATION MANAGEMENT STRATEGIES AND INTOLERANCE OF UNCERTAINTY PREDICT SCANXIETY IN CHILDHOOD CANCER SURVIVORS

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Introduction. Anxiety from anticipating oncology scans and results ("scanxiety") is associated with reduced emotional wellbeing and quality of life. Using an intensive longitudinal experience sampling design, we investigated how individual differences in expectation management strategies and intolerance of uncertainty influence the experience of scanxiety in childhood cancer survivors.

Methods. Fifty-five survivors (M age=17 years, M =2.88 years off treatment; 54.5% male, M d= 3 treatment intensity rating) completed baseline assessments of fear of cancer recurrence (FCR), scanxiety, intolerance of uncertainty (IUS), bracing for

73) Abstract 162

EFFECTS OF CHRONIC AND ACUTE LONELINESS ON HIGH-FREQUENCY HEART RATE VARIABILITY: MODERATION BY BIOLOGICAL SEX

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Chronic loneliness has detrimental consequences for cardiovascular health. However, the psychophysiological mechanisms by which loneliness leads to adverse health outcomes are not well understood. A potential mechanism by which loneliness may impact health is through impaired functioning of the vagus nerve. Vagal adaptability, indexed by phasic changes in high-frequency heart rate variability (HF-HRV) to cognitive and emotional challenges, is associated with socioemotional functioning, as well as physical and mental health. The purpose of this study was to examine whether higher chronic loneliness predicts greater change in HF-HRV from resting baseline to an acute experience of state loneliness, and whether this relationship is moderated by biological sex. Under controlled laboratory conditions, chronic loneliness and HF-HRV responses to state loneliness were assessed in a sample of 419 healthy adults (265 females, 154 males; mean age: 20.07 years). State loneliness was induced by asking participants to write about, and then silently reflect on, a personal experience of loneliness. The results indicate that chronic loneliness did not predict changes in HF-HRV from baseline to state loneliness in the overall sample. However, in moderation analyses, the interaction between sex and chronic loneliness accounted for a significant amount of the variance in HF-HRV change from baseline to state loneliness, $\Delta R^2 = .020$, $F(1,412) = 9.27$, $p = .004$. Specifically, higher chronic loneliness in females predicted an *increase* in HF-HRV during state loneliness, $t(412) = 2.48$, $p = .014$, $d = .012$. In contrast, among males, the association was marginally significant, such that higher chronic loneliness marginally predicted a *decrease* in HF-HRV during state loneliness, $t(412) = -1.73$, $p = .085$, $d = -.010$. These findings provide evidence for an association between chronic loneliness and phasic changes in HF-HRV during acute experiences of loneliness among females, and suggest that males and females may differ in their physiological responses to state loneliness.

POSTER SESSION 3

1) Abstract 171

A QUALITATIVE STUDY OF STRESS, HEALTH

the worst, and positive expectation management. Daily FCR was captured via app-based surveys 3 times daily for 11 days surrounding a routine surveillance scan (33 surveys total). Multilevel modeling was used to estimate within-person random slopes of FCR before (reactivity), day of (peak), and after (recovery) the surveillance scan. Expectation management strategies and intolerance of uncertainty were used as predictors of reactivity, peak, and recovery.

Results. We observed an increase in FCR in the days leading up to the scan ($F(1,441)=3.56, p<.001$), while FCR decreased following scan day ($F(1,441)=-5.59, p<.001$). Bracing ($r=.44, p=.001$) and IUS ($r=.34, p=.015$) were correlated with greater scanxiety at baseline. There was a positive relationship between bracing and FCR on scan day ($F(1,441)=3.63, p<.001$). The increase in FCR in the days leading up to the scan was positively related to bracing ($F(1,441)=2.34, p=.020$). In addition, the decrease in FCR across the days following the scan was negatively related to bracing ($F(1,441)=-3.73, p<.001$). IUS predicted significantly higher levels of FCR on the days before the scan ($F(1,441)=3.95, p<.001$) and lower levels of FCR on the days following the scan ($F(1,441)=-1.99, p=.047$). Model comparison revealed that the model with bracing had a marginally better fit than the model with IUS (BIC bracing= 454.58, BIC IUS= 459.63). Positive expectation management did not predict FCR on scan day ($F(1,441)=-.019, p=.292$) but was significantly related to better health related quality of life at baseline ($p=.362, p=.01$).

Conclusions. Targeting IUS and bracing may be a helpful intervention aim to reduce the negative influence of scanxiety among childhood cancer survivors.

3) Abstract 150

CANCER-RELATED MASCULINE THREAT AFTER PROSTATE CANCER: THE BIOBEHAVIORAL IMPACT

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BACKGROUND: Prostate cancer diagnosis and treatment has been associated with threat to masculine self-image, which in turn has been related to declines in health-related quality of life (HRQoL). It may be that cancer-related masculine threat (CMT) impacts HRQoL by biobehavioral mechanisms. This study examined the relationship of CMT on changes in aspects of HRQoL (i.e., urinary, sexual, bowel, and hormonal functioning) across the six-months following prostate cancer treatment as well as with changes in biomarkers of inflammation (i.e., IL-1B, IL-6, IL-8).

METHOD: Forty men completed the CMT Scale, the Expanded Prostate Cancer Index Composite (EPIC), and demographic questions, at baseline and six-months after cancer treatment. Blood was drawn by venipuncture at these same intervals for the assessment of biomarkers.

RESULTS: CMT predicted a significant decline in urinary ($\beta = -0.51, p<.01$) and hormonal ($\beta = -0.55, p<.01$) function six months after treatment, but no effect was found for sexual or bowel function. Additionally, CMT predicted a significant increase in IL-8 from baseline to six months post-treatment, but no effects were observed for IL-1B or IL-6.

CONCLUSIONS/IMPLICATIONS: Results confirm that masculine threat after prostate cancer is associated with worsening urinary and hormonal functioning. The influence of CMT on changes in inflammation were mixed, with some indication of associations with increasing systemic inflammation. Larger studies are needed to support the development of interventions to address gender-specific factors in post-treatment prostate cancer survivors.

4) Abstract 69

“GOODNESS OF FIT” MODELS OF PSYCHOLOGICAL ADJUSTMENT IN BREAST CANCER SURVIVORSHIP: EXAMINING ILLNESS PERCEPTIONS OF CURRENT AND ANTICIPATED ILLNESS

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Background: Leventhal's (1980) Common Sense Model identifies illness perceptions and coping processes as joint influences on adjustment to chronic illness, yet pathways through which said effects manifest are unclear (Dempster, 2015). Although the model posits a mediated relationship, recent work also has examined “Goodness of Fit” (GoF) models (Lazarus & Folkman, 1984) in which illness perceptions and coping *interact* to predict adjustment (Finkelstein-Fox & Park, 2019; Hoch et al., *Under Review*). In a prospective, longitudinal study (Study 1), we tested GoF models between illness perceptions and coping in predicting depressive symptoms in a sample of breast cancer patients. In a cross-sectional study (Study 2), a sub-sample of participants reported on their experiences as breast cancer survivors in the COVID-19 pandemic. GoF models were tested in which depressive symptoms were regressed on interactions between pandemic-related coping and anticipated illness perceptions of a hypothetical, future COVID-19

infection. **Method:** Participants were 460 breast cancer survivors in Study 1, and a subsample ($n=99$) in Study 2. Validated measures of depression (CES-D), illness-related coping (COPE), and illness perceptions (BIPQ) were administered. Author-constructed items assessed illness perceptions of anticipated COVID-19 infection. Multiple regression analyses tested interactions between coping and illness perceptions in predicting depressive symptoms. **Results:** Study 1: Significant avoidance coping x chronicity perception interactions (A: $b=0.38, p=.002$; B: $b=0.32, p=.015$) indicated that the positive relationships between avoidance coping at 3 months post-diagnosis and depressive symptoms at 9 (A) and 12 months (B) post-diagnosis were stronger for women with prolonged chronicity perceptions at 3 months post-diagnosis (A: $b=0.23, p=.001$; B: $b=0.20, p=.01$). Study 2: A significant approach coping x chronicity perception interaction ($b=-1.32, p=.04$) suggested the negative link of approach coping with depressive symptoms was stronger for survivors with prolonged chronicity perceptions of an anticipated COVID-19 infection ($b=-9.44, p=.001$). **Conclusion:** Prolonged chronicity perceptions of current or anticipated illness are likely risk factors for depressive symptoms for breast cancer survivors who engage in low approach-oriented or high avoidance-oriented coping.

5) Abstract 591

FEMALE CANCER ADVOCACY: A QUALITATIVE STUDY OF THE CHALLENGES AND OPPORTUNITIES FOR CIVIL SOCIETY ORGANIZATIONS IN HAITI

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Background

Despite a high number of cases, prevention education against breast and cervical cancer in Haiti and other low and middle-income countries (LMICs) remains relatively scarce. The

present study seeks to analyze how cancer awareness campaigns are implemented in the community settings of Haiti and how the civil society organizations are involved in the screening, Health Education, and prevention of cancer among Haitian women living in Haiti.

Methods

We contacted 50 civil society actors: medical universities, teaching hospitals, feminist organizations, and non-governmental organizations. Questions were asked about the presence of a cancer awareness policy, awareness approaches and the type of support offered to women with cancer. We conducted a qualitative study using open-ended and closed-ended questionnaires.

Results

Out of 50 civil society organizations contacted, only 12 responded to the questionnaires. There was no data provided by school of medicines or public teaching hospitals. The feminist organizations respondents did not report on any systematic policies currently in place for female cancer awareness campaigns. However, they did have knowledge of where to subsequently refer women with cancer for the treatment of their disease. Responsibility of awareness-raising approaches and foundational support for these women remains entirely on hospitals and non-governmental organizations. In terms of challenges, all of the organizations that responded point to a challenge of adequate training, financial resources and lack of partnership that hinder an impactful large-scale cancer education and prevention programs among Haitian women.

Conclusions

Although the sample that responded is small and does not allow us to conclude on the true involvement of civil society in the fight against female cancer in Haiti, our study highlights how important it is to strengthen the efforts of this unique sector in the management of various challenges. There is an urgent need for increased collaborations between the civil society, public health infrastructure, and current political leaders to increase female cancer education in Haiti.

6) Abstract 554

THE ASSOCIATION OF PSYCHOLOGICAL DISTRESS AND CARDIOVASCULAR HEALTH AMONG YOUNG ADULTS IN PUERTO RICO

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Background: Evidence links psychological distress with cardiovascular risk factors and outcomes, but these associations have not been assessed among young adults in PR. Given the high levels of disaster-related stressors experienced by Puerto Ricans in the past six years, we assessed the association between psychological distress measures and cardiovascular health (CVH) in young adults.

Methods: The current study used data from PR-OUTLOOK, a study of CVH among adults aged 18-29 years living in Puerto Rico, collected between September 2020 and September 2022. Psychological health measures included anxiety symptoms (STAS-10), perceived stress (PSS-4), and post-traumatic stress disorder (PTSD Civilian Abbreviated Scale-2). Scores for perceived stress and PTSD were dichotomized

according to clinical cut-offs, whereas anxiety scores were categorized in tertiles. CVH was measured using the American Heart Association Life's Essential 8 metric of eight health behaviors and biological factors, including nicotine exposure, physical activity, diet, sleep health, body mass index, blood pressure, blood glucose, and blood lipids. For this analysis, this metric was modified to exclude diet. Higher scores (range 0-100) indicate better CVH, and a score of 80 or more indicates an ideal CVH. Covariates included age, sex, marital status, and childhood material deprivation. Multivariable linear regression was used to assess the association of each psychological health measure with the overall CVH score.

Results: This analysis included 964 young adults with a mean age was 22.6 ± 3.1 years. Two-thirds were females, 88.5% were single, and 32.7% reported material deprivation during childhood. The mean CVH score was 80.2 ± 12.8 , with 42.8% of the sample scoring <80 . In adjusted models, significant inverse associations were observed between overall CVH and anxiety symptoms (tertile 2 vs. tertile 1: $\beta = -2.49$, 95% CI: -4.42, -0.57; tertile 3 vs. tertile 1: $\beta = -5.56$, 95% CI: -7.51, -3.62), perceived stress ($\beta = -2.76$, 95% CI: -4.41, -1.10), and PTSD ($\beta = -3.26$, 95% CI: -5.18, -1.35).

Conclusion: Each measure of psychological distress was inversely associated with CVH. Efforts to promote CVH among young adults in Puerto Rico may require a multi-domain approach that includes interventions targeting the mental health of young adults.

7) Abstract 667

HISPANIC/LATINX PREVALENCE OF CO-EXISTING CHRONIC HEALTH CONDITIONS AND HISTORY OF MENTAL ILLNESS

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People with mental illness (MI) have higher morbidity and mortality due to preventable chronic diseases (cancer, heart disease, diabetes) [1]. Multimorbidity is associated with many patient adverse outcomes and significant clinical and public health concerns [2]. According to the literature, multimorbidity increases in older age, have different patterns related to sex and gender and can vary according to race/ethnicity [3]. A contributing factor to higher mortality among people with MI may be the increased rates of co-occurring conditions and health risks among people with MI [1]. Although MI and CHC have a bidirectional relationship, studies show MI can account for the development of CHC [4]. The "All of Us" Research Program datasets provide a unique opportunity to understand better the health disparities experienced by Hispanics/Latinxs (H/L) with MI in the US. This presentation aims to determine the prevalence of coexisting chronic health conditions (i.e., cancer, heart disease, diabetes) among H/L with a history of a MI diagnosis versus those without a history of a MI diagnosis. Preliminary descriptive statistics suggest that there are 29% of prevalence of H/L with a history of MI, 26% of H/L with co-existing chronic health conditions, there are 15% of H/L with a history of MI and co-existing chronic health conditions, and 10% of H/L without MI and chronic health conditions. In conclusion, there is a higher prevalence of coexisting chronic health conditions among H/L with a history of MI. Future research with H/L should develop preventive psychosocial interventions for patients coping with a history of MI and chronic health conditions.

NEUROBIOLOGICAL CORRELATES OF TRAUMA RECALL IN HISPANIC/LATINA WOMEN LIVING WITH OR WITHOUT HIV

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Hispanic/Latina Women living with HIV are 3-5 times more likely to be diagnosed with post-traumatic stress (PTS) disorder. Extant research suggests salivary cortisol reactivity to recall of traumatic events is positively associated with amygdala and hippocampal blood-oxygen-level dependent (BOLD) activity and negatively associated with ventromedial prefrontal cortex (VMPFC) BOLD activity during conditions involving emotional imagery/visualization. Following a trauma interview blood and saliva specimens were collected from acutely traumatized HIV+ and HIV-negative Latinas before and after a functional magnetic resonance imaging task wherein participants first listened to and then visualized autobiographical accounts of neutral, stressful, and traumatic events. A region of interest analysis was taken to compare change in BOLD signal between traumatic and non-traumatic conditions with pre- to post-fMRI changes in salivary cortisol output. Individuals reporting greater distress on the Impact of Events Scale (IES) had smaller change in cortisol. Higher scores on the IES were inversely associated with change in right centromedial (CM) amygdala BOLD activity between neutral and traumatic listening conditions. Across the sample, listening to traumatic autobiographical accounts was associated with greater BOLD activity in the VMPFC, but lower activity in the amygdala. When contrasting neural vs. traumatic listening conditions, greater increase in BOLD signal of the right central medial nucleus (CM) of the amygdala was associated with smaller change in cortisol output. However, this increase in BOLD activity was associated with a paradoxical decrease in cortisol output upon contrasting neutral vs. traumatic visualization conditions. Preliminary results suggest that the intrusive nature of listening to a traumatic (vs. neutral) event is associated with attenuation of amygdala and cortisol reactivity in traumatized persons with elevated levels PTS symptom severity. It is yet to be determined whether this neurobiological response to trauma recall will change upon randomization to a 4-week (English vs. Spanish language) virtual expressive writing intervention.

THE LIVED EXPERIENCES OF HAITIAN PATIENTS IN RURAL HAITI AFTER OSTOMY SURGERY

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Background: In low-income countries, ostomy surgery is often done as emergency surgery, with no other options to save the patient's life. In higher-income countries, managing subsequent care is often paid for by health insurance; patients have access to medical supplies and other interventions to learn how to live with a stoma. However, in Haiti, the quality of life of patients following major surgery is rarely addressed. In this study, we aim to understand how patients' lives changed after ostomy surgery, investigating areas such as changes in body image, personal and social life, economic challenges, and patients' understanding of the ostomy.

Methods: Using a qualitative approach, we conducted semi-structured interviews with patients (n=9) between 20 – 60 years old who had ostomy surgery at the University Hospital in Mirebalais, Haiti, and had been living with an ostomy for three months or more. Analysis was conducted using a thematic analysis approach.

Results: We found three main themes that defined the lived experience of individuals living with a stoma in Haiti. First, the stoma was a **"social disease"**, affecting the patient's relationships with family, friends, the work environment, and themselves. Second, the stoma was a **"life-altering event"**, forcing the patient to reflect on who they are, why this happened, and reassess their needs and abilities. Finally, although they were out of immediate medical danger, the medical journey of a stoma patient is **"arduous and fraught with suffering, uncertainty, and disappointment"**.

Conclusion: It is crucial to investigate the issue in order to develop better strategies to assist patients in improving their quality of life after ostomy surgery.

PSYCHOLOGICAL CORRELATES OF CURRENT VAPING AMONG YOUNG ADULTS IN PUERTO RICO

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Background: Little is known about the psychological correlates of current vaping among Puerto Rican young adults, a population disproportionately exposed to social and environmental stressors. Given the rising prevalence of vaping use, this study assessed the association between psychological factors and current vaping among young adults in Puerto Rico.

Methods: We used data from PR-OUTLOOK, a cohort study of Puerto Rican young adults aged 18-29 years. Recruited participants (n=1,504) completed a baseline survey between September 2020 and September 2022. Participants were asked 'Have you ever vaped?'. Those with an affirmative response were further asked: 'During the past 12 months, how often have you used an e-cigarette or vaper?', with response options being: 'daily', 'several times a week', 'during the weekends only', 'occasionally', and 'never'. Participants who responded 'no' to the first question or 'not in the past year' to the second question were classified as non-vapers for analysis. Those who endorsed any of the additional response options for the second question were classified as current vapers. The survey also assessed symptoms of depression (CESD-10), anxiety (STAI-10), post-traumatic stress disorder (Civilian Abbreviated Scale from the PTSD Checklist), and

perceived stress (PSS-4), and scale scores were dichotomized according to clinical or sample-based upper quartile cut-offs. Covariates included age, sex, and childhood material deprivation. Adjusted prevalence ratios (PR) and their 95% confidence intervals (95% CI) were calculated using Poisson regression models.

Results: Overall, 25% of participants were current vapers. Over half (59.6%) had elevated depression symptoms, 27.7% had elevated anxiety symptoms, 77.2% had elevated PTSD symptoms, and 64.8% had elevated perceived stress. In adjusted models, current vaping was significantly higher for those with elevated perceived stress (PR=1.38, 95% CI=1.13, 1.67), anxiety symptoms (PR=1.27, 95% CI=1.06, 1.53), and PTSD symptoms (PR=1.50, 95% CI=1.19, 1.91) compared to non-vapers.

Conclusion: Vaping was associated with elevated psychological symptoms. Future studies should examine the influence of psychological symptoms on young adults' efforts to quit vaping. Such data will be critical for informing public health efforts to reduce vaping among vulnerable young adults.

11) Abstract 608

FOOD SECURITY AND CHRONIC PHYSIOLOGICAL STRESS AMONG ADULTS IN PUERTO RICO

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Having limited access to healthy, safe, and sufficient food, can trigger psychological stress. This may translate into physiological stress, most consistently for the cortisol biomarker. However, most studies have measured food security (FS) as a presence vs. absence factor, and assessed cortisol from urine or saliva, which reflects acute, rather than chronic stress responses. We aimed to examine the association of FS using multiple categories and cortisol assessed from hair samples as a marker of chronic stress. We analyzed data from the baseline visit (2019-2022) of the Puerto Rico Observational Study of Psychosocial, Environmental, and Chronic disease Trends (PROSPECT; age 30-75y; n=516). Household FS was captured using the USDA survey module and categorized as high, marginal, low, and very-low FS. We asked about participation in the Nutritional Assistance Program (NAP). Hair samples were obtained following standardized protocols and analyzed for cortisol using an enzyme immunoassay kit. Values were log-transformed. Generalized linear models were used to obtain means (SE) of log-cortisol by FS category adjusted for sociodemographic and behavioral factors. Model 2 adjusted for NAP, and model 3 adjusted for visit pre vs. at COVID-19 pandemic. High FS was reported by 67.7%, marginal FS by 13.8%, low FS by 10.9%, and very-low FS by 7.6%. Significantly lower mean (SE) log-cortisol concentration was observed for participants with marginal FS compared to high FS (1.88 (0.26) vs. 2.26 (0.23) pg/mg; $p=0.02$); this was borderline significant for very low FS (1.89 (0.31) pg/mg; $p=0.12$). Adjusting for NAP did not change these associations. There were no significant differences for individuals with low FS vs. high FS. In sensitivity analysis, combining low and very-low FS categories did not differ from high FS, while marginal FS still showed significantly lower log-cortisol. Adjusting for COVID-19 attenuated all associations such that log-cortisol was equally > 2.0 pg/mg for all FS

categories. In conclusion, marginal FS may blunt the HPA-axis, reflected as lower cortisol, or chronic physiological stress. Formal food assistance does not seem to moderate this pathway. Enduring a widespread intense public health emergency heightened stress responses for all individuals. Future studies should explore these dynamics and the role of alternate food procurement strategies.

12) Abstract 224

RESILIENCE PROTECTS AGAINST DEPRESSION IN ORGAN TRANSPLANT PATIENTS DURING THE COVID-19 PANDEMIC REGARDLESS OF OVERALL PHYSICAL HEALTH

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Background: Organ transplant patients (OTPs) often have several comorbid health conditions that impact their overall health and quality of life. OTPs have a high risk for depression post-transplant and the presence of several major health conditions may increase such risk. Additionally, the risk for depression among OTPs was further exacerbated by the COVID-19 pandemic. Studies have shown that resilience is an important buffer for mental health symptoms among individuals experiencing adverse physical health conditions and may play a key role in combating depression during the pandemic. The current study examined if resilience moderates the relationship between the presence of major health conditions and depression in a sample of OTPs during the COVID-19 pandemic.

Method: OTPs ($N = 99$, 65% female, 82% White) completed an online survey during June-August 2020. The Brief Resilience Scale (BRS) and Patient Health Questionnaire-9 (PHQ-9) were used to measure resilience and depression, respectively. Major health conditions (e.g., cancer, diabetes, cardiovascular disease) were self-reported by the OTPs.

Results: The sample had an average of 3.3 ($SD = 2.2$) major health conditions, average depression score of 8.9 ($SD = 5.9$), and average resilience score of 3.4 ($SD = 0.8$). There was a significant main effect of resilience on depression ($\beta = -3.54$, $p < .0001$), but the number of health conditions main effect ($p = .956$) and the resilience x number of health conditions interaction effect ($p = .589$) were nonsignificant. OTPs reporting high resilience (1 SD above the mean) scored in the mild range for depression ($M = 5$, $SD = 4.7$), whereas OTPs reporting low resilience (1 SD below the mean) scored in the moderate range for depression ($M = 13.9$, $SD = 4.7$).

Discussion: The results indicate that resilience is an important protective factor for depression during the COVID-19 pandemic for OTPs regardless of their number of health complications. The beginning of the COVID-19 pandemic was a very stressful and socially isolating time for OTPs, and it seems resilience was a critical buffer for the development of depression symptoms during this difficult time. Interventions that promote resilience should be targeted towards OTPs at risk for or experiencing depression.

13) Abstract 596

SCORING METHODS FOR THE EPIDEMIC-PANDEMIC IMPACTS INVENTORY: HOW AND WHY TO ACCOUNT FOR TANGIBLE IMPACTS OF THE PANDEMIC ON PARENTS OF YOUNG CHILDREN

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Background: The Epidemic-Pandemic Impacts Inventory (EPII) is a 92-item measure developed to assess tangible impacts of the pandemic across several domains (i.e., work, home, and social life, physical health, and positive change). The EPII has been used in a variety of studies since its development in 2020. However, a standard scoring system has not been determined.

Method: We reviewed the literature and identified three ways in which previous studies have scored the EPII. Using data from 216 parents of young children (58% Black/African American, 57% male) who completed an online survey from Sept 2021–May 2022, we examined which method of scoring accounted from the greatest amount of variance in the Perceived Stress Scale, Parenting Stress Scale, and Positive and Negative Affect Scale (PANAS), independent of demographic factors (socioeconomic status, race/ethnicity, and number of children at home) and self-reported COVID-19 related stress (i.e., the COVID Stress Scale).

Results: For each scoring method, scores were summed separately for the domains associated with negative pandemic impacts (e.g., lost job due to pandemic) and positive pandemic impacts (e.g., spent more quality time with children).

Hierarchical linear regression results revealed that the EPII accounted for the greatest amount of variance on stress and mood variables when a score of “1” was given on items on which a participant endorsed themselves or a person in their home experiencing an event and a score of “0” was given on items on which the participant indicated neither themselves or a person in their home experienced the event. Additionally, in each model, the EPII was significantly associated with stress and mood independent of demographic factors and self-reported COVID stress.

Conclusions: Scoring the EPII in the way described above may maximize the measures’ potential to account for variance in stress and mood among parents of young children.

Additionally, the EPII may be a valuable measure to include in studies examining the impact of the pandemic on mental health, as its association with stress and mood appears to be independent of demographic factors and self-reported COVID stress.

14) Abstract 530

LONELINESS IS ASSOCIATED WITH SUBSTANCE USE AND CARDIOMETABOLIC DYSREGULATION AMONG SEXUAL MINORITY MEN IN THE COVID-19 ERA

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Background:

This cross-sectional study investigated the direct associations of loneliness with substance use and cardiometabolic dysregulation among sexual minority men (SMM) in the era of COVID-19.

Methods:

74 SMM with and without HIV in South Florida were enrolled from October 2020 until February 2022. Loneliness was measured via the UCLA loneliness measure (10-item, Cronbach’s $\alpha = .77$). Any methamphetamine, marijuana, inhalant, and club drug (GHB, ecstasy) use via self-report (past 3 months), or urine toxicology was examined. Cardiometabolic risk markers included body mass index (BMI), triglycerides,

blood pressure, insulin resistance (using the Homeostasis Model Assessment of Insulin Resistance or HOMA-IR), total cholesterol, total cholesterol to HDL cholesterol ratio, and LDL cholesterol. Regression analyses examined the associations of loneliness with substance use and cardiometabolic outcomes as well as possible moderating effects of BMI.

Results:

Logistic regression analyses were performed to ascertain the effects of loneliness on substance use. Loneliness was associated with 2.5% greater odds of methamphetamine use ($p < .05$, 95% CI [1.04, 6.03], 3.83% greater odds of marijuana use ($p < .01$, 95% CI [1.53, 9.57], and 3.38% greater odds of GHB use ($p < .01$, 95% CI [1.04, 11.02]). After adjusting for methamphetamine use, loneliness was associated with higher insulin resistance marked by greater HOMA-IR ($\beta = 0.25$, $B = 988.72$, $SE = 472.60$, 95% CI [46.39, 1931.06] $p < .05$).

Conversely, loneliness was associated with lower total cholesterol to HDL ratio ($\beta = -0.30$, $B = -1.05$, $SE = 0.45$, 95% CI [-1.94, -.15], $p < .05$) and decreased LDL cholesterol ($\beta = -0.32$, $B = -18.91$, $SE = 7.57$, 95% CI [-34.09, -3.73], $p < .05$), even after adjusting for BMI. BMI was not associated with triglycerides, total cholesterol to HDL ratio, LDL cholesterol, or HDL cholesterol ($p > .05$). Loneliness did not significantly correlate with BMI, triglycerides, blood pressure or HIV status.

Conclusions:

This cross-sectional study demonstrated that loneliness is associated with increased substance use, greater insulin resistance, and lower lipids among SMM recruited in the era of COVID-19. Future longitudinal research is needed to characterize the bio-behavioral sequelae of loneliness among SMM and develop novel intervention approaches to mitigate its negative consequences.

15) Abstract 454

GETTING THE COVID-19 BOOSTER VACCINE IN CANADA: PREVALENCE RATES AND MOTIVATORS FOR VACCINATION

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Background: Studies have shown that the protection offered by COVID-19 vaccines against hospitalization and death from COVID-19 decreases slowly over time due to the emergence of new variants and waning immunity. Accordingly, booster doses remain critical to minimizing the population health impact of the pandemic. Therefore, it is important to understand people’s attitudes, intentions, and motivators for getting a booster vaccine.

Objectives: This study examined the prevalence, sociodemographic correlates, and motivators of getting a COVID-19 booster vaccine in a large Canadian population sample.

Methods: We recruited a representative sample of 3001 Canadians aged 18+ as part of the iCARE study (www.icarestudy.com) using an online polling firm between Jan 20-Feb 2, 2022. Participants self-reported their booster status, intentions, and motivators, and were dichotomized into two groups: those who did vs. did not receive at least one booster dose.

Results: Of the sample, 67 % received a booster dose. Chi square analyses revealed that older age ($p<0.01$) and having a chronic disease diagnosis ($p<0.01$) were associated with a greater likelihood of getting a booster. People who received a booster dose reported that the following were the most important motivators for their decision: 1) having information that the booster is effective (65%); 2) wanting to do their part to achieve 'herd immunity' (65%); and 3) knowing that getting the booster would help protect others around them (70%). In comparison, people who had not received a booster reported that having information that the booster is: 1) effective (45%); 2) safe and unlikely to have any major long-term (44%); and 3) short-term (42%) side effects could motivate them to get vaccinated.

Conclusion: Results indicate that people who are younger and healthier are less likely to get COVID-19 booster doses. Boosted individuals reported motivators tied to efficacy and altruism, whereas non-boosted individuals reported motivators tied to efficacy and safety (lack of side effects). Given that newer variants have significantly reduced altruistic benefits of vaccination, results suggest that messaging will require careful tailoring to address the identified behavioral motivators, especially in those who have not accepted a booster dose.

16) Abstract 590

THE ASSOCIATION OF CONCERNS ABOUT ONE'S OWN HEALTH AND THE HEALTH OF LOVED ONES WITH LONELINESS IN COHABITATING COUPLES DURING THE COVID-19 PANDEMIC

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Background: The effect of COVID-19 and shelter-in-place orders in the US on loneliness was heterogeneous, perhaps due to different reasons for adopting social distancing practices. We hypothesized that an individual's concerns about their own health would be associated with greater loneliness, as would one's concerns about their loved ones' health. Because COVID-19 transmission risk is shared within a household, we additionally hypothesized that one's cohabiting partner's concerns about their own health and about the health of their loved ones would be associated with one's own greater loneliness.

Methods: Couples cohabiting in major US cities were recruited between May – September 2020 ($N = 51$ dyads; mean age = 36.31, $SD = 11.7$; 48.0% men; 65.6% White). Participants reported on COVID-19 related concerns about one's own health (2 items; e.g., "I was concerned about my health") and about their loved ones' health (2 items; e.g., "I was concerned about the health of my loved ones"). Loneliness was measured using the 3-item UCLA Loneliness Scale. Hypotheses were tested using linear regression models, and covariates included age, male gender, and White race.

Results: In the first model, neither one's concern for their own health, $B = 0.04$, 95% CI -0.05, 0.13, $p = .37$, nor one's partner's concerns for their own health, $B = 0.08$, 95% CI -0.01, 0.18, $p = .074$, was significantly associated with one's own loneliness. In the second model, one's concern for their loved ones' health was significantly associated with one's own loneliness, $B = 0.08$, 95% CI 0.00, 0.16, $p = .039$; one's partner's concerns for their loved ones' health was also associated with one's own loneliness, $B = 0.09$, 95% CI 0.01, 0.17, $p = .029$. Stated otherwise, an individual's concern about their partner's health, and their partner's concern about the

individual's health both resulted in significantly greater loneliness for that individual.

Conclusion: In couples cohabiting early during the COVID-19 pandemic, individuals more concerned about their loved one's health were significantly lonelier, as were individuals whose partners were more concerned about their loved ones' health. Conversely, neither individual nor partner concerns about one's own health were associated with loneliness. Loneliness may stem from motivation to isolate for the sake of others, rather than for oneself.

17) Abstract 629

COVID-19 VACCINE ATTITUDES IN ADULTS WITH AND WITHOUT ASTHMA: A HEALTH BELIEFS MODEL APPROACH.

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Background

Due to overlapping respiratory symptoms and a high prevalence of comorbid conditions, individuals with asthma may perceive higher susceptibility to severe COVID-19. This may lead to more motivation for protective health behaviors such as vaccination. To understand motivating factors for COVID-19 vaccination, we aimed to investigate how a diagnosis of asthma influences one's attitude towards COVID-19 and COVID-19 vaccines.

Methods

This study used data from a cross-sectional survey of 307 individuals (130 with asthma, 177 without) to investigate differences in COVID-19 vaccine attitudes between individuals with and without asthma. Data was collected using a 16-item self-report questionnaire developed from Health Belief Model (HBM) constructs to assess vaccine attitudes. Survey response structure was analyzed using principal component analysis (PCA). Between-group results were derived from ANCOVA controlling for age, gender, race, and education level.

Results

PCA revealed a two-factor structure for survey responses. ANCOVA revealed that individuals with asthma reported significantly higher perceived COVID-19 severity and susceptibility than those without asthma (e.g., "I have an increased risk of falling ill with COVID-19") ($F(1,301)=64.53$, $P<.001$). However, no group difference was found in perceived benefits and barriers of being vaccinated against COVID-19 (e.g., "COVID-19 vaccination has unpleasant side effects") ($F(1,301)=0.05$, $P=.82$).

Conclusion

This study suggests that a diagnosis of asthma differentially impacts HBM constructs in relation to COVID-19 vaccines. Results show that asthma affects perceived susceptibility to and severity of COVID-19, but not perceived benefits and barriers of being vaccinated against COVID-19. Research is needed to understand how HBM constructs may differentially impact asthma patients' decision to be vaccinated against COVID-19.

18) Abstract 491

EXAMINATION OF DAILY STRESSOR EXPOSURE, APPRAISALS, AND COPING WITH SUBJECTIVE SLEEP QUALITY: A MACHINE LEARNING APPROACH

Background: It is well-established people with inadequate sleep tend to have higher levels of stress. Much of the prior work has focused on perceived stress or exposure to major or minor stressors, but less research has focused on the links between sleep and stress appraisals, coping strategies, and coping efficacy. Exploratory approaches using fine-grained assessments may be warranted to examine which aspects of daily stress and coping are most related to sleep quality. Thus, the current study used machine learning methods to examine individual differences in daytime stress experiences (e.g., stressor types, appraisals, coping strategies and efficacy) and subjective sleep quality.

Methods: The analytical sample consisted of 245 participants from across British Columbia, Canada (ages 24 to 87; 72% women; 30% racial minorities), who were instructed to completed five mobile surveys over 14 days. Every morning, participants reported on their prior-night sleep. Every evening, they were asked about the day's stressor types (e.g., arguments, work stressors, home/family stressors, discrimination), appraisals, coping strategies, and perceived coping efficacy. We used random forest machine learning methods to predict subjective sleep quality from 26 aspects of daily stressful and coping experiences. Variable importance metrics were used to rank the predictive abilities of these stress measures.

Results: Of the 26 daily stress and coping predictors, the five that were most predictive of self-reported sleep quality were as follows: (a) perceived coping efficacy ($r = .38$), (b) feeling hopeful during the stressful experience ($r = .35$), (c) perceived threat of the stressor on how others feel about you ($r = -.15$), (d) use of active coping strategies ($r = .10$), and (e) rumination following the stressor ($r = -.25$).

Conclusion: The findings expand upon prior literature by demonstrating the importance of specific aspects of daily stress and coping on sleep quality. Future work could further explore these associations by using intervention approaches to test whether targeting these stress experiences might promote better sleep quality or vice versa.

19) Abstract 569

INDIVIDUAL DIFFERENCES IN EMOTION REGULATION AND CARDIOVASCULAR RESPONDING TO PASSIVE STRESS

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Instructed use of reappraisal to regulate stress in the laboratory is typically associated with a more adaptive cardiovascular response to stress, indexed by either: (i) lower cardiovascular reactivity (CVR; e.g., lower blood pressure); or (ii) a challenge-oriented response profile, i.e., greater cardiac output (CO) paired with lower total peripheral resistance (TPR). In contrast, instructed use of suppression is associated with exaggerated CVR (e.g., greater heart rate, blood pressure). Despite this, few studies have examined if the *habitual* use of these strategies are related to cardiovascular responding during stress. The current study examined the relationship between cardiovascular responses to an acute passive stress task and individual differences in emotion regulation style (trait reappraisal and suppression). Fifty-two participants (39 women, 13 men) completed a standardised laboratory stress paradigm incorporating a 20-minute acclimatization period, a 10-minute baseline, and two 5-minute tasks separated by a 10-minute inter-task rest period. The first task was an active speech task, and for the second task participants were asked

to watch the video-recording of themselves completing the speech task (this is a validated passive stress task). Cardiovascular parameters were measured using the Finometer Pro. Habitual use of reappraisal was not associated with blood pressure responding to the passive task. However, individuals scoring higher in habitual use of suppression demonstrated a vascular response profile, indexed by greater TPR and lower CO responding, during the passive task. The findings suggest that individual differences in suppression may lead to differing patterns of CVR to stress.

20) Abstract 472

THE RELATIONSHIP BETWEEN CARDIOVASCULAR STRESS REACTIVITY, CARDIOVASCULAR STRESS REACTIVITY HABITUATION, AND INFLAMMATION IN HEALTHY YOUNG ADULTS.

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Background: Both systemic inflammation and increased psychological stress are associated with the development of cardiovascular disease. Higher stressor-evoked autonomic responses to acute psychological stress are associated with higher levels of inflammation. A separate line of work suggests that examining habituation of cardiovascular responses between two identical stressors may provide a better marker of how individuals physiologically respond to stress in daily life. **Aim:** To examine the association between inflammation and cardiovascular reactivity habituation to two identical acute psychological stress tasks. **Methods:** Participants ($N = 105$, Mean (SD) age = 19.51 (0.82) years, 65.7% female, 61.9% Caucasian, 19% Hispanic) completed a single laboratory visit which included a repeated stress paradigm (10-minute adaptation period, 10-minute formal baseline, 4-minute mental arithmetic stress task, 10-minute intertask interval period, 10-minute formal baseline, and 4-minute mental arithmetic stress task). Heart rate (HR), systolic blood pressure (SBP), and diastolic blood pressure (DBP) were measured throughout. Averages were calculated within each study phase. Reactivity was: stress – baseline and habituation was then computed from the differences between the two reactivity measures. Inflammation was levels of C-reactive protein obtained from blood spots prior to the acute psychological stress paradigm. **Results:** In separate models adjusting for biological sex, race, ethnicity, parental socioeconomic status, and BMI, heart rate reactivity to the first stress exposure (Beta = .211, $p = .037$, 95% confidence interval = .002 - .050) and second stress exposure (Beta = .203, $p = .038$, 95% confidence interval = .002 - .065) significantly predicted CRP levels. There were no statistically significant associations between SBP or DBP reactivity to either stress task and C-reactive protein (CRP) levels. Additionally, there were no statistically significant associations between cardiovascular habituation and CRP levels. **Conclusion:** The present results demonstrate an association between autonomic reactivity and resting inflammation in response to two identical acute psychological stress task exposures during the same session (i.e., the effect sizes of the relationship between CRP and HR reactivity to the first and second stressor were similar).

21) Abstract 579

SELF-CONSCIOUS COGNITIONS AND EMOTIONS MEDIATES THE RELATIONSHIP BETWEEN DEPRESSIVE SYMPTOMS AND CORTISOL REACTIVITY

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Our prior research (Strickland et al.; APS 2022) demonstrated that the presence of social evaluative threat (SET) and anxious and depressive symptoms predicts exaggerated cortisol reactivity following an acute stressor. We expand on these analyses, testing whether cognitive and emotional states mediate the relationship between internalizing symptoms, social-evaluative context, and cortisol reactivity. Previous studies have demonstrated relationships between internalizing symptoms, shame, and social threat and there is theoretical and empirical evidence that self-conscious cognitions and emotions (SCCE: e.g., shame, humiliation, embarrassment) may accompany cortisol responses to social-evaluative threat. Therefore, we tested whether SCCE mediate the association between SET, depression, and exaggerated cortisol reactivity. Healthy undergraduate students ($N = 158$, 65% female) were randomly assigned to one of two speech-stressor conditions. SET was manipulated by the presence (SET) or absence (non-SET) of two evaluators. Salivary cortisol was collected before, during, and after the speech stressor. Anxious and depressive symptoms as well as SCCE were measured through questionnaires in the beginning of the study session. As previously reported, those high on depressive symptoms in the SET condition showed exaggerated reactivity. The new analyses demonstrated that SCCE mediates this relationship; the indirect path was significant (effect = 0.004, S.E. = 0.002, $z = 2.420$, $P = .016$, Monte Carlo CI = 0.001-0.007), but the direct path was not significant. This pattern of results indicates a total mediation effect was found such that SCCE mediates the relationship between depression and cortisol reactivity under SET: higher depressive symptoms was linked with higher SCCE, which, in turn, predicted higher cortisol reactivity in the SET condition. However, fear (but not SCCE) mediated the relationship between anxious symptoms and cortisol reactivity to SET. These results demonstrate that (1) individual differences in emotional reactivity may be leading to unique changes in cortisol reactivity above and beyond the impact of SET, and (2) that there may be different psychobiological processes underlying the different cortisol trajectories for anxiety versus depression.

22) Abstract 500

MECHANICAL AND CHEMICAL STIMULATION OF THE STOMACH EXERT DIVERGENT IMPACTS ON CARDIAC AUTONOMIC REGULATION IN ADULTS

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INTRO: Cardiac autonomic regulation is felt to primarily reflect feedback from mechanosensors (baroreceptors) located in large blood vessels and chemosensors located in the carotid body. However, the extent to which resting cardiac autonomic regulation may be influenced by feedback from mechano- or chemosensors located in the stomach remains unknown. Here, we sought to quantify the impact of a water load task (WLT; mechanical stretch of the stomach) or a nutrient drink task (NDT; mechanical stretch of the stomach and chemical stimulation of gastric mucosa) on measures of cardiac autonomic regulation in adult human subjects. **METHODS:** We recorded ECG and cardiac impedance measures from 85 adult subjects ($n=65$ WLT; $n=20$ NDT) who fasted for 4 or more hours prior to assessment. These recordings were obtained continually for at least 15 minutes prior to WLT/NDT and for at least 40 minutes after. Subjects were instructed to consume as much water as possible (within 5 minutes) to reach maximal fullness (WLT), or to consume as

much Ensure (Abbott; 50 cc per minute) to reach maximal fullness (NDT). We used the ECG data to determine resting HR, RMSSD, pNN50, and RSA and the cardiac impedance data to determine PEP. These measures were compared across conditions by either ANOVA or paired t-tests, with statistical significance taken as $p < 0.05$.

RESULTS: There were no discernable differences in baseline cardiac autonomic measures in subjects administered the WLT or NDT. However, we observed striking, divergent impacts of WLT and NDT on measures of cardiac autonomic regulation. WLT was associated with a lower HR, increased RMSSD, pNN50 and RSA, and unchanged PEP. This pattern of results implies that WLT is associated with increased parasympathetic and little, if any, change in sympathetic output to the heart. In contrast, NDT was associated with a higher HR, decreased RMSSD, pNN50 and RSA, and a markedly decreased PEP. This pattern of results implies that NDT is associated with decreased parasympathetic and increased sympathetic output to the heart.

CONCLUSIONS: Gastric mechanical and chemosensory interoceptive feedback differentially influences cardiac autonomic function. Thus, the state of gastric stretch and recency of nutrient exposure are both important factors to consider when interpreting resting measures of cardiac autonomic regulation.

23) Abstract 509

NATURE'S EFFECT ON STRESS AND EATING BEHAVIOUR: FOUR LAB STUDIES ON NATURE ASPECT DIFFERENTIATION

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Despite well-recognised health benefits of nature, it is still unclear which nature aspects (colour, smell, sound,...) can counteract stress, how to integrate nature indoors and whether nature also influences eating behaviour.

Methods: Before and after Trier Social Stress Test, participants were exposed to a) one of four slideshows with nature or urban environments in green or grey shades (study 1, $n=81$); b) one of four slideshows with interiors including plants or objects (study 2, $n=92$); c) one of three sound tracks of birds, streaming water or wind as control (study 3, $n=59$); d) one of three smells of pine tree, grass or water as control (study 4, $n=91$). Group differences were tested on perceived restorativeness, heart rate variability (HRV), salivary cortisol, affect, food craving and food choice.

Results study 1&2: Reported restorative power was highest for the green nature/plant group. Nature overall was more beneficial via lower HRV and negative emotions reactivity. Only study 2 showed more vegetable wanting and less snack wanting in the green plants group.

Results study 3&4: Both bird and water sounds led to better cortisol recovery (not reactivity) and were reported to be more stress reducing, but no differential effects on eating behavior were found. Pine smell led to more cortisol decrease in a non-stress situation, but grass led to more vegetable wanting and was expected to stimulate healthier food choice.

Conclusion: For stress and diet interventions, plants seem most important but green colours or other sensory elements like smell and sound can sometimes help. A focus group, diary study, cohort analysis and pilot intervention are ongoing.

24) Abstract 327

BLACK WOMEN'S PERCEPTION OF JUDGE'S RACE ON STRESS REACTIVITY DURING TSST PROTOCOL

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Background: A recent study among a sample of Black women revealed participants with greater experiences of racism showed greater stress reactivity (e.g., C-reactive protein (CRP), cortisol) after the Trier Social Stress Test (TSST), a highly standardized protocol shown to reliably induce psychosocial stress. However, the previous study did not account for the potential influence of participants' perception of the judges' race during the TSST. This study sought to explore the possible effect of perceived judges' race on stress reactivity among a sample of Black women.

Methods: Black women (N = 33) aged 18-22 were recruited from a public university. Before the TSST, participants completed the Schedule of Racist Events, which examined the frequency of racial discrimination in the past year, lifetime, and stress appraisal of discrimination. The impact of judges' perceived race was assessed by asking participants "Did the evaluators' perceived race have an impact on your performance?" 30 minutes after the TSST task. A one-way ANOVA assessed the differences in the mean frequency of racist events between participants who reported yes versus no regarding the impact of judges' perceived race. A two-factor repeated measures ANOVA assessed the differences in stress reactivity (e.g., cortisol, CRP) pre, post, 15, 30, 45, and 60 minutes after TSST by participants' reported impact of judges' perceived race. Participants who reported "yes" explained how race impacted their performance.

Results: 11 of 33 participants reported yes to being impacted by the judges' race. Participants who were impacted by judges' perceived race had significantly higher scores for frequency of racist events in the past year [$F(1, 31) = 8.15, p = .008$], lifetime [$F(1, 31) = 8.80, p = .006$], and stress appraised from racist experiences [$F(1, 31) = 4.33, p = .046$]. However, no differences in cortisol [$F(2.93, 90.95) = .888, p = .45$], or CRP [$F(5, 145) = .338, p = .89$] reactivity were observed. Participants described, "I felt like I was being treated differently by them because of how I look" and "When it came to answering the math question, I felt trapped and really just wanted to walk out of the room".

Conclusions: These findings highlight the importance of assessing judges' perceived race during the TSST as it relates to stress experiences, specifically discrimination-based stress.

25) Abstract 90

INTERNET-BASED BRIEF INTERVENTION FOR HEART-FOCUSED ANXIETY IN PATIENTS WITH CORONARY ARTERY DISEASE OR NON-CARDIAC CHEST PAIN

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Heart-focused anxiety (HFA) is a psychological determinant of adaptation to coronary artery disease (CAD) or non-cardiac chest pain (NCCP). HFA can be defined as a fear of cardiovascular symptoms and their anticipated negative consequences (e.g., myocardial infarction, death). The main components of HFA are fear (i.e., catastrophic interpretation of cardiac symptoms), attention (i.e., to cardiac symptoms), avoidance (i.e., of situations or activities that may cause cardiac symptoms) and reassurance-seeking behaviors (e.g., frequent medical consultations). These components influence

one another and result in an overrepresentation of psychological distress, impaired functioning, and lowered quality of life in patients with high levels of HFA. Although some interventions are available to improve outcomes in patients with high levels of HFA, they are difficult to access for all patients who need them, lack efficacy, and do not directly target HFA. Brief interventions seem promising in a stepped care setting and are more accessible due to their short duration and low cost. Thus, we aim to develop a brief intervention that directly targets HFA for patients with CAD and NCCP.

Our internet-based brief intervention specifically targets HFA through cognitive-behavioral strategies, that is: 1) psychoeducation: explanation of the components of HFA and their impact; 2) cognitive restructuring: identification of catastrophic thoughts about cardiac symptoms, modification into realistic thoughts, 3) strategies to assess cardiac symptoms safely and objectively; 4) behavioral strategies: identification and cessation of dysfunctional behaviors (attention, avoidance, reassurance); 5) gradual, prolonged, and repeated interoceptive exposure to symptoms and avoided or feared situations or activities. The intervention has a total duration of approximately one hour, is divided in five modules which are complete over a week. After each module, patients will be invited to complete a series of exercises and behavioral experiments.

Research and clinical implications: this intervention involve two studies assessing its acceptability, feasibility, and effectiveness. The proposed intervention could improve the functioning and quality of life, as well as alleviate the healthcare costs associated with elevated HFA in patients with CAD or NCCP.

26) Abstract 350

"WOOP IS MY SAFE HAVEN": A QUALITATIVE FEASIBILITY AND ACCEPTABILITY STUDY OF THE WISH OUTCOME OBSTACLE PLAN INTERVENTION FOR SPOUSES OF PERSONS WITH EARLY-STAGE DEMENTIA

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Supporting a spouse who has dementia can be stressful and lead to decreased psychological well-being for the care partner. The Wish Outcome Obstacle Plan (WOOP) intervention has recently been shown to improve the wellbeing of spouses of persons living with dementia (PLWD) by guiding its users to achieve meaningful goals. However, little is known about how WOOP is implemented in this population. This pilot study explored the feasibility and acceptability of WOOP and identified factors that shaped its successful implementation for spouses of PLWD. Twenty-one spouses of PLWD were interviewed three times over the course of three months. Thematic analysis was used to analyze the qualitative data. Emergent themes were organized in accordance with Proctor et al.'s taxonomy of implementation outcomes and the Theoretical Domains Framework. Three meta-themes central to experiences using WOOP and implementation success were identified: 1) Assessing Baseline Strengths and Limitations, 2) Learning from Experience, and 3) Finetuning and Sustaining WOOP. Seven themes fall into these meta-themes and are differentially present throughout the visits: 1a) Understanding WOOP Concepts while Coming to Terms with Dementia, 1b) Improving Caregiving Skills and Self-Perceptions, 2a) The Rewards and Challenges of Involving PLWD, 2b) Becoming in

Tune with Emotions and Actions, 3a) Adapting the WOOP Design, 3b) Improving the Delivery of WOOP, and 3c) Problem-Solving through Anticipated Action to Overcome Obstacles. WOOP is feasible for addressing interpersonal and emotional stressors of spouses. WOOP was found to be acceptable for improving spouses' self-perceptions, affective spouses to behavior changes of PLWD, and the quality of spousal relationships. Self-reflection and action-oriented goal attainment were strengths of WOOP. The individual-level delivery, rather than the group delivery, of WOOP and anticipatory grief of spouses were challenges to implementation success. This study was also limited by convenience sampling which resulted in mostly White, highly educated spouses. Future directions include adapting WOOP for spouses of PLWD to group delivery, addressing anticipatory grief, and working with diverse groups to adapt WOOP in this illness context.

27) Abstract 633

A 2-WEEK COURSE OF TRANSCUTANEOUS VAGUS NERVE STIMULATION AND COGNITIVE PERFORMANCE

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Reduction in vagal activity may play an etiological role in cognitive problems including dementia. The efficacy of a transcutaneous vagus nerve stimulation (tVNS) - an intervention with direct effects on brain systems underlying cognitive function - in improving cognitive problems is unknown. We tested the effect of daily tVNS administered for 2 weeks on cognitive function in a sample of 68 men and women aged 18 to 75 years. Here we present results from 5 cognitive tests on executive function and memory. Participants were randomised into four groups: early and late active tVNS (left tragus) and early and late sham (placebo) tVNS (left earlobe). Early groups underwent daily 4hr stimulation between Day 0 and 13, while late groups underwent daily 4hr stimulation between Day 14 and 28. Cognitive outcomes included 1) cumulative score of 4 executive function tests (from NIH Examiner Battery) and 2) Immediate recall (Rey's Auditory Verbal Learning test). Analysis of prespecified contrasts, revealed that executive function score improved in all groups similarly over time and that there were no differences in change between placebo and active stimulation. For immediate recall, there were significant improvements for actual tVNS between Day 0 and 13 in the early stimulation phase ($p = 0.02$), and between Day 14 and 28 in the late phase ($p = 0.01$). No such a statistically significant improvement was found in sham tVNS group independent of timing (early or late). Moreover during the late period, the improvement in immediate recall in the tVNS group was greater compared to the sham tVNS group ($p = 0.01$). Overall, we found that tVNS applied daily improved immediate recall but not executive function. Our preliminary results suggest that transcutaneous vagus nerve stimulation may have a beneficial effect on memory but not executive functioning.

28) Abstract 646

UNDERSTANDING BIOPSYCHOSOCIAL FACTORS IMPACTING SUBSTANCE USE INTERVENTION EFFICACY AND ADHERENCE WITHIN A MULTISITE GRADUATE PSYCHOLOGY EDUCATION TRAINING INITIATIVE

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Background: Using a biopsychosocial framework to evaluate treatment progress offers a valuable lens to understand substance use and recovery. Global data indicate age and region may be more indicative of problematic substance use than sex assigned at birth. Evidence of the efficacy for medication-assisted (MAT) and therapeutically driven substance use treatment continues to grow, yet little is known about treatment adherence within non-traditional, integrated, or pilot-stage programs. Authors analyze the program efficacy and treatment adherence across three treatment sites in west Alabama with various levels of integrated behavioral health care: two outpatient settings (a rural MAT clinic; a non-profit community health center) and one residential rehabilitation facility.

Methods: Participants were 206 individuals (51% male, Age: $M = 40.05$, $SD = 1.75$). Self-identified race was 77% White, 18% Black, and 5% other. Participant demographics were collected at screening; attendance of at least one individual psychotherapy session with a graduate psychology trainee was tracked. Provider characteristics (sex, race) and client demographics (sex, race, age, marital status, education) were considered in assessing treatment adherence. Correlational analyses examined associations between variables.

Results: Reasons for therapy termination differed across treatment sites due to site policies, loss of contact, and relapse. Correlational analyses indicated a positive therapeutic relationship based on therapist sex ($r = .159$, $p = .014$) and site location ($r = .185$, $p = .004$). Treatment adherence was positively associated with client age ($r = .197$, $p = .002$) and race ($r = .138$, $p = .032$) and with site location ($r = .148$, $p = .022$). Clients were more likely to attend therapy if the therapist was female. More clients attended sessions at the residential facility over the outpatient settings. Marital status and education were not associated with adherence.

Conclusion: Results fill a gap in scientific and clinical knowledge by offering insight into the development of training clinics supported by federal grants and designed to deliver evidence-based treatments at no cost to individuals with substance use disorders. By incorporating biopsychosocial factors into the case conceptualization of substance use intervention, treatment sites, and provider features, treatment adherence may improve over time

29) Abstract 709

ATTENTION AND ANXIETY ABOUT GASTROINTESTINAL SYMPTOMS AND IBS SYMPTOMS: CHANGES BEFORE AND AFTER INTERVENTION WITH HYBRID CBT-IE FOR IBS

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Background: Irritable bowel syndrome (IBS) is a functional gastrointestinal disorder in which brain-gut interaction plays an important role. It has been suggested that excessive attention to gastrointestinal symptoms conditioned by repeated experiences of abdominal pain can produce anxiety about such symptoms and affect these symptoms in IBS (Saigo et al., 2017). We conducted a single-arm pilot study of a small number of patients (n=7) using the Japanese version of hybrid CBT with interoceptive exposure for IBS (hybrid CBT-IE for IBS) (Funaba et al., 2021). We compared participants' attention to the gastrointestinal symptoms, their anxiety about the symptoms, and IBS severity between pre-intervention, post-intervention, and 3- and 6-month follow-ups. **Methods:** Seven IBS patients screened by Rome III were recruited (m/f=1/6, 17-50 years, severe IBS/moderate IBS=3/4). The Japanese version of hybrid CBT-IE for IBS consisted of ten weekly individual sessions. Patients were educated about IBS symptoms and cognitive behavioral skills by presenting video as homework, which was discussed in a subsequent, 30-minute face-to-face session. Outcome measures were the severity of IBS symptoms (the Japanese version of the IBS-severity scale; IBS-SI-J), the Japanese version of the Body Vigilance Scale (BVS-J), which measures attention to bodily sensations, and the Visceral Sensitivity Index (VSI), which measures gastrointestinal anxiety. One-way ANOVA was used for IBS-SI-J, BVS-J, and VSI scores to evaluate changes over time in this program. **Results:** Significant effects of time were found in participants' attention to gastrointestinal symptoms of the BVS-J scores ($F(4, 24)=6.19, P < 0.05$), the VSI scores ($F(4, 24)=5.97, P < 0.05$), and IBS severity of the IBS-SI-J scores ($F(4, 24)=8.04, P < 0.05$). From pre-intervention to post-intervention and pre-intervention to the 6-month follow-up, these showed reductions in the BVS-J. From pre-intervention to post-intervention, pre-intervention to the 3-month and 6-month follow-ups, and mid-intervention to post-intervention, these showed reductions in the IBS-SI-J. **Conclusions:** Hybrid CBT-IE for IBS may influence participants' attention to gastrointestinal symptoms and their anxiety about them and IBS severity. We will conduct RCT to validate the mechanism of action of hybrid CBT-IE for IBS.

30) Abstract 716

PSYCHOLOGICAL MECHANISMS UNDERLYING DISPARITIES IN PAIN TREATMENT DECISIONS

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Clinicians in the U.S. tend to underprescribe opioid and non-opioid analgesics to members of minoritized ethnic and racial groups which has led to inadequate pain management for minoritized ethnic and racial groups and women. One of the possible mechanisms underlying analgesic prescribing disparities is that clinicians make pain assessments and treatment decisions based on inaccurate demographic pain sensitivity and opioid abuse stereotypes about their patients. To understand the psychological and physiological mechanisms underlying these health disparities, we conducted a series of simulated clinical interactions during which medical trainees saw mock musculoskeletal injury patients of different demographic groups (written vignettes and evoked pain videos) while in the MRI scanner and made pain assessments and treatment recommendations. Structural equation modeling was used to analyze preliminary behavioral data with the

clinician-patient dyad being the unit of analysis. In a sample of 1040 clinician-patient interactions, we found that clinicians assessed the pain of their patients based on the demographic pain sensitivity and opioid abuse stereotypes that they held. In addition, positive opioid attitudes and higher medical experience of the clinicians were associated with a higher likelihood of prescribing opioids to their patients. Some gender differences were also observed, with men prescribing more analgesics than women and assessing pain intensity as higher, while women assessed pain unpleasantness as higher. These findings replicate findings of a previous study in our laboratory and may help explain why minoritized individuals report more pain than non-Hispanic white individuals but receive less treatment. These findings may ultimately inform clinician training interventions to mitigate demographic pain treatment disparities.

32) Abstract 645

THE ASSOCIATION BETWEEN ADVERSE CHILDHOOD EXPERIENCES AND PAIN OUTCOMES AMONG AFRICAN AMERICAN WOMEN LIVING WITH AND WITHOUT SYSTEMIC LUPUS ERYTHEMATOSUS

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Background: Systemic Lupus Erythematosus (SLE) is a chronic, often painful, autoimmune condition that disproportionately affects racial/ethnic minority women in the U.S. Black women are 4-5 times more likely than others to develop SLE and have worse outcomes. Environmental factors, including psychosocial stressors, are thought to play a major role. Adverse Childhood Experiences (ACEs) are implicated in the risk and outcome of autoimmune diseases but few studies examined Black women. We hypothesized that ACEs have a stronger association with pain among Black women living with, versus without, SLE.

Methods: We conducted a cross-sectional analysis of 191 Black female adults with SLE and 190 without SLE living in Georgia between 2017 and 2020. SLE study volunteers were recruited from the Georgians Organized Against Lupus (GOAL) cohort, and comparison women were recruited to be of comparable age and race and from the same geographic areas as women with SLE. ACEs were measured using a 10-item questionnaire, with subdomains (abuse, neglect, and household dysfunction) analyzed separately. Pain was assessed using the PROMIS pain-interference and bodily pain scales. We stratified by SLE diagnosis and adjusted for sociodemographic (age, education, income, partner status) and clinical factors (BMI, years living with SLE). **Results:** ACE scores were similarly distributed across the two ($p=0.40$). Reports of both pain interference and bodily pain were higher in women with, versus without SLE (p -values $< .001$). Among women with SLE, overall ACEs were positively associated with each unit increase in pain interference ($B=0.42, 95\% \text{ CI: } 0.14-0.70, p=0.004$) and bodily pain ($B=2.33, 95\% \text{ CI: } 0.85 - 3.81, p=0.002$). Results by subdomain varied across outcomes. Only marginal associations were observed in pain interference for the women without SLE ($B=0.22, 95\% \text{ CI: } -0.03 - 0.46, p=0.08$); however,

the ACEs by SLE status interaction for pain outcomes was non-significant.

Conclusion: In conclusion, among Black women, ACEs are more strongly associated with pain in those with SLE compared to those without. Our results are consistent with life-course theories on how early experiences shape outcomes later in life, and more so in vulnerable women.

33) Abstract 708

ATTENUATING THE SPREADING OF PAIN-RELATED AVOIDANCE BEHAVIOR

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Contemporary fear-avoidance models assign a key role to excessive pain-related avoidance in the development and maintenance of chronic pain disability. Avoiding pain-associated activities is adaptive as it prevents bodily harm. However, when avoidance spreads (generalizes) excessively toward safe activities, it can lead to disproportional withdrawal from harmless and valued daily activities, which may culminate into disability. Hence, systematic experimental investigation of ways to reduce excessive avoidance generalization is warranted. An overview of potential targets to intervene on avoidance generalization will be provided within a conditioning framework; competing goals, perceptual accuracy, and positive affect will be highlighted specifically. Next, two experimental studies with pain-free participants will be introduced which showed the potential of perceptual accuracy and positive affect respectively as experimental intervention targets. The first showed that poorer proprioceptive accuracy was associated with excessive pain-related avoidance ($p = .35$, $p = .024$); the second showed that increased positive affect was associated with less generalization of avoidance ($= 0.15$, $p = .001$), and less generalization of pain-expectancy ($= 0.02$, $p = .009$) and pain-related fear ($= 0.02$, $p = .005$). Ultimately, a fundamental understanding of how avoidance becomes excessive and how this may be countered can help develop and optimize clinical treatment strategies

34) Abstract 376

EXAMINING THE MODERATING RELATIONSHIP OF GENDER ON PARENTING STRESS, PERCEIVED STRESS, AND AFFECT

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Background: Parents of young children experience a great deal of general and parenting-specific stress, which impacts their emotions and moods (i.e., affect). Low positive affect (PA) and/or high negative affect (NA) have implications for parenting behaviors. Levels of parental stress and PA/NA may differ based on gender. Similarly, the association between stress and affect may also differ by gender. This study examines 1) gender differences in parents' stress and affect and 2) gender differences in the association of stress with affect.

Methods: The current study is a secondary analysis of baseline data from a 3-arm RCT examining the effects of app-based interventions on psychological distress for parents/primary caregivers of children ten years or younger. Male ($n=124$) and female ($n=92$) caregivers completed the Perceived Stress Scale (PSS; measure of general stress), Parental Stress Scale (PAS; measure of parenting-specific stress), and the Positive and Negative Affect Schedule for Adults (PANAS-A) PA and NA subscales. ANOVAs examined gender differences in study variables, and the PROCESS

macro for SPSS was used to examine gender as a moderator of the association of PSS and PSS with PA and NA.

Results: Men reported more PA than women (41.58 vs. 39.10; $p<.008$), but there were no other gender differences observed ($ps>.3$). Gender moderated the association between PSS and PA and NA ($ps<.05$). Specifically, men reported high PA regardless of their PSS ($B=-.07$, $p=.672$), whereas women reported lower PA as their level of PSS increased ($B=-.56$, $p<.001$). Conversely, PSS had a stronger positive association with NA for men ($B=1.45$, $p<.001$) than for women ($B=1.01$, $p<.001$). Though there was a significant main effect of PAS on PA ($B=-.12$, $p=.02$) and NA ($B=.42$, $p<.001$), gender did not moderate the associations ($ps>.2$).

Discussion: High general stress appears to take a toll on PA for women, but men may report high PA regardless of their general stress level. Conversely, high general stress may be associated with greater NA for men compared to women. Parents reporting high general stress may benefit from interventions with different foci (e.g., increasing PA for women, decreasing NA for men). Notably, parenting-specific stress appears to be associated with PA and NA in the expected directions, regardless of gender.

35) Abstract 604

LOSING YOUR WALKING PARTNER: CHANGES IN WALKING FREQUENCY AFTER SPOUSAL LOSS

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Couples who engage in healthy behaviors together tend to also report better health. Walking with a spouse is associated with higher adherence to a walking exercise routine, and research suggests that regular walks are good for mental and physical health, in addition to serving as a protective factor against chronic illnesses. These habits are especially important to maintain in older age, but those who walk with their spouse may be at risk of declining in this healthy behavior after losing the spouse. To compare changes in walking frequency after spousal loss, this study drew from participants of the Changing Lives of Older Couples (CLOC) study, a multi-wave prospective study of spousal bereavement. Respondents were included if they lost their spouse during the study ($n=259$, mean age=70.5). At baseline and 6-months after spousal loss (Wave 1), participants were asked how frequently they walk, and with whom—spouse (at baseline), other/pet, or no one. Models controlled for age, sex, minority status, education, baseline walking frequency, months between baseline and loss, and spousal caregiving. Participants who walked with their spouse decreased their walking frequency more post-loss than those who never walked with others ($b=.530$, $SE=.199$, $p=.008$). Those who walked with their spouse did not differ in post-loss walking frequency from those who walked with someone else or a pet ($b=.232$, $SE=.217$, $p=.286$). However, walking with others had no effect compared to walking alone ($b=.298$, $SE=.199$, $p=.134$). Though walking with a spouse is likely beneficial to health and longevity, older adults that walk with their spouses may experience more disruption to their walking routines after spousal loss than those who never walked with their spouse in the first place. It is possible that in a marriage where health behaviors are shared, individuals are more vulnerable to adverse changes in their health habits after experiencing spousal loss. Future research should explore if these results extend to other joint health behaviors.

36) Abstract 562

SENSE OF POWER AND MARKERS OF CHALLENGE AND THREAT DURING AN EXTRA-DYADIC PROBLEM

DISCUSSIONS BETWEEN ROMANTIC PARTNERS AND CLOSE FRIENDS

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Power, the capacity to exert influence while resisting others' influence attempts has implications for a wide variety of individual- and relationship-level outcomes, potentially through the motivation orientation power elicits. Using the Biopsychosocial Model of Challenge and Threat, this study examined how power is related physiological responses indicative of psychological challenge (i.e., approach) and threat (i.e., avoidance) during extra-dyadic problem discussions between individuals in established romantic relationships and close friendships. We predicted that higher actor power would be associated with more approach-oriented challenge and less avoidance-oriented threat. We recruited 145 romantic couples and 160 pairs of best or close friends to attend a laboratory session in which one dyad member (the discloser) disclosed their most stressful extra-dyadic problem to their partner or friend (the responder) and engaged in a discussion about this problem over a period of 8 minutes. Cardiovascular measures recorded at baseline and during the conversation were used to examine pre-ejection period, cardiac output, and total peripheral resistance reactivity. Using a series of Actor-Partner Interdependence Models, we evaluated how actor and partner power were associated with physiological markers of challenge and threat during the problem-focused discussion. Among romantic partners, we found that for disclosers with high-power partners, greater actor power was associated with physiological responses consistent with more avoidance-oriented threat and less approach-oriented challenge. However, among friends there were no associations present between actor or partner power and physiological reactivity indicative of challenge and threat. Among both friends and romantic partners, we found that high actor power was associated with self-reported appraisals more consistent with approach-oriented challenge. This study advances our understanding of how power elicits motivational orientations and influences the stress response system by highlighting the importance of situational attributes that may undermine power during self-disclosure with a high-power partner in problem-focused conversations among romantic partners and by suggesting that these dynamics may play a different role in problem-focused conversations between friends.

37) Abstract 323

CORRELATES OF SYSTOLIC BLOOD PRESSURE RECOVERY IN DEMENTIA CARE DYADS DURING A RELATIONALLY STRESSFUL TASK

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The present study investigated correlates of Short-term Systolic Blood Pressure Recovery (SBPR) in 76 dementia care dyads during a relationally stressful task. Both the person living with dementia (PLWD) and the adult child care partner were asked to talk with each other about their current and future concerns about the PLWD having memory loss (in randomized order). Baseline SBP was collected at three time points. Finally, SBP was taken during a debriefing task about how COVID has affected their lives. Difference scores were computed such that SBP during the stress discussion was subtracted from the SBP post stress discussion during the debriefing discussion. Positive scores indicate worse or slower SBPR and negative scores indicate better or faster SBPR. About 53% of the care partners had slow SBPR and 31% had

fast SBPR during their own stress discussion, 56.7% had slow SBPR and 27.8% had fast SBPR during the PLWD's stress discussion. About 56% of PLWD had slow SBPR and 29% had fast SBPR during their own stress discussion whereas 52% had slow SBPR and 34% had fast SBPR during the care partner's stress discussion. Next, we examined demographic (age and gender), psychological (depressive symptoms), and relational correlates (attachment) of slow or fast SBPR and found that older age was associated with having fast SBPR for both the care partner and PLWD during the PLWD's stress discussion. Additionally, higher care partner avoidant attachment was associated with worse SBPR for the care partner during the PLWD stress discussion and more care partner depressive symptoms was associated with worse SBPR for the care partner during the care partner stress discussion. Thus, when the PLWD is describing their concerns, it is associated with poorer SBPR in the care partners (more stress) when care partners report higher avoidant attachment. When care partners themselves are describing their concerns, they have poorer SBPR when they report higher depressive symptoms. These results suggest that psychological and relational factors play a role in dementia care dyad interactions and may be associated with worse cardiovascular outcomes for care partners over time. These findings highlight the need for dyadic interventions early on in dementia prognosis to improve care partner outcomes.

38) Abstract 649

A MIXED-METHODS ANALYSIS OF SLEEP HEALTH, SOCIAL SUPPORT, AND MATERNAL DISTRESS IN RURAL WOMEN

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The intersection of geography, socio-economic position, and marginalized ethno-racial identity indicate increased risk of poor sleep health in rural mothers who typically have less access to specialized perinatal and behavioral healthcare. Using a multi-dimensional measure of sleep health (SATED), a diagnostic sleep disorder interview, and narrative interviews of the lived experience of mothers, we examined the relationship between sleep health and potential risk and protective factors across various socio-ecological domains.

The sample included 39 mothers of infants and children under the age of 5 years who resided in a Deep South rural community. Mean age was 29.64 years ($SD = 5.51$) and race/ethnicity was self-identified as 38.5% Black/African American, 59% White, and 2.6% Asian. A majority of the sample (69.3%) reported household income below \$50,000 and 43.6% were employed full-time. We used a convergent, parallel mixed-methods approach including quantitative data and semi-structured interviews.

Average sleep health was poor ($M = 5.9$; $SD = 2.28$). Forty-six percent reported usually obtaining between 6-8 hours of sleep per night and 38.5% reported mild to moderate sleep-related impairment. Sleep health was positively associated with social support ($r = .418$, $p \leq .01$), and negatively associated with maternal distress ($r = -.528$, $p \leq .01$). Most interviewed participants ($n = 35$) reported more than one night awakening ($M = 2.60$, $SD = 1.78$), with approximately 58% reporting insomnia symptoms. Emergent sleep related themes parallel quantitative findings (Table 1) and deepen our knowledge of risk (Table 2) and protective factors (Table 3).

This sample reported overall poor sleep health, high complaints of insomnia, and insufficient sleep at rates comparable to non-rural populations. Social support was

identified as a potential protective factor, but some mothers reported social isolation and lack of access to behavioral health care in the community. Consideration of social–ecological factors affecting sleep health in future research is warranted to understand sleep in the context of the transition to motherhood. Findings also suggest that the efficacy of existing treatment methods in this population should be examined, while also exploring the feasibility of culturally-tailored public health programs for promoting sleep health in rural women and families.

Figure 1

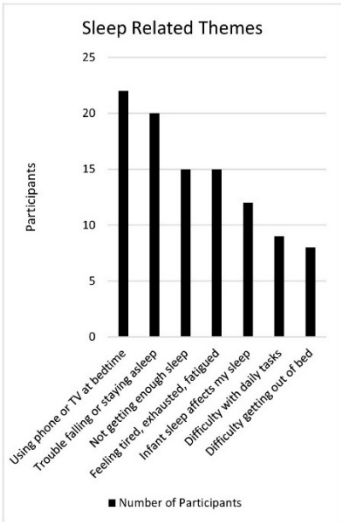


Figure 2

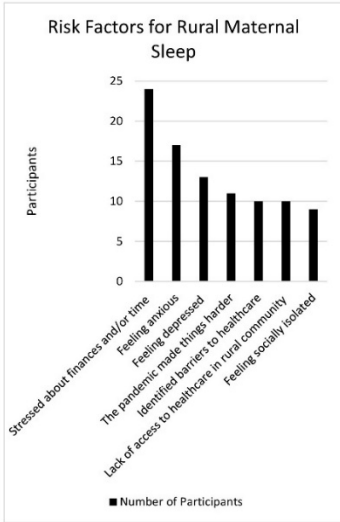
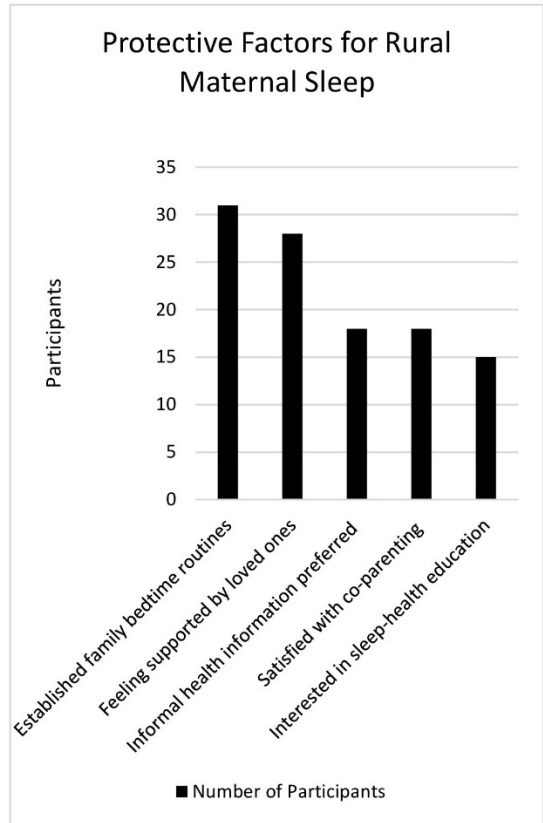


Figure 3



39) Abstract 121

CULTURAL SHAME, CULTURAL INFERIORITY, AND DIABETES SELF-MANAGEMENT AMONG FILIPINO

AMERICANS WITH TYPE 2 DIABETES: AN ANALYSIS FROM PRELIMINARY DATA

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Background

US healthcare is rooted in racism and colonial legacy; it continually erases minoritized groups, including Filipino Americans (FA), leading to health inequities. FAs' type 2 diabetes (T2D) rate is as high as 19% among FA men, higher than the average American adult. Despite FAs' long colonial history, little is known about colonialism's influence on self-management behaviors.

Aim

The study examined the relationship between colonial mentality (CM) and self-management among FAs with T2D.

Methods

We collected preliminary cross-sectional survey data in 2022 using the Colonial Mentality Scale (CMS) and Diabetes Self-Management Questionnaire. The CMS measures five CM manifestations: within-group discrimination, physical characteristics, colonial debt, cultural shame, and cultural inferiority. We used Spearman rho due to non-normally distributed measures.

Results

Participants (n = 27) have had T2D for M = 6.15 years (SD = 6.9). More than half were born in the Philippines, 46% were men, and 25% had an annual income of <\$25K. There was a statistically significant, moderate, negative correlation between cultural shame (r = -.44, p = .024), cultural inferiority (r = -.42, p = .028) and T2D self-management. All other CM manifestations had small to moderate correlations to self-management but were not statistically significant.

Discussion. CM is a conceptualization of internalized racism: a sense of inferiority relative to white values. Prior studies linked the effect of CM to psychological well-being and how health-related shame is an affective determinant of health. To our knowledge, this is the first study that examined the relationship between CM and diabetes self-management. Individuals who felt being Filipino was a curse, ashamed, or denied their heritage, and those who felt inferior to white culture had suboptimal self-management. Understanding colonial mentality and how to decolonize attitudes are critical constructs in developing interventions to help with self-management. Unfortunately, these are currently understudied.

Conclusion

Racism is a fundamental cause of health inequity. This preliminary study shows how racism is intertwined with CM and disease management. The power imbalance and the embedded racial-colonial legacies in the US continue to shape FAs' diabetes care experiences, ultimately perpetuating health inequities.

40) Abstract 124

POSITIVE EMOTIONAL WELL-BEING AND HBA1C IN A NATIONWIDE STUDY

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Introduction: Hemoglobin A1c (HbA1c), a marker of glucose levels over a three-month period, is the key biomarker for diabetes, pre-diabetes, and glycemic control. Positive

emotional well-being (PEWB) consists of high positive affect and life satisfaction and low levels of depression. Few studies have investigated the link between HbA1c and PEWB in the general population. We hypothesized that higher positive affect and life satisfaction would be related to lower HbA1c in a nationwide sample as well as a chronically ill, older subsample. Method: Data were from a nationwide survey (N= 1933) which included an older, chronically ill subgroup. Two aspects of PEWB were assessed: positive affect and life satisfaction. HbA1c was analyzed via blood-spot from a finger-prick. The mediating role of health behaviors (smoking, alcohol, BMI, and moderate exercise) was also examined.

Results: Higher positive affect and higher life satisfaction were significantly related to lower HbA1c in the overall ($t = -2.458$, $p = .014$; $t = -2.616$, $p = .009$) and older, chronically ill samples ($t = -3.005$, $p = .003$; $t = -2.983$, $p = .003$) controlling for demographics and health behaviors. When demographics, depression, and health behaviors were controlled, both positive affect and life satisfaction remained significantly related to lower HbA1c in the older, chronically ill sample, but were only significantly related to lower HbA1c in the overall sample on a one-tailed test. Two health behaviors emerged as potential mediators in the overall sample: BMI (between positive affect and HbA1c), and exercise (between life satisfaction and HbA1c). In the overall sample, individuals with lower positive affect and lower life satisfaction were at increased odds (OR= 1.37; and OR= 1.13) of having clinically elevated HbA1c (≥ 6.5), indicative of diabetes. In the chronically ill, older sample, individuals with lower positive affect and lower life satisfaction were also at increased odds (OR= 1.59; and OR= 1.14) of having clinically elevated HbA1c (≥ 6.5).

Discussion: These findings suggest that PEWB factors like positive affect and life satisfaction are associated with HbA1c in both the general population and older, chronically ill individuals. Positive affect appears to have a stronger relationship with HbA1c than life satisfaction. Health factors such as BMI and moderate exercise mediate this relationship.

41) Abstract 129

THE IMPACT OF A STRESSFUL BUT NON-THREATENING FILM ON SUBSEQUENT SLEEP: A PILOT STUDY

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Stressful experiences, including those in which an individual is a witness, have shown to alter mood and sleep. The impact of a stressor depends on psychosocial factors and environment. Our study aims to determine if a stressful, but non-threatening film negatively impacts sleep, compared to a neutral film condition. We are also measuring psychosocial and demographic moderators of the stress-sleep relationship. We are piloting a pre-registered, randomized 10-day experimental design to address the questions above. In this study, we use films to induce stress in a non-threatening manner in participants' (N=30) homes. On Day 1, participants consent, complete questionnaires, and are instructed on actigraphy watches and corresponding diaries. Sleep is monitored for 7 days. Participants watch the film night 8, completing mood surveys before and after. Three films are tested in undergraduates: *Whiplash* (stress, N=10), *Hidden Kingdoms* (neutral, N=10), and *Barbecue: Every fire tells a story* (neutral, N=10). Sleep is monitored for a subsequent three nights.

Pilot data collection is currently underway and will be complete before the conference; we are not looking at results prior to completion of data collection, consistent with the pre-registration. Thus far, 15 participants have completed the

protocol, and 10 have been compliant with all elements of the protocol (i.e., the surveys, daily diaries, films, and actigraphy). We will present full compliance data, the manipulation check for stress and mood, and the impact of the films for actigraphy-assessed sleep. We hope to use pilot data to plan a larger study and are evaluating the efficacy of the design at this stage.

42) Abstract 135

PERCEIVED STRESS AND CARDIOMETABOLIC RISK FACTORS AMONG SOUTH ASIANS WITH PREDIABETES

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Introduction: Diabetes and diabetes risk factors such as hypertension are highly prevalent in India. Psychosocial factors such as stress may play a role in diabetes development and might impact diabetes prevention efforts in Asian Indians, but research is lacking. The aims of this analysis were to: (1) examine the association between stress and cardiometabolic risk factors in a population of South Asians with prediabetes and (2) assess whether a diabetes prevention program mitigates the impact of stress with cardiometabolic progression.

Methods: This analysis used data from the Diabetes Community Lifestyle Improvement Program (D-CLIP) study, a randomized control trial for diabetes prevention in Chennai, India (n=575). Perceived stress was self-reported by participants and cardiometabolic risk factors (weight, waist circumference, systolic blood pressure, fasting glucose, HbA1c) were assessed at each study visit. Multivariable linear regression was used to assess associations between perceived stress and cardiometabolic risk factors at baseline and over a 3-year follow-up period.

Results: Perceived stress and cardiometabolic risk factors were not associated at baseline. Participants reporting high baseline stress gained an average of 2.9 kg ($b = 2.85$; 95% CI: 0.38, 5.31) over the 3-year study period compared to participants reporting low stress. Participants reporting a decrease in stress over the study period had a lower HbA1c over follow-up compared to participants reporting no change in stress levels ($b = -0.14$; 95% CI: -0.27, -0.01). Participants reporting high stress had a higher waist circumference over the study period compared to participants reporting low stress, although the effect was attenuated in intervention participants (Control arm: $b = 2.72$; 95% CI: 0.04, 5.39; Intervention arm: $b = 0.37$; 95% CI: -2.47, 3.20).

Discussion: In this population, psychosocial stress was associated with negative cardiometabolic risk factor outcomes (e.g., weight gain) over time. Lifestyle interventions should consider incorporating stress management techniques to reduce stress levels.

43) Abstract 138

EXPERIENCES OF INTERPERSONAL TRAUMA ACROSS THE LIFECOURSE AND HYPERTENSIVE DISORDERS OF PREGNANCY: DISENTANGLING THE ROLE OF TRAUMA AT DIFFERENT TIME POINTS.

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Goal: The objective was to estimate the association between exposure to interpersonal trauma across critical time points in

the life course (childhood, adolescence, adulthood) and hypertensive disorders of pregnancy (HDP, inclusive of gestational hypertension, preeclampsia, and eclampsia). **Methods:** We conducted a secondary analysis of data from the Grady Trauma Project linked to data from the electronic medical record for 513 people who were pregnant or postpartum at enrollment. The exposure of interest was interpersonal trauma (self-reported using the Traumatic Events Inventory, an 11-domain screening tool including witnessing or experiencing violence, sexual abuse, or maltreatment) that occurred prior to the age at delivery. We defined trauma as occurring in childhood (ages 0-9), adolescence (ages 10-19), or adulthood (ages 20+) and, separately, as a 4-category interpersonal trauma exposure: (1) none; (2) reported only during one time point; (3) reported during two time points; (4) reported during three time points. We fit inverse probability of treatment weights (IPTW) for any trauma definition (childhood, adolescent, adult, or accumulation), accounting for potential confounders (education, race, age, parity, income, relationship status, and employment status). We fit separate logistic models to estimate odds ratios (ORs) and 95% confidence intervals (CIs) for the independent effect of each trauma timing definition on HDP, using IPTW. **Results:** Trauma exposure across the lifespan was common in this sample with 25.5% (131) of birthing people reporting one or more interpersonal traumas at all three critical time points. Few experienced trauma at only one time (27.3% (140)) or never (8.4% (43)). Overall, 21.3% of deliveries were complicated by HDP with the highest risk of HDP in the group of individuals who reported no trauma exposure (37.2% (16/43)). There was no association between HDP and accumulated trauma (adjusted OR, experiencing trauma at all three critical windows v. none: 1.8 (0.3, 12.3)) or with exposure during specific windows (child, OR: 0.8 (0.5, 1.3); teen: 1.2 (0.7, 2.3); adult: 0.8 (0.5, 1.3)). **Conclusion:** In this sample, trauma exposure was not associated with HDP, potentially due to the high baseline risk of both in the sample.

Table 1. Patterns of interpersonal trauma exposure, 513 birthing people from the Grady Trauma Project					
Trauma Exposure Pattern ^a	Percent in Strata	Any hypertensive disorder of pregnancy	Gestational diabetes	Meets PTSD Diagnostic Criteria ^b	PTSD symptoms
	% (N)	% (N)	% (N)	% (N)	Median (IQR)
None	8.4 (43)	37.2 (16)	9.8 (4)	4.7 (2)	1 (6.5)
Child only	1.9 (10)	20 (2)	0 (0)	10 (1)	6 (8)
Teen only	16.8 (86)	23.3 (20)	4.8 (4)	17.4 (15)	6 (13.3)
Adult only	8.6 (44)	15.9 (7)	0 (0)	11.4 (5)	3 (10)
Child & Teen, no adult	16 (82)	17.1 (14)	2.5 (2)	35.4 (29)	11 (18)
Teen & Adult	20.3 (104)	20.2 (21)	5 (5)	20.2 (21)	7 (15)
Child & Adult	2.5 (13)	7.7 (1)	0 (0)	23.1 (3)	7 (15)
Child & Teen & Adult	25.5 (131)	22.1 (29)	4.8 (6)	52.7 (69)	19 (20)

Abbreviations: PTSD: post-traumatic stress disorder; IQR: interquartile range
^a Self-reported using the Traumatic Events Inventory, inclusive of witnessing or experiencing violence, witnessing intimate partner violence as a child, sexual assault/maltreatment, childhood physical maltreatment, or childhood emotional maltreatment
^b Assessed using the Modified Posttraumatic Stress Disorder Symptom Scale (Falsetti, 1993)

44) Abstract 145

PERCEIVED CONSEQUENCES OF ACQUIRING CARDIOVASCULAR DISEASE PREDICTS 10-YEAR RISK IN DISEASE-FREE PRIMARY CARE PATIENTS
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Cardiovascular disease (CVD) remains the leading cause of death in most developed countries across the globe. Previous research has demonstrated that higher levels of perceived overall threat of CVD in those living with some forms of the disease are associated with poorer psychosocial and medical morbidity outcomes. Little is known, however, regarding the extent to which perceptions of CVD are associated with health outcomes among healthy individuals, especially among Puerto Ricans, a population with alarming cardiovascular health disparities. The aim of this study was to examine the relationship between perceived consequences of acquiring CVD in the future and a 10-year body mass index (BMI) based cardiovascular disease risk (CVR) in a preliminary sample (N = 36) of Puerto Rican primary care patients. Descriptive and multivariate analyses revealed the average age was 51 ± 12.78 years, 67% were females, and the average 10-year CVR was intermediate, 13.92 ± 10.17%. Individually, age positively predicted 10-year CVR (b = .593, R² = .543, p < .001), and resting heart rate variability and perceived consequences negatively predicted 10-year risk (b = -.441, R² = .168, p = .008 and b = -1.27, R² = .098, p = .035), respectively. In an adjusted model, only age remained significant. Biological sex and psychological symptoms were not significantly related to CVR. These findings highlight the importance of assessing the perceived consequences of CVD in persons without the disease as an adjunct primary prevention screening tool. Future clinical and research efforts examining these associations in a larger sample are urgently warranted.

45) Abstract 152

PSYCHOSOCIAL FACTORS AND C-REACTIVE PROTEIN ACROSS RACE, SOCIOECONOMIC STATUS AND SEX: EXAMINATION OF A NATIONAL COHORT
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Objective: The psychosocial constructs of stress, depression, and social support play an important role in health disparities. Biological variables correlated with psychosocial stress and disease (biomarkers) such as C-reactive protein (CRP) are studied to understand psychobiological processes that contribute to these disparities. Establishing whether biomarkers are similarly associated with psychosocial constructs across demographic groups is important for the construct validity of biomarkers, and to our understanding of the psychobiological mechanisms contributing to health disparities. **Method:** In a population-based national cohort of 30,239 Black and White adults aged 45 years or older residing in the continental United States (US), we examine associations between perceived stress, depressive symptoms, and social support with CRP and whether associations vary by race, socioeconomic status, or sex. **Results:** The depressive symptoms-CRP association did not vary by race but was slightly larger at higher (vs lower) income levels and for men (vs. women). The stress-CRP and social support-CRP associations were not moderated by income, race, or sex. Independent of psychosocial variables, results also revealed an interaction between race and income, such that higher income was more strongly associated with lower CRP in White participants compared to Black participants, consistent with the idea of “diminishing returns.” **Conclusions:** Results suggest that associations between CRP and stress, depressive symptoms, and social support are very similar across race, income and sex. Implications for CRP as a biomarker of stress

and theories relevant to CRP and psychosocial constructs across these demographic factors are discussed.

46) Abstract 189

BENEFIT FINDING BUFFERS THE NEGATIVE EFFECTS OF POSTTRAUMATIC AVOIDANCE ON MENTAL HEALTH IN RENAL CELL CARCINOMA SURVIVORS

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Background: A cancer diagnosis is often traumatic and may result in posttraumatic stress symptoms (PTSS), including negative intrusive thoughts/feelings or avoidance of reminders of the diagnosis and treatment experience. PTSS are associated with poor mental health-related quality of life (MH-QOL). Benefit finding (BF), or the process of growing from adversity, may buffer the effects of PTSS on MH-QOL. Identifying buffers of association of PTSS with MH-QOL among patients with renal cell carcinoma (RCC) is particularly important, as they experience higher distress than patients with other cancer.

Methods: The present study is a secondary analyses of a randomized clinical trial examining the effects of an expressive writing intervention on QOL for patients undergoing RCC treatment. Patients ($n = 177$) with RCC (28% with advanced disease) completed the Impact of Events Scale (IES-intrusion and IES-avoidance subscales), Benefit Finding Scale (BF), and the Medical Outcomes Study Short Form Survey (SF-36) mental health component subscale (MCS) at baseline (initial consult prior to treatment) and 10 months later. The PROCESS macro (model 1) for SPSS was used to examine the IES x BF interaction effect on MCS at baseline and 10-months later. All analyses covaried for stage, treatment type, surgery status, and group; 10-month analyses covaried for the baseline level of variables.

Results: BF did not significantly moderate the association of IES-intrusion ($p = .083$) or IES-avoidance ($p = .205$) with MCS at baseline. Additionally, BF did not significantly moderate the association of IES-intrusion with MCS at 10-months ($p = .113$). However, BF did significantly moderate the association of IES-avoidance with MCS at 10-months ($p = .013$); as BF increased, the association between IES-avoidance and MCS became less negative. In fact, conditional effects revealed that, for participants reporting high BF (1 SD above mean), there was no association between IES-avoidance and MCS ($B = -.07$, $p = .478$). A similar trend was observed in the nonsignificant moderation models.

Discussion: BF may buffer the association of avoidance behaviors on MH-QOL among RCC survivors. Interestingly, this effect was not detected at baseline, when participants were beginning RCC treatment. Understanding the role of BF may assist in developing interventions to improve MH-QOL for patients with RCC experiencing PTSS.

47) Abstract 241

INTERPERSONAL RELATIONSHIPS, STRESS AND SYMPTOMS IN CHRONIC FATIGUE SYNDROME (CFS): A MIXED METHODS STUDY

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Introduction: Chronic Fatigue Syndrome (CFS) is a contested disorder that produces a range of symptoms, e.g., persistent, severe fatigue (Baker & Shaw, 2007). People with CFS (PwCFS) face stressful events daily, e.g. negative interactions with family/healthcare professionals. Research has shown the way partners interact can influence illness outcomes for PwCFS (Band et al., 2015). PwCFS may feel they are disbelieved, or the legitimacy of their illness is being questioned (Dickson et al., 2007). Research suggests significant others play an important role in the experience of CFS for PwCFS. Due to the likelihood of stress being a regular experience for PwCFS, it is important to explore what aspects of a romantic relationship are related to stress outcomes in CFS. **Method:** This project is a mixed-methods study. **Qualitative study:** Semi-structured interviews ($N = 17$) were conducted with PwCFS. Participants were asked about their experiences of stress and how their partners respond to their stress. This study also explored the stress management techniques PwCFS adopt, as well as the experiences of stress during the Covid-19 pandemic. Some examples of themes derived from analysis are 'Stress worsening symptoms', 'Guilt related to caregiver burden'. **Quantitative study:** A marital interaction discussion paradigm was used to explore whether specific communication behaviours were related to stress reactivity (biological and psychological) and symptoms in PwCFS. Dyads made up of PwCFS and their partner took part in the discussion and salivary cortisol samples were taken at baseline and across the task. We examined the impact different communication behaviours (e.g. solicitousness) have on stress reactivity and CFS symptoms. The LIFE coding system (Hops et al., 1995) was used to code communication. Data is currently being collected and results will be available by March 2023. **Conclusions:** We expect solicitousness, negative communication styles, and partner criticism to be related to an increase in cortisol reactivity in PwCFS, alongside an increase in CFS symptoms. Partner warmth/support during the marital interaction is expected to be associated with a blunted cortisol response, alongside lower levels of CFS symptoms. This study may help PwCFS and their partners understand the impact their relationship has on symptoms and stress, and has implications for health professionals.

48) Abstract 277

PRENATAL MINDFULNESS AND INFANT NEGATIVE EMOTIONALITY

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Parental mindfulness is associated with benefits to infant emotional development (Duncan et al., 2009). While two studies from one prospective sample from the Netherlands suggest that maternal mindfulness during pregnancy predicts less negative social emotional behavior at 4-months (Braeken et al., 2017) and less negative affectivity at 10-months (van den Heuvel et al., 2015), these findings are limited by a relatively homogeneous sample. Research is needed to prospectively test this research question within a racially, ethnically, and socioeconomically diverse sample, as children from minoritized backgrounds are more likely to have socioemotional difficulties (Henry et al., 2019). The present analyses test whether maternal mindfulness during pregnancy predicts infant negative emotionality at 6-months in a sample of 167 mother-child dyads recruited at prenatal care visits through a community-based clinic in a Western US city. On average,

mothers were 30.37 years old (SD = 5.38 years), with a median household income of \$60,000. Offspring were 53.9% female and were identified as 43.6% non-Hispanic White, 23.6% Hispanic, 8.5% Hispanic Black, 16.4% more than one race, and 7.9% "other". Maternal mindfulness was self-reported at 10-weeks prenatal and 6-months postnatal using the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006). Infant negative emotionality was assessed at 6 months using the negative affectivity subscale of the parent-reported Infant Behavior Questionnaire-Revised (IBQ-R; Gartstein & Rothbart, 2003). Linear multiple regression analysis revealed that greater prenatal mindfulness significantly predicted lower infant negative emotionality at 6-months ($\beta = -.22$, $p = .01$), controlling for income and employment. Prenatal mindfulness remained a significant predictor of infant negative emotionality when postnatal mindfulness was added to the model ($\beta = -.28$, $p = .027$). This suggests a unique association of prenatal maternal mindfulness with infant socioemotional development. Thus, pregnancy may be an ideal time to implement maternal mindfulness interventions to support positive infant outcomes. Future work is needed to test whether this association is causal and to investigate the potential mechanisms underlying these relations to better understand how prenatal mindfulness might confer benefits to offspring.

49) Abstract 297

SELF-COMPASSION IS ASSOCIATED WITH THE SUPERIOR LONGITUDINAL FASCICULUS IN THE MIRRORING NETWORK IN HEALTHY INDIVIDUALS

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Objective: The present study examined the effectiveness of the mindful self-compassion (MSC) program on anxiety, depression, self-compassion and emotion regulation.

Methods: A total of 29 subjects (mean age 27.5 ± 6.5 years, 15 males and 14 females) participated in a standardized 8-week MSC program. The control group consisted of age- and sex-matched twenty participants (mean age 26.0 ± 2.9 years, 11 males and 9 females). All subjects completed self-report measurements at two weeks before and after the MSC program.

Results: The MSC training improved self-compassion as demonstrated by the significant group x time interaction effects on the total Self-Compassion Scale scores ($F(1, 47) = 8.324$, $P < 0.01$). Regarding subscales scores, a significant improvement on self-kindness, isolation and mindfulness components of self-compassion was observed after MSC training. The MSC training also improved acceptance emotion regulation strategy as demonstrated by the significant group x time interaction on the acceptance subscale scores of the Cognitive Emotion Regulation Questionnaire ($F(1, 47) = 6.845$, $P < 0.05$).

Conclusions: The MSC training showed efficacy in fostering self-compassion and improving emotion regulation. Thus, this program might be applicable to improve mental health.

Keywords: Mindful self-compassion; Anxiety; Depression; Emotion regulation

50) Abstract 315

COMPARING RESPONSES IN AUTONOMIC ACTIVITY AND THE PERCEIVED STRESS SCALE ACROSS GENDERS

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There is some controversy over whether gender differences on the perceived stress scale are due to a difference in the number and magnitude of stressors across groups or gender socialization. A comparison of the factor structure for the 10-item perceived stress scale was performed in undergraduates ($n = 296$) and a community-based sample ($n = 210$). In both groups, women scored higher on the perceived helplessness ($d = .375$ & $.282$) and total PSS ($d = .337$ & $.393$), however in the community cohort, men were trending towards higher self-efficacy than women ($d = -.215$ [CI $-.486, .056$], $t(201.727) = -1.554$, $p = .061$).

Next, in the undergraduate sample ($n = 74$) we tested the association between both factors with two objective measures associated with autonomic arousal (interbeat interval and root mean successive squared differences) derived from ECG recordings. At 8 of the 14 timepoints for RMSSD, and no IBI timepoints were positively correlated with self-efficacy ($R = .254 - .345$, $p = .003 - .041$). In contrast, 9 timepoints for IBI, and none for RMSSD, were negatively correlated with perceived helplessness.

While a reduced model containing only gender and BMI was not a significant predictor of RMSSD during a racial stressor ($F(2,64) = 1.304$, $p = .278$), including self-efficacy in the full model significantly increased the correlation between the model and RMSSD ($\Delta R^2 = .151$, $F(1,63) = 11.718$, $p = .001$). In this model, self-efficacy ($\beta = .391$, $p = .001$, partial $\eta^2 = .396$) was a significant predictor and gender was trending towards an effect ($\beta = -.270$, $p = .073$, partial $\eta^2 = -.224$). A model containing only gender and BMI was sufficient in predicting mean IBI ($F(2,64) = 16.996$, $p < .001$) with gender but not BMI being a significant predictor ($\beta = -.588$, $p < .001$, partial $\eta^2 = -.588$). Including helplessness to the model didn't significantly increase the predictive value of the model ($\Delta R^2 = .018$, $F(1,63) = 1.744$, $p = .191$).

The factor structure of the PSS was consistent with prior studies showing a 2 factor structure of positively and negatively-phrased items. While the differences in IBI score for people who report high perceived helplessness can be explained by gender, RMSSD showed an association regardless of gender or BMI. These findings highlight the value separately analyzing each PSS factor.

51) Abstract 429

GREATER EXPECTATIONS THAT EATING REDUCES NEGATIVE MOOD PREDICT GREATER REDUCTIONS IN NEGATIVE MOOD FOLLOWING STRESS-EATING, BUT ONLY FOR WOMEN WITH HIGH STRESS-INDUCED ANXIETY

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Affect regulation models suggest that stress-eating results in short-lived reductions in negative mood (i.e., emotional relief) that promote further stress-eating via negative reinforcement. According to outcome expectancy theory, individuals who experience greater negative reinforcement from previous stress-eating learn to expect greater negative reinforcement from future stress-eating. These heightened eating

expectancies (e.g., expectations that eating reduces negative mood) are associated with disordered eating, but it is unknown whether they predict actual emotional relief from stress by eating, or whether the relationship depends on post-stress anxiety and food intake. We predicted that post-stress snack food intake would moderate the extent to which post-stress anxiety moderates the relationship between eating expectancies and emotional relief from stress by eating. 45 undergraduate women completed a battery of assessments that included eating expectancies. On a subsequent visit, participants underwent a mental stress task before tasting and rating three snacks: M&Ms, golden Oreos, and chips. The moderated moderation model (PROCESS model 3) was significant, $F(10,34)=8.7$, $p=.001$; $R^2=.72$. Greater pre-stress eating expectancies significantly predicted greater emotional relief from stress by eating only under conditions of high post-stress anxiety ($b=.015$, $SE=.005$, $p=.006$; 95%CI: .004-.025), and regardless of the amount of snack food consumed post-stress ($b=.000$, $SE=.000$, $p=.56$; 95%CI: -.0001-.000). Thus, eating expectancies may only have predictive validity under conditions of high stress-induced anxiety and this moderation does not depend on food intake. If replicated, these results may inform prevention and treatment efforts for individuals with obesity, disordered eating, or anxiety disorders.

52) Abstract 503

ASSOCIATIONS BETWEEN STRESS, UNCONSTRUCTIVE REPETITIVE THOUGHT, AND AFFECT ARE MODERATED BY AGE IN A DIVERSE MIDLIFE SAMPLE

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In general, older adults (from midlife onward) tend to report lower perceived stress, higher positive affect (PA), and lower negative affect (NA) compared with younger adults. However, when they experience high stress, older adults show evidence of greater affective reactivity and vulnerability to developing adverse cognitive patterns, such as unconstructive repetitive thought (URT). URT may help explain how the link between affect and stress changes across the lifespan. The present study used data from a larger investigation of diverse midlife adults ($n = 219$, age range: 25-65, $M_{age} = 46.5 \pm 11.09$, 65% female) to investigate whether age (w) moderates the associations between stress (x), URT (m), and affect (y), controlling for gender and education. At baseline, participants reported lifetime chronic stress and tendency to experience URT; at wave 2, approximately 9 months later, the same participants reported PA and NA from the past month. Separate moderated mediation analyses (Hayes PROCESS Model 8) for PA and NA were performed. Direct effects in each model were significant, such that higher baseline stress was related to lower PA ($p = .006$) and higher NA ($p < .001$) at wave 2, but were not moderated by age. Additionally, higher stress related to greater URT, and this association was moderated by age ($p = .031$). Specifically, the Johnson-Neyman technique indicated that higher stress was related to greater URT only among adults of 36.4 years and older. Further, greater baseline URT was associated with lower PA ($p < .001$) and higher NA ($p < .001$) at wave 2. Importantly, conditional indirect effects revealed that the link between baseline stress and wave 2 affect through URT was age dependent: moderated mediation was only observed among

individuals at average age and one standard deviation above, but not among younger individuals, for both PA and NA. In summary, higher stress was associated with greater URT, and in turn, lower PA and higher NA, in older participants. These results suggest that URT uniquely accounts for variance in the association of stress and affect starting at midlife. Implications include a broader understanding of how stress may relate to negative health outcomes, particularly in the context of aging. Future research will assess whether similar associations are observed when stress, URT, and affect are measured in daily life.

53) Abstract 535

THE APNEA HYPOPNEA INDEX VERSUS HYPOXIC LOAD: ELUCIDATING THE EFFECTS OF COMORBID SLEEP APNEA AND INSOMNIA ON FUNCTIONING

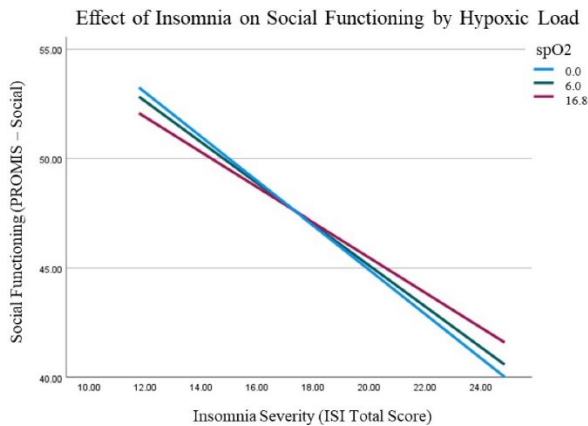
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Introduction: Up to 67% of patients with sleep concerns present with comorbid insomnia and obstructive sleep apnea (COMISA). Together, patients with COMISA experience reduced quality of life and poor functioning. Obstructive sleep apnea is diagnostically defined using the apnea hypopnea index (AHI); however, nocturnal hypoxia may vary given the same AHI. Studies often explore COMISA using the AHI, not hypoxic load. However, the physiological consequences of reduced oxygen may interact differently with insomnia. We sought to explore whether, in Veterans with insomnia, hypoxic load or AHI would better predict detriments to daytime functioning.

Methods: Veterans at high risk for sleep apnea completed a psychosocial battery the night before a sleep study at the Miami VA Sleep Center. The ability to participate in social roles (SR) and the physical function (PF) subscales of the PROMIS-29 assessed daily functioning. Insomnia was measured with the Insomnia Severity Index (ISI). During the subsequent sleep study, hypoxia (minutes of oxygen saturation (SpO2) spent below 90%) was measured with pulse oximetry. AHI represents the number of abnormal breathing events per hour of sleep. The SPSS PROCESS Macro (model 1) tested the effects of AHI or SpO2 and ISI on functioning, controlling for age and sex.

Results: Veterans ($n=392$) were primarily male (84.5%), with a mean age of 51.7, who presented, on average, with an AHI of 18.7 and an SpO2 below 90% of 5.8 (range: 0-60.6). SpO2 interacted with insomnia severity for both social and physical functioning (SR: $b=0.012$, $p=0.006$, PF: $b=0.012$, $p=0.002$). These interactions were not found with AHI/ISI (SR: $b=0.004$, $p=0.161$, PF: $b=0.001$, $p=0.740$). Social and physical functioning was less sensitive to the impact of insomnia in those with more severe hypoxemia. (Figure 1).

Conclusions: Greater insomnia severity predicted worse daily functioning, a relationship that attenuated among Veterans with greater time spent below SpO2 90%. Greater hypoxic load may buffer the effect of insomnia symptoms on Veterans, resulting in better functioning. AHI was not associated with insomnia severity and functioning. Further research should explore the nuanced presentation of patients with COMISA that may predispose subgroups to worse outcomes.



54) Abstract 547

ECONOMIC INEQUALITY CAUSES ALTERATIONS TO BRAIN FUNCTIONING DURING RISK TAKING

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Global economic inequality is on the rise, and has important implications for the health, well-being, and economic outcomes of both individuals and societies. Indeed, recent psychological research has revealed that higher economic inequality leads people to take greater risks (Payne et al., 2017). But why is this the case? In the current study, we explore how economic inequality can get “into the skull” to influence brain functioning and decision making. Specifically, we examined three possible neurocognitive mechanisms through which economic inequality may influence decisions to be risky: 1) enhanced cognitive conflict, 2) heightened sensitivity to reward, and 3) impaired executive control. In order to test these mechanisms, forty-five young adults completed the Balloon Analogue Risk Task (BART) while undergoing functional magnetic resonance imaging (fMRI). During the task, participants pumped up virtual balloons to win points, but risked losing those points if the balloon popped before they chose to stop pumping and collect their earnings. Economic inequality was manipulated before each trial by showing participants graphs of the proportion of total points earned by “previous players,” which displayed either a highly unequal distribution (i.e., high-inequality condition) or a relatively equal distribution (i.e., low-inequality condition). Whole-brain analyses revealed that as participants decided to further pump up the balloons during the low inequality trials compared to during the high inequality trials, they showed significantly more activity in regions within the executive control network, such as the left dorsolateral prefrontal cortex and the left inferior frontal gyrus. This suggests that as risk increased under conditions of low economic inequality (vs. high economic inequality), participants were more likely to recruit regions that are involved in cognitive control. We thus postulate that high economic inequality may lead to greater risk taking in part by weakening people’s ability to recruit brain regions that support top-down control during decision-making, and resist a desire to be risky. Results from this study have important implications for our understanding of the mechanisms linking economic inequality to disparities in health and well-being.

55) Abstract 550

THE INFLUENCE OF SOCIAL MEDIA CREEPING ON INFIDELITY-RELATED PTSD SYMPTOMS OVER TIME

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Background: Experiencing infidelity can be an extremely stressful event for betrayed partners and may precipitate symptoms consistent with posttraumatic stress disorder (PTSD). Given the pervasive use of social media, betrayed partners may engage in interpersonal electronic surveillance of their (ex-)partner (or social media “creeping”) to cope following infidelity. It is unknown how engagement in this behavior influences infidelity-related symptoms of PTSD.

Methods: Study 1 consists of 74 unmarried young adults recruited from a southeastern university who reported experiencing a partner’s infidelity within the past 3 years and who endorsed being a regular social media user. Participants completed measures of social media creeping and infidelity-related PTSD symptoms at 2 time points approximately 4 weeks apart. Data collection is ongoing for Study 2, which will be used to replicate findings and broaden generalizability by recruiting older and more geographically diverse samples through ResearchMatch (a web-based recruitment registry) and a midwestern university. We will also explore how these associations manifest over longer periods of time by including an additional follow-up assessment.

Results: Among the initial sample, cross-lagged models revealed that engagement in social media creeping at time 1 predicted infidelity-related PTSD symptoms at time 2 ($\beta = .22, p = .020$), but not vice versa ($p = .455$). We found that social media creeping specifically predicted negative cognitions/mood ($\beta = .21, p = .020$) and hyper-arousal/reactivity PTSD symptom clusters ($\beta = .23, p = .013$), but not re-experiencing/intrusions or avoidance symptom clusters ($ps > .05$). Additionally, engagement in social media creeping was associated with PTSD symptom maintenance among a group of participants with probable PTSD at time 1 who participated prior to the COVID-19 pandemic ($\Delta R^2 = .06, p = .031$).

Conclusions: Preliminary results reveal that monitoring a betraying (ex-)partner’s social media activity, a relatively common behavior, may influence infidelity-related PTSD symptom severity and maintenance. Results from ongoing data collection and analysis will expand upon these findings. Incorporation of the additional samples will allow us to determine whether these findings replicate with samples with a broader demographic composition and over an extended follow-up period.

56) Abstract 570

EVERYDAY DISCRIMINATION IS A ROBUST PREDICTOR OF SLEEP-RELATED IMPAIRMENTS AMONG BLACKS IN NEW YORK AND MIAMI

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Background: Race-based stressors and discrimination are believed to be the logical explanation for widespread racial/ethnic disparities in sleep health. In that respect, this

study aimed to highlight the effects of discrimination on sleep-related impairments among Black adults.

Methods: Our sample included 280 Blacks and African-Americans participating in two NIH-funded community-based sleep studies, ESSENTIAL and MOSAIC. Participants were recruited between January 2020 and April 2022 in the New York City or Tri-State area ($n=101$; 36%) and South Florida ($n=179$; 64%). Data was gathered on demographics, sleep disturbance, activity, stress, and support using the Insomnia Severity Index (ISI), PROMIS Sleep-Related Impairment questionnaire (short form 8a), Godin Leisure-Time Exercise questionnaire, Everyday Discrimination Scale, stressful life events experienced within the past year, and the Multidimensional Scale of Perceived Social Support (MSPSS). A correlation analysis among these continuous variables was conducted to explore associations between sleep, activity, support, and stress and to inform a suitable model. Controlling for age, race/ethnicity, and sex, a multilinear regression analysis was conducted to examine the relationship between stressful life event exposure, discrimination, social support, and activity on sleep impairment.

Results: Of the 280 participants, 63% were female ($n = 177$), and the mean age was 43.4. A total of 36% ($n = 101$) were from the New York City/Tri-State area, while 64% ($n = 179$) were from the South Florida region. Controlling for age, race/ethnicity, physical activity, non-race related stressors, social support, and sex, everyday discrimination was the strongest predictor of sleep-related impairments (SRI) [$\beta = -0.198$, $p < 0.05$]. Sex was positively associated with SRI scores [$\beta = 0.167$, $p = 0.05$].

Conclusion: In this study, we found that among Blacks and African Americans in the New York City, Tri-State, and South Florida areas, before and during the Covid-19 pandemic, greater discrimination experience was associated with higher levels of sleep-related impairments.

57) Abstract 577

SEX-SPECIFIC RELATIONS OF ANGER RUMINATION AND EXECUTIVE FUNCTION TO MENTAL HEALTH-RELATED QUALITY OF LIFE IN OLDER ADULTS

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Background: The perseverative cognition theory posits that placing a distorted amount of attention on negative thoughts (i.e., rumination) can extend activation of the body's stress response systems, and lead to over-taxation of its coping mechanisms. Previous research implicates rumination in numerous physical and mental health conditions. However, little is known of its relation to health-related quality of life (HRQoL). Cognitive flexibility and response inhibition are executive functions involved in emotional processing and ability to disengage from rumination. The current study examined whether the relation of anger rumination to HRQoL is mediated by cognitive flexibility or response inhibition, and if these associations differed in women and men.

Methods: Cross-sectional data were available from 95 community-dwelling healthy older adults (age $M = 64.5$, 77% White, 57% men) who had participated in a study of cardiovascular, brain, and neurocognitive health. Demographic information was self-reported, and participants completed the

Dissipation-Rumination Scale and the Medical Outcomes Survey Short Form 36 which provides mental and physical HRQoL subscales. Neurocognitive assessment included examination of cognitive flexibility with Trail Making B and response inhibition by Golden's Stroop Interference score. Moderated mediation analysis determined whether relations of anger rumination to mental and physical HRQoL were mediated by cognitive flexibility or response inhibition, and if these relations differed by sex. **Results:** Results revealed that, in men but not women, greater anger rumination was associated with lower levels of mental (but not physical) HRQoL ($B = -0.15$ 95% CI = -0.23 to -0.07). Although this relation was not mediated by either executive function, results revealed an independent association of less response inhibition to lower HRQoL among men ($B = 0.26$ 95% CI = 0.09 to 0.43). **Conclusions:** Findings suggest independent influences of greater anger rumination and lower response inhibition on mental HRQoL in older men but not women. Associated interventions may help to improve well-being among older men.

58) Abstract 597

EARLY LIFE STRESS, CHILDHOOD SEXUAL ABUSE, AND SLEEP QUALITY IN PERINATAL WOMEN

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Poor sleep quality affects nearly half of perinatal women (46%), posing risk for hypertensive disorders of pregnancy and gestational diabetes. Greater cumulative early life stress has been linked to poorer sleep quality in perinatal women.

However, it is unknown whether particular types of early life stressors predict changes in sleep quality during pregnancy. We examined whether early life stress and childhood sexual abuse were associated with changes in sleep quality among perinatal women from their second to third trimesters. As part of a larger longitudinal study ($n=198$), perinatal women ($M_{age}=25$ years, $SD=5$; 61% racial/ethnic minority) completed baseline (gestational age: $M=23$ weeks, $SD=2$) and 3-month follow-up (gestational age: $M=35$ weeks, $SD=0.9$) interviews. The Adverse Childhood Experiences questionnaire was administered at baseline to assess the number of childhood early life stressors, including sexual abuse. The Pittsburgh Sleep Quality Index was administered at both baseline and 3-month follow-up to assess global sleep quality and its 7 components, with higher scores indicating poorer sleep quality. Average number of early life stressors was 3.4 ($SD=3$, range=0-15), with 13% of women reporting a history of childhood sexual abuse. Majority of women met the cut-off score for poor global sleep quality at baseline (91%) and 3-month follow-up (92%). Linear regression showed that childhood sexual abuse predicted worsened subjective sleep quality from the second to third trimester, $B=.49$, $SE=.23$, $p<.05$, $R^2_{adjusted}=.11$. T-tests showed that women with a history of childhood sexual abuse had poorer global sleep quality, more sleep disturbance, and more daytime dysfunction at baseline compared to women without a history ($ps<.05$). At 3-month follow-up, women with a history of childhood sexual abuse had poorer subjective sleep quality and shorter sleep duration compared to women without a history ($ps<.05$).

Results show that a history of childhood sexual abuse is associated with different components of poor sleep quality

during the perinatal period, and also perceptions of worsening sleep quality as women progress into the third trimester. Clinical implications of these findings point to the need for early identification of a history of childhood sexual abuse and trauma-informed interventions to address poor quality sleep in perinatal women.

59) Abstract 626

COUNTY IMMIGRATION ENFORCEMENT AND ADVERSE BIRTH OUTCOMES

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Background The United States operates the largest immigrant detention system in the world, detaining over 2 million at the border and over 500,000 individuals internally in 2021. A growing body of evidence has shown that restrictive immigration policy and enforcement adversely affects the health of immigrants and their communities, especially Latinxs who are disproportionately affected. In particular, immigration enforcement might be especially linked to adverse birth outcomes. Maternal stress, including psychosocial and environmental stressors, are noxious for both mother and baby. In addition, immigration enforcement has been linked to mothers' delay in prenatal care and social service utilization, important preventative measures of poor infant health. However, current research that examines the links between immigration enforcement and health have been limited to cross-sectional studies with limited geographic variation. This project will therefore contribute a national, county-level assessment of immigration enforcement activity and adverse birth outcomes among White and Latina native- and foreign-born mothers from 2014-2018. This study is a work in progress and results will be collected and analyzed before March 8th, 2023. **Methodology** This study will merge county-level immigration apprehension rates, derived from the TRAC-Immigration database, with birth records from the NCHS. Calculation of spatial autocorrelation will be utilized to identify data-driven cutpoints for high/low enforcement activity. We will estimate the association between county apprehension rates and risk of preterm birth and low birth weight, stratified by mother's race/ethnicity, with models including adjustments for maternal and county-level characteristics. As neighboring counties' enforcement rates may "spillover" to affect the birth outcomes of adjacent counties, we will additionally fit the data with a spatial error model using generalized method of moments estimation. Analyses will be performed using Stata 15, R, and GeoDa. **Implications** This study will contribute to our understanding of how immigration policies shape stress- and other psychosocial-related health outcomes among marginalized groups. In addition, our geospatial analysis offers the potential for designing and targeting place-based interventions in regions with the highest co-occurring risk.

60) Abstract 632

THE MODERATING ROLE OF POSTPARTUM DIURNAL CORTISOL PATTERNS ON THE ASSOCIATION BETWEEN STRESSFUL LIFE EVENTS AND POSTPARTUM DEPRESSION

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Up to 48% of low-income mothers report elevated symptoms of postpartum depression, which can have adverse health consequences for both mother and her baby. Therefore, studies have focused on identifying biopsychosocial factors, such as stressful life events, that may increase a mother's risk

for developing postpartum depression. Another possible factor is diurnal cortisol. Specifically, the blunting or flattening of the natural rise and fall pattern of cortisol levels is one of the altered stress patterns that have been associated with postpartum depressive symptoms. However, few studies have examined how experiencing stressful life events and having altered diurnal cortisol patterns may work together to increase mothers' risk for postpartum depression. The current study examined whether low-income mothers who experienced more stressful life events and demonstrated a flatter diurnal cortisol slope reported higher postpartum depressive symptoms. Our sample consisted of 80 low-income mothers (71% Latina, 76% with less than \$20K combined family income/year). All measures from the participants were collected at three months postpartum: recent stressful life events (LES), salivary diurnal cortisol samples (waking, 12pm, 4pm, 8pm), and depressive symptoms (EPDS). As expected, women who experienced more life events and had flatter diurnal cortisol slopes reported more postpartum depressive symptoms ($b=21.04$, $p<0.01$, 95% CI [7.39, 34.69]). Future research needs to address both these biopsychosocial factors by identifying the specific life events that affect low-income mothers shortly after birth and explore methods to maintain stress hormone balance to better protect vulnerable mothers from adverse mental health outcomes.

61) Abstract 639

EARLY LIFE ADVERSITY ASSOCIATIONS WITH TRAIT MINDFULNESS

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Early life adversity (ELA) is common and associated with a wide range of adverse health outcomes in adulthood. Mindfulness based interventions (MBI) are effective for targeting potential mechanisms (e.g. inflammation, psychological functioning) known to increase risk for negative health outcomes. Although clinical trials show promise of MBIs for mitigating health risks in clinical populations with ELA, less is known about interplay between *state* mindfulness and *adversity type* (i.e., abuse vs. neglect) in generally healthy adults. To address these limitations, data were collected in 79 community-dwelling participants (Mage = 27.48(SD=6.53); 68% Female; 91% Caucasian) who were screened for mental and physical health conditions. During an initial session in the laboratory, participants completed demographic and depressive symptom measures, along with the Childhood Trauma Questionnaire, a self-report retrospective measure that captures both childhood abuse and neglect. During a three-day ecological momentary assessment (EMA) period, participants were prompted at random to provide ratings of state mindfulness (i.e. adapted from the Five Facet Mindfulness Questionnaire; FFMQ) via electronic diary. Associations between types of ELA and state mindfulness ratings (averaged across EMA ratings) were examined using bivariate correlations. Significant correlations were followed-up with multiple regression analyses controlling for age, sex, and depressive symptoms. Emotional abuse ($r=.30$, $p=.01$) and sexual abuse ($r=.28$, $p=.02$) were significantly positively associated with state mindfulness. Measures of neglect were not significantly associated state mindfulness ($ps > .07$). In follow up regression analyses controlling for age, sex and depressive symptoms, both emotional abuse ($b=.19$, $t=2.28$, $p=.03$) and sexual abuse ($b=.15$, $t=2.06$, $p=.04$) remained significantly positively associated with state

mindfulness. At the facet level, greater emotional abuse ($b = .10$, $t = 2.78$, $p < .01$) and greater sexual abuse ($b = .12$, $t = 2.75$, $p < .01$) were significantly associated with higher levels of mindful observing in daily life. Future studies should attempt to understand the association between childhood abuse and mindful observing, as it could be related to vigilance or to a natural tendency to observe that could be utilized in therapy settings.

62) Abstract 641

SLEEP ONSET LATENCY MODERATES THE ASSOCIATION BETWEEN ANNUAL PARENTAL INCOME AND TOTAL SLEEP TIME FOR FIRST YEAR COLLEGE STUDENTS

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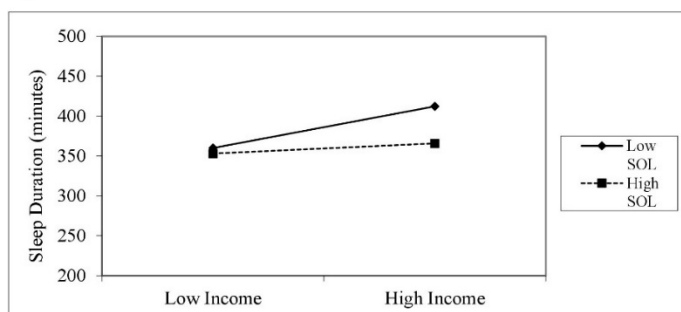
Background: Low socioeconomic status is associated with insufficient sleep duration in college students. However, it is unclear what contributes to insufficient sleep. We tested the interactions between parent income and two prominent contributors to insufficient sleep (sleep onset latency and sleep timing) among first year college students.

Methods: Participants were 581 first-year college students (74.4% female, Age: $M=18.48$, $SD=0.65$). Self-identified race was 82.4% White, 10.7% Black, 3.6% Asian, and 3.4% not specified. Participants self-reported parent's income. Sleep onset latency (time to fall asleep; $M=50.38$ minutes, $SD=57.44$), and total sleep time ($M=410.36$ minutes, $SD=73.74$) were derived from the Pittsburgh Sleep Quality Index (PSQI). Mid-sleep timing, the mid-point time of a night's sleep ($M=4:23$, $SD=0:44$), was derived from the Munich Chronotype Questionnaire (MCTQ). Two linear regression analyses tested main and interactive effects of sleep on the association between parental income and sleep duration. Covariates were age, race, and gender.

Results: Lower parental income predicted shorter total sleep time (Main effect: $b=4.01$, $SE=1.14$, $t=3.52$, $p=.001$) and sleep onset latency significantly moderated this association (Interactive effect: $b=-.035$, $SE=.015$, $t=2.28$, $p=.023$; Figure 1). Mid-point of sleep was not independently associated with sleep duration, nor did it moderate the association between parental income and sleep duration (Main effect: $b=.004$, $SE=.003$, $t=1.25$, $p=.213$; Interactive effect: $b=.0001$, $SE=.0003$, $t=.177$, $p=.859$).

Conclusion: Sleep onset latency moderates the association between income and sleep duration, but only for higher income students. Thus, shorter sleep duration among low-income students does not appear to be due to later sleep timing or difficulty falling asleep. It is possible that external demands (i.e., social demands, family obligations, school/work responsibilities, etc.) decrease the opportunity for adequate sleep. Future studies will want to consider this as one potential mechanism that leads to income-related sleep disparities.

Figure 1.



63) Abstract 652

EVALUATION OF AN INDEX OF LOW VAGALLY-MEDIATED HEART RATE VARIABILITY AS A MARKER OF RISK FOR DEPRESSION

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Both cross-sectional and prospective studies have shown depression to be associated with low vagally-mediated heart rate variability (HRV). In addition, both depression and low HRV have been shown to be a risk factor for cardiovascular disease. We have recently identified a cut point for HRV below which persons have increased risk for a range of cardiometabolic disorders. However to date, no such cut point exists for identification of those at risk for depression. The present study sought to identify such a cut point using a widely used index of depression, the five item World Health Organization Well-being Index (WHO-5). A WHO-5 value ≤ 28 is associated with elevated risk for major depressive disorder (MDD) and a value of ≤ 50 is used as a screening value for probable depression. HRV was assessed by the root mean square successive difference (RMSSD). A total of 9973 participants from 20 study sites (50%) out of the eligible 19,985 participants (30 study sites) had complete data on all variables of interest. The mean age was 41.9 (SD 10.9) and 19.3% were female. The overall RMSSD mean was 27.6msec (SD 12.2) during daytime. The primary analysis compared the clinically depressed (WHO-5 ≤ 28 ; 3.7%) vs rest (WHO-5 >28) population. Secondary analysis compared the depression risk (WHO-5 ≤ 50 ; 19.5%) vs rest (WHO-5 >50) population. A fractional polynomial function suggested that the association between WHO-5 scores and RMSSD showed a curvilinear association with an inflection point that might reflect a value below which risk of depression would be elevated. For daytime RMSSD an overall value of 35 ± 2 msec and below indicated elevated risk for depression in WHO5 (≤ 50) and a daytime RMSSD a value of 25 ± 2 msec and below indicated elevated risk for clinically manifest depression in WHO5 (≤ 28). The results of the present study provide support for a value of RMSSD that can be used to indicate those at risk for MDD based on the widely used WHO-5. As a brief measure that can be used in a clinical setting HRV might be useful to identify those at risk for psychological disorders as well as cardiometabolic disorders.

64) Abstract 654

ASSOCIATIONS BETWEEN SLEEP DURATION AND SLEEP QUALITY WITH FATIGUE SEVERITY IN STROKE AND TIA PATIENTS

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Background: Fatigue, commonly described as a feeling of exhaustion or weariness, is one of the most common post-stroke symptoms. Fatigue is disabling and affects stroke survivors' emotional, cognitive, and motor experiences. Many patients also experience short sleep duration and poor sleep quality, which are associated with worsened patient outcomes.

Understanding the association between short sleep duration and poor sleep quality with fatigue may help to identify targeted interventions to address sleep and fatigue for stroke survivors, potentially improving patient's emotional, mental, and physical states during recovery.

Methods: N=207 (SD = 15.48, mean age = 60.88, 50.24% Hispanic) patients were recruited from the Reactions to Acute Care and Hospitalizations Stroke Study at Columbia University Medical Center-New York Presbyterian Hospital, an observational cohort study assessing predictors of PTSD, hospital readmission, and mortality in the year following stroke or transient ischemic attack. Participants completed interviews during hospitalization and 1-month later. Fatigue was assessed using the Fatigue Severity Scale (FSS), and sleep duration and sleep quality over the prior month were assessed using items from the Pittsburgh Sleep Quality Index (PSQI) at 1-month. Linear regression models adjusted for age, sex, race, ethnicity, and PHQ-8 scores were conducted predicting fatigue and sleep factors.

Results: Of our sample n=207, 45.4% of patients (n=94) reported short sleep duration (>7 hours) and 10.6% (n=22) reported poor sleep quality. Shorter sleep duration was significantly associated with higher fatigue ($\beta = 0.157$, $p = <0.001$). Worse sleep quality ratings were also significantly associated with increased fatigue ($\beta = 0.475$, $p = <0.001$). In addition to associations between sleep and fatigue, there was a significant association between depressive symptoms, short sleep duration, and fatigue ($\beta = 0.103$, $p = <0.001$), and depressive symptoms, poor sleep quality, and fatigue ($\beta = 0.094$, $p = >0.001$).

Conclusions: Short sleep duration and poor sleep quality were associated with fatigue in the month following a stroke or TIA. These findings suggest that interventions that target sleep duration and quality following stroke may potentially be helpful in improving fatigue and promoting optimal post-stroke recovery.

65) Abstract 656

VIVIDNESS OF VISUAL IMAGERY INFLUENCES THE RELATIONSHIP BETWEEN TRAIT MINDFULNESS AND ANXIETY

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Anxiety increases risk for adverse health outcomes (e.g. depression, CVD). Trait mindfulness, which is the effort to intentionally pay attention, nonjudgmentally, to present experience, and the ability to control conscious attention, has been associated with reduced anxiety, in many, but not all previous studies. One factor that may influence the relationship of trait mindfulness and anxiety is vividness of visual imagery (VVI), which refers to the ability to visualize objects that are not in sight. VVI represents perceptual information from memory, rather than physical sensory input, and those with high VVI report experiencing images as vividly as incoming perceptual information. Results of previous studies examining associations of VVI and anxiety have been inconsistent, suggesting that the types of images which participants consciously visual may influence this association. Although previous research has established a of trait mindfulness to both VVI and anxiety, it is unclear whether VVI influences the relationship between mindfulness and anxiety. The current study examined the relationship of VVI and anxiety and tested whether VVI moderated the association of trait mindfulness with anxiety. Our sample consisted of 197 ethnically diverse (35% Hispanic, 30% Asian, 21% White, 12% Other) young

adult participants (M= 22 years) who completed all measures via Qualtrics. Results indicated that higher trait mindfulness ($\beta = -5.19$, $p = .001$), but not VVI ($\beta = .15$, $p = .06$) associated with lower anxiety, and that VVI moderated the association of trait mindfulness and anxiety ($R^2 = .43$, $\beta = .17$, $p = .02$). Specifically, trait mindfulness was associated with lower anxiety among individuals with high VVI, but this association was not present among individuals with lower VVI. These results indicate that mindfulness may be most beneficial in reducing anxiety among individuals who possess greater VVI. In this respect, trait mindfulness may allow for the ability for individuals with higher VVI to direct their attention away from visualizing anxiety provoking images, and toward more anxiety reducing images. These findings suggest that treatment models for anxiety should incorporate guided imagery training to reduce anxiety symptoms. Future research may also explore which mindfulness skills prove most effective for the use of imagery in anxiety reduction.

66) Abstract 694

FLOURISHING IN THEIR OWN WORDS: EDUCATION DIFFERENCES IN CONTRIBUTORS TO PSYCHOLOGICAL WELL-BEING

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Psychological well-being is associated with healthier and longer lives, stronger relationships, and better career outcomes. Well-being is multidimensional and encompasses the positive thoughts and feelings that individuals use to evaluate their lives. Self-report questionnaires exist to assess well-being, but these can be limited by biased responding including tendencies towards social desirability and acquiescence. Further, self-report measures are often validated among college students and may not reflect well-being experiences of people from historically disadvantaged backgrounds. This project augments self-reported well-being within a national sample by interrogating perspectives on a life well-lived *from respondents themselves*.

Using data from a subset of respondents from the Midlife in the United States (MIDUS) study, we investigated qualitative responses to the open-ended question, "What do you do to make your life go well?" Preliminary data come from the MIDUS Core and MIDUS Refresher biomarker samples (combined N = 1,882, 55.3% female; M (SD) age = 55.1 (12.6) years; 24% high school education or less, 18% Black or African American). We inductively developed a coding scheme to assess the presence of 21 themes in each open-ended response. Up to three judges evaluated each response. We then analyzed the frequency of each theme and its distribution by education (high school education or less; some college; bachelor's degree or higher).

Results showed that the percent agreement among judges for each of the 21 themes was excellent (M = .93; min. = .80; max. = 1.00). The most frequently mentioned sources of well-being were positive relationships (69%), faith (38%), and having a positive attitude (36%). Work, health, coping, self-awareness, and enjoyment were also commonly cited (21%-30% of respondents mentioned them). The frequency of theme endorsement varied as a function of educational attainment, except for faith which was similarly endorsed across educational attainment. People with higher vs. lower levels of education were more likely to mention work, health, coping, and self-awareness ($ps < .05$).

This project aims to enhance our understanding of well-being, including how lay notions of well-being converge with currently studied self-report measures. This work has the potential to

identify new topics for future research on well-being and health.

67) Abstract 697

THE ‘COST OF LIVING CRISIS’ AND ITS EFFECTS ON HEALTH

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Introduction: The UK is experiencing a cost of living (CoL) crisis, with those from more deprived neighbourhoods, those from ethnic minority communities, and those with disabilities most likely to struggle to afford essential expenditures. This crisis is also compounded by the global (COVID-19) pandemic. This qualitative study explored participants’ perspectives of the impacts the CoL crisis on their mental and physical health. It also explored whether and how they were coping with this crisis, and how the COVID-19 pandemic was shaping their experiences or views of the CoL crisis.

Method: Focus groups were conducted online via zoom with 28 UK residents recruited as part of the Public Views during the Covid Pandemic (PVCovid) study from September 14th-29th 2022. Participants were 50% Female, majority under 45 (84%) and White (68%). Data was analysed qualitatively using a thematic approach.

Results: Most participants, particularly those on low or insecure income or living in deprived communities, felt that the CoL crisis was having negative impact on their mental and emotional health. Analysis generated five main themes, three related to why the CoL crisis was affecting their health: ‘Anxiety over an uncertain future’, ‘Worry about others’, ‘Loss of control’ and two related to the ways in which people were coping with the crisis: ‘Resilience’ and ‘Family and community support’.

Conclusion: Results indicated that the CoL crisis is having significant impacts on health, particularly on the mental health of those on low- or insecure-incomes or from deprived communities. Further research and policy investment is needed to explore ways to provide emotional as well as practical/financial support for those most vulnerable to economic crises.

68) Abstract 707

TITLE EFFICACY OF MEMANTINE IN THE TREATMENT OF POSTTRAUMATIC STRESS DISORDER AND PRELIMINARY EXPLORATION OF BLOOD BIOMARKERS

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Background

PTSD is a psychiatric disorder that develops after a traumatic experience and interferes with daily life due to re-experiencing, avoidance, and hyperarousal symptoms. The antidepressant drug memantine has been shown to be effective against cognitive dysfunction in PTSD patients through open trials (Ramaswamy et al, 2014), and an interim report of a single-arm open trial by the presenters demonstrated symptom improvement in 10 patients (Hori et al, 2021). On the other hand, Estrogen and Progesterone have been implicated in fear memory (Olga et al., 2021; Hsu et al., 2021).

OBJECTIVES

To examine the efficacy and safety of memantine in PTSD through a single-arm, open-label clinical trial and to report the final results. We will also preliminarily examine whether blood gonadal hormone levels are a predictor of treatment response and whether they vary in relation to treatment response.

METHODS.

The study was approved by the IRB. 20 adult female patients with PTSD entered the study. Patients received memantine for 12 weeks in the outpatient setting as an add-on to medications they were taking. Memantine was started at 5 mg/day and titrated up to no more than 20 mg/day. Concomitant medications were not allowed to change during the study period, with the exception of benzodiazepine sleep medications. The primary outcome measures were PTSD diagnosis and severity as assessed by the PTSD Diagnostic Scale (PDS). Blood Estrogen and Progesterone were measured before and after treatment.

RESULTS.

Of the 20 patients who received the intervention, 17 with follow-up data were analyzed; the mean PDS total score significantly decreased from 33.6 ± 9.7 at baseline to 17.9 ± 13.2 at endpoint, with a large effect size (t = 4.9, p <0.01, d = 1.16). Intrusive, avoidance, and hyperarousal symptom scores all showed significant reductions (Fig. 1). In addition, 8 of the 17 patients no longer met the PTSD diagnosis after treatment. PTSD symptoms, particularly reexperiencing symptoms, improved significantly with higher Baseline levels of progesterone and with greater treatment-related reductions. (Fig. 2)

Discussion

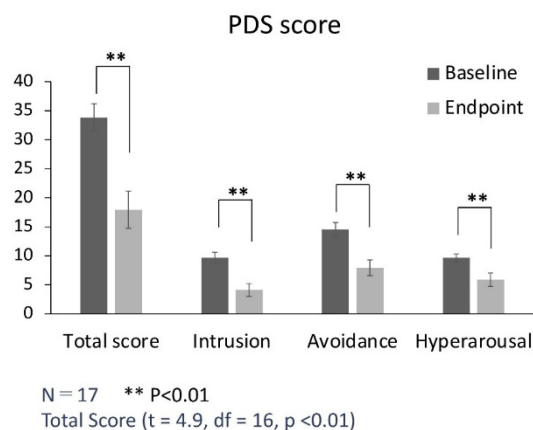
The safety and efficacy of memantine for PTSD were confirmed, suggesting that progesterone may be a predictive and surrogate marker of efficacy that reflects the mechanism of memantine's effect.

Fig 2. Correlation between ovarian hormones (Estrogen, Progesterone) and PDS score

	PDS Total Baseline	PDS Total Endpoint	PDS Total Base- End	PDS Reexperiencing Baseline	PDS Reexperiencing Endpoint	PDS Reexperiencing Base- End	PDS Avoidance Baseline	PDS Avoidance Endpoint	PDS Avoidance Base- End	PDS Hyperarousal Baseline	PDS Hyperarousal Endpoint	PDS Hyperarousal Base- End
Progesterone Baseline	0.03	-0.36	0.61*	0.14	-0.48	0.73**	-0.05	-0.39	0.41	-0.01	-0.29	0.38
Progesterone Endpoint	0.29	0.06	0.17	0.45	-0.04	0.33	0.25	-0.06	0.17	0.17	0.22	-0.11
Progesterone Base-End	0.11	-0.16	0.45	0.18	-0.40	0.62*	0.11	-0.20	0.26	-0.01	-0.20	0.20
Estrogen Baseline	0.04	0.12	-0.14	0.25	0.26	-0.11	0.00	0.16	-0.12	-0.30	-0.02	-0.19
Estrogen Endpoint	0.32	0.37	-0.16	0.60*	0.63*	-0.20	0.27	0.06	0.00	0.07	0.55	-0.54
Estrogen Base-End	0.07	0.03	0.06	-0.01	-0.09	0.07	0.06	0.10	-0.04	-0.21	-0.14	-0.05

Values are Spearman's rank correlation coefficients

fig1. Pre- and post-treatment PDS scores



69) Abstract 715

EARLY LIFE ADVERSE EXPERIENCES AND ADULTHOOD MEMORY PERFORMANCE AMONG INDIVIDUALS WITH IMPAIRED CELLULAR MITOCHONDRIAL ENERGETICS

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Background: Adverse life experiences have been associated with lower cognitive performance, but the underlying mechanisms are unclear. One potential pathway involves chronic inflammation, impeding on neurocognitive performance. Because inflammation and cognition are fueled by cellular energy derived from mitochondria, we examined this question in a population with a broad spectrum of mitochondrial health. We hypothesized that adults reporting more adverse life experiences would exhibit poorer memory, an effect mediated by higher levels of circulating inflammatory biomarkers.

Methods: 93 participants (69% women, 18-60 yr, 34% with genetic mitochondrial disease) were enrolled as part of the Mitochondrial Stress, Brain Imaging, and Epigenetics (MiSBIE) study. Adverse life experiences were assessed with the Childhood Trauma Questionnaire (CTQ) and the Stress and Adversity Inventory (STRAIN). Immediate, delayed, working memory and global cognition were assessed using population-normed scores on a battery of neuropsychological assessments (NAB, RBANS, TOPF). The inflammatory markers CRP and fibrinogen were measured in fasting blood samples. Associations between adverse life experiences, inflammatory markers, and memory performance were assessed using multiple regressions models adjusting for global cognitive performance, consistent with Baron & Kenny's mediation method. Unadjusted p-values are reported.

Results: Childhood trauma (CTQ) was negatively associated with immediate memory ($\beta = -.06$, $SE = .03$, $r^2 = .11$, $p = 0.02$) after controlling for general cognition, partially consistent with an effect of early life adverse experiences on memory. Experiencing more stressors over the life course (STRAIN) was associated with both higher CRP levels ($\beta = .08$, $SE = .04$, $r^2 = .05$, $p = 0.03$) and fibrinogen ($\beta = 1.36$, $SE = .51$, $r^2 = .07$,

$p = 0.01$). The mediation term for inflammatory biomarkers on the link between adversity and memory was not significant.

Discussion: These preliminary results are consistent with the long-term effect of childhood trauma on memory, and between total lifetime stressor exposure and inflammation. These effects are small and require further investigation in larger studies. Direct measures of cellular energetics are needed to determine if mitochondrial health confers resilience/vulnerability to the adverse effects of life stress on cognition.

70) Abstract 717

SCALE SCORES ARE LINKED TO HEALTHCARE OVERUTILIZATION IN THE PRIMARY CARE SETTING: DEVELOPMENT OF THE Q-SCALE

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INTRODUCTION

In the last decade, unnecessary healthcare use has risen, including excessive urgent care, and hospital visits for non-urgent conditions. Healthcare overutilization (HO) has decreased the quality of care as overflow impedes access to patients most in need of services. The present work highlights a novel survey-based scale application as a potential screening tool to identify patients at risk of HO in primary and routine care settings.

METHODS

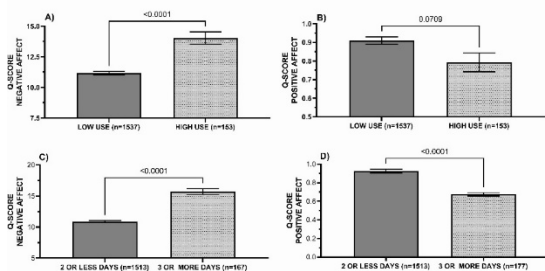
Quality of Life (Q) can be influenced by several somatic, psychosocial, and affective factors. The Q-scale is a computerized web and mobile device-delivered instrument comprising 10- questions, including negative affect (5), positive affectivity (3), and somatic (2) factors that are ordinarily ranked from 1 to 5 (1= none of the time, 5= all of the time, in the last 4 weeks). Negative and positive Q-scale dimensions were added together for the Q-positive (high scores low risk) and Q-negative (high scores high risk) indices. The Q-scale scores were compared to total healthcare used, defined as Hospital nights use and urgent care encounter use (non-childbearing related) in the past 12 months. Hospital high users were those patients with 3 or more hospital nights, while urgent care HO was defined as 3 or more encounters of urgent care use.

RESULTS

A total of 1691 Q-scales were administered, with 61.2% Female (1035) and a median age of 50.3 ± 0.4 years. Patients under 18 years of age were excluded. The scales were obtained from eight payer groups across 13 primary care practices. Logistic regression models revealed that Q-negative scores were independent significant ($p < 0.001$) predictors of HO. Moreover, t-Test revealed that patients with HO displayed higher Q-negative and lower Q-positive scores than those with low healthcare use for hospital nights (Figure 1; A and B) and urgent care (Figure 1: C and D).

CONCLUSION

The results suggest that the Q-scale may be a valuable tool for identifying those at risk of HO in the primary care setting especially given its ease of use and low-cost delivery. Q-scale testing on a broader population while designing strategies and interventions to address those at high risk for HO and its impact on healthcare use, and costs are the next necessary steps in the search for a more effective tool to decrease HO.



71) Abstract 557

ATTACHMENT SECURITY AND INFLAMMATORY MARKERS IN CHILDREN

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Background: Close family relationships are associated with healthier biological profiles in children (Chen, Brody, & Miller, 2017), including reduced inflammation and more favorable cardiometabolic indices. Uncovering which characteristics of close relationships contribute the most to these beneficial outcomes may highlight important pathways. The current study examined associations of serum inflammatory cytokines in children with various aspects of parent-child relationship quality, and the buffering role of relationships in the association between recent child life events and inflammation. **Method:** Participants included 102 children (46 girls, 56 boys) ages 9-11 (mean age = 9.42 years, SD = 0.55) who provided blood samples. Children described their relationships using the 12-item Experiences in Close Relationships Scale-Revised Child Version (ECR, Brenning, 2014), the Kerns Attachment Security Scale (Kerns et al., 2001), and the Network of Relationships Inventory (NRI, Furman & Burhmester, 1985). Parents reported on their child's life events occurring in the preceding 3 months using the 39-item Child Life Events Scale (Boyce et al., 1995). Children also provided blood samples which were assayed for four cytokines that orchestrate inflammation: interleukin-6 (IL6), interleukin-8 (IL8), interleukin-10 (IL10), and tumor necrosis factor-alpha (TNFα). **Results:** Insecure attachment (ECR scale) was positively associated and secure attachment (Kerns Scale) negatively associated with TNF-alpha, $r(100) = .26$, $p = .006$, and $r(82) = -.22$, $p = .04$, respectively. After controlling for age, gender, and BMI, attachment insecurity and TNF-alpha remained significantly associated ($p = .035$). Attachment was not significantly associated with the other three cytokines. Social support from and conflict with family were not significantly associated with TNF-alpha, or any of the cytokines (effect size $r < .097$, $p > .33$). We did not find evidence for stress-buffering effects, as attachment security did not moderate the association between child life events and IL-8, the only cytokine significantly associated with life events, $r(100) = -.20$, $p = .044$. **Discussion:** These findings suggest that attachment security and the sense of psychological safety it provides for children may be an important dimension of parent-child relationship quality when explaining variability in TNF-alpha.

72) Abstract 168

INTERNATIONAL PREVALENCE OF AND MOTIVATORS FOR GETTING COVID-19 BOOSTER VACCINES: RESULTS FROM THE ICARE STUDY IN IRELAND, ITALY AND COLOMBIA

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Background: Vaccination is an important preventive measure against COVID-19 morbidity and mortality. To maintain vaccine protection over time, additional vaccine booster doses are recommended by governments and health authorities worldwide. Nevertheless, relative to the primary series of doses, booster uptake has been limited, with high reports variability between countries.

Objectives: We examined the prevalence, sociodemographic predictors, and motivators of COVID-19 booster vaccination in 3 countries that faced significant COVID-19 burden: Ireland (IRE), Italy (ITA) and Colombia (COL).

Methods: As part of the iCARE study (<http://www.icarestudy.com>), we recruited a series of representative samples from IRE, ITA and COL (N ≈ 2000 per country) between January 2022 and June 2022 using local polling firms. Respondents self-reported their vaccine status, characteristics, and motivators for getting a booster. General linear models (GLM's) were used to estimate differences between countries in terms of prevalence, sociodemographic predictors, and motivators.

Results: Booster vaccination uptake was comparably higher in ITA (88.1%) and IRE (84.3%) compared to COL (57.6%) ($p < .001$). A higher proportion of boosted individuals in ITA (53.2%) and IRE (48.0%) were aged 51 and over, compared to COL (32.7%, $p < .001$). A higher proportion of boosted respondents had a college or university degree in IRE (39.5%) and COL (52.5%), compared to ITA (1.7%, $p < .001$). In IRE, more boosted respondents had a chronic disease (58%), with slightly lower proportions in COL (47.5%) and ITA (47.5%, $p < .001$). Among those receiving boosters, those from all 3 countries, particularly COL, were most motivated by wanting to protect others (IRE=71.8%, ITA=71.3%, COL=83.3%). Of note, evidence of vaccine efficacy was a main motivator only in IRE (71.1%) and ITA (72.3%) and only people from COL were highly motivated by contributing to herd immunity (79.7%).

Conclusion: Our findings suggest that the COVID-19 booster vaccination rates vary considerably by country, with lower rates in COL, possibly due to lower access. People receiving boosters in Europe tended to have both altruistic and efficacy-related motivators, whereas those in COL reported mostly altruistic motivators. As cultural factors may influence vaccine booster uptake, they should be considered when designing vaccine interventions.

SUPERWOMAN SCHEMA AND THE HEALTH OF BLACK WOMEN

Christy Erving, PhD, The University of Texas at Austin

This symposium focuses on a relatively novel psychosocial construct, Superwoman Schema (SWS), designed to capture the ways in which Black women have been socialized to present as strong while suppressing their emotions, sacrificing their own needs for the sake of others, and neglecting to engage in self-care. These expectations, imposed on them by society and internalized within themselves, are also often accompanied by access to fewer resources. Developed by Cheryl Woods-Giscombé, the Superwoman Schema captures five unique dimensions: obligation to present an image of strength, obligation to suppress emotions, resistance to vulnerability, motivation to succeed despite limited resources, and an obligation to help others. The overarching goal of the proposed symposium is to bring together four researchers to share their latest findings with regards to the SWS construct. Four papers will explore the association between SWS endorsement and a variety of cardiovascular disease-related health outcomes among U.S. Black women. Further, another theme of the research is to ascertain the conditions under which SWS endorsement is salubrious or detrimental for health.

First, Blevins and colleagues explore the ways in which SWS, in combination with environmental mastery, relate to pulse wave velocity among a cohort study of U.S. Black women in early mid-life (i.e., 30-45 years) in the Atlanta Metropolitan area. Second, using the same data, Erving and colleagues investigate the association between SWS and subjective sleep quality, an emerging risk factor for chronic disease in Black women. Third, Leung and colleagues ascertain the extent to which SWS is associated with systemic lupus erythematosus (SLE) outcomes (fatigue, disease activity) among U.S. Black women from the Georgians Organized Against Lupus (GOAL) cohort. Fourth, focusing on young Black women, Martin and colleagues examine the extent to which psychosocial stress exposures, SWS, and John Henryism (a form of high effort coping) are related to blunted vascular function. In so doing, this cadre of research presentations will enhance our understanding of SWS as a critical psychosocial determinant of health among U.S. Black women.

Individual Abstract Number: 193

SUPERWOMAN SCHEMA, ENVIRONMENTAL MASTERY AND ARTERIAL STIFFNESS IN BLACK AMERICAN WOMEN

Kennedy Blevins, MA, University of California, Irvine, Sarah Pressman, PhD, University of California, Irvine, Christy Erving, PhD, The University of Texas at Austin, Zachary Martin, PhD, Emory University, Renée Moore, PhD, Drexel University, Raphael Murden, PhD, Emory University, Rachel Parker, MPH, Emory University, Shivika Udaipuria, MPH, Emory University, Bianca Booker, MA, Emory University, LaKeia Culler, MA, Emory University, Viola Vaccarino, MD; PhD, Emory University, Arshed Quyyumi, MD, Emory University, Tené Lewis, PhD, Emory University

Background: The cognitive and societal representation of Black women as naturally strong and resilient, termed the Superwoman Schema (SWS), plays an important role in Black women's health. Which aspects of the SWS are health salubrious versus detrimental remain to be fully elucidated. When present, positive psychological factors, such as mastery (i.e., the capacity to master one's life or environment), may mitigate negative aspects of SWS. Thus, we investigated the associations between SWS and mastery on pulse wave velocity (PWV), a measure of arterial stiffness linked to cardiovascular disease.

Methods: Participants were N=362 Black American women ($M_{age} = 37$, $SD = 4.2$) from a large metropolitan area in Georgia, USA. The 35-item Giscombé Superwoman Schema Questionnaire assessed SWS endorsement ($M = 1.9$, $SD = 0.5$) and Ryff's 14-item Environmental Mastery Scale assessed mastery ($M = 3.5$, $SD = 0.8$). Carotid-femoral PWV was assessed using the SphygmoCor device ($M = 6.2$, $SD = 1.5$). Linear regression models examined the main and interactive associations between SWS and mastery on PWV, adjusting for age, years of education, income, body mass index, smoking status, blood pressure, and antihypertensive medication use.

Results: While SWS endorsement and Mastery were not significantly, independently associated with PWV, analyses revealed a significant overall SWS endorsement by mastery interaction [$\beta = -.11$, $t(338) = -2.26$, $p = .03$], such that SWS was positively associated with higher PWV only when mastery was low (Figure 1). Three scales emerged as driving this association: obligation to present strength, obligation to suppress emotions, and resistance to vulnerability (all p-values <.05) showing similar patterns to the overall SWS interaction with Mastery.

Conclusion: In Black women, high endorsement of SWS may be detrimental to vascular health when Environmental Mastery is low. Thus, SWS may be less physiologically taxing when one senses greater control over their environment.

Individual Abstract Number: 194

SUPERWOMAN SCHEMA ENDORSEMENT AND SUBJECTIVE SLEEP QUALITY AMONG BLACK WOMEN

Christy Erving, PhD, University of Texas at Austin, Rachel Zajdel, PhD, National Heart, Lung, and Blood Institute, Dayna Johnson, PhD, Emory University, Izraelle McKinnon, PhD, Emory University, Kennedy Blevins, MA, University of California, Irvine, Raphael Murden, PhD, Emory University, Shivika Udaipuria, MPH, Emory University, Miriam Van Dyke, PhD, Emory University, Bianca Booker, MA, Emory University, Renée Moore, PhD, Drexel University, Tené Lewis, PhD, Emory University

Background: Research suggests that similar to women overall, Black women are socialized to be communal and "self-sacrificing," but in contrast to women from other racial/ethnic backgrounds, Black women are also socialized to be "strong" and "invulnerable." This phenomenon has been labeled Superwoman Schema (SWS), and there is some evidence that it is particularly relevant for Black women's health (e.g., cellular aging, depressive symptoms). We examined associations between endorsement of overall SWS, SWS subcomponents, and subjective sleep quality.

Methods: Participants were 402 Black women aged 30-46 (Mean=37.5 \pm 4.3 years) from a large U.S. southeastern city. SWS was measured with the 35-item Giscombé SWS scale which assessed overall SWS and five subscales. Sleep quality was measured with the Pittsburgh Sleep Quality Index (PSQI), and higher scores indicate worse sleep quality. A binary measure of poor sleep quality was also analyzed (PSQI>5). Last, we assessed whether GRMS was associated with specific sleep domains (e.g., sleep duration, sleep efficiency, sleep disturbances). Linear regression and logistic regression analyses were conducted.

Results: In regression models adjusted for depressive symptoms, body mass index (BMI), smoking, age, household size, marital status, parental status, annual household income, educational attainment, and employment status, greater endorsement of the SWS was associated with lower subjective sleep quality ($\beta = .72$, $p < .05$). When examining specific dimensions of SWS, *obligation to help others* was associated with lower subjective sleep quality ($\beta = .77$, $p < .01$). SWS overall was not associated with poor sleep quality; however, two dimensions of SWS were associated with poor sleep quality (PSQI>5): *suppressing emotions* (OR = 1.45, $p < .05$) and *obligation to help others* (OR = 1.54, $p < .05$). Analyses of specific sleep domains revealed more nuanced findings.

Conclusion: Endorsing SWS, particularly feeling obligated to help others, may be an important factor affecting sleep quality among Black women.

Individual Abstract Number: 195

SUPERWOMAN SCHEMA IN BLACK WOMEN WITH SYSTEMIC LUPUS ERYTHEMATOSUS: MALADAPTIVE AND ADAPTIVE PATHWAYS FOR DISEASE MANAGEMENT

Jerik Leung, MPH, Emory University, Regine Haardörfer, PhD, Emory University, Cam Escoffery, PhD; MPH, Emory University, Charmayne Dunlop-Thomas, MS; MPH, Emory University, Sam Lim, MD; MPH, Emory University, Tené Lewis, PhD, Emory University

Background: Systemic lupus erythematosus (SLE) is a chronic autoimmune condition disproportionately afflicting women and Black people. Endorsement of Superwoman Schema (SWS) and sub-domains may be both a source of resilience and vulnerability and are relevant to those with SLE due to disproportionate impact of disease on Black women. We examined the relationship of SWS and several SLE outcomes (fatigue, disease activity), mediated by competing maladaptive and adaptive coping behaviors.

Methods: Our sample included 584 respondents identifying as Black women from Georgians Organized Against Lupus (GOAL), a Centers for Disease Control and Prevention supported population-based cohort of validated SLE patients in Atlanta, GA. SWS was the predictor and measured using the 35-item Giscombé SWS scale. Mediators were adaptive coping and maladaptive coping which were captured using the Brief-COPE index. Outcomes were SLE disease activity, measured with the Systemic Lupus Activity Questionnaire (SLAQ), and fatigue, measured with the Patient Reported Outcomes Information System Short Form 4a (PROMIS Fatigue SF4a). We used a multiple mediation model with bootstrapping ($n=1000$) to obtain unbiased standard errors for indirect effect estimates.

Covariates included demographic (education, health insurance, age) and health-related (BMI, medication type, years living with SLE).

Results: There was evidence of partial mediation through maladaptive coping for both fatigue (indirect effect: $\beta=0.049$, $SE=0.014$; direct effect: $\beta=0.184$, $SE=0.025$; total effect: $\beta=0.244$) and disease activity (indirect effect= 0.050 , $SE=0.012$; direct effect= 0.104 , $SE=0.033$; total effect: $\beta=0.160$). Mediation through adaptive coping was not significant. SWS subdomains of obligation to suppress emotions (fatigue: $r=0.313$; SLAQ: $r=0.262$) and obligation to help others (fatigue: $r=0.314$; SLAQ: $r=0.245$) had the highest correlations with outcomes.

Conclusion: This multiple mediation analysis supports maladaptive coping behaviors as partial mediators between SWS and fatigue and disease activity. For both outcomes, SWS sub-domains of obligation to suppress emotions and obligation to help others may be most relevant to the maladaptive pathway.

Individual Abstract Number: 196

BLUNTED VASCULAR FUNCTION IN BLACK FEMALES: EXAMINING THE IMPACT OF PSYCHOSOCIAL STRESS EXPOSURE VERSUS INTERNALIZATION AND MALADAPTIVE COPING

Zachary Martin, PhD, Emory University, Iman Al-daas, Undergraduate Senior, University of Texas at Arlington, Natalia Cardenas, Undergraduate Senior, University of Texas at Arlington, John Kolade, Undergraduate Researcher, University of Texas at Arlington, Emily Merlau, Undergraduate Researcher, University of Texas at Austin, Joshua Vu, Undergraduate Researcher, University of Texas at Arlington, Kyrh Brown, PhD, University of Texas at Arlington, R. Matthew Brothers, PhD, University of Texas at Arlington

INTRODUCTION: Among females in the United States, Black females suffer from the highest rates of hypertension, coronary artery disease, and total cardiovascular disease (CVD) mortality. Vascular dysfunction, which has been observed in Black females, precedes overt CVD and predicts CVD risk. Psychosocial stressors likely contribute to this disparity, but the precise pathways/mechanisms remain incompletely understood. Further, stress internalization/coping may be important mediators of the stress-health connection. We hypothesized that Black females would have blunted vascular function relative to White females and that, among Black females, there would be a stronger inverse relationship between vascular function and stress internalization/coping relative to stress exposures alone.

METHODS: Twenty-nine young, healthy Black ($n=17$; 21 ± 2 yr) and White ($n=12$; 26 ± 7 yr) females underwent testing for post-occlusive forearm reactive hyperemia (RH) and brachial artery flow-mediated dilation (FMD), with greater responses indicating better vascular function. Participants completed surveys for psychosocial stress exposures (adverse childhood experiences, ACEs; past week discrimination, PWD) and internalization/coping (John Henryism Active Coping Scale, JHAC12; Giscombé Superwoman Schema Questionnaire, G-SWS-Q), with higher scores indicating greater exposure or endorsement of the internalization/coping constructs.

RESULTS: FMD was lower in Black relative to White females (5.28 ± 2.86 vs $7.60\pm2.60\%$; $p=0.021$), but RH was not different between groups ($p>0.05$). Among both groups, neither ACEs nor PWD were associated with FMD ($p>0.05$ for all). JHAC12 scores were negatively associated with FMD in Black ($r_s=-0.74$, $p=0.001$) but not White ($r_s=0.19$, $p=0.571$) females. Although some SWS subscale scores tended to be negatively associated with FMD in Black females (SWS_{suceeded}: $r_s=-0.44$, $p=0.053$; SWS_{vulnerable}: $r_s=-0.37$, $p=0.089$), overall SWS was not ($r_s=-0.23$, $p=0.201$).

CONCLUSION: These preliminary data indicate that 1) FMD but not RH is blunted in young, Black females and 2) blunted FMD in Black females may be due more to internalization and maladaptive coping than exposure to stressful experiences alone.

Symposium 155

Thursday March 9, 4:00-5:15pm

BIOBEHAVIORAL INFLUENCES ON ACCELERATED AGING IN CANCER SURVIVORS

Kelly E. Rentscher, PhD, Medical College of Wisconsin, Judith E. Carroll, PhD, University of California, Los Angeles

Cancer and its treatments may accelerate aging, placing cancer survivors at increased risk for earlier onset of physical and cognitive declines and age-related disease. Importantly, growing evidence suggests that biobehavioral factors also impact the aging process, and may therefore play a critical role in modifying risk for and trajectories of accelerated aging among cancer survivors. This symposium

showcases new and innovative research that identifies several biobehavioral factors that relate to key biological and physical indicators of aging in diverse populations of cancer survivors. The first presentation uses longitudinal data from a national, multi-site study to demonstrate that clinically meaningful depression and anxiety symptoms predict the emergence of frailty and cognitive impairments in adult survivors of childhood cancer up to 20 years after treatment. The second presentation uses longitudinal data from a national, multi-site study to show that older breast cancer survivors with chronically poor sleep had accelerated epigenetic aging profiles up to five years after treatment compared to those with good sleep quality. The third presentation leverages longitudinal data with head and neck cancer survivors to link the presence of two or more moderate neuropsychological symptoms such as depression and fatigue to accelerated epigenetic aging from before to 1-year post-treatment. The fourth presentation examines cancer-related intrusive thoughts, optimism, and inflammation as biobehavioral mechanisms linking low socioeconomic status to poor sleep quality in a longitudinal study of breast cancer survivors. The discussant, a Program Director in the Behavioral Research Program at the National Cancer Institute, will share her expert reflections and discuss future directions in this emerging area of research. Together, this exciting work and discussion by early- and mid-career scientists will highlight research on modifiable biobehavioral factors that contribute to accelerated aging in cancer survivors and may serve as targets for behavioral interventions that modify aging trajectories to help to prevent or slow accelerated aging in cancer survivors and improve long-term outcomes.

Individual Abstract Number: 485

MOOD DISTURBANCES CONTRIBUTE TO AN ACCELERATED AGING PHENOTYPE IN CHILDHOOD CANCER SURVIVORS: THE CHILDHOOD CANCER SURVIVOR STUDY

Kelly E. Rentscher, PhD, Medical College of Wisconsin, Fang Wang, MS, St. Jude Children's Research Hospital, Gregory T. Armstrong, MD, MSCE, St. Jude Children's Research Hospital, Tara M. Brinkman, PhD, St. Jude Children's Research Hospital, Eric J. Chow, MD, MPH, Fred Hutchinson Cancer Research Center, Kim Edelstein, PhD, Princess Margaret Cancer Centre, University Health Network, I-Chan Huang, PhD, St. Jude Children's Research Hospital, Rebecca M. Howell, PhD, MD Anderson Cancer Center, Kevin R. Krull, PhD, St. Jude Children's Research Hospital, Wendy M. Leisenring, ScD, Fred Hutchinson Cancer Research Center, Kirsten K. Ness, PT, PhD, FAPTA, St. Jude Children's Research Hospital

Childhood cancer survivors are at increased risk for long-term treatment effects that resemble an accelerated aging phenotype; however, biobehavioral factors that may also contribute to vulnerability have not been fully identified. We used data from the multi-site Childhood Cancer Survivor Study to examine the impact of mood disturbances on the emergence of accelerated aging phenotypes (frailty, cognitive impairment) over a 20-year period. Adult survivors of childhood cancer diagnosed between 1970–1999 ($n=4,020$; M_{age} at last follow-up=46.3 years) and sibling controls ($n=1,395$; M_{age} at last follow-up=47.2 years) who did not meet criteria for frailty at baseline or cognitive impairment at follow-up 2 were included in analyses. Participants reported depression and anxiety symptoms (BSI-18) at baseline and up to 3 follow-up timepoints. Frailty (Fried index) and cognitive impairment (10th percentile of sibling scores on Neurocognitive Questionnaire subscales) were assessed at baseline or follow-up 2 and the most recent follow-up, up to 24 years later (median=19 years). Survivors were more likely than siblings to develop frailty (6.8% vs. 1.7%, $p<.001$) and impairments in memory (2.2% vs. 1.7%, $p<.001$) and task efficiency (3.7% vs. 2.8%, $p<.001$) over the study period. Mixed effects models tested the interaction of depression and anxiety symptoms and group (survivors vs. siblings) on frailty and cognitive impairment, adjusting for demographic and lifestyle factors. Clinically meaningful depression ($BSI\geq 63$; $OR=9.11$, $p<.001$) and anxiety ($OR=7.47$, $p<.001$) symptoms at 1 or more timepoints predicted the emergence of a frailty phenotype; however, associations did not differ significantly between survivors and siblings (interaction $p>.05$). Depression symptoms predicted the emergence of impairment in task efficiency ($OR=6.67$, $p=.002$) and anxiety symptoms predicted impairment in memory ($OR=10.86$, $p=.01$), with similar associations for survivors and siblings (interaction $p>.05$). Findings identify mood disturbances as modifiable biobehavioral risk factors that contribute to the onset of frailty and cognitive impairment in childhood cancer survivors and their siblings. Given that depression and anxiety have been associated with markers of biological aging in other populations, future research that examines the biological pathways that may explain these links is warranted.

Individual Abstract Number: 490

ACCELERATED EPIGENETIC AGING IN OLDER BREAST CANCER SURVIVORS WITH POOR SLEEP QUALITY: THE THINKING AND LIVING WITH CANCER (TLC) STUDY

Judith E. Carroll, PhD, University of California, Los Angeles, Kelly E. Rentscher, PhD, Medical College of Wisconsin, Traci N. Bethea, PhD, Georgetown University, Wanting Zhai, MS, Georgetown University, Brent J. Small, PhD, University of South Florida, Xingtao Zhou, MS, Georgetown University, Tim A. Ahles, PhD, Memorial Sloan Kettering Cancer Center, Jaeil Ahn, PhD, Georgetown University, Elizabeth C. Breen, PhD, University of California, Los Angeles, Harvey J. Cohen, MD, Duke University, Martine Extermann, MD, Moffitt Cancer Center, University of South Florida, Deena M.A. Graham, MD, Hackensack University Medical Center, Paul B. Jacobsen, PhD, National Cancer Institute, National Institutes of Health, Heather S.L. Jim, PhD, Moffitt Cancer Center, University of South Florida, Brenna C. McDonald, PsyD, Indiana University School of Medicine, Zev M. Nakamura, MD, University of North Carolina-Chapel Hill, Sunita K. Patel, PhD, City of Hope National Medical Center, James C. Root, PhD, Memorial Sloan Kettering Cancer Center, Andrew J. Saykin, PsyD, Indiana University School of Medicine, Danielle B. Tometich, PhD, Moffitt Cancer Center, University of South Florida, Kathleen Van Dyk, PhD, University of California, Los Angeles, Jeanne S. Mandelblatt, MD, Georgetown University

Biological aging processes increase the risk of developing cancer, suggesting that individuals diagnosed with cancer may already have an accelerated aging profile before receiving therapy. Most classes of systemic cancer treatments cause damage that is thought to further accelerate aging, and biobehavioral factors such as poor sleep quality may exacerbate these effects. We previously found that survivors had an older epigenetic age than controls and an older epigenetic age was related to poorer cognitive and physical function. Our current analyses examine epigenetic aging over time in this prospective cohort of older breast cancer survivors ($n=89$) and frequency matched non-cancer controls ($n=99$) (aged 62-84 years). Participants provided two blood samples for DNA methylation profiling (Illumina Infinium EPIC array) between 24- to 60-months following cancer surgery and initiation of treatment(s), along with annual self-reports of sleep quality (Pittsburgh Sleep Quality Index [PSQI]). Consistent with other reports in younger women, older breast cancer survivors had significantly poorer sleep than controls of the same age, with 47% of survivors reporting chronically poor sleep (PSQI >5 at the majority of visits), compared to 35% of controls ($p<.05$). Mixed-effects models found that survivors with chronically poor sleep showed accelerated epigenetic aging over time in the Extrinsic ($p=0.008$), PhenoAge ($p=0.035$), and GrimAge ($p=0.10$) measures, compared to survivors with good sleep quality at the majority of annual visits. Older survivors reporting chronically

poorer sleep quality relative to their peers exhibited accelerated epigenetic aging several years following completion of cancer treatment. Sleep quality explains heterogeneity in epigenetic aging and is a feasible behavioral intervention target to potentially slow aging and improve function in older cancer survivors.

Individual Abstract Number: 548

EPIGENETIC AGE ACCELERATION AND NEUROPSYCHOLOGICAL SYMPTOMS AMONG PATIENTS WITH HEAD AND NECK CANCER

Canhua Xiao, RN, PhD, Emory University School of Nursing, Gang Peng, PhD, Indiana University School Medicine, Karen N. Conneely, PhD, Emory University School of Medicine, Evanthia C. Wommack, BS, Emory University School of Medicine, Nabil F. Saba, MD, Emory University School of Medicine, Deborah W. Bruner, RN, PhD, Emory University School of Nursing, Andrew H. Miller, MD, Emory University School of Medicine

Epigenetic age acceleration (EAA) has been associated with various health conditions. However, the association between EAA and neuropsychological symptoms (NPS) in cancer patients is unclear. This study was to investigate this association among patients with head and neck cancer (HNC) receiving radiotherapy with or without chemotherapy. This longitudinal study had data collected at pre-radiotherapy, end of radiotherapy, and six and twelve months post-radiotherapy. NPS, including symptoms of fatigue, depression, sleep, pain, and cognitive dysfunction, were measured using validated patient-reported questionnaires. Blood was collected for DNA methylation (Illumina MethylationEPIC BeadChip). EAA was calculated using DNAmPhenoAge, adjusted for chronological age. Generalized estimating equation models were used for analyses. A total of 133 eligible patients with HNC were enrolled. The majority were male (72%), white (82%), had advanced cancer stage (stage III or IV; 93%), and received concurrent chemoradiotherapy (80%). Sixty-five percent of patients reported at least two moderate NPS over time, with a peak at the end of radiotherapy (86%). DNAmPhenoAge significantly correlated with chronological age ($r=0.78$; $p<0.001$). EAA was significantly associated with NPS over time ($B=1.37$; $p=0.039$), adjusting for relevant demographic and clinical variables. Compared to patients with one or less moderate NPS, those with at least two moderate NPS experienced 1.37 years higher EAA. Additionally, when patients had one more moderate NPS, their EAA increased by approximately 1 year ($B=0.81$; $p=0.025$). Our findings show that patients with HNC experience significant NPS over time and those with more NPS had a significant acceleration in epigenetic age. While the causal relationship between NPS and EAA is unclear, reducing NPS may slow the aging process and subsequently improve quality of life and long-term survival.

Individual Abstract Number: 553

SOCIOECONOMIC STATUS AND SLEEP: EXAMINING BIOBEHAVIORAL PATHWAYS IN A LONGITUDINAL STUDY OF WOMEN WITH BREAST CANCER

Yrvane Pageot, MA, University of California, Los Angeles, Michael R. Irwin, MD, University of California, Los Angeles, Steve W. Cole, PhD, University of California, Los Angeles, Patricia A. Ganz, MD, University of California, Los Angeles, Catherine Crespi, PhD, University of California, Los Angeles, Julianne E. Bower, PhD, University of California, Los Angeles

Socioeconomic status (SES) is a predictor of health outcomes in women with breast cancer, including mortality. Links between SES and behavioral symptoms, including sleep disturbance, have received less attention, despite relevance for health and accelerated aging in survivorship. The current study examined the association between SES and sleep quality in a longitudinal study of breast cancer patients and biobehavioral mediators of this association, focusing on stress, resilience, and inflammation. Women recently diagnosed with breast cancer completed baseline assessments prior to adjuvant therapy to report demographic information, cancer-related stress (intrusive thoughts about cancer; IES), and optimism (LOT-R). Participants also reported sleep quality (PSQI) at baseline and 6-, 12-, and 18-month follow-ups. Cancer stage and treatment were obtained from medical records. Education status was used to measure SES. Blood samples collected at baseline and follow-ups were assayed for IL-6, CRP, TNF- α , and sTNF-RII. Participants were categorized into three SES groups: low/no college ($n=70$), middle/college graduate ($n=88$), and high/post-graduate ($n=76$). Mixed models indicated that low SES predicted worse sleep quality relative to high SES at baseline and across the assessment period (low SES $M=8.10$, high SES $M=6.48$; $p=.005$). Mediation analyses used a bootstrap approach to test indirect effects of cancer-related intrusive thoughts, optimism, and inflammatory markers, respectively, on the association between SES and sleep quality at baseline. Optimism significantly mediated the relationship between SES and sleep quality when comparing individuals of low and high SES [95% CI: -0.86 to -0.07]. Cancer-related intrusive thoughts and inflammation did not mediate the SES-sleep quality relationship. In this sample, low SES predicted poor sleep quality from diagnosis to early survivorship, with levels well above the clinical threshold for sleep disturbance among women with less than a college education. Optimism, but not intrusive thoughts or inflammation, mediated this association at baseline. Ongoing analyses will assess associations between sleep and inflammation across the assessment period. These findings highlight SES as a contributor to poor sleep in breast cancer survivors and the role of resilience resources as mediators of this association.

Symposium 67

Thursday March 9, 5:30-6:30pm

CHALLENGING THE FUTURE OF DYADIC HEALTH ACROSS ADULTHOOD: LEVERAGING CLOSE RELATIONSHIPS TO PROMOTE HEALTHY AGING

Stephanie J. Wilson, PhD, Southern Methodist University

As the population rapidly ages, the personal and societal burdens of age-related disease are steadily rising in tandem. For good and ill, close relationships profoundly influence health and well-being; thus, our social ties can both exacerbate age-related disease and present opportunities to promote healthy aging. This symposium will integrate novel findings on how relationships “get under the skin” in older age with interventions that leverage close dyadic relationships to spread positive health behavior change and boost wellness. The first three studies uncover novel pathways through which relationships may shape health across adulthood in community and clinical samples. Through a geroscience lens, the first study shows that lower perceived support predicts older epigenetic ages and a faster pace of aging, controlling for age and other confounds. The second study investigates the possible risks of a happy marriage in older age. Findings reveal that happier, older couples had larger inflammatory responses after listening to their spouse relive an upsetting memory compared to unhappier and middle-aged counterparts. In the third study, poorer emotional functioning in persons

with dementia (PWD) predicted their heightened risks for earlier mortality; the links were partially explained by lower caregiver emotional well-being. Results suggest potential consequences of dyads' emotional dynamics for care quality and PWD longevity. In the first of two intervention studies, overweight, older couples assigned to a dyadic behavior change program increased their physical activity and weight-management efficacy more than those with nutritional counseling. The final study reports on a program for spousal dementia caregivers—both feasible and acceptable for addressing spouses' stressors and improving relationship quality. Content analysis reveals strengths and challenges for the program's scalability and cultural tailoring. The diverse collection of studies will stimulate discussion about whether, how, and for whom basic relationship mechanisms may be feasibly manipulated with intervention, and identify dyadic processes that may impact intervention efforts. The discussant Dr. Liz Necka, program officer of the Division of Behavioral and Social Research at the National Institute on Aging, will cast results in view of high-priority future directions in aging research.

Individual Abstract Number: 384

SOCIAL RELATIONSHIPS AND EPIGENETIC AGING IN OLDER ADULTHOOD: RESULTS FROM THE HEALTH AND RETIREMENT STUDY

Kelly E. Rentscher, PhD, Medical College of Wisconsin, Eric T. Klopach, PhD, University of Southern California, Eileen M. Crimmins, PhD, University of Southern California, Teresa Seeman, PhD, UCLA, Steve W. Cole, PhD, UCLA, Judith E. Carroll, PhD, UCLA

A growing literature suggests that social relationship quality can influence age-related health outcomes, including declines in physical and cognitive function and cardiovascular disease, although how the quality of one's relationships directly relates to the underlying aging process is less clear. We hypothesized that lower support and higher strain within close relationships would be associated with an accelerated epigenetic aging profile among older adults in the nationally representative Health and Retirement Study. As part of the 2016 data collection wave, adults aged 50-96 years ($N=3,647$; 55.1% female; 79.5% non-Hispanic white, 9.2% non-Hispanic Black, 7.9% Hispanic) provided reports of support and strain in relationships with their spouse, children, other family members, and friends. Participants also provided a blood sample that was used to derive DNA methylation-based epigenetic aging measures: Horvath, Hannum, PhenoAge, and GrimAge clocks, and Dunedin Pace of Aging methylation (DunedinPoAm). Generalized linear models that adjusted for age, biological sex, and race/ethnicity and applied a false discovery rate correction for multiple testing revealed that lower support from one's spouse, children, other family, and friends was associated with an older epigenetic age based on PhenoAge ($Bs=-0.47$ to -0.61 , $ps<.05$) and GrimAge ($Bs=-0.34$ to -0.39 , $ps<.05$) estimates and a faster Dunedin PoAm ($Bs=-0.005$ to -0.008 , $ps<.05$), and higher strain with one's friends was associated with a faster Dunedin PoAm ($B=0.013$, $p<.05$). In secondary analyses that further adjusted for socioeconomic and lifestyle factors, lower support from friends and other family members related to an older GrimAge ($B=-0.26$, $p<.05$) and faster Dunedin PoAm ($B=-0.005$, $p<.05$), respectively. These results suggest that lower perceived support within close relationships, particularly with family members and friends, is associated with an accelerated epigenetic aging profile in older adulthood. Findings also extend previous research by identifying epigenetic aging as a biological mechanism through which social relationship quality may influence aging and increase risk for age-related health outcomes such as cancer, cardiovascular disease, dementia, and early mortality.

Individual Abstract Number: 186

MARITAL SATISFACTION, AGE, AND INFLAMMATORY RESPONSES TO A SPOUSE'S DISTRESS: THE DOWNSIDE OF A HAPPY MARRIAGE IN OLDER ADULTHOOD

Stephanie J. Wilson, PhD, Southern Methodist University, M. Rosie Shrout, PhD, Purdue University, Rebecca Andridge, PhD, The Ohio State University, William B. Malarkey, MD, The Ohio State University College of Medicine, Janice K. Kiecolt-Glaser, PhD, The Ohio State University College of Medicine

Most of the literature has concluded that a happy marriage benefits health, but in some cases, a satisfying marriage may present unique health risks. For example, watching a partner endure the normative challenges of aging, such as the loss of loved ones and the emergence of health problems, may be a source of distress that has greater consequences for older and more satisfied couples. In preliminary support, a recent study of 38 partnered adults found significant increases in proinflammatory gene expression after watching a spouse relive an upsetting personal memory. To examine age and marital satisfaction as moderators of their negative emotions and inflammatory responses to a spouse's distress, 214 individuals in 107 couples witnessed their spouse relive an upsetting personal memory aloud, rated their mood before and after, and provided blood samples at baseline and twice post-task. Peripheral blood mononuclear cells (PBMCs) were stimulated with lipopolysaccharide (LPS) and assayed for interleukin (IL)-6, tumor necrosis factor (TNF)- α , and IL-1 β . Accounting for demographic- and health-related confounds, marital satisfaction significantly moderated the association with all three outcomes ($ps < .015$), such that happier spouses had larger inflammatory responses when the disclosure elicited stronger negative emotional reactivity; the association was non-significant in less satisfied listeners. In addition, older listening spouses had larger IL-1 β responses in association with greater negative emotional reactivity to the partner's disclosure, compared to middle-aged counterparts ($p = .017$). The findings reveal a novel pathway by which satisfied couples may face health risks in the relationship, particularly in periods of suffering and distress. In this way, examining a person's emotional and physiological responses to their partner's distress sheds new light on how marriage affects health outside of marital conflict. This dynamic may grow increasingly central to couples' health with older age, raising the possibility of a happy marriage's diminishing returns in later life.

Individual Abstract Number: 348

FAMILY CAREGIVERS' EMOTIONAL WELL-BEING MEDIATES THE ASSOCIATION BETWEEN EMOTIONAL IMPAIRMENTS AND MORTALITY IN PEOPLE WITH NEURODEGENERATIVE DISEASE

Kuan-Hua Chen, PhD, University of Nebraska Medical Center, Sandy J. Lwi, PhD, VA Northern California Health Care System, Jennifer Merriees, RN, PhD, UCSF Memory and Aging Center, Howard Rosen, MD, UCSF Memory and Aging Center, Bruce Miller, MD, UCSF Memory and Aging Center, Robert W. Levenson, PhD, University of California, Berkeley

People with neurodegenerative diseases (PWDs) often develop profound emotional impairments (e.g., apathy) that can lead to negative consequences for themselves and their family caregivers. For example, as PWDs' disease progresses they may display more apathy, which may cause caregivers to feel discouraged and overwhelmed. Caregivers with lower emotional well-being in turn may find it more difficult to juggle the many healthcare needs of the PWDs, which may contribute to further declines in PWDs. However, no studies have examined the link between emotional impairments in PWDs and their own mortality, or whether this link may be mediated by lower

emotional well-being in caregivers. We addressed this gap using a sample of 128 PWD-caregiver dyads. We quantified emotional impairments in PWDs using a laboratory-based objective physiological measure that we have found sensitive to PWD emotional functioning (i.e., their ability to mount a preparatory cardiovascular response—indicated by increasing heart rate—when they have been told that they are about to watch an emotionally salient film). Caregiver emotional well-being was self-reported via a standard questionnaire. PWD mortality was quantified as the number of days between PWD's laboratory assessment and their date of death. We found that greater PWD mortality was associated with smaller preparatory heart rate changes in PWDs when they were informed about the upcoming emotional film. Further, this association was mediated by poor caregiver emotional well-being at trend levels ($a = -0.15, p = 0.10$; $b = 0.27, p = 0.002$; $c = -.19, p = .03$; $c' = -.15, p = .07$). These findings advance our understanding of affective and social factors that contribute to negative health outcomes in PWDs. Specifically, diminished preparatory cardiovascular responses before PWDs engage with emotional stimuli may reflect insufficient metabolic support for the somatic activity that is often necessary for making behavioral adjustments. As PWDs exhibit more of these psychophysiological impairments (and associated behavioral changes), caregivers likely experience lower emotional well-being, which in turn can impact the quality of the care they provide and further contribute to PWD mortality.

Individual Abstract Number: 349

A COUPLES-BASED INTERVENTION TO PROMOTE PHYSICAL ACTIVITY AND HEALTHY EATING AMONG OBESE OLDER ADULTS DURING PANDEMIC-RELATED CONFINEMENT PERIOD: A PILOT STUDY

Jean-Philippe Gouin, PhD, Concordia University, Tamara Cohen, PhD, University of British Columbia, Mylène Aubertin-Leheudre, PhD, Université du Québec à Montréal, Emily Carrese-Chacra, MA, Concordia University, Kayla Hollett, MA, Concordia University, Sara Matovic, MSc, Concordia University

Background: Although important to reduce spread of the virus within a population, pandemic-related confinement leads to major changes in lifestyle behaviours that can increase risk for weight gain and physical deconditioning, especially among older adults. Social-ecological models of obesity highlight that close others play a key role in creating a home environment that promotes obesity by reinforcing certain eating and physical activity behaviours. This interdependence in lifestyle behaviours is likely enhanced during pandemic-related confinements. The goal of this pilot study was to estimate the efficacy of a couples-based behavioural intervention at promoting physical activity and health eating among obese older adults during pandemic-related confinement. **Participants:** Participants were 36 couples (72 participants) who had body mass indexes in the overweight or obese range and were older than 55 years of age. **Research design:** Couples were randomized to either a couple-based health behaviour change intervention or a couple-based nutritional counselling. **Interventions:** The dyadic behaviour change intervention included dyadic version of motivational interviewing, self-monitoring, stimulus control, goal setting and action planning, problem solving, relapse prevention behavioral change techniques. The couples-based nutritional counseling was based on promoting adherence to the 2019 Canadian Food Guide. Both groups had access to web-based exercise training videos. **Measures:** Participants completed anthropometric measures, self-report measures on weekly physical activity and self-efficacy for healthy eating and weight management both before and after the 4-month intervention period. **Results:** Both groups experienced a significant reduction in weight, $p = .002$, healthy eating self-efficacy, $p < .001$, with no significant difference between groups, $p = .72$ and $p = .95$, respectively. The behavioural group showed larger increase in weight management self-efficacy, $p = .08$, as well as physical activity $p = .03$, compared to the nutrition group. Neither group reported change in physical activity self-efficacy, $p = .53$. **Conclusions:** These results highlight that a dyadic health behaviour change intervention was effective at increasing physical activity and weight management self-efficacy, even in the context of ongoing pandemic-related confinement measures.

Individual Abstract Number: 350

“WOOP IS MY SAFE HAVEN”: A QUALITATIVE FEASIBILITY AND ACCEPTABILITY STUDY OF THE WISH OUTCOME OBSTACLE PLAN INTERVENTION FOR SPOUSES OF PERSONS WITH EARLY-STAGE DEMENTIA

Joan Monin, PhD, Yale School of Public Health, Anna Schwarz, MPH, Yale School of Public Health, Sarah Valeika, BA, Yale School of Public Health, Gabriele Oettingen, PhD, New York University, Daniel David, RN, PhD, NYU Rory Meyers College of Nursing, Richard Marottoli, MD, MPH, Yale School of Medicine

Supporting a spouse who has dementia can be stressful and lead to decreased psychological well-being for the care partner. The Wish Outcome Obstacle Plan (WOOP) intervention has recently been shown to improve the wellbeing of spouses of persons living with dementia (PLWD) by guiding its users to achieve meaningful goals. However, little is known about how WOOP is implemented in this population. This pilot study explored the feasibility and acceptability of WOOP and identified factors that shaped its successful implementation for spouses of PLWD. Twenty-one spouses of PLWD were interviewed three times over the course of three months. Thematic analysis was used to analyze the qualitative data. Emergent themes were organized in accordance with Proctor et al.'s taxonomy of implementation outcomes and the Theoretical Domains Framework. Three meta-themes central to experiences using WOOP and implementation success were identified: 1) Assessing Baseline Strengths and Limitations, 2) Learning from Experience, and 3) Finetuning and Sustaining WOOP. Seven themes fall into these meta-themes and are differentially present throughout the visits: 1a) Understanding WOOP Concepts while Coming to Terms with Dementia, 1b) Improving Caregiving Skills and Self-Perceptions, 2a) The Rewards and Challenges of Involving PLWD, 2b) Becoming in Tune with Emotions and Actions, 3a) Adapting the WOOP Design, 3b) Improving the Delivery of WOOP, and 3c) Problem-Solving through Anticipated Action to Overcome Obstacles. WOOP is feasible for addressing interpersonal and emotional stressors of spouses. WOOP was found to be acceptable for improving spouses' self-perceptions, affective responses to behavior changes of PLWD, and the quality of spousal relationships. Self-reflection and action-oriented goal attainment were strengths of WOOP. The individual-level delivery, rather than the group delivery, of WOOP and anticipatory grief of spouses were challenges to implementation success. This study was also limited by convenience sampling which resulted in mostly White, highly educated spouses. Future directions include adapting WOOP for spouses of PLWD to group delivery, addressing anticipatory grief, and working with diverse groups to adapt WOOP in this illness context.

Symposium 93

Thursday March 9, 5:30-6:30pm

FROM SCREENING TO SURVIVORSHIP: IMPROVING BREAST AND COLORECTAL CANCER OUTCOMES AMONG SPECIAL POPULATIONS

Patricia Moreno, PhD, University of Miami Miller School of Medicine

Breast and colorectal cancer are two of the most common cancers in the United States. However, outcomes across the cancer continuum vary significantly among diverse individuals. The aim of this symposium is to highlight innovative research among special populations affected by breast and colorectal cancer, including individuals living in socioeconomically disadvantaged areas, individuals living with metastatic cancer, individuals from minoritized racial/ethnic groups, and caregivers. The four studies featured utilize a variety of designs/methodologies (e.g., large cohort study, intervention trial, daily diary sampling, focus groups) to examine outcomes from screening to survivorship. The first study by Antoni et al. examines the impact of Area Deprivation Index (ADI), a geospatial index of socioeconomic disadvantage, on psychosocial adjustment, biobehavioral processes and breast cancer-specific survival among women initiating breast cancer treatment. This study also evaluates whether a cognitive behavioral stress management (CBSM) intervention demonstrates differential effects among women with high versus low ADI. The second study by Noriega Esquivas et al. examines coping strategies and psychosocial resources that contribute to quality of life among women living with metastatic breast cancer. Using data from four focus groups, this study elucidates coping strategies and psychosocial resources that span behavioral, interpersonal, cognitive, and existential domains. The third study by Tsai et al. examines the effect of disclosing one's thoughts and feelings on one's own sleep and his/her partner's sleep among patients newly diagnosed with colorectal cancer and their sleep-partner caregivers. Using daily diary sampling methods across two weeks, this study examines relationship between self-disclosure and multiple sleep outcomes, including sleep duration, sleep onset latency, wake after sleep onset, and sleep efficiency. The fourth study Medina et al. examines quality of life (pain, fatigue, physical functioning, anxiety, depressed mood, meaning and purpose), health literacy and numeracy, and sociodemographic characteristics as predictors of predictors of adherence to national colorectal cancer screening guidelines among racially diverse adults. An active Q&A will follow to discuss cross-cutting themes, including social processes and social determinants of health.

Individual Abstract Number: 338

AREA DEPRIVATION, HEALTH OUTCOMES, BIOBEHAVIORAL STRESS PROCESSES AND STRESS MANAGEMENT EFFECTS IN BREAST CANCER PATIENTS IN SOUTH FLORIDA

Michael H Antoni, PhD, University of Miami, Molly Ream, MS, University of Miami, Emily Walsh, MS, University of Miami, Paula Popok, BS, University of Miami, Bonnie B Blomberg, PhD, University of Miami Miller School of Medicine, Estefany Saez-Clarke, PhD, University of Miami, Alexandra Hernandez, MD, University of Miami Miller School of Medicine, Neha Goel, MD, University of Miami Miller School of Medicine

Background. Poor psychological adaptation during breast cancer (BC) treatment has been associated with negative health outcomes. This work has not examined the role of social determinants including geospatial indices such as Area Deprivation Index (ADI), reflecting sources of adversity that could compound cancer-related challenges. We examined whether stress- and stress management-related biobehavioral processes and health outcomes vary in women with BC based on where they live. **Methods.** We examined the role of ADI in predicting poorer BC specific survival (BCSS) in a large cohort, subjective/objective stress in a clinical sample initiating BC treatment, and responses to cognitive behavioral stress management (CBSM) intervention during treatment. **Results.** In over 5500 BC patients treated in South Florida in 2002 - 2015, those living in high (vs low) ADI areas had shorter BCSS, controlling for demographic, disease and treatment factors. In a separate sample (N=240) collected 2-10 weeks post-surgery (before adjuvant therapy) women high (vs low) in ADI had greater late afternoon (PM) serum cortisol and were more likely to have clinically-significant anxiety, controlling for age and stage. Greater ADI also predicted shorter 5-year BCSS, controlling for age, stage, race, and treatments. Finally, high and low ADI patients assigned to a 10-week CBSM intervention (vs psychoeducation [PE]) had reduced BC-specific distress over 12 months. While low ADI women in CBSM (vs PE) also showed reductions in PM cortisol and leukocyte pro-inflammatory and pro-metastatic gene expression over 12 months, high ADI women showed no such effects. **Conclusions.** Women in South Florida with BC from high vs low ADI areas had poorer BCSS, independent of disease and treatment factors, suggesting stress processes may be relevant. Women initiating BC treatment from high ADI areas show greater anxiety and PM cortisol levels, and had shorter 5-year BCSS, beyond disease and treatment factors. While CBSM decreased cancer-specific distress for women from all ADI areas during treatment, only low ADI women revealed contemporaneous CBSM effects on neuroendocrine and inflammatory processes, perhaps due to other stressors (e.g., neighborhood stress) not addressed in CBSM. Future work should identify modifiable aspects of neighborhood stress, and adapt CBSM to address these and cancer-specific stressors.

Individual Abstract Number: 337

COPING STRATEGIES AND PSYCHOSOCIAL RESOURCES AMONG WOMEN LIVING WITH METASTATIC BREAST CANCER: A QUALITATIVE STUDY

Blanca S Noriega Esquivas, MD, PhD, University of Miami Miller School of Medicine, Emily A Walsh, MS, University of Miami, Frank J Penedo, PhD, University of Miami Miller School of Medicine, Jessica L Thomas, MA, Northwestern University Feinberg School of Medicine, Fiona S Horner, BS, Carnegie Mellon University, Joanna B Torzewski, PhD, Northwestern University Feinberg School of Medicine, William J. Gradishar, MD, Northwestern University Feinberg School of Medicine, David E Victorson, PhD, Northwestern University Feinberg School of Medicine, Patricia I Moreno, PhD, University of Miami Miller School of Medicine

Background: More women are living with metastatic breast cancer (MBC) in the U.S. due to improvements in cancer detection and treatment, as well as demographic and lifestyle behavior changes. Few qualitative studies have been conducted to evaluate how women with MBC cope with their cancer experience. Notably, most studies have been conducted prior to 2010 and do not reflect recent advances in cancer detection and treatment, and longer term adjustment and survival in metastatic disease. This qualitative study describes the coping strategies and psychosocial resources utilized by women living with MBC. **Methods:** Four focus groups were held with female MBC survivors, recorded, transcribed verbatim, and analyzed using a general inductive approach. Codes emerged from participants' responses and were subsequently condensed into themes. **Results:** Twenty-two women with MBC participated (age range = 34-84; 19 self-identified as non-Hispanic White; 10 were diagnosed with de novo MBC). Twelve coping strategies and psychosocial resources emerged and were grouped into five themes: *Behavioral Coping Strategies* (i.e., stress management, active coping and planning); *Interpersonal Resources and Seeking Social Support* (i.e., social support); *Psychological Resources and Cognitive Coping Strategies* (i.e., cognitive reappraisal, optimism, mindfulness, positive thinking, and religious coping); *Avoidance* (i.e., avoidant coping);

and *Existential Approach-Oriented Coping* (i.e., acceptance, values-based living, and identity integration). The most commonly endorsed coping strategies and psychosocial resources were stress management (28%; self-care activities and relaxation practices to reduce stress), social support (17%; seeking out and receiving social support from family, friends, and medical team), active coping and planning (12%; setting goals and focusing on things they can control), acceptance (11%; accepting the reality of having MBC), and values-based living (10%; living a meaningful life despite their cancer). Conclusions: Understanding coping strategies and psychosocial resources that women draw upon to live and manage MBC may help guide intervention targets for future psychosocial interventions. Further research is needed to assess coping strategies and psychosocial resources across different subgroups of MBC patients (e.g., racial/ethnic minorities, rural communities, men).

Individual Abstract Number: 325

ASSOCIATIONS OF SELF-DISCLOSURE WITH SLEEP IN CANCER PATIENTS AND THEIR SLEEP-PARTNER CAREGIVERS: A DYADIC INVESTIGATION

Thomas C Tsai, MS, University of Miami, Nirvi Ajmera, BS, University of Miami, Amanda Ting, PhD, VA Palo Alto Health Care System, Jean-Philippe Laurenceau, PhD, University of Delaware, Jamie Zeitzer, PhD, Stanford University, Youngmee Kim, PhD, University of Miami

Cancer is a highly stressful experience for both patients and their partner caregivers. Disclosing feelings and thoughts to a significant other is known to alleviate stress and facilitate better sleep. Such protective effects may also spill-over between sleep partners and promote the partner's sleep. This study examined the degree to which self-disclosure associated with one's own and the partner's sleep among cancer patients and their sleep-partner caregivers. Study participants were patients newly diagnosed with colorectal cancer ($N = 123$, mean age = 56.61 years, 34.1% female, 6.7 months post-diagnosis) and their sleep-partner caregivers (mean age = 55.07 years, 68.3% female). Participants individually completed evening diaries assessing self-disclosure and morning diaries assessing the prior night's sleep over 14 consecutive days. Mean and variability of self-disclosure across the 14 days were calculated for each participant. Sleep markers included sleep duration (SD), sleep onset latency (SOL), wake after sleep onset (WASO), and sleep efficiency (SE). Individuals' age, gender, sleep markers on the previous day, and patient's cancer stage were covariates. Both patients and caregivers reported moderate levels of self-disclosure, normative SD and WASO, but suboptimal SOL (24.8 and 25.2 mins, respectively) and SE (83.1% and 84.2%, respectively), with minimal to moderate variability across days. Dyadic multilevel modeling revealed that the caregiver's greater averaged self-disclosure was associated with their patient's longer SD ($b = .02$, $p = .024$). Patient's greater averaged self-disclosure was associated with their caregiver's shorter WASO ($b = -4.46$, $p = .023$). Patient's greater averaged self-disclosure was marginally associated with their caregiver's better SE ($b = 1.89$, $p = .056$). Effects of one's own averaged self-disclosure and self-disclosure variability were not significant. Findings suggest the salutary effects of one's self-disclosure on the partner's sleep, highlighting the protective role of effective communication in restorative processes when facing cancer-related stress. Further investigation on the psychobiological processes underlying the current findings is warranted. Interventions tailored to address sleep health among cancer patient-caregiver dyads may consider incorporating elements of effective communication training.

Individual Abstract Number: 587

PREDICTORS OF ADHERENCE TO NATIONAL COLORECTAL CANCER SCREENING GUIDELINES AMONG URBAN-DWELLING DIVERSE ADULTS

Heidy N. Medina, PhD MPH, University of Miami Miller School of Medicine, James W. Griffith, PhD, Northwestern University Feinberg School of Medicine, Michael K. Paasche-Orlow, MD MPH MA, Tufts Medical Center, Patricia I. Moreno, PhD, University of Miami Miller School of Medicine

Background: Predictors of colorectal cancer (CRC) screening are multifactorial and include both individual-level modifiable and non-modifiable factors that can inform targets of intervention. The goal of this study is to examine quality of life (pain, fatigue, physical functioning, anxiety, depressed mood, meaning and purpose), health literacy and numeracy, and sociodemographic characteristics as predictors of adherence to national guidelines for CRC screening. Methods: Data were collected from a subsample of 50- to 75-year-old participants of a parent observational study in Boston and Chicago from November 2020 to March 2021. CRC screening was assessed using the National Cancer Institute Health Interview National Trends Survey (HINTS), and adherence was defined according to guidelines from the United States Preventive Services Task Force. Chi-square tests and Fisher's exact tests were conducted to determine differences between those who were adherent versus non-adherent. Univariable logistic regression models were used to estimate odds ratios (ORs) examining the associations between CRC screening predictors and adherence. Results: Participants ($N=119$) were on average 60.7 years old and were predominantly women (69%), non-Hispanic Black (55%), English-speaking (87%), and single (44%). Among this sample, 76% of individuals were adherent to CRC screening guidelines. In univariable models, those who were separated/divorced were less likely to be adherent to CRC screening guidelines than those who were married/partnered (OR 0.21, 95% CI: 0.06-0.69; $p=0.010$). Trending associations that did not reach statistical significance suggested that individuals with high levels of anxiety may be more likely to be adherent (OR 1.04, 95% CI: 1.00-1.09; $p=0.075$), whereas individuals with adequate health literacy (OR 0.46, 95% CI: 0.20-1.08; $p=0.075$) and high levels of meaning and purpose (OR 0.40, 95% CI: 0.15-1.06; $p=0.065$) may be less likely to be adherent. Conclusions: Marital status was a predictor of CRC screening adherence among this sample of majority non-Hispanic Black women. Trending associations for health literacy, meaning and purpose, and anxiety await replication and require further research.

Symposium 230

Friday March 10, 11:45am-12:45pm

IMPROVING NEURODEVELOPMENTAL WELLBEING: CHALLENGING THE STATUS QUO IN AUTISM AND ADHD RESEARCH AND CLINICAL PRACTICE

Lisa Quadt, PhD, Brighton and Sussex Medical School, Jessica Eccles, PhD, Brighton and Sussex Medical School, Sarah Garfinkel, PhD, University College London, Kelly Mahler, MS, OTR/L, Elizabethtown College

Neurodiversity refers to the fact that all brains are different, whereas neurodivergence describes neurotypes that are different from the majority (e.g., Autism, ADHD). Research shows that neurodivergent people of all ages have worse health outcomes, decreased life

expectancy of up to 30 years, and face multiple intersecting barriers to effective healthcare. Reasons are likely complex and a combination of unique, hitherto under-researched individual psychophysiological profiles and societal factors, such as ableism and misinformation about neurodivergence. In this symposium, we will present novel findings from clinical research and practice about how we can improve wellbeing for neurodivergent children, young people, and adults. First, we will illustrate that the false dichotomy between body and brain can lead to a fundamental misunderstanding of the challenges with which many neurodivergent people are confronted. We present data indicating that many neurodevelopmental differences likely have a bodily root, and how these findings drive us to reframe clinical research and practice for neurodivergent people. Secondly, we present findings from a clinical trial testing a novel, body-based therapy against anxiety in autistic adults. We showed previously that this therapy effectively reduces anxiety and will here describe neural and long-term affective effects. Thirdly, we will describe findings from sensory interventions in neurodivergent children and young people. Internal and external sensory experiences are often amplified or attenuated in neurodivergent people, which can lead to distress, anxiety and social difficulties. We show how using pleasant internal and external sensory experiences and learning more about one's own sensory profile can improve wellbeing. Lastly, we show novel, participatory ways of engaging neurodivergent people in the clinical research process. Autism research has often led to the perpetuation of negative stereotypes, excluded "hard to reach" parts of the autistic community. To avoid this in future research and clinical practice, participatory methods are indispensable. Taken together, our symposium offers a range of novel findings about the unique biopsychosocial challenges neurodivergent people face, and discusses new ways of framing, researching, and treating this community.

Individual Abstract Number: 469

THE EXPRESSION OF AFFECTIVE REGULATION IN NEURODIVERGENCE: THE ROLE OF PROPRIOCEPTION

Jessica Eccles, PhD, MD, Brighton and Sussex Medical School, Lisa Quadt, PhD, Brighton and Sussex Medical School, Samantha Sherrill, PhD, Brighton and Sussex Medical School, Hugo Critchley, PhD, MD, Brighton and Sussex Medical School

Background

Within predictive coding models of emotion, imprecise (proprioceptive) signals may enhance prediction error signalling and thus translate into emotional feelings and affective phenomenology. Further understanding in neurodivergence is needed, where emotional dysregulation and atypical proprioceptive processing often co-occur. A potential pathway is the over-representation of people with joint hypermobility across affective and neuropsychiatric presentations including anxiety/panic disorder, fatigue and importantly, neurodivergent conditions. Our objective was to test a conceptual model linking constitutional variation in brain and body (hypermobility) to differences in affective regulation through proprioceptive (bodily) surprise in neurodivergence.

Method

182 individuals completed an online survey including screening measures for autism, ADHD, and joint hypermobility. Additionally, the proprioceptive sub-score of a sensory sensitivity scale was operationalised as a degree of proprioceptive imprecision, and affective dysregulation as score on a dissociation scale. Mediation analyses were conducted to test for links between variables.

Results

All four scale variables (number of neurodivergent characteristics, number of joint hypermobility features, degree of affective regulation and proprioceptive imprecision) were found to be significantly correlated with each other ($p < .001$, all $r > 0.4$). In model 1 hypermobility (X) was found to be linked to emotion regulation (Y) through proprioceptive surprise (M) (Estimate of Indirect Effect: 3.61, 95% CI 2.56-4.78). In model 2 neurodivergence (X) was found to be linked to emotion regulation (Y) through proprioceptive surprise (M) (Estimate of Indirect Effect: 12.27, 95% CI 7.94-17.43). In model 3 hypermobility (W) moderated the path linking neurodivergence (X) to emotion regulation (Y) through proprioceptive surprise (M) (Index of moderated mediation: 1.39, 95% CI 0.33 – 2.80).

Conclusions

We present for the first time an in-vivo data informed model that demonstrates how variant connective tissue (hypermobility) relates to proprioceptive imprecision and as a result can effect emotional regulation in neurodivergence. This has significant implications for our understanding of constitutional correlates of brain-body integration, clinical practice and precision medicine.

Individual Abstract Number: 400

NEURAL AND AFFECTIVE EFFECTS OF INTEROCEPTIVE THERAPY IN AUTISTIC ADULTS

Sarah Garfinkel, PhD, University College London, Lisa Quadt, PhD, Brighton and Sussex Medical School, James Mulcahy, PhD, Brighton and Sussex Medical School, Hugo Critchley, PhD, MD, Brighton and Sussex Medical School

Background

Anxiety is highly overrepresented in autistic adults, yet standard treatments for anxiety are often not tailored to autistic needs. We previously showed that targeted interoceptive training effectively reduces anxiety in autistic adults. The purpose of the current study was to investigate neural and long-term affective effects of interoceptive therapy on anxiety symptomatology.

Methods

In a superiority randomized controlled trial, 120 autistic adults were randomly assigned to receive interoceptive (n=60) or an active control intervention (n=60). Anxiety symptomatology was assessed 12 months post therapy. Between-group difference of the primary outcome (trait anxiety) was analyzed on an intention-to-treat basis using a maximum likelihood-based repeated measures approach (p -threshold $< .05$). 40 participants in the interoception group completed an interoceptive task during fMRI one-week pre and post therapy. Specific generalized psychophysiological interactions analyses to established changes in functional connectivity, where the GLM comprised regressors for task condition and time (pre/post therapy; cluster-forming threshold $p < .001$; FDR cluster-correction $p < .05$). Anxiety-reduction one week post-therapy was tested using paired t-tests (p -threshold $< .05$).

Results

Anxiety was significantly reduced in participants attending fMRI post-therapy ($t(22) = -3.428$, $p = .003$, $d = .73$). Functional connectivity of right and left insula significantly increased one week post therapy and correlated with improvement in interoceptive abilities. A statistically significant group effect of interoceptive therapy on trait anxiety continued 12 months post therapy (3.07, 95%CI=0.94, 5.20, $p = .005$; $d = 0.31$, 95%CI=0.1, 0.53).

Conclusions

Interoceptive therapy decreased anxiety long-term and increased functional connectivity. It presents an accessible intervention that does not rely on language or identification of emotions, making it tailored for the needs of autistic adults.

Individual Abstract Number: 234

THE INTEROCEPTION CURRICULUM: A GUIDE TO DEVELOPING MINDFUL SELF-REGULATION (IC©)

Kelly Mahler, MS, OTR/L, Elizabethtown College

Background: Neurodivergent children and adults frequently experience emotional dysregulation which significantly impacts their ability to participate in daily activities. Behavioral interventions using external reinforcement to encourage compliance and 'acting typical' are often used when emotional dysregulation is present. These surface behavioral approaches fail to investigate or support the underlying regulation mechanisms needed to make meaningful long-term changes. Emerging research suggests that interoceptive awareness influences regulation processes, however, few studies investigate the potential positive impact of interoception-based interventions in neurodivergent populations.

Methods: The study aimed to explore the effectiveness of *The Interoception Curriculum: A Guide to Developing Mindful Self-Regulation (IC©)*, which is an adapted form of body mindfulness, in improving interoception and emotional regulation in a pediatric population. A quantitative, uncontrolled, one group pretest-posttest research design was utilized to measure changes in emotional regulation and interoceptive awareness. An 8-week intervention period using the framework from the IC was implemented, and data was gleaned from n=107 participants, aged 6 to 17 years old.

Results: The Wilcoxon Test showed a significant difference ($p \leq .05$) in the BRIEF-2® Emotional Regulation Index (ERI) scores from pre to posttest from the 8-week intervention. There was a significant change ($p \leq .05$) in interoceptive awareness scores from pre- to posttest. Improvements in both emotional regulation and interoceptive awareness were found despite diagnosis, age, gender, and treatment site.

Conclusions: This is the first study to explore the effectiveness of an interoception-based intervention with a large neurodivergent pediatric sample and provides evidence that the IC, an adapted form of body mindfulness, works to improve interoceptive awareness and emotional regulation under real-world conditions. This study contributes significant evidence to the field of neurodiversity, especially in relation to understanding and supporting underlying mechanisms needed for successful regulation. The continuation of interoception-based research is vital to serve this population who often have their outward behaviors misunderstood and pathologized rather than deeply investigated and meaningfully supported.

Individual Abstract Number: 401

NEUROPALs: PATHWAYS TO AUTISTIC-LED STUDIES (PALs) IN CLINICAL NEUROSCIENCE

Lisa Quadt, PhD, Brighton and Sussex Medical School, Jane Green, MA, SEDSConnective

Clinical neuroscience forms a crucial field within autism research, and can help to uncover the neural, cognitive, autonomic, sensory and affective mechanisms underlying autistic strengths and challenges. Traditionally anchored in a medical, deficit-based model of autism, some clinical neuroscience research contributed to harmful stereotypes about autistic people, such as the widespread belief that autistic people do not feel empathy, or that autism is rare in women. These stereotypes, although now debunked, are persistent, and as a result, trust in researchers was lost in the autistic community. Many autistic people and advocacy groups call for participatory, autistic-led research, in which autistic people can meaningfully participate in and steer autism research.

Pathways to Autistic-Led Studies in Clinical Neuroscience (NeuroPALs) is a research program initiated and led by autistic autism researchers and members of the autistic community. We aim to co-produce shareable models of best practice for setting up sustainable, inclusive and accessible spaces for communication between the autistic community and clinical neuroscience researchers. NeuroPALs uses a number of different communication formats to accommodate the wide range of communication needs within the autistic community. These include small and large groups, 1:1 settings, online and in-person settings, as well as written and spoken language. Our research program also makes a concerted effort to include members of the community who have previously been neglected in research, including ethnic minorities, older autistic adults, autistic people with additional disabilities and access needs, and those who speak few or no words.

We find that the goals of NeuroPALs resonate positively with the autistic community, and will present what we have learned thus far in setting up this unique and inclusive research program.

We hope to set an example of meaningful co-production that can be adapted by other researchers and is not limited to clinical neuroscience. By reversing the traditional power dynamics and meaningfully engaging the autistic community in clinical neuroscience research, we hope to rebuild some of the trust that was previously lost.

Symposium 185

Friday March 10, 2:00-3:00pm

MECHANISMS LINKING ADVERSITY TO HEALTH ACROSS THE LIFE COURSE

Ruth A Hackett, PhD, King's College London, Adolfo G Cuevas, PhD, New York University, Danielle M Kroboth, PhD, Tufts University, Lydia Poole, PhD, University of Surrey

Adversity is an increasingly well recognised social determinant of health and a driver of health inequities. Adversity can operate at both the individual (e.g., through perceptions of discrimination) and the structural level (e.g., through the unfair allocation of societal resources that are determinants of health such as wealth and housing). The impact of adversity on health can occur across the life course from childhood to older adulthood. A growing body of research has investigated the links between adversity and both mental and physical health outcomes. Adversity may be conceptualised as a social stressor, which could directly affect health via direct biological pathways or through negative health behaviours.

In this symposium we present four pieces of research that investigate the links between adversity and health across the life course and consider the mechanisms underpinning these associations:

1. Dr Adolfo G Cuevas' research links reports of interpersonal discrimination in 9- and 10-year-old living in the US with raised blood pressure.
2. Dr Danielle M Kroboth focuses on a composite index of neighbourhood quality in US-based adolescents and the inverse association between neighbourhood quality and blood pressure.

3. Dr Ruth A Hackett investigates the influence of sexism on mental health in middle aged and older women living in England, taking health behaviour into account.
4. Dr Lydia Poole's work focuses on the interaction between wealth and c-reactive protein on the risk of cardiometabolic disease in a sample of English adults.

Individual Abstract Number: 450

NEIGHBORHOOD QUALITY IS ASSOCIATED WITH ELEVATED BLOOD PRESSURE IN ADOLESCENTS

Danielle M. Krovath, Tufts University, Natalie Slopen, PhD, Harvard University, Adolfo G Cuevas, PhD, New York University

Children who grow up in high-quality neighborhoods have better health outcomes than their more disadvantaged peers. Limited research has examined neighborhood quality in relation to biomarkers of children's cardiovascular risk, beyond adiposity. Here, we examined a comprehension measure of neighborhood quality and blood pressure (BP) using data from the Adolescent Brain Cognitive Development study, a representative sample of 9- and 10-year-old adolescents in the US (n=11,875). Neighborhood quality was operationalized using the Child Opportunity Index (COI) 2.0, a composite measure of 29 different indicators across three domains: 1) education, 2) health/environment, 3) social/economic. Linear regression models quantified associations between neighborhood quality and 1) mean arterial pressure (AP), 2) systolic BP (SBP), and 3) diastolic BP (DBP). Logistic regression determined if neighborhood quality was associated with hypertensive risk using a binary indicator for elevated BP (SBP > 120 mmHg & DBP > 81 mmHg). In unadjusted models, increases in neighborhood quality were associated with a 0.02 mean reduction in AP (p<0.01; -0.029, -0.007), a 0.02 mean reduction in SBP (p<0.01; -0.037, -0.008), and a 0.02 mean reduction in DBP (p<0.01; -0.027, -0.004). The unadjusted odds of hypertensive risk were significantly lowered as neighborhood quality increased [OR 0.994 (p<0.05; 0.98-0.99)]. In adjusted models, increases in neighborhood quality were associated with lower AP and SBP at significance levels approaching clinical relevance (p<0.10). We found that high quality neighborhoods were associated with lower blood pressure in adolescents. Policies to more equitably allocate resources to historically disenfranchised neighborhoods may help reduce cardiometabolic health disparities.

Individual Abstract Number: 451

THE ASSOCIATION BETWEEN INTERPERSONAL DISCRIMINATION AND BLOOD PRESSURE IN ADOLESCENTS

Adolfo G Cuevas, PhD, New York University, Danielle M Krovath, PhD, Tufts University

Background: Growing research documents that exposure to discrimination is associated with a range of health outcomes in childhood, including depression, sleep difficulty, and health compromising behaviors. Despite elevated blood pressure in adolescence being a risk factor to cardiovascular disease in adulthood, little is known of the link between discrimination exposure and adolescents' blood pressure.

Methods: This cross-sectional study of 9- and 10-year-old adolescents used data from the Adolescent Brain Cognitive Development (ABCD) study (n=11,875). Perceived Discrimination Scale was used to assess interpersonal discrimination. Linear regression models quantified the association between discrimination and 1) mean arterial pressure (AP), 2) systolic blood pressure (SBP), 3) diastolic blood pressure (DBP). Next, logistic regression quantified the association between discrimination and hypertensive risk using a *binary indicator for elevated blood pressure based on the American Academy of Pediatrics clinical guidelines (SBP > 120 mmHg & DBP > 81 mmHg)*. Models adjusted for race, gender, parent education, and total household income.

Results: Unadjusted results reveal that greater discrimination exposure was associated with a 1.483 higher mean AP (p<0.05; 0.324 - 2.642); a 1.473 higher mean SBP (p<0.05; 0.009 - 2.936); and a 1.488 higher mean DBP (p<0.05; 0.296 - 2.680). In adjusted models, discrimination was associated with a 1.249 higher mean AP (p<0.05; 0.067 - 2.431) and a 1.321 higher mean DBP (p<0.05; 0.106 - 2.537). There was no evidence that discrimination was associated with hypertensive risk.

We will assess if associations vary by race, gender, and household income with sensitivity analyses and explore whether the association between interpersonal discrimination and blood pressure are weaker among adolescents with greater social support.

Conclusion: We found interpersonal discrimination is positively associated with elevated blood pressure in early adolescence using a series of well validated clinical indicators. Early life interventions that seek to reduce exposure to interpersonal discrimination may help reduce cardiovascular disease risk in later life. Nevertheless, further epidemiological research should further elucidate the association between discrimination and blood pressure.

Individual Abstract Number: 452

THE RELATIONSHIP BETWEEN SEX DISCRIMINATION AND MENTAL WELLBEING IN MIDDLE-AGED AND OLDER WOMEN

Ruth A Hackett, PhD, King's College London, Sarah E Jackson, PhD, University College London, Myra S Hunter, PhD, King's College London

Background: Emerging evidence suggests that perceived sex discrimination negatively impacts mental wellbeing in young women. However, the relationship between perceived sex discrimination and mental wellbeing in middle-aged and older women is unclear.

Methods: A total of 3081 women aged 52 and over from the English Longitudinal Study of Ageing (ELSA) provided data on perceived sex discrimination in 2010/11. Loneliness, depressive symptoms, quality of life and life satisfaction were assessed in 2010/11 and in 2016/17. All analyses adjusted for age, income, ethnicity, marital status, health behaviour and body mass index. Prospective analyses additionally adjusted for baseline well-being.

Results: Perceived sex discrimination was reported by 282 (9.2%) participants. Cross-sectionally, women who perceived sex discrimination were more likely to be lonely ($\beta = 0.14$, 95% CI 0.09 to 0.20) and had higher depressive symptoms ($\beta = 0.34$, 95% CI 0.11 to 0.57) than women who did not perceive sex discrimination. They also had significantly lower quality of life ($\beta = -2.50$, 95% CI -3.49 to -1.51) and life satisfaction ($\beta = -1.07$, 95% CI -1.81 to -0.33). Prospectively, perceived sex discrimination was associated with greater loneliness scores ($\beta = 0.08$, 95% CI 0.02 to 0.14), as well as lower ratings of quality of life ($\beta = -0.98$, 95% CI -1.86 to -0.10), and life satisfaction ($\beta = -1.04$, 95% CI -1.74 to -0.34), independent of baseline values. No significant prospective associations between perceived sex discrimination and depressive symptoms were detected.

Conclusion: Middle aged and older women who perceive sex discrimination have poorer mental wellbeing than those who do not perceive discrimination. Further, this type of discrimination may be predictive of declining mental wellbeing over time. These findings highlight the need for interventions to target sex-based discrimination to try and improve the wellbeing of women at mid- and older age.

Individual Abstract Number: 453

THE COMBINED EFFECT OF SOCIOECONOMIC STATUS AND C-REACTIVE PROTEIN FOR PREDICTING INCIDENT CARDIOMETABOLIC DISEASE: FINDINGS FROM A 14-YEAR FOLLOW-UP STUDY OF THE ENGLISH LONGITUDINAL STUDY OF AGEING (ELSA)

Lydia Poole, PhD, University of Surrey, Antonio I Lazzarino, PhD, University College London, Ruth A Hackett, PhD, King's College London

Background: Cardiovascular disease and diabetes are leading causes of morbidity and mortality worldwide. Social inequalities in the distribution of these diseases across the population exist. The aim of the current study was to examine the interactive effect between socioeconomic status and a known biological risk marker (C reactive protein [CRP]) for future incident cardiometabolic disease.

Methods: We used data from the English Longitudinal Study of Ageing for this study (N=5140). Tertiles of net financial wealth and CRP (>3mg/L) were measured at wave 2 and disease incidence (coronary heart disease [CHD], stroke, diabetes/high blood glucose) was reported across the subsequent 14 years of follow-up. Individual diseases were modelled as well as multimorbidity. Cardiometabolic multimorbidity was calculated to represent 2 or more incident disease diagnoses over follow-up. Participants were free from the disease of interest at baseline. Cox proportional hazard and logistic regression were used controlling for covariates.

Results: In fully adjusted models, the combination of low wealth and elevated CRP was an independent predictor of incident diabetes/high blood glucose (HR = 2.30; 95% C.I. = 1.61-3.29), CHD (HR = 2.58, 95% C.I. = 1.71-3.90), stroke (HR = 1.66; 95% C.I. = 1.27-2.18), relative to high wealth/low CRP, independently of age, sex, wealth, cohabitation, smoking status, body mass index and hypertension. The combination of low wealth and elevated CRP was also an independent predictor of incident cardiometabolic multimorbidity (OR = 2.22, 95% C.I. = 1.16-4.28) in age and sex adjusted models.

Conclusion: A combination of wealth and CRP was implicated in the onset of CHD, stroke, diabetes/high blood glucose, and cardiometabolic multimorbidity up to 14 years later, reflecting the role of psychobiological processes in predicting disease burden.

Symposium 207

Friday March 10, 2:00-3:00pm

MULTI-LEVEL ADVERSITIES AND HEALTH: RELATIONSHIPS WITH NEURAL, CARDIOMETABOLIC AND MENTAL HEALTH OUTCOMES

Layla Banihashemi, Ph.D., University of Pittsburgh, Dept. of Psychiatry, Annie Ginty, Ph.D., Baylor University, Tanisha Burford, Ph.D., North Carolina Central University, Nataria Joseph, Ph.D., Pepperdine University

The world faces a confluence of chronic and unpredictable stressors, multi-level in nature (e.g., intergenerational, familial, systemic, global), undergirded by factors including racial and/or ethnic discrimination, subjugation and resulting systemic inequities. These adversities and inequities are, in turn, propagated throughout generations. Thus, it is of the utmost importance to understand relationships between multi-level adversities, stress and health, as well as underlying psychosocial, neural and physiological mechanisms. Intergenerational trauma, childhood adversity, socioeconomic deprivation, neighborhood disadvantage, and racial and socioeconomic discrimination are all associated with greater risk of physical and mental health problems, as well as alterations in stress-related systems. In the American Indian population, historical loss is associated with mood dysregulation/disorder. Childhood adversity and socioeconomic deprivation are linked to structural and functional brain differences and dysregulated stress reactivity, which may contribute to both cardiovascular disease and mental health disorders. Racial discrimination, an additional stressor for marginalized communities, is associated with altered cardiovascular stress reactivity.

A better understanding of mechanisms underlying links between multi-level adversities and risks for, and resilience against physical and mental health disorders will provide novel insights and targets for intervention. We share new data in: 1) a large American Indian sample examining the relationship between profiles of childhood adversity and historical loss with cardiometabolic and mental health conditions, 2) a childhood abuse-enriched, transdiagnostic sample examining associations between childhood threat/deprivation and stressor-evoked neural and cardiovascular outcomes, 3) a young, healthy Black sample examining micro and macro racial discrimination and resting and stressor-evoked blood pressure, as well as interactions with racial identity, and 4) an emerging adult sample examining interactions between momentary economic, social, and neighborhood risk and momentary resilience in association with ambulatory blood pressure. Thus, we highlight novel data across four studies with converging evidence of potential contributions of adversity to neural, cardiometabolic, cardiovascular and mental health outcomes.

Individual Abstract Number: 213

RELATIONSHIPS AMONG CHILDHOOD ADVERSITY, CENTRAL VISCERAL NETWORK AND ADULTHOOD CARDIOVASCULAR STRESS REACTIVITY IN AN ABUSE-ENRICHED SAMPLE

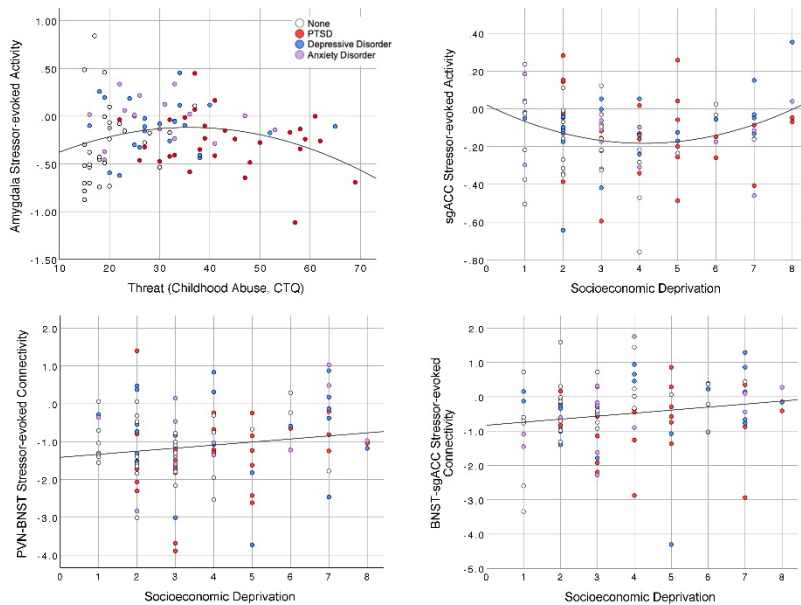
Layla Banihashemi, Ph.D., University of Pittsburgh, Dept. of Psychiatry, Christine Peng, M.S.W., UPMC, Anusha Rangarajan, Ph.D., University of Pittsburgh, Nithya Kasibhatla, B.S., University of Pittsburgh, Helmet Karim, Ph.D., University of Pittsburgh, Meredith Wallace, Ph.D., University of Pittsburgh, Howard Aizenstein, M.D., Ph.D., University of Pittsburgh

Childhood threat and deprivation are linked to dysregulated stress reactivity, however underlying neural mechanisms of this relationship are unclear. A stress-related ("central visceral") network, which includes the paraventricular nucleus of the hypothalamus (PVN), bed nucleus of the stria terminalis (BNST), amygdala and subgenual anterior cingulate cortex (sgACC), is a candidate in that it proximally controls stress reactivity, including cardiovascular responses. We examined relationships between childhood adversity, stressor-evoked activity and connectivity, and cardiovascular reactivity.

Participants were young adults (n=97) with a full distribution of physical abuse history. The Childhood Trauma Questionnaire and maximum parental education level (reversed) were used to assess childhood threat/abuse and socioeconomic deprivation (chSED), respectively. Participants performed a mild cognitive stress task during fMRI with simultaneous heart rate (HR) and mean arterial pressure (MAP) recordings. Stressor-evoked activity and connectivity were examined (Control>Stress contrast). Linear/curvilinear regression analyses were performed with childhood adversity or neural variables as predictors.

1)) Analyses revealed a negative curvilinear relationship between abuse and amygdala activity ($\beta = -1.352$, $p = 0.012$) and a curvilinear relationship between chSED and sgACC activity ($\beta = 1.199$, $p = 0.018$). Findings with stressor-evoked connectivity were only found with

chSED, demonstrating positive relationships between chSED and amygdala-to-BNST ($\beta=0.243, p=0.035$), PVN-to-BNST ($\beta=0.264, p=0.021$), BNST-to-sgACC ($\beta=0.301, p=0.008$) and sgACC-to-BNST ($\beta=0.252, p=0.027$) connectivity. 2) Positive linear associations were also revealed between PVN reactivity and baseline ($b = 0.194, p = 0.044$) and stressor-evoked MAP ($b = 0.180, p = 0.054$) and baseline ($b = 0.298, p = 0.004$) and stressor-evoked HR ($b = 0.242, p = 0.018$). The curvilinear relationships between childhood adversity and neural outcomes may indicate thresholds associated with adaptive vs. maladaptive stress reactivity. Individuals with greater chSED exhibited less anti-correlated BNST connectivity with other regions, suggesting a diminished capacity to mount an appropriate neural stress response. Our findings support a potential central visceral network pathway by which childhood adversity affects cardiovascular reactivity.



Individual Abstract Number: 247

MOMENTARY EXAMINATIONS OF SOCIOECONOMIC STATUS-RELATED IDENTITY, THREAT, AND RESILIENCE AND AMBULATORY BLOOD PRESSURE

Nataria Joseph, PhD, Pepperdine University, Laurel Peterson, PhD, Bryn Mawr, Samuele Zilioli, PhD, Wayne State University, Elissa Kim, BA, Wayne State University, Zhuoran Xiang, HS, Pepperdine University, Madeleine Zilligen, HS, Pepperdine University

Every moment in which an individual interacts with his or her intrapersonal, social, and physical environment is a juncture during which adversity might arise and resilience might abound. Research has shown the impacts of economic, social, and neighborhood adversity on blood pressure (BP) and the protection socioemotional resilience factors provide. The daily life mechanisms by which these relationships unfold, and their independent effects are understudied. Further, conceptual innovations that fully capture socioeconomic status (SES)-based identity, SES-based threats, and resilience are needed. To identify at-risk individuals, at-risk moments, and resilience, we utilized ecological momentary assessment (EMA) and ambulatory blood pressure (ABP) monitoring to test interactive associations between individual- and momentary-level SES threat, resilience, and ABP.

The sample included 119 healthy African American emerging adults (mean age = 25 years; 59% female). There was socioeconomic diversity (40% had at least a bachelor's degree and income was evenly distributed). Participants completed two lab visits and four days and nights of hourly ABP monitoring and EMA surveys. SES-based threat (discrimination, neighborhood disadvantage, and financial strain) and resilience (perceived stress endurance and spirituality) factors were assessed using reliable, validated questionnaires at baseline and hourly.

Mixed models found expected risk by resilience interactions. Specifically, momentary SES-based discrimination, momentary neighborhood disadvantage, and momentary financial strain increased diastolic ABP less in those with high perceived stress endurance and high momentary spirituality, interaction p s from .015 to .030. Simple slopes for momentary SES-based discrimination, for example, indicated that it only was associated with diastolic ABP in moments when participants reported low spirituality, $b = 3.61, p = .046$.

Similarly, SES-based discrimination only decreased nocturnal systolic BP dipping among those with low spirituality, interaction $p = .039$, simple slope for those reporting low spirituality: $b = -.328, p = .045$.

Repeated, unhealthy ABP fluctuations may reflect early cardiovascular risk. Emerging adults may benefit from preventative mobile ecological momentary interventions. Our integrative momentary biopsychosocial risk and resilience model will be discussed.

Individual Abstract Number: 284

HISTORICAL AND CHILDHOOD TRAUMA: IMPLICATIONS FOR MENTAL AND CARDIOMETABOLIC HEALTH IN AMERICAN INDIAN ADULTS

Annie T. Ginty, PhD, Baylor University, Neha A. John-Henderson, PhD, Montana State University

In the United States, compared to other racial and ethnic groups, American Indians have among the worst health inequalities. Cardiometabolic disease and mental health conditions are two major contributors to persistent disparities in health and life expectancy for American Indians. The atrocities associated with European colonization are linked to intergenerational psychological and emotional wounding (i.e. historical trauma) and high incidence of childhood trauma. Prior work has examined the independent relationships of these trauma exposures with cardiometabolic and mental health in American Indians. In the present study, 727 American Indian adults (Age range = 18 – 95 years, mean age [standard deviation] = 37.01 [15.10] years, 36.6% female) reported on levels of historical and

childhood trauma. Additionally, participants reported if they had experienced cardiometabolic (i.e., stroke, high blood pressure) and mental health (i.e., problems with alcohol, anxiety) over the past 12-months. Using multivariate cluster analyses, unique profiles of historical trauma and childhood trauma were identified. Binary logistic regressions indicated that the cluster consisting of high historical and childhood trauma was associated with the largest increased risk of mental health conditions over the past 12 months when compared to the cluster with low levels of historical and childhood trauma (Hazard Ratio = 12.25, 95% Confidence Interval = 6.58 – 22.77, $p < .001$). The cluster consisting of average historical trauma and the highest levels of childhood trauma was associated with the largest increased of reporting a cardiometabolic condition over the past 12 months when compared to the cluster with low levels of historical and childhood trauma ((Hazard Ratio = 3.07, 95% Confidence Interval = 2.00 – 4.70, $p < .001$). The findings represent an important first step towards understanding how these psychosocial trauma exposures may simultaneously inform enduring disparities in American Indian health.

Individual Abstract Number: 497

INDEPENDENT AND INTERACTIVE ASSOCIATIONS AMONG PERCEIVED DISCRIMINATION, PERCEPTIONS OF STRUCTURAL RACISM, AND BLOOD PRESSURE

Tanisha Burford, Ph.D., North Carolina Central University

Previous studies have shown that perceived discrimination impacts autonomic function (e.g., elevated blood pressure and cardiac reactivity) and contributes to inordinate rates of cardiovascular morbidity and mortality among Blacks. However, the predominant focus on the racism-health association is on individual-level discrimination/racism, and there is far less attention paid to structural racism (i.e., systemic discrimination that creates inequitable racialized outcomes). The present study examined the independent and interactive associations among perceived interpersonal discrimination, perceptions of structural racism, and blood pressure. Participants were 22 young Black adults (age 18-39 years, mean age 23.4) who completed a modified version of the Trier Social Stress Task (TSST) while blood pressure was measured. Preliminary findings indicated that perceived discrimination was positively associated with resting blood pressure ($p < 0.05$) but was not associated with perceptions of structural racism and stressor-evoked reactivity. There was a marginal interaction between perceived discrimination and perception structural racism ($p = 0.07$). The findings suggest perceptions of individual racism and structural racism may differentially impact blood pressure, and underscore the importance of investigating different forms of racism on cardiovascular outcomes.

Symposium 206

Friday March 10, 3:15-4:30pm

MOVING TOWARD A PRECISION-BASED FRAMEWORK FOR PSYCHOSOMATIC MEDICINE

Cristina Ottaviani, PhD, Sapienza University of Rome; IRCCS Santa Lucia Foundation, Julian F. Thayer, PhD, University of California, Irvine

The concept of precision medicine is gradually expanding, with the aim to reduce the gap between scientific innovation and clinical application. This symposium will focus on increasing our understanding of brain-body interactions in somatic and mental health, by considering multiple levels of complexity, from biological vulnerability and brain functions to the integration of autonomic, affective, and cognitive processes.

Capitalizing on a predictive coding framework, Hugo D. Critchley will present new data on how certain (psychological and physical) symptoms putatively arise through mismatch between perceived and veridical interoceptive state and how this could be used to quantify an individual's susceptibility to cross-modal interoceptive prediction errors. Cristina Ottaviani will then illustrate a study that, driven by the acquired knowledge on the lack of interoceptive awareness as a transdiagnostic risk factor for psychopathology, applied a non-invasive brain stimulation technique to interoceptive brain substrates with the aim to modulate the processing of negative affective information. Sarah Garfinkel will examine dissociation from a sensory perspective, focusing on altered multi-sensory integration in individuals with elevated symptoms of dissociation, who show diminished cardiac responses to self and other touch. Karl-Jürgen Bär will dig further into etiopathophysiological mechanisms, presenting data on how changes in peripheral bodily physiology can alter the functional organization of the brain in healthy individuals, with consequences at a behavioral and cognitive level.

Julian F. Thayer will discuss the presented findings, emphasizing how a comprehensive understanding of neural, cognitive, and affective processes must acknowledge the integration of mental and bodily processes with the ultimate goal to harness neurobiological scientific advances to select treatment options with the greatest likelihood of success. To better inform therapeutic interventions, an integrative investigative approach is called for, combining techniques such as functional brain imaging and detailed autonomic monitoring, and drawing on both basic research and clinical observations.

Individual Abstract Number: 211

MECHANISTIC RELEVANCE OF FALSE PHYSIOLOGICAL FEEDBACK STUDIES TO THE UNDERSTANDING OF SOMATIC SYMPTOMS

Hugo Critchley, MD DPhil FRCPsych, Brighton and Sussex Medical School, University of Sussex, Dennis Larsson, PhD, Department of Neuroscience, Karolinska Institute, Yoko Nagai, PhD, Brighton and Sussex Medical School, University of Sussex, Jessica Eccles, MD PhD MRCPsych, Brighton and Sussex Medical School, University of Sussex, Sarah Garfinkel, PhD, Institute of Cognitive Neuroscience, UCL

Biofeedback typically uses exteroceptive signals (visual, auditory or somatosensory stimulation) to provide more precise sensory information about internal physiological processes that otherwise have weak or no conscious access as sensations. Greater precision in the signal afforded by such physiological feedback can dominate higher-order representations of interoceptive state and may enable volitional control of autonomic processes.

Mismatch between higher-order representations ('beliefs') and veridical viscerosensory information about bodily state gives rise to interoceptive prediction error signals. The brain attempts to resolve such prediction errors through learning (changing the belief) or by changing the lower-level input (i.e. the physiological state of the body), autonomically or behaviourally. Thus, interoceptive predictive coding and associated ('precision weighted') prediction errors offer a theoretical framework for understanding the genesis and maintenance of clinical symptoms in complex presentations, relevant to the field of psychosomatic medicine. For example, interpreting

interoceptive (e.g. cardiorespiratory) well-being from non-interoceptive (e.g. somatosensory) sensations can generate prediction error signals that drive symptoms such as pain and maladaptive illness behaviors. False physiological feedback allows experimental characterization these theoretical mechanisms. The attribution of unexplained (false) arousal to other stimuli can be used to quantify an individual's susceptibility to cross-modal interoceptive prediction errors.

We present new data in which the impact of pulsing somatosensory stimulation at higher or lower heart rate frequencies progressively biased emotional processing. Concurrent neuroimaging implicated a rostral progression of interoceptive representation through insular cortices as the key underlying neural substrate. These findings will be appraised against recent findings from a clinical (auditory) false physiological feedback study in individuals vulnerable to pain and chronic fatigue and a similar study (with neuroimaging) in healthy controls who showed no biasing of affective judgements.

We will discuss the strengths and limitations of these approaches, their relationship to suggestibility and interoceptive sensitivity, and their contribution to advancing psychosomatic medicine.

Individual Abstract Number: 316

CHANGES IN INTEROCEPTIVE PROCESSES BY THETA BURST STIMULATION OF THE INSULAR CORTEX: A COMBINED TMS/FMRI STUDY

Cristina Ottaviani, PhD, PsyD, Sapienza University of Rome, IRCCS Santa Lucia Foundation, Francesca Strappini, PhD, Sapienza University of Rome, Andrea Salaris, PhD, Sapienza University of Rome, IRCCS Santa Lucia Foundation, Sabrina Fagioli, PhD, University of Roma Tre, Vanessa Era, PhD, Sapienza University of Rome, IRCCS Santa Lucia Foundation, Barbara Basile, PhD, IRCCS Santa Lucia Foundation, School of Cognitive Psychotherapy (SPC), Emiliano Macaluso, PhD, Lyon Neuroscience Research Center, Federico Giove, PhD, Centro di Studi e Ricerche Enrico Fermi, IRCCS Santa Lucia Foundation, Giuseppina Porciello, PhD, Sapienza University of Rome, IRCCS Santa Lucia Foundation

Mounting evidence supports the role of the insular cortex in interoceptive awareness (IA; the awareness of one's own visceral signals), the lack of which is considered a transdiagnostic risk factor for psychopathology. However, if and to what extent it is possible to modulate insular activity and eventually modify individuals' IA, is still unknown. Transcranial magnetic stimulation (TMS) and theta burst stimulation (TBS) protocols have proven to be effective methods to non-invasively modulate cortical regions activity, producing facilitatory intermittent (iTBS) or inhibitory continuous (cTBS) effects. By combining TBS with fMRI, we hypothesized that iTBS and cTBS would affect insular activity and consequently IA. CTBS and iTBS stimulations were administered over the right anterior insular cortex (rAIC), sham stimulation instead was delivered over the vertex of 36 psychiatrically healthy individuals (50% females; mean age 24 (3.56) years). After each stimulation condition, participants performed an interoceptive task (heartbeat counting task) and were scanned while viewing disgusting or neutral images. A group analysis was performed by a repeated measure Analysis of Variance design considering Image Type (disgust vs neutral) and Stimulation Type (iTBS vs cTBS vs sham) as factors. The analysis revealed a statistically significant cluster located in the inferior frontal gyrus extending to the anterior right insula when participants were observing disgusting compared to neutral images in the sham condition. While iTBS was not effective in enhancing insular activation, a trend level decreased activation of anterior right insula in response to disgusting stimuli following the cTBS condition emerged. These effects were not moderated by subjective ratings of disgust and were mirrored by behavioral performance on the interoceptive task. Current results provide direct evidence supporting the efficacy of cTBS protocols in decreasing insular activity. However, they also suggest that it is not possible to increase insular activation. These findings appear promising for disorders characterized by alterations in interoceptive awareness (e.g., anxiety disorders) but also for disorders characterized by increased disgust sensitivity, such as obsessive-compulsive disorders.

Individual Abstract Number: 317

ALTERED CARDIAC SIGNATURES AND CHANGES IN MULTISENSORY INTEGRATION AS NOVEL MECHANISMS UNDERLYING DISSOCIATION

Sarah Garfinkel, PhD, Institute of Cognitive Neuroscience, University College London, Jamie Moffatt, PhD, Department of Psychology, Royal Holloway University of London, Kathryn Greenwood, PhD, School of Psychology, University of Sussex

The sense of one's own body depends upon coherent integration of sensory information arising from multiple modalities, including internal signals, such as those from the heart. Dissociation is a transdiagnostic symptom involving detachment from the body, the self and other aspects of reality, and is highly prevalent in conditions such as schizophrenia and depression. To date, there is little understanding about what bodily and sensory mechanisms might give rise to dissociation. To determine how disrupted sensory cohesion may contribute to feelings of dissociation, we used a mixed-reality VR protocol (Oculus Rift) to introduce a time delay to visual perceptions of self- and other-generated tactile sensations in a non-clinical sample (N=100, aged 18-65). Touch (self-touch or other-touch) was applied to the arm, in the presence or absence of a visual delay (applied to the VR visual input, resulting in the feelings of touch that preceded the onset of the visual percept of the touch occurring). Cardiac monitoring using ECG was obtained throughout. Dissociation was assessed using the Cambridge Depersonalization Scale. Feelings of body ownership decreased monotonically with larger delays, and higher trait dissociation corresponded to stronger elicited sensations of body dis-ownership. Heightened trait dissociation correlated with greater sensitivity to the disruption between vision and self-generated touch, implying that over-attending to self-generated sensory input may contribute to dissociation. Patterns of cardiac reactivity during the task were sensitive to sensory delay and were altered in individuals prone to dissociation, where these individuals showed reduced cardiac differentiation response between self and other touch. Our brain combines sensory information to give us a smooth and integrated percept of the world, including our own bodily integration in the world. These data suggest that a heightened sensitivity to sensory delay, particularly for self-generated actions, may be a factor underlying dispositional tendency for dissociation. Internal signals may also not adequately differentiate self-generated and other-generated action in individuals prone to dissociation. These data suggest a strong tendency for multisensory integration and autonomic differentiation between self and other actions may be protective against dissociative symptoms.

Individual Abstract Number: 318

THE ASSOCIATION OF PULSE PRESSURE WITH BRAIN FUNCTION IN HEALTHY INDIVIDUALS

Andy Schumann, PhD, Department of Psychosomatic Medicine, University Hospital Jena, Karl-Jürgen Bär, MD, Department of Psychosomatic Medicine, University Hospital Jena, Katrin Rieger, BA, Department of Psychosomatic Medicine, University Hospital Jena, Feliberto de la Cruz, PhD, Department of Psychosomatic Medicine, University Hospital Jena

Hypertension is associated to changes of structural and functional brain networks that lead to impairment of cognitive performance. Recently, pulse pressure (PP) has been suggested as cardiovascular risk factor for hypertension. In this study, we tested whether elevated PP is accompanied by brain structural and functional changes in healthy individuals without hypertension. We investigated 115 healthy subjects (41±17 years, 55% females) without cardiovascular, neurological or psychiatric disorders. Structural and functional brain imaging was performed on a 3 Tesla Siemens Prisma. We assessed cognitive function using the MATRICS Consensus Cognitive Battery. Participants were categorized by PP in normal and high PP (PP>50 mmHg) according to resting blood pressure measurements in the laboratory. The normal PP group was reduced to match the high PP group with respect to age, gender, and education level. From resting functional brain images, we extracted whole-brain network connectivity between 260 independent brain regions to estimate global graph-theoretical features for integration (efficiency), resilience (assortativity), and segregation (clustering coefficient). While subgroups did not differ in terms of heart rate variability, baroreflex sensitivity was decreased in the high PP group. Furthermore, subjects with high PP performed worse in the trail-making task that primarily assesses processing speed ($p<0.001$, FDR-corr.). Graph theoretical analyses revealed that functional brain networks in subjects with high PP were less efficient, clustered and resilient than normal PP (all $p<0.001$, FDR-corr.). There were no differences in brain structure between groups. Elevated PP is associated with an altered organization of functional brain networks and decreased processing speed in healthy subjects.

Symposium 62
Friday March 10, 3:15-4:30pm

STUDYING NATURALISTIC HEALTH AND HEALTH BEHAVIORS OF INDIVIDUALS AND DYADS USING INNOVATIVE TECHNOLOGIES

Kuan-Hua Chen, PhD, University of Nebraska Medical Center, Josh Novak, PhD, Auburn University, David Newman, PhD, University of California, San Francisco, Janina Lüscher, PhD, Swiss Paraplegic Research, Stephanie Wilson, PhD, Southern Methodist University
 Advances in modern technologies, including smartphones, wearables, and mountable smart home devices, provide researchers and clinicians with exciting opportunities to assess naturalistic health and health behaviors. Increased accessibility of technologies allows long-term and large-scale assessments on clinical and pre-clinical populations, which may help address current challenges in psychosomatic medicine by promoting early identification of at-risk individuals/groups (challenge #1) and community-based interventions to maximize health outcomes (challenge #3).

The proposed symposium highlights recent advances in research from four different laboratories that leverage different technologies to study different aspects of naturalistic health and health behaviors in individuals and dyads. First, Dr. David Newman (Psychiatry, University of California, San Francisco) will present three large-scale studies that used **smartphone-based mobile biosensing to assess both in-vivo and intervention associations between daily physiology, stress, and sleep quality**. Second, Dr. Janina Lüscher (Psychology, Swiss Paraplegic Research) will present her work that tested the feasibility of a **smartwatch-based electronically activated recorder (EAR)** in detecting *supportive conversations* between people with Type 2 diabetes and their romantic partners. Third, Dr. Josh Novak (Human Development and Family Science, Auburn University) will present work that uses **smartphone-based ecological momentary assessments (EMA)** to study concordance and its correlates of *daily steps* between people with type 2 diabetes and their partners. Lastly, Dr. Kuan-Hua Chen (Neurological Sciences, University of Nebraska Medical Center) will present his longitudinal work that uses **wearables and low-energy Bluetooth technology** to study *in-home co-locations* in people with dementia and their caregivers and the implications for caregiver mental health.

Following the four presentations, Dr. Stephanie Wilson (Psychology, Southern Methodist University) will moderate a discussion concerning how research using different technologies, and studying different aspects of health and health behaviors in different populations may inform each other, and be integrated in the future. Practical issues and limitations will also be discussed.

Individual Abstract Number: 258

LARGE SCALE MOBILE SENSING TO ASSESS PHYSIOLOGICAL AND PSYCHOLOGICAL STATES IN DAILY LIFE

David Newman, PhD, University of California, San Francisco, Amie Gordon, PhD, University of Michigan, Wendy Mendes, PhD, University of California, San Francisco

Physiological and psychological states can vary considerably from one time to the next. Capturing these states in daily life through the use of Ecological Momentary Assessment methods can offer novel insights about these dynamic processes while providing relevance for health and well-being. We present an overview of several studies in which participants record their heart rate and blood pressure using an optic sensor on their mobile device and answer questions about their daily experiences up to three times during the day for three weeks. First, we showed that individual differences in gratitude and optimism predicted lower levels of heart rate, blood pressure, and stress and higher levels of sleep quality and exercise ($N = 4,825$). When entered as simultaneous predictors, optimism was a stronger predictor of sleep quality and stress, which suggests that different positive dispositions may have both similar and unique positive effects on health and well-being. Our second research question addressed the relationship between sleep and physiological states and stress in the morning across adulthood ($N = 4,359$). We found that people experienced lower heart rate, blood pressure, and stress following nights when they slept longer, more efficiently, or better than they typically did. The within-person relationships were moderated by age, such that the beneficial effects of better and longer sleep were more pronounced among younger than older adults. Finally, we note that experimental manipulations can be integrated with Ecological Momentary Assessment methods to study the effects of stress reduction exercises. In one study ($N = 3,277$), participants were randomly assigned to a paced breathing exercise or a comparison condition. Both experimental and comparison conditions were effective at increasing positive emotions and perceived coping and reducing blood pressure relative to baseline levels. However, a comparison sample ($N = 2,600$) who did not participate in the experimental manipulation portion of the study evidenced similar reductions in blood pressure over time. These results indicate that engaging in stress management techniques can increase positive emotions while the continual monitoring of blood pressure can lead to detectable declines. These studies highlight the importance of assessing physiological and psychological states in people's daily lives.

Individual Abstract Number: 109

NATURALISTIC OBSERVATION OF COUPLES' DYADIC MANAGEMENT OF TYPE II DIABETES MELLITUS

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Type II diabetes mellitus (T2DM) is a chronic disease that requires patients frequently to initiate and sustain changes in multiple health behaviors, including diet, physical activity, and adhering to a medication regime. Management of chronic disease often occurs in a social context, and supportive interactions are crucial for the management of disease-associated challenges. As romantic partners affect each other's health in a day-to-day context, the current study takes a naturalistic observation ambulatory assessment approach to explore the feasibility of studying everyday supportive interactions in everyday life. Specifically, it investigated the natural context and content of everyday supportive interactions in couples' dyadic management of T2DM and how they related to patients' and partners' diabetes-associated lifestyle factors unobtrusively. Participants with T2DM ($N = 11$) and their romantic partners wore smartwatches that periodically captured brief 5-min audio recordings of ambient sounds multiple times a day over seven days to observe couples' dyadic T2DM management in their natural context. A total of 992 audio files (5min each) were gathered and coded by trained research assistants. 73% of the audio files contained speech. Most of the audio files containing speech were recorded at home (78%). 88% of the recorded conversations included talking with the romantic partner. Supportive interactions were topic of approximately 6% of couples' conversations, and they were more often informational (67.5%) than emotional (32.5%). Thus, this naturalistic observation study of everyday supportive interactions revealed that this method could be implemented within the sensitive context of dyadic T2DM management and detecting supportive interactions in everyday life. As a complement to laboratory and other ambulatory assessment methods, a naturalistic observation approach with audio recordings can contribute to a more comprehensive understanding of everyday supportive interactions in couples' management of T2DM which could be used to tailor programs supporting couples living with T2DM in their everyday life.

Individual Abstract Number: 256

DAILY DOUBLE STEPS: CONCORDANCE OF DAILY PHYSICAL ACTIVITY BETWEEN PERSONS WITH TYPE 2 DIABETES AND THEIR PARTNERS

Josh Novak, PhD, Auburn University, Andrew Frugé, PhD, Auburn University, Danielle Wadsworth, PhD, Auburn University, Caralise Hunt, PhD, Auburn University

Although the consequences of type 2 diabetes can be managed through lifestyle behavior changes, patient adherence remains difficult especially since romantic partners can undermine health behavior adherence in direct and indirect ways. One such example may be when a romantic partner remains sedentary or engages in less physical activity than a person with diabetes. Importantly, little to no research has investigated the concordance between partners' physical activity levels across time and if concordance is associated with diabetes control. To that end, the present study sought to examine the concordance of daily steps in couples with one partner diagnosed with type 2 diabetes. We surveyed 117 couples who tracked their daily steps with their smartphones across two time points approximately 2 months apart. Patients averaged 6,221.97 ($SD = 8403.54$) at time 1 with partners 7876.33 ($SD = 10,747.712$) and was significantly correlated at $r = .849$ and was not significantly different from each other (mean diff = -1654.37, $t = -1.582$, $p = .124$). Patients averaged 5275.83 ($SD = 2980.24$) and partners 6762.17 ($SD = 3463.15$) and was significantly correlated at $.878$ and was not significantly different from each other (mean diff = -1486.33, $t = -2.194$, $p = .080$). From there, we conducted a series of dyadic score models where difference scores which were standardized (z scores) and then was used diabetes control. Importantly, although there were no significant differences between daily steps across time and partners reported greater daily steps, greater differences between partners in daily steps was associated with poorer patient diabetes control ($\beta = -.297$, $p = .003$). Taken together, these findings highlight that couple-oriented interventions for disease management should assess and intervene in the partners' lifestyle behaviors, especially where there may be differences between the individual with diabetes and the romantic partner.

Individual Abstract Number: 106

REMOTELY MEASURED IN-HOME CO-LOCATION OF DEMENTIA CAREGIVERS AND CARE RECIPIENTS IS ASSOCIATED WITH CHANGES IN CAREGIVERS' DEPRESSIVE SYMPTOMS

Kuan-Hua Chen, PhD, University of Nebraska Medical Center, Yuxuan Chen, BA, Stanford University, Darius Levan, BA, University of California, Berkeley, Claire Yee, PhD, University of California, Berkeley, Jennifer Merrilees, RN, PhD, University of California, San Francisco, Julian Scheffer, PhD, University of California, Berkeley, Samson Chen, BS, Tracmo Company, Robert Levenson, PhD, University of California, Berkeley

Caregivers (CGs) of a family member with dementia often experience increased depressive symptoms, which can result from reduced social interactions and loss of social connection with the care recipients (CRs). Through an academia-industry collaboration, we developed new technology to remotely measure the amount of time that CGs and CRs co-located in their homes or not (i.e., in the same room or in different rooms), which we used as a proxy measure for social connection. More specifically, CGs and CRs wore low-energy, long-battery-life (up to four months) Bluetooth watches. Using measures of the proximity of the two watches to three plug-in Bluetooth receivers located in the living room, bedroom, and kitchen, we determined the room-to-room locations of CGs and CRs, as well as their co-locations. In a nationwide sample, 27 CRs diagnosed with dementia or mild cognitive impairment and their co-residing familial CGs wore the watches over a six-month period. CG depressive symptoms were measured using a standard questionnaire (Center for Epidemiologic Studies Depression Scale Revised) administered online at the beginning and the end of the study. Results indicated a trending effect for reductions in CG-CR co-location from the first three months to the last three months of the study ($t = 1.81$, $p = 0.08$). More importantly, greater decreases in CG-CR co-location over the entire six-month period were significantly associated with greater increases in CG depressive symptoms ($r = 0.42$, $p = 0.038$). Decreased co-location suggests reduced social interactions and less social connection, which may lead to greater CG depression. The study underscores the value of remote technology that allows for long-term, in-home monitoring of co-location and other social behaviors, which helps track CR disease progression and its impact on CG-CR dyads and dyads in other clinical or preclinical conditions.

Symposium 61

Saturday March 11, 2:00-3:00pm

LEVERAGING EMA DATA IN THE BIOBEHAVIORAL EXAMINATION OF LONELINESS

Kayla T. Thompson, M.S., *University of Wisconsin Milwaukee*, Tatum A. Jolink, M.A., *University of North Carolina at Chapel Hill*, Karina Van Bogart, M.S., *The Pennsylvania State University*

This symposium will focus on the value of using ecological momentary assessment (EMA) data to examine loneliness in daily life. Although higher levels of trait loneliness have been shown to be a robust risk stratifier – for example, those higher on trait loneliness are also those prone to anxiety, poor sleep, inflammation, and risk of mortality – little is known about how natural variance in loneliness states link with variation in everyday health indicators. Because EMA data are collected in natural environments (typically across several days), such data have high ecological validity and allow for the detection of dynamic changes in psychosocial and behavioral processes over time. In keeping with the NIH's Science of Behavior Change approach (and in line with the program theme this year), this type of work is needed to elucidate mechanisms of individual and momentary variation that may be important targets for future intervention. This symposium will begin with a brief introduction to the value of the overall topic (Graham-Engeland), followed by three empirical talks that will highlight nuances in the measurement of loneliness, the timing of assessments, and potential biobehavioral factors that may maintain loneliness over time and influence health. The first talk will focus on how loneliness assessed across a day relates to sleep outcomes (both self-reported and objective measures), and how findings vary by analytical and methodological factors, such as whether higher daily basal levels of loneliness or more extreme values are most predictive of sleep (Kayla Johnson presenting, in conjunction with Matthew Zawadzki). A second talk will present new data on how markers related to immune functioning – circulating levels of the inflammatory marker IL-6 and IL-6 reactivity to a vaccine challenge – relate to feelings of social connection in daily life (Jolink presenting, in conjunction with Keeley Muscatell). Finally, the last talk will present analyses that test the bidirectional association between loneliness and anxiety in daily life and how these inform the theoretical “vicious cycle” of loneliness (Van Bogart presenting). The discussant (Julianne Holt-Lunstad) will highlight the importance of this work and comment on the potential utility of leveraging EMA data to help deepen our understanding of mechanistic processes and prospects for intervention.

Individual Abstract Number: 339

EXAMINING HOW MOMENTARY LONELINESS RELATES TO SUBJECTIVE AND OBJECTIVE SLEEP OUTCOMES: COMPARING AVERAGE, MAX, AND VARIABILITY DAILY LONELINESS SCORES

Kayla T. Johnson, M.S., *University of Wisconsin-Milwaukee*, Matthew Zawadzki, PhD, *University of California, Merced*

Loneliness can be defined as a mismatch between a person's desired level of social connection and their perceived level of connection. Loneliness has been linked to physical and mental health problems, including an increased risk for sleep problems. Past research has largely relied on retrospective, trait assessments of loneliness and sleep, which obscures an understanding of how daily experiences of loneliness directly relate to poorer sleep that night. For 14 consecutive days, the present study utilized ecological momentary assessment (EMA) to assess loneliness four times a day, daily diaries to assess self-reported sleep measures each morning, and Fitbit devices to assess objective measures of daily sleep duration and efficiency. Seventy-one participants (77% female, 21% male, 2% non-binary; ages 18-28 years; 69% Hispanic/Latinx) reported 565 assessments. We operationalized daily loneliness to examine whether the pattern of loneliness experienced matters, testing general levels of loneliness across the day (average), the peak level of experienced loneliness in a day (max), and whether the amount of loneliness differed from moment to moment (variation). Multilevel models were specified in which each loneliness measure predicted each sleep measure, while controlling for age, gender, race, day of week, and caffeine, nicotine, and alcohol use. Daily loneliness average predicted subjective sleep duration ($b = -11.62$, $SE = 5.22$, $p = .026$), quality ($b = -0.19$, $SE = 0.06$, $p = .003$), and tiredness ($b = 0.22$, $SE = 0.07$, $p < .001$). Daily loneliness max predicted subjective sleep latency ($b = 8.76$, $SE = 4.29$, $p = .040$), quality ($b = -0.13$, $SE = 0.04$, $p = .002$), and tiredness ($b = 0.17$, $SE = 0.04$, $p < .001$). Daily loneliness variability only predicted subjective tiredness ($b = 0.22$, $SE = 0.09$, $p = .012$). No loneliness measure predicted objective duration nor efficiency. Overall, results suggest that having more lonely experiences throughout the day (average) or an intensive lonely experience (max) each were reliable, and non-redundant predictors of subjective self-reported sleep. Future work may wish to identify whether there are thresholds to max scores that are more predictive of poor sleep, and further, to develop and evaluate tailored interventions that target these particularly intensive lonely experiences.

Individual Abstract Number: 341

DAILY ASSOCIATIONS BETWEEN INFLAMMATION AND EXPERIENCES OF SOCIAL CONNECTION WITH A CLOSE OTHER

Tatum A. Jolink, M.A., *University of North Carolina at Chapel Hill*, Taylor N. West, M.A., *University of North Carolina at Chapel Hill*, Gabriella M. Alvarez, M.A., *University of North Carolina at Chapel Hill*, Megan N. Cardenas, B.A., *University of North Carolina at Chapel Hill*, Mallory J. Feldman, M.A., *University of North Carolina at Chapel Hill*, Sara B. Algae, PhD, *University of North Carolina at Chapel Hill*, Keely A. Muscatell, PhD, *University of North Carolina at Chapel Hill*

Background: Although inflammation is typically associated with social withdrawal and loneliness, recent work suggests heightened inflammation may also be associated with approaching certain social targets, particularly if the target is a safe, close other. Yet, there is mixed evidence regarding how inflammation may be related to relationship experiences and social connection on a daily level. The present work focuses on within-person associations between daily experiences of social connection toward a specific close other and two distinct assessments of inflammation: circulating inflammation levels as well as inflammatory reactivity to the influenza vaccine.

Method: Fifty-five young adults (37 female assigned at birth, Mage = 20 years) provided blood samples on two consecutive days, which were assayed for levels of interleukin-6 (IL-6). Participants also reported on cognitive, affective, and behavioral indicators of social connection with a self-selected specific close other multiple times a day over three days (i.e., 5 assessments pre-vaccine; 3 assessments post-vaccine). After the first blood draw, participants received influenza vaccine, which functions as a mild inflammatory challenge (providing an opportunity to determine in vivo IL-6 reactivity; i.e., change in IL-6 pre- to post-vaccine).

Results: Multilevel modeling showed that higher levels of IL-6 (either pre- or post-vaccine) were associated with greater daily social connection with a close other, indicated by: 1) greater feelings of comfort from the close other, 2) more positive spontaneous thoughts about them, 3) higher relationship quality, and 4) marginally more affectionate touch. Greater IL-6 reactivity to the vaccine was associated with increases in relationship quality.

Discussion: These findings add important nuance to what is known regarding the association between inflammation and social processes and emphasize the value of assessing self-reported social connection experiences with close others in daily life. Specifically, the current findings support emerging evidence suggesting that higher levels of inflammation may motivate social approach toward a

close other. Such processes may have important implications for individuals who are socially isolated or lonely. It will be valuable for future work to assess whether the same pattern exists in daily life for individuals who are lonely.

Individual Abstract Number: 342

EXAMINING THE VICIOUS CYCLE OF LONELINESS AND ANXIETY AMONG OLDER ADULTS IN DAILY LIFE

Karina Van Bogart, M.S., The Pennsylvania State University, Stacey B. Scott, PhD, Stony Brook University, Martin J. Sliwinski, PhD, The Pennsylvania State University, Karra D. Harrington, PhD, The Pennsylvania State University, Jennifer E. Graham-Engeland, PhD, The Pennsylvania State University

Background: Loneliness is common in later life and increases the risk for adverse health outcomes; however, less is known regarding factors that maintain loneliness in older adulthood. Prior work and theory suggest that anxiety may play an important role in maintaining loneliness, but little is known about how this connection plays out over time in daily life. This study thus focused on the within-person associations between momentary loneliness and anxiety among older adults.

Method: Participants were 317 diverse older adults (40% Black; 13% Hispanic, mean age = 77.45 years, 67% women) systematically recruited from the Bronx, NY who completed ecological momentary assessments (EMA) five times daily for 14 consecutive days. Multilevel analyses tested bidirectional contemporaneous, momentary level-lagged (t-1), day-level-lagged (average day to end-of-day), and day-to-day associations between loneliness and anxiety. All models controlled for concurrent depressed state and overall mood. Results: In contemporaneous analyses, higher loneliness was associated with higher anxiety. Momentary level-lagged analyses indicated that feelings of loneliness and anxiety were associated bidirectionally in moments throughout the day, with loneliness predicting anxiety at the next assessment point (3-4 hours later) and vice versa. Day-level-lagged analyses showed that days characterized as lonelier than typical were associated with higher levels of anxiety at the end of the day (and vice versa). Day-to-day analyses revealed that days when participants reported more loneliness than typical were associated with more anxiety the following day, but there was not a bidirectional association (that is, days with more than typical anxiety were not associated with higher levels of loneliness the next day).

Discussion: The present findings provide an important extension of prior work that demonstrates bidirectional associations between loneliness and anxiety at the between-person level. Findings are consistent with the possibility that there can be a vicious cycle by which loneliness may be influenced and maintained by anxiety in daily life. More research with intensive longitudinal modeling is needed to inform intervention targets in the context of loneliness for older adults.

Symposium 72

Saturday March 11, 3:15-4:15pm

UNDERSTANDING MULTI-LEVEL DETERMINANTS OF RISK AND RESILIENCE IN NATIVE POPULATIONS

Wendy Troxel, PhD, RAND Corporation, Elizabeth D'Amico, PhD, RAND Corporation, Anthony Rodriguez, PhD, RAND Corporation, Daniel Dickerson, DO, MPH, UCLA

There is perhaps no other racial/ ethnic group that faces a greater disproportionate burden of negative health outcomes, ranging from obesity to heart disease, to substance use, and suicide, than American Indian/ Alaska Native (AI/AN) people. Despite striking health inequities, AI/AN people, particularly those living in urban environments, remain significantly under-represented in health research. In fact, over 70% of AI/AN people live in urban environments (i.e., not on tribal lands or reservations), and experience a confluence of risk factors, including reduced access to cultural resources and support, as well exposure to poverty and other urban stressors. Thus, there is an acute need for better understanding of sources of risk and resilience in urban AI/AN people, as well as the development of culturally-sensitive and evidence-based prevention and intervention efforts in this population. Our symposium brings together four presentations focused on understanding multi-level determinants of key health outcomes in urban AI/AN individuals. Our symposium will provide a theoretical and historical overview to provide context for considering multi-level determinants of health and well-being in AI/ AN people, followed by four individual presentations. The first presentation will provide preliminary data from a pilot study of the feasibility and efficacy of a culturally-based behavioral intervention that provides education on AI/AN drumming, dancing, and regalia making for urban, AI/AN families in Los Angeles County. The second presentation will examine heterogeneity of social determinants of health in urban, AI/AN adolescents using a latent profile analysis approach. The third presentation will focus on a longitudinal analysis of the role of sleep in contributing to cardiometabolic and mental and behavioral health outcomes in urban, AI/ AN adolescents. The final presentation will address the association of social network characteristics (e.g., engagement in substance use and traditional practices) with an individual's substance use and intentions to use in a sample of urban AI/AN emerging adults. Cross-cutting themes of this symposium will include a focus on community-based participatory research and the importance of developing culturally-sensitive and multi-level interventions to promote health equity in AI/AN people.

Individual Abstract Number: 158

OBJECTIVELY AND SUBJECTIVELY MEASURED SLEEP DISTURBANCES PREDICT ADVERSE CARDIOMETABOLIC AND BEHAVIORAL HEALTH OUTCOMES IN URBAN AMERICAN INDIAN/ ALASKA NATIVE YOUTH

Wendy Troxel, PhD, RAND Corporation, Elizabeth D'Amico, PhD, RAND Corporation, David Klein, M.S., RAND Corporation, Lu Dong, PhD, RAND Corporation, Ryan Brown, PhD, RAND Corporation, Alina Palimaru, PhD, RAND Corporation, Zahra Mousavi, MS, RAND Corporation, Daniel Dickerson, DO, MPH, UCLA

The legacy and enduring effects of systemic racism have contributed to disproportionately higher chronic disease burden among American Indian/Alaska Native (AI/AN) people, including increased risk for poor cardiometabolic and behavioral health (e.g., depression, substance use). Poor sleep in children and adolescents predicts subsequent health problems. However, this is the first study to investigate the role of sleep in contributing to future cardiometabolic and behavioral health problems among urban, AI/ AN youth. We hypothesized that poor subjectively and objectively measured sleep would predict increases in depression, anxiety, and alcohol use as well as a greater risk for the composite of cardiometabolic risk factors known as metabolic syndrome.

Among a sample of 114 urban AI/AN youth (mean (SD) age= 14.1 (1.3); 62.3% female) we collected survey assessments of sociodemographics, depression, anxiety, alcohol and marijuana use, and subjective sleep disturbance. Objectively measured sleep duration and efficiency were collected via actigraphy. Metabolic syndrome components included measured waist circumference,

cholesterol, triglycerides, blood glucose, and blood pressure. Metabolic syndrome was defined as having 2 or more components at or above established criteria for youth. Regression analyses examined sleep at baseline predicting metabolic syndrome or behavioral health problems approximately two years later, after controlling for baseline measures of those outcomes. Follow-up analyses additionally adjusted for participant age and sex.

Shorter sleep duration at baseline was associated with a greater likelihood of drinking alcohol or using marijuana ($p < .05$) and marginally associated with higher depressive symptoms ($p = .09$) at two-year follow-up. Poorer sleep efficiency predicted a greater likelihood of having metabolic syndrome ($p < .05$). After adjustment for age and sex, findings remained consistent, with the exception that the association between shorter sleep duration and greater likelihood of drinking alcohol became marginally significant ($p < .10$). Findings highlight the critical role of sleep in contributing to cardiometabolic and behavioral health risk among urban AI/AN youth and the importance of developing culturally-sensitive interventions that target sleep as a key, modifiable risk factor to improve the health and well-being of AI/AN people.

Individual Abstract Number: 184

A LATENT PROFILE ANALYSIS TO EXAMINE RISK AND RESILIENCE IN URBAN, AMERICAN INDIAN/ ALASKA NATIVE TEENS

Anthony Rodriguez, PhD, RAND Corporation, Wendy Troxel, PhD, RAND Corporation, Elizabeth D'Amico, PhD, RAND Corporation, Lu Dong, PhD, RAND Corporation, Ryan Brown, PhD, RAND Corporation, Daniel Dickerson, DO, MPH, UCLA Integrated Substance Abuse Program, Semel Institute for Neuroscience and Human Behavior

Background: American Indian/Alaska Native (AI/AN) individuals face substantial health disparities stemming from historic and contemporary sources of stress and trauma (e.g., forced relocation from tribal lands, poverty). To better understand sources of heterogeneity in life experience and health outcomes, including risk and protective factors, we used latent profile analysis of exposures at family, neighborhood, and cultural levels in a sample of urban, AI/AN adolescents. Profiles were compared on key adolescent health outcomes, including mental health and sleep. **Methods:** Data were collected ($n=142$, mean age = 14 years, 42% male) across exposure domains: family (food insecurity and conflict), neighborhood (safety and cohesion) and cultural (discrimination, AI/AN cultural identity, and historical loss) factors. Mental health outcomes were self-reported anxiety and depression. Sleep outcomes were self-reported sleep disturbances and actigraphy-assessed sleep efficiency and duration. **Results:** Model fit supported a 3-profile solution. All profiles included low family conflict and high neighborhood safety and cohesion, but were distinguished by level of food insecurity, discrimination, cultural identity, and historical loss. Profile 1 (low burden/ low cultural identification): youth with low levels of food insecurity, discrimination, cultural identity and historical loss. Profile 2 (moderate burden): youth with low food insecurity but moderate discrimination, cultural identity and historical loss. Profile 3 (high burden/ high cultural identification): youth with high levels of food insecurity, discrimination, cultural identity and historical loss. Profile 3 had greater anxiety and shorter sleep duration than Profiles 1 and 2; greater depression and sleep disturbances than Profile 2; and lower sleep efficiency than Profile 1. **Conclusion:** Those experiencing the greatest discrimination and food insecurity, and who most closely identified with their AI/AN culture and had higher historical loss contemplation had poorer mental health and sleep. Findings suggest that this group may be most sensitive to historic and contemporary sources of stress. Results highlight the importance of considering multi-level determinants of risk and resilience within AI/AN youth to identify novel opportunities to support resilience and promote health equity.

Individual Abstract Number: 176

OPTIMIZING THE DEVELOPMENT OF A FAMILY-BASED BEHAVIORAL INTERVENTION FOR URBAN AI/AN FAMILIES RESIDING OUTSIDE OF RESERVATIONS AND TRIBAL LANDS

Daniel Dickerson, D.O., M.P.H., UCLA, Integrated Substance Abuse Programs (ISAP), Carrie Johnson, Ph.D., United American Indian Involvement, Inc., Wendy Troxel, PhD, RAND Corporation, Anthony Rodriguez, Ph.D., RAND

Over 70% of American Indian/ Alaska Native (AI/AN) people now reside outside of reservations and tribal lands. However, few culturally-relevant, family-based interventions exist for urban AI/AN people that help to promote health and well-being. Native American Drum, Dance and Regalia Program (NADDAR) is an eight session culturally-based behavioral intervention that provides education on AI/AN drumming, dancing, and regalia making for AI/AN families in Los Angeles County. This program highlights the importance of living a healthy lifestyle, thereby helping to foster resiliency and prevent behavioral issues such as depression, anxiety and substance use. In an open pilot study conducted among a sample of urban AI/AN families, assessments administered at baseline and end of treatment were provided to 60 AI/AN adults to assess the feasibility and effectiveness of this intervention. Validated self-report measures were used to assess: depression, anxiety, historical loss, sense of hope, cultural and racial self-efficacy, cultural identity, sense of community, and emotional connectedness. Overall, depressive symptomology decreased more among males ($d=.38$) compared to females ($d=.02$); however, there was a moderate to large increase in anxiety for all participants ($d=.62$). With regard to historical loss symptoms, males significantly decreased ($d=.55$) compared to females ($d=.15$). Hope scores increased moderately for males ($d=.49$) compared to females ($d=.03$). For cultural identity and racial self-efficacy, there was a moderate decrease for males ($d=.41$) while generally no change for females ($d=.12$). Regarding sense of community, there was a more notable increase among females ($d=.29$) compared to males ($d=.08$). For shared emotional connectedness, there was a larger decrease among males ($d=.59$) compared to females ($d=.33$). Results from this study provides information that can help to enhance the delivery of NADDAR in order to meet the needs of both males and female adult participants. Ensuring that the program is delivered with empathy by recognizing the impact of historical trauma on this population may help to decrease anxiety and help AI/AN males and females to heal while engaging in this program. Also, more focus on enhancing resiliency among female adults may help to enhance their emotional connectedness and sense of hope.

Individual Abstract Number: 190

RISK AND PROTECTIVE FACTORS OF SOCIAL NETWORKS ON ALCOHOL AND CANNABIS USE AMONG URBAN AMERICAN INDIAN/ALASKA NATIVE EMERGING ADULTS

Elizabeth D'Amico, PhD, RAND, David Kennedy, PhD, RAND, Nipher Malika, PhD, RAND, David Klein, MS, RAND, Ryan Brown, PhD, RAND, Anthony Rodriguez, PhD, RAND, Carrie Johnson, PhD, Sacred Path Indigenous Wellness Center, Kurt Schweigman, MPH, Sacred Path Indigenous Wellness Center, Virginia Arvizu, MA, Sacred Path Indigenous Wellness Center, Kathy Etz, PhD, NIDA, Daniel Dickerson, DO, MPH, UCLA Integrated Substance Abuse Programs, Wendy Troxel, PhD, RAND Corporation

Background. Research with emerging adults has highlighted the importance of social networks in both increasing risk and providing protection. Given the unique culture and high value placed on family and relations, there is reason to believe that American Indian/Alaska Native emerging adults' social networks may be particularly important for health outcomes, especially for those in the urban context. This study is the first to assess influence of social network characteristics (e.g., substance use, participation in traditional practices) on alcohol and cannabis (AC) use and intentions among urban AI/AN emerging adults.

Methods. AI/AN participants (N=150; 86% female) were recruited across the U.S. via social media. On a web-based survey, participants named up to 15 people whom they talked with most over the past three months and reported on who used alcohol and cannabis heavily or used other drugs and who engaged in traditional practices. They reported their own past three-month AC use and intentions. Linear regression analyses examined participants' AC use and intentions based on intersecting influences of social network substance use and engagement in traditional practices with these social network comparisons: 1) traditional practices and no alcohol or other drug (AOD) use, 2) AOD use and no traditional practices, or 3) both traditional practices and AOD use.

Results. Having a higher proportion of network members who engaged in regular cannabis and heavy alcohol use was associated with greater cannabis use in the past 3 months and greater intentions to use cannabis. Participants with higher proportions of social network members who engaged in alcohol, cannabis or other drug use and who did not engage in traditional practices were more likely to report cannabis use and greater intentions to use cannabis and drink alcohol. In contrast, participants with a higher proportion of network members who engaged in traditional practices who did not report alcohol, cannabis or other drug use were less likely to report intentions to use cannabis or drink alcohol.

Conclusions. Findings emphasize what many studies have shown among various racial/ethnic groups—having individuals in your life who use substances increases the chances that you will use. Findings also highlight that traditional practices are a crucial part of the prevention toolbox for this population.

Symposium 235

Saturday March 11, 3:15-4:15pm

MITOCHONDRIA PSYCHOBIOLOGY

Caroline Trumpff, PhD, Columbia University Medical Center, Fiona Hollis, PhD, University of South Carolina School of Medicine, Alexander Behnke, PhD, Technische Universität Dresden, Martin Picard, PhD, Columbia University Medical Center

This symposium brings together innovative interdisciplinary research from the emerging field of mitochondria psychobiology. Mitochondria are ubiquitous cellular organelles that sustain life and stress adaptation through energy production and signaling. Mitochondrial psychobiology is the study of the interactions between psychological states and mitochondria biology, with the goal to elucidate the mechanisms that transduce psychological experiences into health outcomes (Picard and McEwen, *Psychosom Med* 2018). The proposed symposium will introduce this emerging field to APS attendees. Research presented by our four gender-balanced speakers will showcase diverse methods and populations including stress-induced rodent behavioral experiments and human studies of psychiatric populations and older adults.

As an introduction, *Martin Picard* will provide a brief overview of the field and build on clinical and cellular data supporting an “energetic” model of allostatic load emphasizing the energetic cost of chronic stress, highlighting how the energetic burden of stress responses may contribute to the biological embedding of stress. *Fiona Hollis* will present preclinical results from female outbred rats, demonstrating that gestational stress-induced postpartum behaviors and inflammation are linked to brain mitochondrial respiration. *Alexander Behnke* will present state-of-the-art data on immune cell mitochondrial respiration in borderline personality disorders showing that psychiatric symptoms are associated with compromised mitochondrial energy production capacity, and that leak mitochondrial respiration accounts for around 25% of the variance in DNA damage between individuals. Finally, *Caroline Trumpff* will present results from a longitudinal cohort of older adults including post-mortem brain proteomics data, demonstrating that psychosocial experiences are linked to mitochondria respiratory capacity in the human brain. Altogether this symposium will highlight evidence for the mind-mitochondria connection, and its relevance in shaping health across the lifespan. In line with this year's conference theme, resolving the role of mitochondria and energy in the stress-disease cascade can provide the foundation stress-buffering interventions aiming to enhance resilience and biopsychosocial health.

Individual Abstract Number: 236

PSYCHOSOCIAL EXPERIENCES AND THE MITOCHONDRIAL BRAIN PROTEOME IN OLDER ADULTS

Caroline Trumpff, PhD, Columbia University Medical Center, Hans-Ulrich Klein, PhD, Columbia University Medical Center, Carmen Sandi, PhD, Ecole Polytechnique Fédérale de Lausanne, Vladislav Petyuk, PhD, Pacific Northwest National Laboratory, Nicholas Seyfried, PhD, Emory University, David A. Bennett, PhD, Rush University Medical Center, Philip De Jager, PhD, Columbia University Medical Center, Martin Picard, PhD, Columbia University Medical Center

Background: Psychosocial experiences are associated with long-term health and disease trajectories but the molecular pathways for these effects remain unclear. Healthy brain functions require energy, which is primarily provided by mitochondria. Human studies in immune cells have indicated a bi-directional link between stress and mitochondria, but whether the biology of brain mitochondria is linked to psychosocial experiences in humans is unknown.

Methods: We leveraged data from 400 older adults who completed yearly psychosocial assessment and donated their brain for molecular analysis, providing a unique opportunity to examine the mind-mitochondria connection. Psychosocial assessment included well-being, purpose in life, social support, depression, anxiety, negative mood, stress and negative life events. Untargeted proteomics was measured from the dorsolateral prefrontal cortex (DLPFC) area. Scores summarizing proteins abundance of multiple aspects of mitochondrial biology were used. Similarly, psychosocial factors were averaged across the follow-up and summarized into a positive and a negative score. Effect sizes were quantified with Spearman Rank correlations.

Results: Among all mitochondrial pathways, mitochondrial energy production showed the stronger associations with psychosocial scores. We find that the brain of individuals who reported more positive psychosocial experiences exhibited higher mitochondrial energy transformation protein abundance ($\rho=0.33$, [0.13, 0.50, 95%CI]) while the reverse effect was found in the brain of individuals who experienced greater adverse psychosocial factors ($\rho=-0.27$, [-0.14, -0.40; 95%CI]). The direction of the effect was the same in men and women, with men being more sensitive to positive psychosocial experiences. To understand the origin of these associations in the

brain, ongoing analyses single-cell RNA sequencing are extending these analyses in specific cell types including neurons, astrocytes, and microglia.

Conclusions: Our omics-based molecular mitochondrial phenotyping approach in a large cohort of older adults suggests that late-life psychosocial exposure is related to brain mitochondrial biology. These findings suggest that mitochondrial recalibrations may constitute a potential pathway to transduce psychosocial experiences into biological changes within the human brain and body.

Individual Abstract Number: 578

COMPROMISED MITOCHONDRIAL ENERGY METABOLISM AND RELATED DNA DAMAGE IN PERIPHERAL BLOOD MONONUCLEAR CELLS OF FEMALE PATIENTS WITH BORDERLINE PERSONALITY DISORDER

Alexander Behnke, PhD, Ulm University, Manuel Rappel, MA, Ulm University, Benjamin Weber, PhD, Ulm University, Matthias Mack, PhD, Ulm University, Christian Schmahl, PhD, Heidelberg University, Alexander Karabatsiakis, PhD, Ulm University, Iris-Tatjana Kolassa, PhD, Ulm University

Background: Borderline Personality Disorder (BPD) is highly comorbid with depression. Previously, we confirmed compromised cellular energy metabolism in depression due to reduced mitochondrial respiration and density. Dysregulated mitochondrial respiration leads to a lowered cellular provision of the energy equivalent Adenosine triphosphate (ATP) and also to elevated levels of oxidative stress in cells through the production of reactive oxygen species (ROS). Oxidative stress jeopardizes the macromolecular integrity of essential cell compartments such as the DNA. With this study, we characterized the mitochondrial respiratory activity along with its negative consequences for DNA integrity of peripheral blood mononuclear cells (PBMCs) in BPD patients.

Methods: Three age-matched groups were recruited: 33 women with current BPD; 15 women with remitted BPD; and 30 female controls free of past or present psychiatric diagnosis. PBMCs were isolated from whole blood by Ficoll density gradient centrifugation and cryopreserved for subsequent analyses. Mitochondrial respiration in intact PBMCs was assessed in freshly thawed samples using O2K high-resolution oxygraphs. The *Citrate synthase* activity assay was used to determine the intracellular abundance of mitochondria in PBMCs. As a marker of oxidative DNA damage, the Comet assay was used to quantify DNA strand breaks in PBMCs.

Results: Mitochondrial respiration (e.g., ATP turnover: $p=.032$, $\eta^2_p=.091$) was significantly reduced in acute BPD as compared to remitted patients and controls. In the whole cohort, higher BPD symptom severity correlated with lower ATP turnover-related respiration, lower coupling efficiency, and higher leak respiration (all $|r_s|>.25$, $p's<.040$), presenting a marker of mitochondrial ROS production. Higher leak respiration implicated significantly higher DNA strand breaks in PBMCs ($r_s=.53$, $p<.001$).

Discussion: Our study provides first evidence for a dysregulated cellular energy production in BPD and emphasizes its negative consequences for DNA integrity. The observed alterations in mitochondrial respiration in BPD resemble previous findings in major depression, suggesting the cellular energy metabolism as a shared biological mechanism in both disorder states. Moreover, elevated DNA damage in PBMCs might contribute to elevated peripheral inflammation, immunosenescence, and compromised immunity in BPD.

Individual Abstract Number: 593

THE ROLE OF BRAIN MITOCHONDRIAL RESPIRATION IN THE BEHAVIORAL EFFECTS OF CHRONIC GESTATIONAL STRESS EXPOSURE

Erin Gorman-Sandler, PhD Candidate, University of South Carolina School of Medicine, Breanna Robertson, Bsc, University of South Carolina School of Medicine, Jesseca Crawford, Bsc, University of South Carolina School of Medicine, Fiona Hollis, PhD, University of South Carolina School of Medicine

Background: Gestational stress is a key risk factor for pathologies, including postpartum depression (PPD), an understudied psychiatric complication of childbirth. Many of the proposed mechanisms underlying PPD pathology are linked to mitochondria, dynamic organelles responsible for energy adaptation. The brain particularly relies on mitochondrial energy production to function properly, and stress amplifies brain energy demands. Whether brain mitochondrial respiration is affected by gestational stress is unknown. Here we examined a role for mitochondrial respiration in association with behavioral changes following gestational stress.

Methods: Adult female Wistar rats ($n=9-11$ /group) were separated into nulliparous controls (C), nulliparous stressed (S), primiparous controls (P), and primiparous stressed (P+S) groups. Stress groups were exposed to 10 days of chronic mild unpredictable stress during the late gestational period. PPD-relevant behaviors, ex vivo brain mitochondrial respiration, and plasma cytokines were measured in the early postpartum period. In a follow-up study, primiparous stressed animals were treated with nicotinamide (200 mg/kg/day) prior to and during stress exposure to determine if nicotinamide could prevent the onset of PPD-relevant behaviors. Data were analyzed by 2-way ANOVA, followed by post-hoc tests where appropriate. Associations between respiration and behavior were tested with Pearson correlations.

Results: Gestational stress decreased coupled respiration in the prefrontal cortex by 28% ($p=0.015$) and enhanced pro-inflammatory interleukin 1-beta (IL-1b) by 30% ($p=0.03$) in plasma. Coupled mitochondrial respiration correlated positively with latency to float in the forced swim test ($r=0.52$, $p=0.03$) and negatively with plasma IL-1b ($r=0.62$, $p=0.02$). There was a significant interaction with nicotinamide treatment ($p=0.03$) such that prefrontal cortex mitochondrial respiration was conserved ($p=0.03$) and prevented stress-induced anhedonia ($p=0.04$).

Discussion: Overall, we suggest mitochondrial respiration as a hub for the behavioral effects of gestational stress and a potential target against the negative consequences of gestational stress.

Individual Abstract Number: 598

MITOCHONDRIAL PSYCHOBIOLOGY AND THE ENERGETIC COST OF STRESS RESPONSES

Martin Picard, PhD, Columbia University Irving Medical Center, Natalia Bobba-Alves, BSc, Columbia University Irving Medical Center, Robert-Paul Juster, PhD, University of Montreal, Caroline Trumpff, PhD, Columbia University Medical Center

Background. The biological pathways by which chronic psychosocial stress affects health trajectories remain largely unclear. Here we present an energy-based model for the transduction of chronic stress into disease risk, which emphasizes the energetic cost of allostasis and allostatic load. Energy transformation takes place in mitochondria – small intracellular organelles populating the inside of cells among the brain and body. Elucidating the role of mitochondria and energy metabolism in the stress-disease cascade is a priority for the emerging field of mitochondrial psychobiology.

Methods. Neuroendocrine, immune, and autonomic stress responses all rely on molecular and cellular activities that consume energy. We reviewed the literature quantifying the impact of acute stress on whole-body and cellular energy consumption, and developed a conceptual model on the energetic cost of psychosocial stress.

Results. In healthy women and men, acute psychosocial stress increases whole body energy consumption by +9-67% within 5-30 minutes (n=7 independent studies), a state known as *hypermetabolism*. The brain, which consumes 20-24% of the body's energy budget at rest, does not meaningfully contribute to this increase in energy consumption, but heart rate and sympathetic nervous system activation may constitute a major energy sink accounting for >25% of stress-induced hypermetabolism. Moreover, stress-induced increase in energy consumption (+60%) are also observed *in vitro*, in human cells chronically exposed to glucocorticoids. In relation to resilience, initial studies of relaxation practices, mindfulness, sleep, and regular exercise show that they reduce long-term energy expenditure by 14-40%, which may account for their health-protective effects. Within the organism, stress-related energetic costs may steal energy away from other physiological systems, such as immunity or telomere maintenance.

Conclusions. We propose that the "load" in allostatic load is the additional energetic burden imposed by stress processes. The Energetic Model of Allostatic Load (EMAL) proposes that spending too much energy on stress responses steals energy for resilience-promoting processes such as the immune system and anti-aging cellular systems. This model makes testable predictions calling for a new generation of observational and experimental studies.

PAPER SESSIONS

1: Pain Research

Thursday March 9, 09:30-10:30am

Abstract 477

CHILD DAILY PAIN INTENSITY IN THE CONTEXT OF VARIATIONS IN MATERNAL DAILY PAIN AND MOOD

Jacqueline O'Brien, PhD, Oregon Health and Sciences University, Angela Lee, M.S., University of Oregon, Amanda Stone, PhD, Vanderbilt University School of Medicine, Anna Wilson, PhD, Oregon Health and Sciences University

Chronic pain is the leading cause of disability internationally and rates of chronic pain have been steadily increasing (Vos et al., 2016). Children of mothers with chronic pain experience higher rates of chronic pain and are at increased risk for psychopathology (Higgins et al., 2015). There are several proposed mechanisms for why chronic pain aggregates within families, including family factors such as maternal pain and mood (Stone & Wilson, 2016). This study examined the effect of variation in daily maternal pain and mood on child daily pain intensity using mothers with chronic pain and their children (age 8-12 years; N=400 dyads).

Mothers had a chronic pain condition lasting at least 6 months with weekly occurrences of pain. Mothers or children diagnosed with life-threatening or chronic illness (e.g., cancer) were excluded. Families completed at least 5 days of daily diaries where mothers and children answered questions regarding their daily pain intensity, pain interference with daily activities, positive mood, and negative mood. Generalized estimating equations using repeated measurements were conducted to examine the effect of maternal pain and mood on same day and next day child pain intensity.

Maternal pain intensity was not associated with same day ($b=.012$, $SE=.031$, $p=.691$) or next day ($b=.041$, $SE=.033$, $p=.218$) child pain intensity. Similarly, maternal pain interference was not associated with same day ($b=.005$, $SE=.023$, $p=.842$) or next day ($b=.015$, $SE=.026$, $p=.580$) child pain intensity. Higher levels of maternal negative mood were significantly associated with higher same day child pain intensity ($b=.067$, $SE=.025$, $p=.007$), while higher levels of maternal positive mood were significantly associated with lower child pain intensity on the same day ($b=-.126$, $SE=.033$, $p<.001$). This pattern was consistent with next day child pain intensity, as maternal positive mood was associated with lower next day child pain intensity ($b=-.072$, $SE=.037$, $p=.050$) but these results did not reach significance for maternal negative mood ($b=.054$, $SE=.028$, $p=.052$).

Maternal mood may have an important influence on daily child pain experiences, independent of maternal pain experiences. These results highlight the importance of examining familial factors that impact child pain experiences as potential targets for intervention and prevention of child chronic pain.

Abstract 585

IDENTIFYING MECHANISMS OF CHANGE OF COGNITIVE BEHAVIORAL THERAPY FOR PEDIATRIC CHRONIC PAIN USING NETWORK INTERVENTION ANALYSIS

Gloria Han, PhD, Vanderbilt University Medical Center, Amanda Stone, PhD, Vanderbilt University Medical Center, Stephen Breuhl, PhD, Vanderbilt University Medical Center, Lynn Walker, PhD, Vanderbilt University Medical Center

Background: Chronic functional abdominal pain (FAP) is a common complaint of children in pediatric care. FAP is

maintained by a complex interplay of sensory, psychological, and behavioral factors. Cognitive behavioral therapy (CBT) has shown promise for improving pain intensity, functional disability, and emotional functioning in youth with FAP.

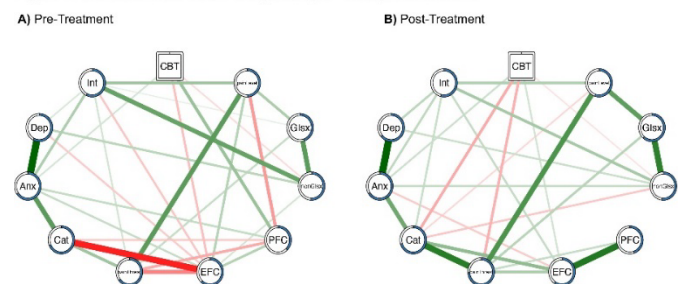
Objective: Identify specific treatment mechanisms of CBT for chronic pain using psychological network analysis.

Methods: Participants were 268 youth aged 11-17 years enrolled in a longitudinal RCT assessing the efficacy of internet-delivered CBT (WebMAP; Palermo et al., 2009) for FAP. Measures of pain intensity, pain interference, anxiety, depression, and coping strategies were collected throughout the trial. *Network intervention analysis* (NIA) was used to identify how CBT intervenes on the complex interplay of psychological factors relevant to FAP. In contrast to traditional longitudinal regression approaches, NIA involves estimating a *network* of interrelated symptoms while including a treatment indicator that identifies which network "nodes" are directly affected by treatment.

Results: At pre-treatment, strong associations were found between participants' perception of pain as threatening (painThreat) and ratings of pain intensity (painLevel), which was positively associated with interference in daily activities (Int). Pain catastrophizing (Cat) was negatively associated with emotion-focused coping (EFC), an adaptive cognitive appraisal strategy in which individuals believe they can psychologically adjust to pain. In contrast, problem-focused coping (PFC), another adaptive cognitive strategy where individuals believe they can do something about the pain, was associated with less pain intensity. At post-treatment, CBT reduced pain catastrophizing (Cat) and appraisal of pain as threatening (painThreat) and increased emotion-focused coping in response to pain.

Conclusions: Consistent with more recent conceptualizations of chronic pain as both an unpleasant sensory and emotional experience, findings highlight the role of maladaptive cognitive processes, such as catastrophizing and fear of pain, in maintaining or worsening pain intensity. Results from the post-treatment network suggest that CBT is effective at intervening on these "maladaptive nodes" to reduce distress and disability for youth with chronic pain.

Figure 1. Network intervention analysis at pre- and post-treatment



Note. CBT=cognitive behavioral therapy; Int=PROMIS Pain Interference; painLevel=subjective rating of pain intensity; Dep=PROMIS Depression; Anx=PROMIS Anxiety; Cat=Pain Catastrophizing Scale; painThreat=Pain Beliefs Questionnaire, pain threat subscale; EFC=Pain Beliefs Questionnaire, emotion-focused coping subscale; PFC=Pain Beliefs Questionnaire, problem-focused coping subscale; non-GIsx=Children's Somatic Symptom Inventory (CSSI) non-GI symptoms; GIsx=CSSI GI symptoms.

Abstract 312

PAIN AND INSOMNIA AS RISK FACTORS FOR FIRST LIFETIME ONSETS OF ANXIETY, DEPRESSION, AND SUICIDALITY IN ADOLESCENCE

Sabine Soltani, PhD, University of Calgary, Melanie Noel, PhD, University of Calgary, Emily Bernier, BSc, University of Calgary, Daniel Kopala-Sibley, PhD, University of Calgary

Chronic pain and mental health problems have both been identified as public health emergencies and co-occur. This prospective, longitudinal investigation examined whether

chronic pain status, pain-related symptoms (intensity, interference), pain catastrophizing, and insomnia severity predicted first lifetime onset of depressive and/or anxiety disorders as well as suicidality in a cohort of youth with a parental history of mood and/or anxiety disorders. Participants included 147 youth ($M_{age} = 13.74$ years; 64% female) who completed structured diagnostic interviews at baseline and at 9- and 18-month follow-up to assess depressive and anxiety disorders as well as suicidality. Participants completed baseline questionnaires assessing depressive and anxiety symptoms, pain symptoms and characteristics, pain interference, pain catastrophizing, and insomnia severity. Approximately 25% of youth reported having chronic pain at baseline. Nearly half (47.3%) developed a depressive disorder (21.3%), anxiety disorder (15.7%), or both (10.3%), and 34% endorsed experiencing suicidality at follow-up. Increased pain interference, intensity, catastrophizing, and insomnia severity predicted increased likelihood of first lifetime onset of a depressive disorder at follow-up, over and above sex and baseline symptoms. Chronic pain at baseline was associated with increased likelihood of onset of suicidality at follow-up. Increased pain intensity and interference at baseline predicted increased severity of suicidality at follow-up. Insomnia severity predicted increased likelihood of anxiety disorder onset. The presence of chronic pain and elevated pain-related symptoms and insomnia are premorbid risk factors for the development of significant mental health disorders and issues in youth.

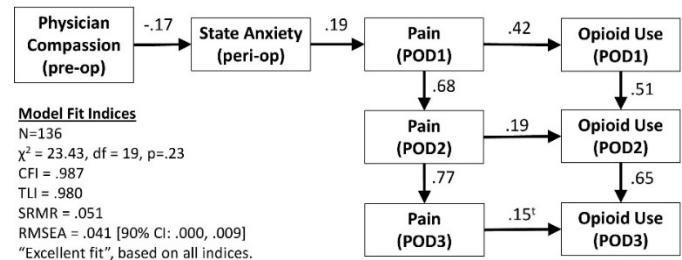
Abstract 627

DOES PHYSICIAN COMPASSION PREDICT POSTOPERATIVE PAIN AND OPIOID USE IN SURGERY PATIENTS? A PROSPECTIVE COHORT STUDY

Jeffrey Greeson, PhD, Rowan University, Ludmil Mitrev, MD, Cooper University Health Care, Brian Roberts, MD, MSc, Cooper University Health Care, Stephen Trzeciak, MD, MPH, Cooper University Health Care, Noud van Helmond, MD, PhD, Cooper University Health Care, Brian McEniry, CRC, Cooper University Health Care, Gabrielle Chin, MA, Rowan University, Keyur Trivedi, MD, Cooper University Health Care, Alann Solina, MD, Cooper University Health Care

Post-operative pain is the leading cause of chronic pain, which costs society over \$600B per year. Moreover, poorly managed post-operative pain is a risk factor for opioid addiction, a major public health crisis that needs innovative solutions. Biopsychosocial models highlight the interactive role of social and emotional processes that impact health outcomes, yet little is known about the relative role physician compassion might play in determining surgery outcomes, including post-operative pain and opioid use. The present study therefore aimed to examine whether patients' ratings of their anesthesiologist's compassion before surgery were related to peri-operative anxiety, post-operative pain, and prescription opioid use in the days after surgery. Using a prospective cohort design, same-day surgery patients ($n=136$, 85% female, 65% white) completed a 5-item physician compassion scale, along with validated self-report measures of state and trait anxiety, pain ratings (0-10 scale), and pain medication use (mg morphine equivalents). Preliminary psychometric analyses revealed the 5-item compassion scale ($\alpha = .955$) replicated the single-factor structure found in prior research on other patient populations. Path analysis found a sequence of significant direct effects linking higher ratings of physician compassion with lower perioperative state anxiety ($\beta = -.17$, $p = .043$), and, in turn, lower post-discharge pain ratings ($\beta = .19$, $p = .044$) and less prescription opioid use after discharge ($\beta = .42$, $p < .001$). Model fit was excellent (χ^2 [df,19] = 23.43, $p=.23$; CFI = .987, TLI =

.980, SRMR = .051, RMSEA = .041). Although each direct effect in the path model was statistically significant ($p < .05$), the indirect effects linking physician compassion ratings to pain levels and opioid use via state anxiety scores did not reach statistical significance (β 's = -.003 to -.008, p -values = .19 to .20). This was likely due to the modest strength of association between compassion ratings, perioperative anxiety, and post-discharge pain at the beginning of the path model. Taken together, results establish a prospective, modest link between patient perceptions of physician compassion in the surgical setting and post-op pain management. These findings suggest a biopsychosocial pathway for how compassionate care may help optimize surgery outcomes and reduce risk of opioid addiction.



2: Perinatal and child health

Thursday March 9, 09:30-10:30am

Abstract 507

GENDER DIFFERENCES IN INFANT DEVELOPMENT: THE ROLE OF PARENTAL PRE- AND POSTNATAL PSYCHOSOCIAL FUNCTIONING & FAMILY BIOMARKERS

Guido Urizar, PhD, California State University, Long Beach, Darby Saxbe, PhD, University of Southern California

There is growing evidence that the prenatal environment can have lasting effects on fetal development after birth, with some studies showing that mothers who experience elevated anxiety and depression during pregnancy having children with more cognitive impairments and social-emotional problems later in childhood. Moreover, these studies have shown boys to have more delayed cognitive and social-emotional development than girls, which may reflect gender differences in how biomarkers of anxiety and depression (e.g., cortisol) differentially impact neurodevelopment during pregnancy. Yet, few of these studies have prospectively examined the psychosocial functioning of both parents and the differential impact they may have on infant gender differences in developmental outcomes. The current longitudinal study tested whether pre- and postnatal anxiety, depression, and cortisol were associated with infant developmental outcomes in 67 first-time expectant families, and whether these effects varied by the infant's gender. Measures of pre- and postnatal anxiety (Pregnancy Anxiety Scale, STAI) and depression (BDI, EPDS) were administered to both mothers and fathers during pregnancy (20-32 weeks gestation) and at six months postpartum. Hair cortisol was sampled from mothers, fathers, and the infant within one to two days of the birth (a retrospective index of cortisol levels during the third trimester of pregnancy) and again at six months postpartum. Infant development across five domains (gross motor, fine motor, problem-solving, communication, and social skills) was assessed by parent report (Ages & Stages Questionnaire) at six months postpartum. Regression analyses revealed that for boys, higher maternal pregnancy anxiety, fetal cortisol levels during the third trimester, and higher paternal postpartum depression were associated with lower infant fine motor [$\beta(3,60)=-0.91$, $p=.01$], problem-solving [$\beta(3,51)=-$

0.01, $p=.03$], and communication skills at postpartum [$\beta(3,63)=-2.36$, $p=.03$], respectively. Finally, higher infant cortisol at postpartum was associated with lower development among boys across several domains (fine motor, problem-solving, social skills). These associations were not found for girls. These findings shed light on psychosocial factors in mothers and fathers that may differentially impact infant outcomes during critical periods of fetal development.

Abstract 302

NURTURANT-INVOLVED PARENTING MITIGATES THE CARDIOMETABOLIC RISKS ASSOCIATED WITH CHILDHOOD DISCRIMINATION

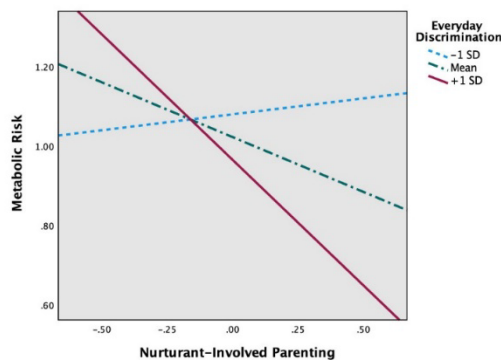
Elizabeth Wiggins, BS, University of Georgia, Julie Brisson, Psychology, University of Georgia, Katherine Ehrlich, Psychology, University of Georgia

Significant racial and ethnic health disparities exist across a range of cardiometabolic conditions, including coronary heart disease, stroke, and type 2 diabetes. Racial and ethnic minorities experience unique forms of psychological stress in the form of discrimination, which contributes to these health disparities. Despite established links between discrimination and cardiometabolic health in adults, few studies have explored these associations in younger populations. Some research suggests that high-quality, supportive parenting can help youth develop resilience against the health consequences associated with discrimination (Brody, Yu, & Beach, 2016). However, the specific conditions in which supportive parenting is most protective for children's lifelong health remain unclear. The present study explores the effects of nurturant-involved parenting on metabolic risk, and whether this relation varies based on different levels of perceived discrimination. Youth ($n = 163$, $Mage = 11.5$ yrs, 49.1% female) who identified as African American, Black, Hispanic, or Latinx and their primary caregiver participated in data collection between 2021-2022. During the study visit, youth reported on their perceived discrimination through the Everyday Discrimination Scale, had physical measurements taken, and provided a blood sample. Their primary caregiver reported on aspects of their parenting practices through the Nurturant-Involved Parenting Scale. Metabolic risk was assessed using HbA1c, triglycerides, systolic and diastolic blood pressure, waist circumference, and HDL cholesterol. Using Hayes' PROCESS macro (Model 1), we tested whether everyday discrimination moderated the link between nurturant-involved parenting and metabolic risk. Conditional effects revealed that nurturant-involved parenting was negatively associated with metabolic risk for youth who reported high levels of perceived discrimination ($b = -.63$, $SE = .23$, $p < .01$). These effects were not significant at low levels of perceived discrimination. These findings suggest that at high levels of perceived discrimination, nurturant and involved parenting can be protective for children's metabolic health. These analyses improve our understanding of the effects of discrimination on health from a developmental perspective and have implications for the protective effects of parenting under high-risk conditions.

Table 1. Interaction of nurturant-involved parenting and everyday discrimination as predictors of metabolic risk.

Predictors	b	SE	p
Constant	1.045	.460	.025
Age	-.008	.030	.776
Sex	.039	.148	.791
Socioeconomic Status	.029	.054	.601
Race	-.014	.154	.928
Nurturant-Involved Parenting	-.276	.162	.091
Everyday Discrimination	.053	.070	.447
Parenting x Discrimination	-.328	.157	.038

Graph 1. Nurturant-involved parenting, everyday discrimination, and metabolic risk.



Abstract 263

PERINATAL MOOD AND ANXIETY DISORDERS: BIOMARKER DISCOVERY USING PLASMA PROTEOMICS

Eynav Accortt, PhD, Cedars-Sinai, James Mirocha, MS, Cedars-Sinai, Towia Libermann, PhD, Harvard Medical School, Dongsheng Zhang, PhD, Cedars-Sinai, Sarah Kilpatrick, MD, PhD, Cedars-Sinai, Ananth Karumanchi, MD, Cedars-Sinai

Perinatal mood and anxiety disorders (PMADs) encompass a range of mental health disorders that occur during pregnancy and up to one year postpartum, affecting approximately 20% of women. Traditional risk factors, such as history of depression, pregnancy complications such as preeclampsia (PE) and being non-white, are known. Their predictive utility, however, is not specific or sensitive enough to inform clinical decision making or prevention strategies. Better diagnostic and prognostic models are needed for early identification of those predisposed for PMADs. Mental health screening was conducted at two time-points, in the third trimester and again at 3 months post-delivery. Elevated PMAD risk was defined by screening above cutoffs for depression (EPDS ≥ 12), anxiety (OASIS ≥ 7) and/or PTSD (IES >26). Plasma samples from 52 pregnant women ($N=34$ with PMAD risk and $N=18$ controls) were collected in the third trimester and were screened using the aptamer-based SomaLogic SomaScan® proteomic assay technology to evaluate PMAD-associated changes in the expression of 1,305 protein analytes. Ingenuity Pathway Analysis was conducted to highlight pathophysiological relationships between PMAD-

specific proteins found to be significantly up- or down-regulated in all PMAD subjects and in those with PMADs and no preeclampsia. From a panel of 53 significant PMAD-associated proteins a unique 20 protein signature differentiated PMAD cases from controls on principal component analysis, PCA ($P<0.05$). These proteins included molecules such as NCAM1, NRCAM, NTRK3 that converge around neuronal signaling pathways, astrocyte differentiation and maintenance of GABAergic neurons. When we restricted the analysis to exclude PE, a 30-protein signature differentiated PMAD cases from all controls without overlap on the PCA ($P<0.001$). Among the non-PE PMAD group, we observed elevated expression of proteins such as CXCL11, CCL14, MIC-B, beta-2 microglobulin, that converged around leucocyte migration, inflammation and immune dysfunction. Participants with PMADs had a unique and distinct plasma protein signature that regulated a variety of neuronal signaling and pro-inflammatory pathways. Additional validation studies with larger sample sizes are needed to determine whether these dysregulated molecules can be used in conjunction with traditional risk factors for the early detection of PMAD.

Abstract 270

THE EFFECTS OF A PRENATAL COGNITIVE BEHAVIORAL STRESS-MANAGEMENT INTERVENTION ON POSTPARTUM STRESS LEVELS AMONG LOW-INCOME WOMEN: ROLE OF MINDFULNESS

Josh Murillo, B.A., California State University, Long Beach, Julianna Martin, B.A., California State University, Long Beach, Geselle Munoz, B.A., California State University, Long Beach, Guido Urizar, Ph.D., California State University, Long Beach

Previous research supports the implementation of cognitive stress management interventions (CBSM) in early pregnancy to reduce the severity of everyday mental health ailments (e.g., depression and anxiety) commonly associated with elevated stress levels throughout pregnancy. Some researchers find that some people are naturally more mindful and experience less stress, and people can become more mindful once stress draws their attention. However, few studies have examined the impact of individuals' level of mindfulness when participating in CBSM interventions during pregnancy and their effects on women's stress levels postpartum. Thus, the current study aimed to examine whether participating in an eight-week prenatal CBSM intervention was associated with lower perceived stress at three months postpartum, when compared to a control group, and whether this relationship was influenced by mindfulness. Our sample consisted of 100 low-income pregnant mothers (CBSM = 55, Control group = 45; 71% Latina, 29% non-Latina). Women in the CBSM intervention ($n=55$) attended eight weekly group-based sessions in which a clinically-trained researcher taught relaxation and coping skills, whereas women in the control group ($n=45$) received eight weekly prenatal health pamphlets by mail. Results revealed that women randomized to CBSM had lower postpartum stress levels overall compared to the control group, regardless of their level of mindfulness ($R^2 = .21$, $\beta = 4.35$, $p = .012$). Interestingly, women in the control group only showed lower postpartum stress with higher levels of mindfulness. These findings help to identify factors, such as mindfulness, that future studies may want to consider when evaluating prenatal intervention effects on postpartum stress.

3: Longterm effects of COVID-19 on physical & mental health

Thursday March 9, 09:30-10:30am

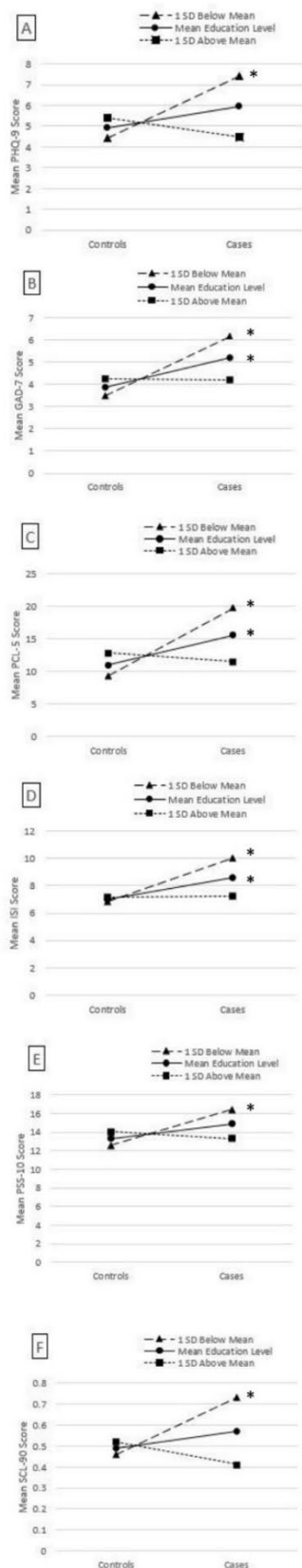
Abstract 119

LONGER-TERM MENTAL HEALTH CONSEQUENCES OF COVID-19 INFECTION: MODERATION BY RACE AND SOCIOECONOMIC STATUS

Michelle K. Williams, MS, Indiana University-Purdue University Indianapolis, Christopher A. Crawford, BA, Indiana University-Purdue University Indianapolis, Tamika C. Zapolski, PhD, Indiana University-Purdue University Indianapolis, Adam T. Hirsh, PhD, Indiana University-Purdue University Indianapolis, Jesse C. Stewart, PhD, Indiana University-Purdue University Indianapolis

While evidence suggests that the mental health symptoms of COVID-19 can persist for several months following infection, little is known about the longer-term mental health consequences of COVID-19 and whether certain sociodemographic groups may be particularly impacted. We aimed to characterize the longer-term mental health consequences of COVID-19 infection and examine whether such consequences are more pronounced in Black people and people with lower socioeconomic status. 277 Black and White adults ($Mean=43$ years, 60% female, 46% Black) with a history of COVID-19 (127 cases; tested positive ≥ 6 months prior to participation) or no history of COVID-19 (150 controls) completed an online questionnaire battery assessing COVID-19 history (for cases only) and symptoms of depression (Patient Health Questionnaire-9 [PHQ-9]), anxiety (Generalized Anxiety Disorder-7 [GAD-7]), PTSD (PTSD Checklist for DSM-5 [PCL-5]), insomnia (Insomnia Severity Index [ISI]), perceived stress (Perceived Stress Scale-10 [PSS-10]), and general psychopathology (Hopkins Symptom Checklist-90 [SCL-90]). Cases reported that they first tested positive for COVID-19 an average of 9.5 months before study participation. 86% of cases reported 1 or more current symptoms of COVID-19 and 30% reported that they had not returned to their usual health. Cases had greater depressive ($d=0.24$), anxiety ($d=0.34$), PTSD ($d=0.32$), and insomnia ($d=0.31$) symptoms than controls (all $ps<.05$). These differences remained for anxiety, PTSD, and insomnia symptoms after adjusting for age, sex, race, education, income, body mass index, and smoking status. Moreover, cases had more than double the odds of clinically significant symptoms of anxiety ($OR=2.22$, $p=.03$) and PTSD ($OR=2.40$, $p=.01$). No case-control differences were detected for perceived stress or general psychopathology. Education, but not race and income, moderated relationships of interest such that case-control differences were more pronounced at lower education levels for all the mental health outcomes (see Figure 1). The mental health consequences of COVID-19 (a) may be significant, widespread, and persistent for at least 6 months after infection and (b) may disproportionately impact people with lower education. Our findings suggest the need for longer-term, targeted mental health screening, monitoring, and treatment for people with a history of COVID-19.

Figure 1. Relationships between case-control status and the mental health outcomes as a function of education level. Results shown for depressive symptoms (PHQ-9; Panel A), anxiety symptoms (GAD-7; Panel B), PTSD symptoms (PCL-5; Panel C), insomnia symptoms (ISI; Panel D), perceived stress (PSS-10; Panel E), and general psychopathology (SCL-90; Panel F). * $p < .05$



COVID19 ERA EFFECTS ON OLDER ADULTS' COGNITIVE COMPLAINTS, DEPRESSIVE SYMPTOMS, AND STRESSFUL EVENTS

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Older adults have adjusted better to the COVID-19 pandemic in terms of their psychological well-being than younger adults. We investigated individual differences in vulnerability within older adulthood as pandemic severity changed, providing a more refined prediction of older adults' adjustment to COVID-19. Participants from this longitudinal study were included if they had at least one semiannual assessment before and one during the COVID-19 era ($N = 111$, 65% women, age range = 62-96 at onset of COVID-19 era in the US). There were 1,098 pre-COVID-19 assessments ($M = 9.9$, 1/5/2018-1/22/2020) and 265 post-COVID-19 ($M = 2.4$, 1/23/2020-10/31/2021). At each assessment, participants reported on six cognitive complaints (MOS), five depressive symptoms (Geriatric Depression Scale), and six domains of undesirability-weighted stressful life events (Louisville Older Persons Event Scale). Daily national, state, and regional COVID-19 case and death rates were obtained from the Centers for Disease Control and summed for the week preceding each assessment. In multilevel ZIP models, the COVID-19 era significantly increased depressive symptoms (0.68 to 1.18, $p < .0001$) and stressful events (30.9 to 48.5, $p < .0001$), but did not significantly affect severity of cognitive complaints. Older age was associated with greater impact of COVID-19 on depressive symptoms and stressful events; women reported more stressful events when pandemic severity was high, but men reported more stressful events when pandemic severity was low. Although older adults in general have adjusted better to the pandemic than younger adults, the old-old had greater vulnerability to this unavoidable event than the young-old.

Abstract 482

PATIENTS WITH FUNCTIONAL POST-COVID SYMPTOMS SHOW HIGH UTILIZATION OF THE HEALTH CARE SYSTEM

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Background: Recent studies show that a high percentage (up to 95%) of patients reports lasting symptoms after an infection with the SARS-CoV-2 virus (post-covid) without any detectable organ cause. This phenomenon has been described as "functional post-covid syndrome". However, it is unclear whether those patients show high somatoform symptoms burden and a high utilization of the health care system comparable to patients with somatoform disorders. **Methods:** One year after their presentation at a post-covid ambulance in a university hospital in Germany, patients with

functional post-covid symptoms were asked to fill in an online questionnaire. They rated 8 common symptoms of post-covid (e.g. difficulties breathing, fatigue, brain fog, smell/taste abnormalities) on a 0 to 4 scale (range 0 to 32), and filled in questionnaires about somatoform symptoms (PHQ-15) and about their utilization of the health care system during the last 12 months.

Results: 293 patients between 15 and 82 years old filled in the questionnaire (49 ± 14 years; 62% female) and reported high burden of post-covid symptoms (6.8 ± 6.0), only 14% reported no symptoms, and high PHQ-15 scores (8.9 ± 5.5). Post-covid symptoms and PHQ-15 were highly correlated ($r=0.507$, $p<0.001$). Patients reported many sick leave days from work (32 ± 81 days), days not able to perform everyday tasks (10 ± 50 days), and consultations of general practitioners (3.8 ± 4.7 consultations) and specialists (9.5 ± 10.2 consultations). Specialists of psychiatry, psychosomatics or psychotherapy were less frequently consulted (1.9 ± 6.4). PHQ-15 scores are significantly correlated with sick leave days ($r=0.177$), and with consultations with general practitioners ($r=0.308$) and specialists ($r=0.316$) (all p 's <0.001).

Discussion: Patients with functional post-covid symptoms show similarities to patients with somatoform symptom disorders with a high association between their symptoms and a high utilization of the health care system. Despite a lack of organ causes and high psychosomatic scores, specialists in psychosomatic medicine are less frequently consulted than other physicians. Patients as well as physicians' awareness about psychosomatic symptoms should be encouraged.

Abstract 222

CHANGES IN POSITIVE ASPECTS OF WELLBEING AMONG OLDER ADULTS IN ENGLAND DURING THE COVID-19 PANDEMIC

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Background: Longitudinal studies suggest that the prevalence of mental health problems has increased during the COVID-19 pandemic compared with pre-COVID-19 levels. However, evidence for the impact of the pandemic on positive aspects of mental wellbeing is scarce. We examined changes in positive mental wellbeing before and during the initial and later phases of the COVID-19 pandemic among older adults living in England.

Methods: This longitudinal cohort study included 5,146 older adults participating in the English Longitudinal Study of Ageing who provided data before the pandemic (2018-19) and at two follow-up assessments in 2020 (Jun-Jul and Nov-Dec). Changes in happiness, life satisfaction, and ratings of doing worthwhile activities in life before and during the pandemic were measured with the Office for National Statistics wellbeing scales (range 0-10) and were tested using fixed-effects regression models.

Results: From before the pandemic (2018-19) to Jun-Jul 2020, happiness scores decreased by 0.045 standard deviations (SDs) (95%CI: -0.087 to -0.003, p -value=0.034), life satisfaction scores decreased by 0.143 SDs (95%CI: -0.183 to -0.104, p -value <0.001), whereas worthwhile ratings did not change substantially ($=-0.032$, 95%CI: 0.096 to -0.069, p -value=0.096). Positive wellbeing further deteriorated between Jun-Jul and Nov-Dec 2020, including a decrease of 0.103 SDs (95%CI: -0.139 to -0.067, p -value <0.001) in happiness scores, 0.081 SDs (95%CI: -0.119 to -0.043, p -value <0.001) in life satisfaction scores, and 0.085 SDs (95%CI: -0.121 to -

0.048, p -value <0.001) in worthwhile ratings. Women, people with low wealth, older age groups, and those who were retired experienced worse changes in positive wellbeing.

Conclusion: Positive mental wellbeing has deteriorated during the COVID-19 pandemic among older adults in England, particularly for those living in less favourable socioeconomic circumstances. Mental health interventions should address both negative and positive aspects of mental wellbeing.

4: Technological innovation

Thursday March 9, 10:45-11:45am

Abstract 179

REAL-TIME ASSESSMENT OF THE IMPACT OF VIRTUAL REALITY-DELIVERED MEDITATION ON AUTONOMIC AND BEHAVIORAL INDICATORS OF STRESS

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BACKGROUND: Virtual Reality (VR) technology has been used in mind-body medicine to reduce pain, recover from trauma, and reduce chronic disease symptoms. The use of VR meditation as an immersive therapeutic for stress management has increased in popularity as devices and apps became readily available to consumers. To validate the efficacy of VR-delivered meditation, we systematically assessed real-time autonomic and behavioral indicators of stress reduction. **METHODS:** Fifty-seven participants (31 females, 24 males, 2 non-binary; 18-25 yrs) were assigned to one of three groups. Participants in the VR guided meditation group ($n=20$) used a Meta Quest 2 VR headset to complete a 12-min body scan with breathing exercises. The audio meditation group ($n=19$) wore a powered-off VR headset and completed an audio-only version of the same meditation. Control group participants ($n=18$) watched a 2D video in the VR headset. Heart rate, SBP, and DBP were obtained at the end of a 5-min baseline and a 12-min task period. Mood (Brunel Mood Scale) was assessed at the end of the baseline and task periods, and meditation depth was self-reported at the end of the task period. Repeated measures ANOVAs were used to test for main effects of Time (end of baseline vs end of task) and Group (VR, audio, control), and Time by Group interactions. **RESULTS:** A significant main effect for change in SBP over time ($p<.04$) was observed, such that all groups showed decreases from baseline to task. There was a trend for the VR group to have greater decreases in SBP ($M=-5.1$ mmHg) than both the audio meditation ($M=-0.47$ mmHg) and control ($M=-0.83$ mmHg). A significant Time by Group interaction was found for Happiness ($p<.02$), where the VR group self-reported greater scores post-task while the audio meditation and control groups had lower scores. In addition, the VR group showed a greater magnitude of change across Time for Depression (decreased) and Calmness (increased) compared to the two other groups, but these trends did not reach statistical significance ($p=.064$, $p=.068$). Finally, there was an overall main effect for Meditation Depth ($p<.01$), with the VR meditation group self-reporting greater depth than the control group. **CONCLUSION:** VR-delivered meditation may be an effective modality for stress reduction and elucidating the underlying physiological mechanisms is important for future interventions.

USING CONSUMER-TYPE FITNESS TRACKERS FOR MEASURING PHYSICAL ACTIVITY, HEART RATE AND SLEEP DURATION IN A MULTICENTER INTERVENTION TRIAL OF PATIENTS WITH CORONARY HEART DISEASE

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Physical activity (PA) is a relevant target of behavioral interventions. However, its assessment is often limited to self-reports. In the ongoing TEACH trial examining blended collaborative care for distressed patients with coronary heart disease we supplemented PA self-ratings by objective measurements using commercially available fitness trackers (FT). The current analyses examine associations of FT data with self-reported PA, illness severity and distress. During their baseline assessment, patients self-rated their PA with the IPAQ and then received a Xiaomi Mi Band (version 4 or 6) to wear for 7 consecutive days measuring daily steps, HR (at 5 min. intervals), and sleep duration. The devices were then returned via mail and the stored data exported to a computer. Disease severity was assessed by NYHA class, Charlson comorbidity index (CCI) and the physical subscale on the HeartQoL. The level of distress was measured with the HADS total score.

Of 210 patients 110 (mean age 63.2±9.7; 24.5% females; 35.4% NYHA>1; 27.3% CCI>2; mean HeartQoL 1.4±0.7) had analyzable FT data. Missing data were due to logistic problems, patient non-adherence and data export failure. The FT-derived step count correlated with IPAQ scores (range: $r=.22$ [strenuous exercise; n.s.] to $.38$ [walking; $p<0.01$]) and with disease severity measures (range: $\tau=-.21$ to $r=-.32$; all $p<0.01$) but not with distress. Mean nighttime HR did not differ from clinic resting HR at baseline (66.7 vs. 67.6 bpm [$p=0.24$]; $r=0.68$ [$p<0.001$]) suggesting good comparability of clinical and FT-derived measurements. Lower nighttime HR was correlated with higher variability of daytime HR measurements ($r=-0.73$; $p<0.001$), higher step count ($r=0.38$; $p<0.01$), but not significantly with disease severity, sleep duration, and distress. Sleep duration was inversely related to NYHA class but unrelated to distress and PA, both per self-report and FT step count.

Consumer-type FT can yield reliable data on PA and HR over extended observation periods. The poor correlation of FT and IPAQ data suggests that both methods assess different aspects of PA and might best be used together. While PA self-ratings seem to be biased by distress, the FT step count may miss activities, such as cycling and swimming. Larger studies are needed to confirm our results, address technical and practicability issues and use FT that measure all PA.

STRESS+ – TOWARDS AN OPEN-SOURCE WEB APPLICATION FOR THE REMOTE INDUCTION OF ACUTE PSYCHOSOCIAL STRESS

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Objective: To better understand the consequences of stress and its role as a risk factor for chronic diseases, researchers induce acute stress through laboratory experiments and measure biological responses. It is assumed that repeated exposure to acute stressors and the associated recurrent stimulation of stress pathways over a prolonged period of time promotes the transition from acute to chronic stress. Thus, researchers must repeatedly induce acute stress and observe changes in stress response patterns. Unfortunately, established laboratory stress protocols are only suitable for repeated use to a limited extent due to high personnel and resource demand, creating the need for novel stress protocols that can be conducted remotely and at a larger scale.

Methods: We introduce *stress+*, a framework for the remote and repeated induction of acute psychosocial stress. *stress+* is a browser-based web application that offers a collection of screens and overlays that can be arranged into custom stress pipelines and distributed via weblink. Screens provide different stressors, such as the Stroop test, public speaking, mental arithmetic, serial subtraction, or N-back tasks. Each screen can be extended with overlay elements designed to add additional psychosocial evaluation, such as fake feedback on performance, fake heart rate visualization, chatbot interaction, or jury videos. Further, *stress+* allows the measurement of objective biosignals through emotion and heart rate measurements based on webcam videos to analyze the stress response and provide real-time feedback.

Results and Discussion: Usability testing indicated that researchers unfamiliar with the platform can easily create, adapt, and conduct stress induction pipelines and appreciate *stress+* as a valuable tool for research. By making *stress+* freely accessible, we encourage researchers to create stress induction pipelines and share their suggestions with the community. As a starting point for this endeavor, we propose a standardized acute psychosocial stress induction pipeline that synthesizes elements from the Trier Social Stress Test (TSST) and the Montreal Imaging Stress Test (MIST). While the first validation of this pipeline still needs to be performed, we hope that *stress+* is a valuable tool for biopsychological research and want to invite the community in testing and further developing the application.

FEASIBILITY OF REMOTE MEASUREMENT OF PHYSICAL ACTIVITY, SLEEP, AUTONOMIC PHYSIOLOGY, AND MOMENTARY EMOTION IN CARDIAC ARREST SURVIVORS AFTER HOSPITAL DISCHARGE

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Background. Objective health behaviors and other recovery indices have seldom been examined in cardiac arrest (CA) survivors in their daily lives after hospital discharge. Low physical activity (PA), short sleep, low cardiac vagal control (indexed by high-frequency heart rate variability [HF-HRV]), and negative affect are each linked to cardiovascular risk in non-CA cardiac populations (e.g., acute coronary syndrome), yet few data exist in CA survivors. We assessed the feasibility of measuring PA, sleep, and HF-HRV objectively and naturalistically as well as momentary affect during CA survivors' daily lives. The measurements occurred immediately after hospital discharge and 6 months later to assess recovery over time.

Method. Participants at NewYork-Presbyterian Hospital were hospitalized with confirmed CA ($n = 62$). For 7 days post-discharge (T1) and at 6 months post-discharge (T2), we assessed PA and sleep via wrist-worn actigraphy (GENEActiv device) and HF-HRV via chest-worn electrocardiography (Cardea SOLO). We assessed negative and positive affect via the smartphone-based Mobile Ecological Momentary Assessment app (mEMA) three times per day using a short version of the Positive and Negative Affect Schedule. Participants were given devices before discharge (T1) and were mailed the devices via FedEx (T2).

Results. Usable GENEActiv data were collected from 83.9% (52/62) of eligible participants at T1 and 41.7% (15/36) at T2, with a mean number of 7.87 days ($SD = 4.90$) for T1 and 6.47 days ($SD = 2.50$) for T2. Usable CardeaSOLO data were collected from 82.1% (32/39) of eligible participants at T1 and 31.8% (7/22) at T2, with a mean number of 6.13 days ($SD = 1.58$) for T1 and 6.57 days ($SD = 0.79$) for T2. Usable mEMA surveys, were collected from 56.5% (35/62) of eligible participants at T1 and 38.9% (14/36) at T2, with a mean number of 14.69 surveys ($SD = 9.66$) for T1 and 15.64 surveys ($SD = 9.74$) for T2.

Discussion. The subset of participants with usable data wore the GENEActiv and CardeaSOLO devices for nearly the full 7 days. The mEMA surveys have a relatively low completion rate at T1 and T2. Data collection of these important metrics facilitates assessment of these important behaviors and recovery aspects during CA patients' lives. The findings will help identify intervention targets to help CA survivors re-engage in long and healthy lives.

5: Caregiver health

Thursday March 9, 10:45-11:45am

Abstract 296

KLOTHO AND TELOMERE BIOLOGY AMONG HIGH- AND LOW-STRESS MATERNAL CAREGIVERS

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Background: Klotho is an aging regulator that acts as a circulating hormone. The function of klotho is pleiotropic, with evidence supporting the role of klotho in regulating insulin signaling, oxidative stress, and age-related inflammatory functioning. The age-protective effects of klotho and its role in extending one's healthspan may be related to its potential for regulating telomere attrition. **Methods:** Participants, 178 mothers ($n = 90$ high-stress caregivers, $n = 88$ low-stress controls), completed questionnaires and a fasting morning blood draw at the initial study visit to assess telomere length, telomerase activity, and klotho levels. Adjusted multiple regression models reflect key covariates (age, BMI) that were associated with either klotho levels, telomere length (TL), telomerase activity, or all three. **Results:** We found evidence

of a significant klotho (continuous levels) by group (high- vs. low-stress) interaction for CD4+ T cell TL (unadjusted: $b = 0.42$, 95% CI [0.08, 0.75], $p = .015$; adjusted: $b = 0.34$, 95% CI [0.02, 0.67], $p = .039$), CD8+CD28- T cell TL (unadjusted: $b = 0.64$, 95% CI [0.13, 1.15], $p = .014$; adjusted: $b = 0.64$, 95% CI [0.13, 1.15], $p = .039$), CD8+CD28+ T cell TL (unadjusted: $b = 0.46$, 95% CI [0.08, 0.84], $p = .018$; adjusted: $b = 0.32$, 95% CI [-0.04, 0.68], $p = .084$), and PBMC TL (unadjusted: $b = 0.48$, 95% CI [0.14, 0.82], $p = .006$; adjusted: $b = 0.39$, 95% CI [0.06, 0.71], $p = .019$). There was no evidence of a significant klotho by group interaction for TL in B cells, granulocytes, or whole blood cells ($ps > .13$). In further examination of simple slopes, klotho levels were significantly associated with CD4+ T cells, CD8+CD28+ T cells, and PBMC TL for participants in the high-stress group ($ps: .019-.035$), but not the low-stress group ($ps: .36-.64$). Klotho levels did not reach statistical significance in the CD8+CD28- cells for either group. Klotho levels were not associated with telomerase activity in either group. **Conclusions:** Higher klotho levels were associated with longer telomeres in CD4+ and CD8+CD28+ T cells, and PBMCs for high-stress, but not low-stress, caregivers. Klotho may be protective against telomere attrition associated with high-stress life experiences. These findings have implications for high-stress caregivers' ability to mount a robust, replicative T cell response and defend against disease.

Abstract 237

DYADIC INVESTIGATION ON THE ROLES OF POSITIVE AND NEGATIVE SOCIAL SUPPORT IN CARDIOVASCULAR FUNCTIONING AMONG ADULT CANCER PATIENT-CAREGIVER DYADS

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Abstract body:

Patients with cancer and their spousal caregivers are often each other's primary support during cancer survivorship. Positive social support, such as providing reassurance and validation, and negative social support, such as criticism and avoidance, have been differentially associated with psychological stress response. Less known, however, is the association of social support with cardiovascular stress response among adult patient-caregiver dyads, which this study aimed to investigate.

Patients newly diagnosed with cancer ($N = 123$, 56.6 years old, 34.1% female, 70.7% stage III-IV cancer) and their spousal caregivers (55.1 years old) reported their perceived positive and negative support received from their partner (Sources of Social Support Scale). Patients and caregivers underwent a relationship- and health-related laboratory stress task together. Cardiovascular functioning, including high-frequency heart rate variability (HF-HRV) and heart rate (HR), was measured at baseline, after stress onset (cardiovascular reactivity), and after stress offset (cardiovascular recovery). Each participant's age, gender, body mass index, as well as the patient's cancer stage were covariates.

Participants reported moderate to high levels of positive social support and low levels of negative social support. Participants also demonstrated significant cardiovascular stress reactivity and recovery patterns marked by HF-HRV and HR ($p < .001$). Actor-partner interdependence modeling revealed that caregiver's greater perceived positive support was associated with their own greater HR reactivity and greater HR recovery ($b \geq 2.18$, $p \leq .016$). Caregiver's greater perceived negative support, on the other hand, was associated with their patient's

blunted HR reactivity, HR recovery, and HF-HRV recovery ($b \geq -.07$, $p \leq .035$).

Findings highlighted the differential and significant roles of caregiver' perceived support in their own and the patients' cardiovascular functioning. Further examinations of the interpersonal mechanisms underlying both cardiovascular reactivity and recovery are warranted. Findings also suggest clinicians to address the psychosocial needs of both patients and their caregivers during cancer survivorship.

Abstract 216

PROSPECTIVE ANALYSIS OF 10-YEAR RISK OF CARDIOVASCULAR DISEASE DURING CAREGIVING FOR A LOVED ONE WITH CANCER

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Caregiving has been associated with risk of cardiovascular disease (CVD) in those caring for a loved one with dementia and cancer. However, the studies that have been conducted have been retrospective in design and bereavement, which is also associated with CVD, has been a confounding factor. The aims of this study were to prospectively assess the predictors of cardiovascular risk in those caring for a loved one with cancer. A total of 211 caregivers of those caring for a loved one with cancer (69% female; mean age=62, SD=12; 87% Caucasian; 75% spouse or cohabitating partner; mean caregiving duration 9 months, SD=4.9) participated in the study. Caregivers completed a battery of questionnaires that included assessments of depression, hostility, stress, sleep, physical activity, diet, substance use, relationship quality, social support, and loneliness. We also performed a physical exam and obtained a samples of blood to assess 10-year risk of CVD using the American College of Cardiology CVD risk estimator. Generalized linear mixed modeling was performed to test the predictors of 10-year risk of CVD. We observed a significant change over a 1-year period in 10-year risk of CVD [$t=-2.81$, $p=0.007$]. Psychosocial and behavioral predictors including depressive symptoms [$t=-2.48$, $p=0.02$], perceived stress [$t=-3.02$, $p=0.003$], hostility [$t=-3.47$, $p<0.001$], global sleep quality [$t=-2.14$, $p=0.03$], and diet [$t=3.47$, $p=0.007$] worsened over a one-year period but alcohol use [OR=1.98, $p=0.29$], tobacco use [OR=.90, $p=0.68$] or physical activity [$t=-0.22$, $p=0.82$] did not change significantly over the one-year period. Significant predictors of 10-year risk of CVD included depression [$t=4.37$, $p<0.001$] and perceived stress [$t=4.45$, $p<0.001$]. This prospective study identified the predictors of 10-year risk of CVD in caregivers of those diagnosed with cancer. The development of innovative interventions to reduce stress and depression, and potentially CVD, in caregivers of those diagnosed with cancer are warranted.

Abstract 191

ROLE OF FAMILISM IN NEUROENDOCRINE FUNCTIONING AMONG SPOUSAL CAREGIVERS OF PATIENTS WITH COLORECTAL CANCER

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Family members, spouses in particular, often become primary caregivers of the patient upon the cancer diagnosis in the family. Cancer diagnosis is also often unexpected. The extent to which stress from the newly acquired caregiver role and existing values about supporting family members affects the family caregivers' biological regulation has been poorly understood. This study investigated the effects of familism on salivary alpha amylase as an indicator of sympatho-adrenomedullary (SAM) regulation in response to a laboratory-induced stressor among caregivers of cancer patients. Spousal caregivers ($N=79$, 53.4 years old, 66.3% female, 23.9 years in the relationship) of newly diagnosed colorectal cancer patients (7 months post-diagnosis) participated in an experimental study where interpersonal and health-related stress was induced. Salivary alpha amylase (sAA) was assessed 7 times across the experimental phases, including before and during stress onset, as well as 12 and 40 minutes after stress offset. Participants also completed questionnaires from which self-reported familism domains (family obligation, family support, and family as referents), age, and ethnicity were assessed.

Participants reported moderate-to-high levels of various kinds of familism. Participants displayed significant increases in sAA upon stress onset and decreases in sAA at resting ($F = 9.096$, $p = .004$), supporting successful stress induction. General linear modeling for repeated measures revealed that after controlling for age and Hispanic ethnicity effects, greater family obligation was associated with significant increases in sAA upon stress onset ($F = 4.068$, $p = .048$). Other familism sub-domains were not significantly associated with sAA changes in response to the induced stress.

Findings suggest that spouses with a greater sense of obligation to provide care to their ill partner are biologically vulnerable to the adverse effects of stress from cancer in the family. Investigation of sociocultural mechanisms linking family obligation to poor neuroendocrine functioning and to long-term health consequences is warranted. Findings suggest clinicians to consider the stress of familial obligation and other cultural values in addition to general caregiving stress when providing support to caregivers of cancer patients.

6: How neighborhoods may affect health **Thursday March 9, 10:45-11:45am**

Abstract 173

LONGITUDINAL ASSOCIATIONS BETWEEN HISTORICAL REDLINING AND BLOOD PRESSURE: THE MULTI-ETHNIC STUDY OF ATHEROSCLEROSIS

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Background: Historical redlining, a discriminatory policy that prevented Black families from living in the desirable neighborhoods occupied by White families, may contribute to racial inequities in cardiovascular health. Longitudinal studies are needed to build upon the mostly cross-sectional evidence on the enduring influence of housing-related discrimination on cardiovascular outcomes.

Methods: Using data from the Multi-Ethnic Study of Atherosclerosis cohort, this study examined associations

between redlining, measured using 1930s Home-Owner Loan Corporation grades ranging from "A: Best" through "D: Hazardous", and repeated measures of blood pressure (BP) over two decades of follow-up. We used three-level mixed effects models, stratified by race/ethnicity, to assess associations between redlining and average BP across six Exams, as well as 18-year change in BP using a cross-product term with Exam time. Models adjusted for time-varying sociodemographic, health behaviors, and neighborhood factors, and used a random intercept to account for clustering by participant and neighborhood.

Results: The sample included 4,922 adults with a mean baseline age of 62; the racial/ethnic composition was 36% White, 27% Black, 13% Chinese, and 24% Hispanic. Net of sociodemographic factors, Black participants in neighborhoods previously graded "D" had 6.2 mmHg higher average systolic BP (95% CI: 0.1, 12.3) and 3.2 mmHg higher diastolic BP (95% CI: 0.4, 6.1), compared to those in tracts graded "A". These associations persisted after adjusting for health behaviors, but were attenuated after adjusting for neighborhood SES. There was no association between redlining and average BP in other racial/ethnic groups. Results from models assessing change in BP were not significant for Black and Hispanic groups. However, among Chinese participants, living in a previously redlined neighborhood was associated with lower systolic BP ($\beta = -6.9$ mmHg; 95% CI: -12.3, -1.4) at baseline but this gap decreased over the follow-up (e.g. $\beta = 0.23$ mmHg; 95% C.I. -5.3, 5.7 at 10th year).

Conclusion: Findings demonstrate the harmful influence of historical discriminatory policies on BP outcomes among Black adults in the U.S. Future studies should jointly investigate contemporary and historical indicators of structural racism to inform interventions to address racial inequities in cardiovascular health.

Abstract 118

RACIAL RESIDENTIAL SEGREGATION, NEIGHBORHOOD ENVIRONMENT AND ALL-CAUSE MORTALITY AMONG OLDER CHINESE IMMIGRANTS IN THE UNITED STATES

Yanping Jiang, PhD, Rutgers University, Fengyan Tang, PhD, University of Pittsburgh, Bei Wu, PhD, New York University, Tammy Chung, PhD, Rutgers University

Background: Racial residential segregation is a form of institutional racism that profoundly affects mental and physical health of US ethnic minorities. Little is known about the impact of racial residential segregation and other neighborhood characteristics on health among Asian immigrants, despite the concerning increase in anti-Asian racism. The aim of this study is to close this gap by examining the hypothesis that greater residential racial segregation would be associated with higher all-cause mortality among older Chinese immigrants and that this association would be mediated by neighborhood cohesion and disorder.

Methods: Data were drawn from 3,157 older Chinese immigrants (59-105 years, 58% female) living in Greater Chicago. Racial residential segregation was operationalized as the ratio of differences between the number of English speakers and Chinese-only speakers to the total population using 2010-2014 American Community Survey data at the Census tract level. Participants completed surveys on neighborhood cohesion (i.e., social interaction and cohesiveness) and neighborhood disorder (i.e., social and physical disorder) at baseline between 2011-2013. All-cause mortality was tracked until December 2021 (20.3% deceased). A comprehensive set of key covariates, including individual socioeconomic status, were included in the survival and mediation analyses.

Results: Elevated level of racial residential segregation was associated with increased all-cause mortality risk; this association, however, was no longer statistically significant after controlling for covariates. Low neighborhood cohesion, but not elevated neighborhood disorder, was significantly associated with elevated mortality risk, above and beyond the inclusion of covariates. Further, there were no indirect effects of racial residential segregation on all-cause mortality through neighborhood cohesion or neighborhood disorder.

Conclusion: Low neighborhood cohesion was associated with an elevated risk of all-cause mortality among older Chinese immigrants. This finding highlights the importance of neighborhood social environment, specifically perceptions of neighborhood cohesion, in shaping health outcomes among older immigrants.

Abstract 250

CHILDHOOD SOCIOECONOMIC DISADVANTAGE, NEIGHBORHOOD BELONGING, AND INFLAMMATION AMONG ADOLESCENTS

Michelle A. Chen, Ph.D., Northwestern University, Edith Chen, Ph.D., Northwestern University, Veronica Passarelli, B.S., Northwestern University, Jungwon Kim, B.A., Northwestern University, Hee Moon, B.A., Northwestern University, Gregory E. Miller, Ph.D., Northwestern University

Childhood socioeconomic disadvantage is associated with a host of adverse health outcomes across the lifespan. Challenges related to socioeconomic disadvantage include neighborhood stressors such as lack of access to resources, greater exposure to violence, and poor housing. Given that neighborhoods often consist of individuals experiencing similar socioeconomic challenges, neighborhood belonging (i.e., the extent to which individuals feel a sense of belonging to their neighborhood) may serve as a protective factor among individuals facing socioeconomic disadvantage, as it may help provide community support and collective resources to individuals living in these environments. In a sample of 245 adolescents (age: $M = 16.0$ years, $SD = 0.54$; sex: 64.1% female; race: 41.6% White, 37.6% Black/African American, 9.8% Other; ethnicity: 68.6% non-Hispanic), we examined the relationship between socioeconomic disadvantage (measured on a 0-5-point scale, $M = 1.22$; $SD = 1.36$) and inflammation, a key mechanistic pathway to multiple chronic diseases. Furthermore, we examined neighborhood belonging as a moderator of this relationship. Covariates included age, sex, race/ethnicity, and pubertal status in both analyses. Using a composite index of serum cytokines (i.e., IL-6, IL-8, IL-10, TNF- α , CRP, and suPAR), higher socioeconomic disadvantage was found to be associated with increased inflammation. Additionally, neighborhood belonging moderated this relationship, such that there was a positive relationship between socioeconomic disadvantage and inflammation among individuals with low neighborhood belonging, but not among individuals with high neighborhood belonging. These findings suggest that neighborhood belonging may be one factor that can mitigate the relationship between socioeconomic disadvantage and inflammation.

Abstract 209

NEIGHBORHOOD SOCIAL CAPITAL AND PSYCHOSOCIAL STRESS REACTIVITY: EVIDENCE FROM THE RICHMOND STRESS AND SUGAR STUDY

Kelly Pequet, MBA/MPH, Center for Social Epidemiology and Population Health, University of Michigan School of Public Health, Viktoryia Kalesnikava, MSW/MPH, PhD, Center for Social Epidemiology and Population Health, University of

Objective: Social capital is a neighborhood resource hypothesized to contribute to place-based variation in health, potentially through buffering the negative impacts of low socioeconomic status (SES) and other indicators of structural disadvantage. However, evidence regarding the relationships between social capital and physiological aspects of stress is limited. This study explored the relationship between perceived social capital and acute stress reactivity, and how this relationship may vary by SES.

Methods: Data come from the Richmond Stress and Sugar Study, a racially and socioeconomically diverse cohort of adults at risk of type 2 diabetes ($n=125$). Acute HPA-axis stress reactivity was assessed via the salivary cortisol response during the Trier Social Stress Test (TSST). Neighborhood social capital was indexed as a summary measure of 4 features (e.g., neighbors are willing to help each other). The relationship between social capital and acute stress reactivity (response and recovery from the TSST) was examined using mixed-effects linear regression models. Models were adjusted for age, sex, marital status, race, education, employment status and, initially, neighborhood SES. Finally, stratified analyses were used to evaluate whether the relationship between social capital and stress reactivity varies by neighborhood SES.

Results: Neighborhood social capital was significantly associated with both the response to (Beta = -0.07, SE = 0.03) and recovery from the TSST (Beta = 0.03, SE = 0.01) in unadjusted and adjusted models. When stratified by neighborhood SES, social capital was significantly related to response to the TSST for residents of low-SES neighborhoods only (Beta = -0.08, SE = 0.03), and the association between social capital and recovery was not significant for residents of either low- or high-SES neighborhoods.

Discussion: Neighborhood social capital is inversely associated with acute stress reactivity. Neighborhood SES moderates this relationship, and suggests that social capital may be more beneficial for socioeconomically disadvantaged groups.

7: Positive psychological constructs & health

Thursday March 9, 10:45-11:45am

Abstract 326

DOES MORE OF THE GOOD LIFE LEAD TO A LONGER LIFE? POSITIVE EXPERIENCES, ALLOSTATIC LOAD, AND RISK OF MORTALITY

Tara Gruenewald, PhD, Chapman University, Naomi Podber, PhD, Chapman University

Greater frequency of experiences, such as those linked to positive emotion, relaxation, and leisure, are believed to promote better health, but evidence of such links remains limited. Recent research indicates that greater frequency of positive experiences is linked to lower levels of allostatic load, a multi-system index of physiological wear and tear. In the present analysis, we examine whether greater frequency of 49 different positive experiences predicts subsequent lower risk of mortality over a 16-year follow-up period, whether such a hypothesized link might be mediated by levels of allostatic load, and whether positive experience frequency might moderate a hypothesized association of greater allostatic load and greater risk of mortality. These hypothesized associations were examined in 1,255 participants of the Study of Midlife in the U.S. Biomarker Substudy (2004-2009) for whom incidence

of mortality were available through 2020 (11-16 years later). 217 individuals (17.3%) of the Biomarker Study sample died over the follow-up period. In models including age, race, gender, socioeconomic status, and health condition burden covariates, greater frequency of positive experiences (POSEXP; average of 49 frequency of experience ratings: 0=did not experience, 1=experienced 1-6 times, 2=experienced 7+ times over past month) predicted a lower odds of mortality (OR = 0.48, 95% CI = 0.24, 0.96). Greater level of allostatic load (AL) predicted a greater odds of mortality (OR = 1.48, 95% CI = 1.25, 1.75). Although greater frequency of POSEXP was linked to lower levels of AL, this multi-system index of physiological dysregulation was not a significant mediator of the lower odds of mortality in those with greater frequency of POSEXP. There was a marginally significant ($p=.09$) interaction of POSEXP and AL in predicting mortality risk, such that the odds of mortality as a function of higher AL were weaker in those with greater frequency of POSEXP (at +1SD POSEXP AL OR = 1.28, at mean POSEXP AL OR = 1.48, at -1SD POSEXP AL OR = 1.71). These findings provide support for the hypothesis that greater experience of the good life predicts subsequent health outcomes as indicated by the incidence of mortality. Greater frequency of positive experiences may also serve to weaken the health risks associated with greater level of multi-system physiological dysregulation.

Abstract 262

ADVANCING THE STUDY OF INTERSECTIONALITY AND FLOURISHING THROUGH NATURAL LANGUAGE USE

Dakota W. Cintron, PhD, Cornell University, Anthony D. Ong, PhD, Cornell University

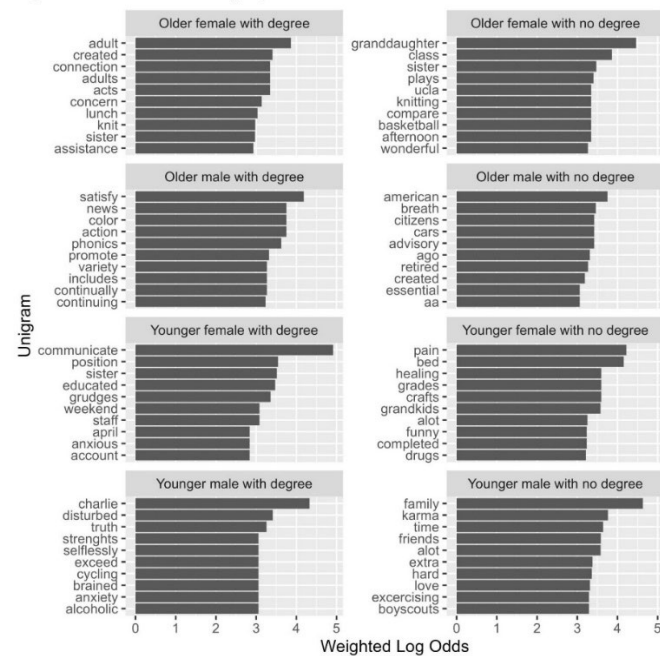
Intersectionality theory is a framework for considering how individuals' multiple social identities intersect. Intersecting identities (e.g., race and gender) are social because they reflect how systems of oppression and privilege determine our well-being (e.g., racism and sexism). Given that these identities are not experienced in isolation, intersectionality suggests we should analyze them simultaneously. Research on flourishing has limited evidence of considering intersectionality when measuring flourishing. We have not considered the meaning or attempted to quantify flourishing through an intersectional lens. Furthermore, little is known about using natural language data to measure flourishing. Yet, asking individuals whether they are doing well or not may perhaps be the simplest and best way to assess whether an individual is flourishing.

Using the open-ended question from the MIDUS study, "What do you do to make life go well?" from $N = 1019$ individuals, we evaluate intersectional differences in verbatim responses to this question to work towards an understanding of intersectional flourishing. We consider differences in qualitative responses by eight intersectionally defined subgroups that result from crossing age, gender, and education (e.g., older females with a degree vs. younger females with a bachelor's degree). To evaluate these differences in qualitative data through an intersectional lens, we analyze responses by intersectional subgroup using natural language processing techniques: N -gram counts and topic modeling.

The basic unigram and bigram count of language used by the eight intersectional subgroups are in Figures 1 and 2. The results of a five-topic topic model are in Figure 3. The distribution of topics by intersectional subgroups is in Figure 4. We labeled the five topics in Figure 3 as *Spending Time on Oneself and Others* (Topic 1), *Positive Attitude* (Topic 2), *Family and Friends* (Topic 3), *Religion* (Topic 4), and *Children and Grandchildren* (Topic 5). The distribution of topics (i.e.,

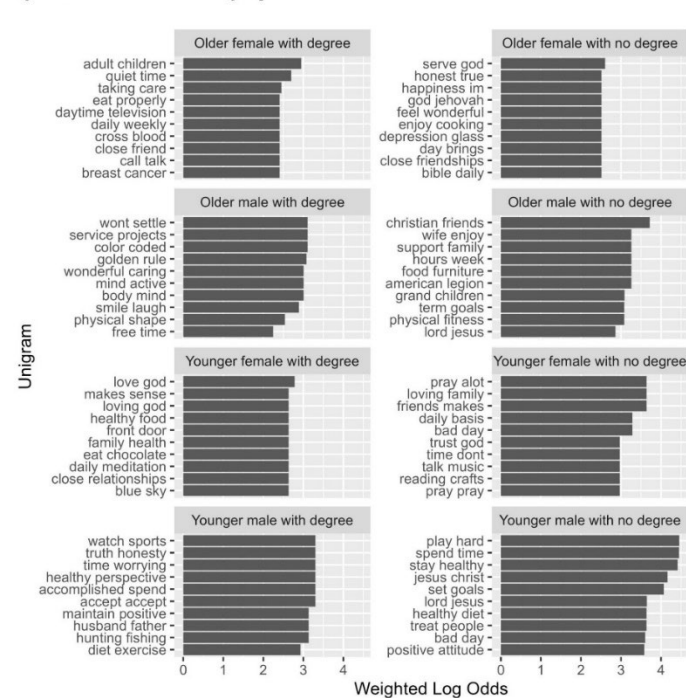
language use) was different across intersectional subgroups. For instance, older males with no college degree were primarily characterized by language use on *Positive Attitude* and *Religion*. The results of this study demonstrate how we can start to develop a notion of intersectional flourishing through natural language use.

Figure 1
Unigrams across intersectional subgroups



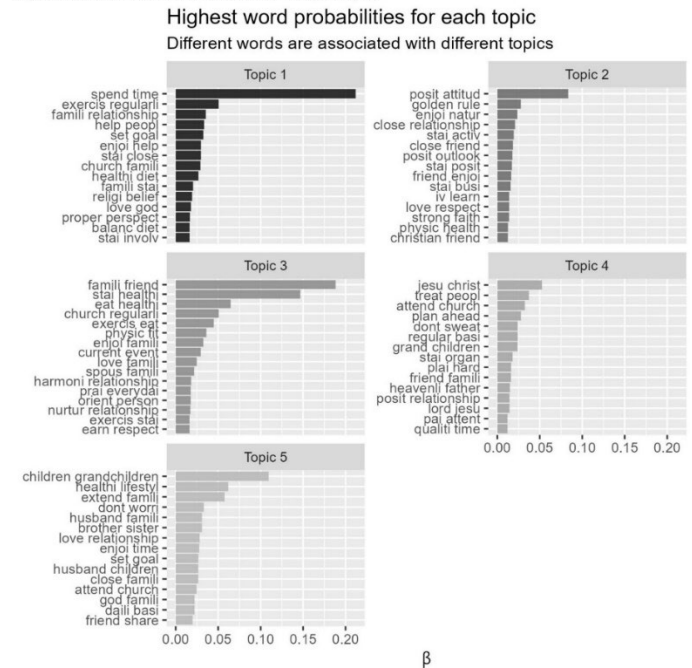
Note. Higher weighted log odds scores indicate how distinctive words are to a particular intersectional subgroup. Younger individuals are less than 45 years of age, whereas older people are greater than or equal to 45. Degree vs. no degree refers to individuals holding a bachelor's degree or greater or not.

Figure 2
Bigrams across intersectional subgroups



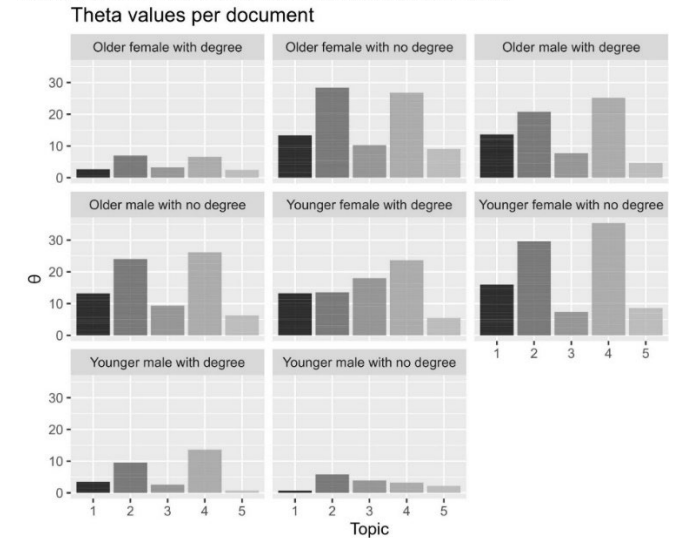
Note. Higher weighted log odds scores indicate how distinctive words are to a particular intersectional subgroup. Younger individuals are less than 45 years of age, whereas older people are greater than or equal to 45. Degree vs. no degree refers to individuals holding a bachelor's degree or greater or not.

Figure 3
Bigram latent Dirichlet allocation results with five topics



Note. Beta ("β") refers to the probability of a bigram belonging to a particular topic. We label the five topics as Topic 1: Spending Time on Oneself and Others, Topic 2: Positive Attitude, Topic 3: Family and Friends, Topic 4: Religion, and Topic 5: Children and Grandchildren.

Figure 4
Bigram latent Dirichlet allocation topic distribution by intersectional subgroup



Note. Younger individuals are less than 45 years of age, whereas older people are greater than or equal to 45. Degree vs. no degree refers to individuals holding a bachelor's degree or greater or not.

Abstract 254

POSITIVE AFFECT AND SURVIVAL OVER 6 YEARS IN A NATIONWIDE SAMPLE

Gail Ironson, MD, University of Miami, Neal Krause, PhD, University of Michigan School of Public Health

Positive affect is a central construct in the field of positive psychology. The purpose of this study was to examine whether positive affect as measured by a very brief questionnaire in 2014 would predict survival during a particularly stressful time period (the first year of COVID - 2020, which was also during the Trump-Biden presidential election cycle), and to determine biological and health behavior correlates of positive affect. Method: The Landmark survey was a nationwide representative survey of 3,010 adults (age 18 and up) conducted in-person by interview by NORC in 2014. The sample was 66% non-Hispanic White, 14% Black, 16%

Hispanic, and 4% other. A six-year follow-up of mortality data (measured by the CDC's National Death Index) in 2020 revealed 225 deaths.

Positive affect was measured by 5 items from the PANAS (Watson et al., 1988) asking the extent to which one felt various emotions over the past month (e.g., inspired). $\alpha = .78$. Cox regression was used to predict survival over 6 years controlling for age, sex, race, and education. Correlates of positive affect explored include a risk factor for cardiovascular disease (CRP) and health behaviors (exercise, smoking, alcohol use, and weight/BMI).

Results: PANAS predicted greater survival over 6 years controlling for age, sex, race, and education. (Beta = .687, Wald = 22.29, $p = .000$). HR = 1.99, (95% CI = 1.50-2.64). Lower positive affect was significantly related with clinically elevated CRP (Odds Ratio = 1.40, $p < .05$). Higher positive affect correlated significantly with greater time spent doing moderate exercise ($r = .277$, $p < .000$), but minimally (although significant due to the very large sample size) with less smoking ($r = -.048$) and lower weight ($r = -.052$).

Conclusion: A very brief 5-item questionnaire was able to predict greater survival over a 6-year period during a stressful time period. This suggests the importance of experiencing positive emotions for one's health. Further exploration of correlates may help to explain this relationship.

Abstract 166

THE INFLUENCE OF GRATITUDE ON TRAJECTORIES OF POSTTRAUMATIC STRESS SYMPTOMS AND POSITIVE MENTAL HEALTH IN HEALTHCARE WORKERS DURING THE COVID-19 PANDEMIC

Mary Smirnova, BA, University of Nevada, Reno, Anna Cole, M.A., University of Nevada, Reno, Cynthia Lancaster, PhD, University of Nevada, Reno

Healthcare workers are at increased risk for developing posttraumatic stress symptoms (PTSS) during the pandemic. Furthermore, the pandemic has been shown to reduce positive mental health and satisfaction with life in adults. It is important to explore factors that not only decrease poor mental health, but enhance positive well-being. Although gratitude is associated with stress-resilience and positive well-being, this has not been examined in longitudinal studies or among healthcare workers. The objective of this study was to test whether gratitude (Gratitude Questionnaire-6) was related to trajectories of pandemic-related PTSS (Impact of Events Scale – anchored to the pandemic) and positive mental health (Positive Mental Health Scale). We recruited U.S. healthcare workers who were assessed longitudinally during the early phase of the pandemic in April/May 2020 ($N = 181$), one month later ($N = 135$), and six months later ($N = 111$). We carried out a latent growth mixture model to identify trajectories of PTSS and positive mental health. Successive classes were added while assessing fit indices and identified a three-class solution for PTSS: resilient (low PTSS that stayed low), recovery (initially moderate PTSS that decreased over time), and chronic PTSS (high PTSS that stayed high). For positive mental health, we identified a three-class solution: stable high positive mental health, stable moderate positive mental health, and stable low positive mental health. We included demographics and job-related covariates in the model (i.e., age, gender, ethnoracial group, and direct provision of healthcare services to patients) to test whether gratitude was an important predictor of mental health trajectory over and above these factors. For pandemic-related PTSS, higher gratitude was associated with being in the resilient (low stable) vs chronic (high stable) trajectory class (OR = .59, $p < .01$). For positive mental health, higher gratitude was associated with

being in the high-stable vs moderate-stable (OR = .74, $p < .001$) or low-stable trajectory classes (OR = .54, $p < .001$). In sum, gratitude was associated with resilience against PTSS and enhanced positive well-being among healthcare workers. Increasing gratitude may be a promising pathway for improving the resilience of healthcare workers working in high-stress settings, such as early phases of the pandemic.

8: Cancer

Thursday March 9, 1:45-2:45pm

Abstract 215

HOPEFULNESS AND HOPELESSNESS ARE ASSOCIATED WITH DIFFERENT INFLAMMATORY PROFILES IN OVARIAN CANCER PATIENTS

Susan Lutgendorf, Ph.D., University of Iowa, Brendan Whitney, MA, University of Iowa, Rachel Telles, MA, University of Iowa, Premal Thaker, MD, Washington University School of Medicine, George Slavich, Ph.D., UCLA, Alyssa Noble, BA, University of Iowa, Frank Penedo, Ph.D., University of Miami, Steve Cole, Ph.D., UCLA, Anil Sood, MD, MD Anderson Cancer Center, Ben Corn, MD, Hebrew University

Hope is a concept that is highly relevant to patients with cancer, yet little is known about its relationship to cancer-relevant biomarkers. Recent findings have shown that hopefulness and hopelessness are best conceptualized as two distinct but correlated constructs and that the presence of hope is different from the absence of hopelessness. Thus, we hypothesized that we would see a different biological signature of hope vs. hopelessness. To investigate, we examined how hope and hopelessness were related to inflammatory biomarkers previously associated with survival in ovarian cancer. 334 patients with high grade ovarian cancer were recruited at their initial clinical visit. They completed surveys and provided saliva 4X/daily for 3 days pre-surgery or pre-neoadjuvant (NA) therapy to assess cortisol. Blood was sampled pre-surgery or pre-NA therapy, and ascites was collected during surgery for analysis of interleukin-6 (IL-6). We abstracted a hopefulness item from the Center for Epidemiological Studies Depression Scale (CESD), a "hopeless" item from the Profile of Mood States (POMS) and another ("losing hope in the fight against my illness") from the Functional Assessment of Cancer Therapies (FACT). The two hopeless items were z-scored and combined into a composite for analysis. Regression models related these variables to night cortisol, cortisol slope, plasma IL-6, and ascites IL-6, adjusting for age, stage, and depressive mood. The CESD hopeful item was significantly related to lower night cortisol, $\beta = -.236$, $p = 0.014$, steeper cortisol slope, $\beta = -.036$, $p = 0.014$, and lower ascites IL-6, $\beta = -.179$, $p = 0.002$, but not to plasma IL-6, $\beta = -.037$, $p = .548$. The hopeless composite was not associated with any biological variable (all p 's > 0.15). Taken together, these data suggest potentially meaningful distinctions between the biological signatures of hopefulness and hopelessness, with hopefulness being uniquely associated with less inflammation and greater inflammatory control. Limitations include assessment of these constructs with single items. These findings have potential clinical utility but need to be replicated with more diverse samples and with validated assessments of hope.

Abstract 280

VIDEO-CONFERENCED STRESS MANAGEMENT AND RELAXATION TRAINING (VSMART) MITIGATES INCREASES IN CELLULAR IMMUNOSENESCENCE IN

DISTRESSED OLDER WOMEN UNDERGOING BREAST CANCER TREATMENT

Michael Antoni, PhD, Dept of Psychology / Univ of Miami, Molly Ream, M.S., University of Miami, Emily Walsh, M.S., University of Miami, Paula Popok, B.S., University of Miami, Estefany Saez-Clarke, Ph.D., University of Miami, Dolores Perdomo, Ph.D., University of Miami School of Medicine, Alain Diaz, Ph.D., University of Miami School of Medicine, Daniella Frasca, Ph.D., University of Miami School of Medicine, Bonnie Blomberg, Ph.D., University of Miami School of Medicine

Background. Distressed breast cancer (BC) patients reveal elevated inflammation during primary treatment, which may promote immune senescence, hastening declines in health, collectively referred to as Cancer Accelerated Aging (CAA). We showed that B lymphocytes from older persons are inflammatory and hyper-metabolic and can also “train” other immune cells to create an inflammatory cascade, which may underlie CAA. Elevated stress can promote inflammatory signaling and cognitive behavioral stress management (CBSM) intervention (relaxation and cognitive behavioral therapy) can reduce these effects in BC patients. A remotely-delivered CBSM (R-CBSM) showed high acceptability, and preliminary efficacy for improving psychological and immune regulation in older BC patients. We hypothesize that R-CBSM may mitigate increased immune senescence reflected in B-cell hyper-metabolism during primary BC treatment.

Methods. Distressed post-surgical BC patients ≥ 50 (M = 61.6 yrs) were randomized to R-CBSM or wait-list control (WLC) before adjuvant therapy. R-CBSM delivered 10 weekly 90-min group telehealth CBSM sessions and access to a website for educational videos and resources. Women provided blood samples and questionnaires at baseline and 6 months. In 30 cases (15 R-CBSM, 15 WLC) we separated B-cells and determined cellular metabolism and mitochondrial function (ATP production, Spare Respiratory Capacity [SR] and Maximal Respiration [MR]) in an Extra cellular Flux Analyzer that measures real-time oxygen consumption rates and aerobic/anaerobic glycolysis.

Results. Women had a mean body mass index (BMI) of 28.3, were mostly White non-Hispanic, and Hispanic, with no baseline differences in age, race/ethnicity, income, BMI, education, physical activity, or disease stage in R-CBSM vs WLC. Repeated measures ANOVA revealed condition x time effects for SR ($F=4.90$, $p<.05$) and MR ($F=4.18$, $p=.05$) with those in R-CBSM showing decreased cell metabolism vs those in WLC showing increases. While those in WLC showed rises in ATP those in R-CBSM showed no changes, though the difference was not significant.

Conclusions. Remotely-delivered group-based CBSM mitigates increases in immune senescence markers in older women undergoing BC treatment which may indicate an effect on cancer accelerated aging. We will next examine how these changes relate to longer-term health outcomes.

Abstract 283

FEASIBILITY OF SYSTEMATICALLY SCREENING FOR MEDICATION NONADHERENCE AT AN OUTPATIENT BREAST CANCER CLINIC

Nadia Liyanage-Don, MD, MS, Columbia University Irving Medical Center, David DeStephano, MPH, Columbia University Irving Medical Center, Beatriz Desanti de Oliveira, MD, Columbia University Irving Medical Center, Seokyu Shin, BA, Columbia University Irving Medical Center, Melissa Beauchemin, PhD, Columbia University Irving Medical Center, Jason Wright, MD, Columbia University Irving Medical Center, Ian Kronish, MD, MPH, Columbia University Irving Medical Center, Dawn Hershman, MD, Columbia University Irving

Medical Center, Melissa Accordini, MD, Columbia University Irving Medical Center

Background: Medication adherence is a key preventive health behavior, yet 50% of patients do not take their medications as prescribed. While guidelines recommend screening for medication nonadherence as part of clinical care, this has not been widely adopted. We assessed the feasibility of systematically screening for medication nonadherence at our local breast cancer clinic. **Methods:** All patients with appointments at the breast cancer clinic of a large academic medical center in NYC were asked to complete a medication nonadherence survey as part of online check-in. During implementation cycle 1 (2/16/22-5/17/22), patients were asked if they were prescribed ≥ 1 medication. If yes, they were asked: *In the past 7 days, how often did you a) Miss a dose of your medication? b) Skip a dose of your medication? c) Not take your medication as prescribed?* Patients who responded *none of the time* to all three items were classified as adherent. During implementation cycle 2 (5/18/22-10/25/22), only the third item was asked and adherence was defined as a response of *none of the time*. **Results:** During the full observation period, there were 2979 unique patients, of whom 1551 (52%) accessed the survey, 1245 (42%) were prescribed ≥ 1 medication, and 1018 (34%) responded to the adherence questions. Respondents were 59.7 ± 13.5 years old, 99% female, 50.2% white, 11.7% Black, 21.4% Hispanic, and 26.9% non-English-speaking. Compared to non-respondents, respondents were more likely to be older, white, and non-Hispanic. Self-reported nonadherence was 12.6% during cycle 1, 25.8% during cycle 2, and 22.7% overall. Multiple logistic regression showed that Black race (OR 0.51, 95% CI 0.33-0.80, $p<0.01$), Hispanic ethnicity (OR 0.60, 95% CI 0.37-0.97, $p=0.03$), and age 50-59 years (OR 0.62, 95% CI 0.39-0.96, $p=0.03$, ref 70+ years) were associated with lower odds of adherence. A subgroup analysis of cycle 1 respondents found no difference in adherence based on all three items vs. only the third item. **Conclusions:** This online questionnaire is a simple and scalable tool to rapidly screen for medication nonadherence in outpatient settings. Up to 25% of screened patients reported medication nonadherence and were more likely to be Black, Hispanic, and middle-aged. Future work is needed to optimize nonadherence screening and to develop strategies for addressing nonadherence when it is identified.

Abstract 208

CONTEXTUAL STRESSORS AND 6-YEAR MORTALITY IN WOMEN WITH BREAST CANCER

Maria M Llabre, PhD, University of Miami, Zachary Goodman, MS, University of Miami, Zinzi Bailey, PhD, University of Miami, Till Krenz, PhD, University of Miami, Alexandra Hernandez, MD, University of Miami, Maya Lubarsky, MS, University of Miami, Michael Antoni, PhD, University of Miami, Neha Goel, MD, University of Miami

Evidence of associations between contextual stressors and mortality is demonstrating potential sources of racial/ethnic health disparities. Krieger et al. (2018) reported that economic or racial polarization in neighborhoods is associated with a range of mortality outcomes and Goel et al. (2022) reported the association in women with breast cancer. Metrics that go beyond economic indicators are needed to identify the types of stressors most relevant to specific racial/ethnic groups. Data came from 5,748 female breast cancer patients ($M_{age}=56$ years) from 1,067 census tracts who received treatment at a Miami-Dade facility and tracked over 6 years. Participants self-identified as Hispanic (55%), non-Hispanic White (27%), or non-Hispanic Black (18%). Mean time to mortality was 43

months. Using census tract metrics, factor analyses resulted in a four-factor solution. Factor scores for economic disparity, mammogram inaccessibility, superfund site proximity, and consequences of redlining were computed. A proportional hazard regression model included factor scores and unemployment, controlling for person-level covariates of age, insurance status, tumor characteristics, and medical comorbidities. Three of the four factors were associated with increased risk of mortality, mammogram inaccessibility (HR=1.49), superfund site proximity (HR=1.43), and economic disadvantage (HR=1.33). Interactions between each factor and ethnicity were tested with White as the reference group. Results showed the association of economic disadvantage differed for Hispanics ($p<.001$), while consequences of redlining differed for Blacks ($p=.026$). Economic disadvantage was associated with greater risk of mortality, with associations strongest for Whites (HR=1.81) and weakest for Hispanics (HR=1.16). Superfund site proximity was associated with greater risk for Hispanics (HR=1.66) and consequences of redlining was associated with increased risk for Blacks (HR=2.32). Unemployment was predictive of lower mortality risk for Whites (HR=0.79). Results showed that contextual stressors beyond economic disadvantage may lead to increased risk of mortality in women with breast cancer. Specific contextual stressors affect women from race/ethnic subgroups differentially. Interventions designed to mitigate mortality associated with breast cancer in women must address these contextual stressors.

9: Adverse childhood experience & future disease mechanisms and outcomes
Thursday March 9, 1:45-2:45pm

Abstract 438

PHYSICAL ABUSE AND NEGLECT IS ASSOCIATED WITH GREATER BODY MASS INDEX: A LATENT PROFILE ANALYSIS

Francisco Marquez, ScM, The University of Alabama, Mengya Xia, PhD, The University of Alabama, Matthew Cribbet, PhD, The University of Alabama

Early life adversity (ELA) is associated with poor health in adulthood. Research also shows that the deleterious effects of ELA may depend on the type and severity of adversity experienced. However, current analytic approaches examining health outcomes as a function of pre-determined characteristics may not be best suited to capture different types and severity of ELA simultaneously. Recent advances in *person-centered* data analytic approaches - like *latent-profile analysis* - are better able to address such research questions, because they can uncover underlying profiles of adversity from a data-driven, holistic approach without pre-determined characteristics. This can shed light on their potentially distinct associations with health outcomes. To this end, we identified latent profiles of ELA in the Midlife in The United States Study (MIDUS; N=1251; $M_{age}=54$; Female=55%), a large nationally representative dataset. Then, using the Bolk, Croon, and Hagenaars method (BCH), we assessed differences in body mass index (BMI) based on these profiles. We predicted that at least two profiles of ELA would be salient and that profiles with more severe ELA would show greater BMI. To test these hypotheses, we used subscales of abuse and neglect from the Childhood Trauma Questionnaire to fit a 1-profile model and sequentially added profiles until an optimal model was identified using goodness of fit indices (i.e., Bayes Information Criterion (BIC) and Akaike Information Criterion (AIC)). We found an optimal model fit at 3-profiles of ELA - *high emotional abuse and neglect* (n=100), *high physical abuse and*

neglect (n=142), and *low abuse and neglect* (n=1009). Measures of BMI were significantly associated with profile membership ($X^2_{overall}=17.23$, $p<0.01$), such that those with high physical abuse and neglect had higher BMI relative to those with low abuse and neglect ($X^2=16.63$, $p<0.01$) and those with high emotional abuse and neglect ($X^2=8.57$, $p<0.01$). Interestingly, we found that measures of BMI did not significantly differ between individuals with high emotional abuse and neglect and those with low abuse and neglect ($X^2=0.94$, $p=0.33$), suggesting that physical and emotional adversity may elicit differential impacts on physical health. Our findings underscore the importance of adversity-specific approaches to better understand the pervasive impact of ELA on health and well-being.

Abstract 329

ASSOCIATIONS AMONG CARDIAC VAGAL REGULATION, EXPOSURE TO ADVERSITY AND ADIPOSITY IN ADOLESCENTS EXPERIENCING POVERTY: VARIATION BY RACE AND SEX

Lori Francis, PhD, Penn State University, Lisa Gatzke-Kopp, PhD, Penn State University

Exposure to adversity in childhood has been linked to the development of biological dysregulation, including risk for obesity. Cardiac vagal regulation is a marker of psychophysiological regulation, and has also been associated with adiposity and obesity risk in youth. This study examined associations between adolescents' exposure to adversity, cardiac vagal regulation and adiposity. Participants included 300 adolescents from predominantly rural households experiencing poverty, and their mothers. Adolescents were seen in their home across 2 visits that varied based on adolescents' exposure to a psychosocial stress task (control vs. stress conditions). Cardiac vagal regulation (indexed by respiratory sinus arrhythmia, or RSA), was measured at rest and during 3 psychosocial challenges (star tracing, perfect circle and block design tasks). Waist circumference was measured and used to estimate central adiposity. Mothers reported on adolescents' exposure to adversity, including exposure to household and neighborhood violence, and living with an adult with a serious mental health or substance abuse problem. A series of regression models were used to examine associations between variables, and moderator analyses were conducted to examine variation by sex and race. Results revealed significant associations between lower levels of RSA during stress and adolescents' greater central adiposity. Lower levels of RSA post-stress were also associated with reports of increased exposure to adversity. In stratified models, associations between vagal dysregulation and central adiposity were only evident in girls and in Black adolescents. Increased exposure to adversity was associated with lower levels of RSA in both Black and white adolescents; however, blunted RSA recovery post-stress was associated with increased exposure to adversity in Black adolescents only. Results from this study provide some evidence for links between psychophysiological regulatory processes and adiposity, and suggest a potential role of exposure to adversity. Potential explanations for within-group variation by race and sex will be explored.

Abstract 99

ADVERSE CHILDHOOD EXPERIENCES AND ADULT DISEASE AS MEDIATED BY RISK FACTORS: RESULTS FROM THE HISPANIC COMMUNITY HEALTH STUDY/STUDY OF LATINOS SOCIOCULTURAL ANCILLARY STUDY

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Objectives: Adverse childhood experiences (ACEs) have been linked with adulthood chronic diseases. There is a paucity of studies examining the mechanisms underlying this ACEs-diseases association. We considered pathways from ACEs to adult disease mediated via risk factors of depression, smoking, and body mass index (BMI).

Methods: Longitudinal data from adults 18 to 74 years old from the Sociocultural Ancillary Study (SCAS) and Hispanic Community Health Study/Study of Latinos (HCHS/SOL) were used. Retrospectively reported, ACEs that occurred during childhood and hypothesized mediators were measured at Visit 1 (2008-2011). Outcomes of disease prevalence were assessed at Visit 2, approximately 6 years later. The analytic sample was 5,230 Hispanic/Latino participants with ACE data. Statistical mediation was conducted using structural equation modeling on outcomes of disease prevalence and reported probit regression coefficients with 95% CIs. Additional analyses were run on disease incidence outcomes at Visit 2. All models used sampling weights, clustering, and stratification and adjusted for sociodemographic covariates.

Results: There was a significant association between ACEs and prevalence of asthma/chronic obstructive pulmonary disorder (COPD) (standardized =0.07, 95%CI: 0.02, 0.12). In the mediational model, the direct association was non-significant (=0.02, 95%CI: -0.04,0.07) and was fully mediated by depression (=0.03, 95%CI: 0.02, 0.04), smoking (=0.02, 95%CI: 0.00, 0.04), and BMI (=0.01, 95%CI: 0.00, 0.01). There were no associations between ACEs and prevalence of diabetes, coronary heart disease (CHD), or cerebrovascular disease. However, small indirect effects were identified via BMI and diabetes (=0.02, 95 %CI: 0.00,0.03) and CHD (=0.00, 95%CI: 0.00, 0.01); and via depression and CHD (=0.02, 95 %CI: 0.01, 0.03) and cerebrovascular disease (=0.02, 95%CI: 0.00, 0.03). For outcomes of disease incidence, there was an indirect effect via BMI diabetes (=0.01, 95 %CI: 0.00, 0.02).

Conclusions: In this diverse Hispanic/Latino sample, depression, smoking, and BMI were found to be pathways linking ACEs to adulthood diseases, although all effects were of small magnitude. Future work could replicate pathways, confirm the magnitude of effects, and examine cultural moderators that may dampen expected associations.

Abstract 362

SEX DIFFERENCES IN THE ASSOCIATION BETWEEN CHILDHOOD TRAUMA AND ADULT INFLAMMATION IN DAILY LIFE

Brianna Natale, MS, University of Pittsburgh, Rachel Koffer, PhD, Arizona State University, Samantha Fairlie, BS, NIH, Anna Marsland, PhD, University of Pittsburgh, Thomas Kamarck, PhD, University of Pittsburgh

Childhood trauma may contribute to lifelong health through chronic systemic inflammation. However, not all studies show an association of childhood trauma with markers of inflammation across trauma types. Moreover, most studies to date are limited by a single assessment of inflammatory markers that may not reliably estimate stable inter-individual differences. Here, we report findings from one of the first

studies to examine relationships between childhood trauma and a more ecologically valid measure of inflammation derived from repeated assessments of interleukin (IL)-6 levels in daily life. We also examine the possibility that cortisol levels and glucocorticoid sensitivity may contribute to observed associations. Finally, based on prior findings, we explore the possibility that biological sex may moderate relations between childhood trauma and IL-6 (Fig 1).

Participants were 284 healthy adults aged 40-64 (57% female) in the Study of Health and Interactions in the Natural Environment (SHINE). Childhood trauma (i.e., emotional, physical, and sexual abuse; emotional, physical neglect; total trauma) was reported on the Childhood Trauma Questionnaire (CTQ). IL-6 was assayed from dried blood spots that were self-collected once daily across 4 days; results were averaged across days. Diurnal salivary cortisol and glucocorticoid sensitivity were also assessed.

Childhood trauma was not significantly associated with IL-6. However, exploratory analyses showed interactions between childhood trauma and sex. The total CTQ score and the emotional neglect subscale predicted higher IL-6 for males (total CTQ: B(SE)=0.34(0.13), $p=0.01$; emotional neglect: B(SE)=0.43(0.11), $p<0.001$), but not females, even after adjusting for demographics and BMI. There was no evidence for mediation via cortisol levels or glucocorticoid sensitivity. Notably, the childhood trauma variables that were associated with IL-6 for men in the regression analyses (i.e., total CTQ score and emotional neglect) remained significant predictors of IL-6, independent of cortisol levels and glucocorticoid sensitivity, for men in the mediation models.

The current study's findings suggest that childhood trauma and, specifically, emotional neglect are associated with IL-6 in daily life among adult males. Additional research is needed to elucidate biological and behavioral pathways underlying these associations.

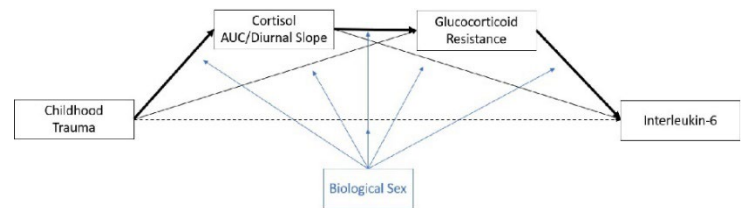


Figure 1. Conceptual model. Dashed line indicates the hypothesized direct effect of childhood trauma on IL-6, while solid lines indicate the hypothesized indirect effects via cortisol and glucocorticoid resistance.

10: Mechanisms of Rumination

Thursday March 9, 1:45-2:45pm

Abstract 322

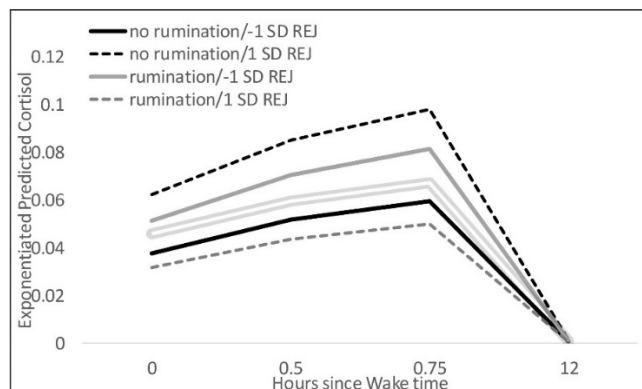
THE INTERACTIVE EFFECTS OF REJECTION AND RUMINATION ON DIURNAL CORTISOL AMONG ADOLESCENT GIRLS: A DAILY DIARY STUDY

Chrystal Vergara-Lopez, PhD, Brown University/The Miriam Hospital, Matthew Scalco, PhD, University of New Orleans, Allison E. Gaffey, PhD, Yale School of Medicine/VA Connecticut Healthcare System, Brie Reid, Ph.D, Brown University / The Miriam Hospital, Margaret H. Bublitz, PhD, Brown University / The Miriam Hospital, Andrea Gomez, B.S., Brown University / The Miriam Hospital, Nadia Mercado, MA, Brown University / The Miriam Hospital, Laura R. Stroud, PhD, Brown University / The Miriam Hospital

A paucity of research has tested the perseverative cognitive hypothesis which stipulates that rumination (repetitive, passive,

uncontrollable negative thinking) prolongs the experience of a stressor, thereby impacting the effect of stressors on stress physiology. A robust literature has shown that adolescents (especially girls) display a heightened biological sensitivity (e.g., maladaptive cortisol profiles) to experiences of social rejection. Thus, we proposed that in reaction to real-life experiences of rejection, adolescent girls who ruminate relative to girls who do not ruminate would show a blunted diurnal cortisol slope the next day (i.e., a “spill-over” effect). On an exploratory basis, we also examined the effect on waking cortisol levels and the cortisol awakening response. Participants were ($n = 43$) adolescent girls (mean age = 13.37, $SD = 2.41$, 40% from a minoritized ethnic/racial group) who varied on psychiatric risk and provided saliva samples 4 times a day, as well as daily diary reports of social rejection and rumination for 3 days. We utilized multilevel modeling to examine the interactive effects of rejection and rumination on metrics of diurnal cortisol. To test the hypothesized “spill-over” effects metrics of diurnal cortisol were lagged by one day. There was a significant interaction between social rejection and rumination. Specifically, we found that among girls who did not ruminate social rejection was associated with an elevated diurnal cortisol curve, but among girls who did ruminate social rejection was associated with a flatter diurnal curve. No significant effects were found for waking cortisol levels or the cortisol awakening response. As recently highlighted by LeMoult (2020), cognitive and biological sciences have largely been siloed research areas. The current investigation helps to bridge this gap in the literature and shows support for the perseverative cognitive hypothesis. That is, rumination (a cognitive factor) moderates the relationship between social rejection (a social-emotional factor) and diurnal cortisol (a biological factor) among adolescent girls.

Figure 1. Model Implied Diurnal Cortisol Curves for the Rejection by Rumination Interaction



Note: Plot of model implied cortisol curve for no rumination, rumination, high and low rejection, as well as the average curve for comparison. There was significant variability in each random component of the curve, suggesting variability around each point plotted. Cortisol was log transformed originally, so it has been exponentiated here to display the original values of cortisol.

Abstract 134

PHYSIOLOGICAL AND EMOTIONAL RESPONSES TO ANGER RECALL AND NEUTRAL SPEECH: THE ROLE OF TRAIT ANGER RUMINATION

Stefanie Duijndam, PhD, Tilburg University, Nina Kupper, PhD, Tilburg University

Background: Rumination has been suggested to mediate the physiological consequences of stress on health. Given that anger is related to adverse effects on cardiovascular health, rumination about angry situations specifically could be

associated with these effects. The aim of this study was to examine the role of trait anger rumination on the physiological and emotional responses to anger recall and neutral speech, to identify whether these responses are attributable to emotion or the act of speech.

Methods: 66 Undergraduate students completed a shortened version of the Anger Rumination Scale and participated in either the Anger Recall task ($N=32$) or Neutral Speech task ($N=34$), while cBP, EDA, and ECG were recorded. Anger was assessed before, during and after the tasks. Analyses were performed using repeated-measures-ANOVA, adjusted for the effects of sex.

Findings: A significant linear within-subjects association was found between trait anger rumination and DBP during anger recall ($F=3.61; p=.036$) but no association was found for neutral speech ($F<.01; p=.998$). Specifically, trait anger rumination showed a significant effect on DBP stress recovery during anger recall ($F=8.25; p=.009$). A linear within-subject effect of trait anger rumination was also found on the subjective anger response in the anger recall task ($F=5.15; p=.009$) but not in the neutral recall task ($F=1.24; p=.299$), specifically on subjective anger reactivity ($F=10.02; p=.004$). No differences associated with trait anger rumination were observed for RMSSD, SBP and NSSCR.

Discussion: Results suggest trait anger rumination to be associated with a delayed DBP recovery after anger recall, which may indicate failure to shut off allostatic activity after stress. Additionally, the increased subjective anger reactivity during the anger recall task may be indicative of sensitivity to (re-)experience anger. Since these effects were only observed during anger recall and not neutral speech, this may suggest that these responses are attributable to the emotion being recalled rather than the act of speech.

Abstract 618

RUMINATION AND CARDIOVASCULAR RECOVERY FROM PSYCHOLOGICAL STRESS: TESTING MULTIPLE MODELS OF RECOVERY

Aisling Costello, PhD, Baylor University, Siobhán Howard, PhD, University of Limerick, Ann-Marie Creaven, PhD, University of Limerick

Background: The variability in the operationalisation of cardiovascular recovery across studies is well established in the field but little is done to address it. Studies are beginning to investigate the reliability and validity of cardiovascular recovery computations by employing multiple stress-testing sessions, with varying stressors and across a range of environments. The aim of this study was to replicate the findings of DuPont et al. (2022) by assessing the test-retest reliability of multiple computations of cardiovascular recovery between two separate laboratory visits. The second aim of this study was to test if rumination was associated with cardiovascular recovery and if so, determine how robust (or fragile) this association was using a multivariate framework.

Method: This study utilised previously collected data from the Pittsburgh Cold Study 3. One hundred and eighty-nine participants completed 2 separate, identical laboratory sessions (separated by 48 days), consisting of a 20-minute baseline, 15-minute Trier Social Stress Test and 50-minute recovery phase. Systolic/diastolic blood pressure and heart rate were monitored throughout. Participants completed a set of questions that assessed rumination in response to the stressor. Recovery was calculated as the six most-used computations of recovery in seminal papers, including change scores, percent change and area under the curve analyses.

Results: Delta change score from task (model 2), percent change in relation to task (model 4) and area under the curve

with respect to ground (model 5) demonstrated the best test-retest reliability between the visits. Women who engaged in high levels of state rumination after the second stressor displayed better SBP recovery (model 2) in comparison to those who engaged in low levels of state rumination after the second stressor.

Conclusion: The choice in recovery measurement can influence the status of results (significant/non-significant), however, the rumination-recovery relationship is somewhat stable here given it was significant on model 2, which demonstrated good test-retest reliability. The results are not in the expected direction. This is perhaps because women, having experienced the stressor already, draw on the reflective component of rumination as an adaptive strategy, that facilitates recovery from the stressor.

11: Clinical trials for depression in somatic disease **Thursday March 9, 1:45-2:45pm**

Abstract 172

EFFECT OF MODERNIZED COLLABORATIVE CARE FOR DEPRESSION ON HEALTH BEHAVIORS AND CARDIOVASCULAR DISEASE RISK FACTORS: RESULTS OF THE EIMPACT TRIAL

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Although depression is a risk factor for cardiovascular disease (CVD), few trials in people without CVD have examined the effect of depression treatment on CVD-related outcomes, and results are mixed. Thus, it remains unknown if successful depression treatment reduces CVD risk or improves CVD-relevant health behaviors or traditional CVD risk factors. This study fills these gaps by examining data from the eIMPACT trial (NCT02458690). 216 primary care patients with depression and elevated CVD risk from a safety net healthcare system (Mage=59 years, 78% women, 50% Black) were randomized to 12 months of the eIMPACT intervention (our modernized collaborative care intervention involving internet cognitive-behavioral therapy [CBT], telephonic CBT, and/or select antidepressants; $n=107$) or usual primary care for depression (primary care providers supported by embedded behavioral health clinicians and psychiatrists; $n=109$). At pre and post-treatment, participants completed validated questionnaires assessing depressive symptoms, CVD prevention medication adherence, sedentary behavior, and sleep quality. Research nurses measured systolic (SBP) and diastolic (DBP) blood pressure and performed a blood draw. Low-density lipoprotein cholesterol (LDL-C), high-density lipoprotein cholesterol (HDL-C), and triglycerides were quantified with a Daytona Clinical Analyzer. As previously reported, the intervention group showed greater improvement in depressive symptoms at 12 months than the usual care group ($d=0.66$, $p<.01$). The intervention group also exhibited improvements sleep quality ($d=0.41$, $p=.01$); however, no group differences were observed for CVD prevention medication adherence ($p=.87$), sedentary behavior ($p=.49$), SBP ($p=.11$), DBP ($p=.15$), LDL-C ($p=.43$), HDL-C ($p=.20$), or

triglycerides ($p=.65$). The effect on sleep quality remained after adjustment for education, income, and SBP as well as baseline level of the outcome, and an effect on DBP emerged with the usual care group exhibiting lower DBP ($p<.05$). Our findings indicate that successful depression treatment improves sleep quality but is not sufficient to improve other CVD-relevant health behaviors and traditional CVD risk factors. Alternative approaches (e.g., targeting depression and health behaviors concurrently) may be needed to lower the CVD risk of people with depression. This research was supported by R01HL122245.

Abstract 380

FEASIBILITY OF THE MULTINATIONAL, EU-FUNDED ESCAPE (EVALUATION OF A PATIENT-CENTRED BIOPSYCHOSOCIAL BLENDED COLLABORATIVE CARE PATHWAY FOR THE TREATMENT OF MULTI-MORBID ELDERLY PATIENTS) TRIAL

Christoph Herrmann-Lingen, M.D., Univ. of Goettingen Medical Center, Dept. of Psychosomatic Medicine & Psychotherapy, Dagmar Lühmann, M.D., University Hospital Hamburg Eppendorf, Jonas Nagel, Ph.D., University of Göttingen Medical Center, Christine Zelenak, M.D., University of Göttingen Medical Center, Josefine Schulze, M.Sc., University Hospital Hamburg Eppendorf, Cornelia Regner, R.N., University of Göttingen Medical Center, Christian Albus, M.D., University Hospital of Cologne, Jan Matthes, M.D., University Hospital of Cologne, Katharina Schmalstieg-Bahr, M.D., University Hospital Hamburg Eppendorf, Rolf Wachter, M.D., University Hospital of Leipzig, Anna Markser, M.D., University Hospital of Cologne, Michael Koziolok, M.D., University of Göttingen Medical Center, Christine von Arnim, M.D., University of Göttingen Medical Center, Mohammed Chebbok, M.D., University of Göttingen Medical Center, Bea Herbeck Belnap, Dr. Biol. Hum., University of Göttingen Medical Center, ESCAPE Consortium, ., University of Southern Denmark

Objective: Blended Collaborative Care (BCC) delivered by nurse care managers (CM) can improve treatment of patients with physical-mental comorbidity. Since multimorbidity is common but often insufficiently treated in older patients, the ESCAPE trial funded by the European Union (grant #945377) examines the impact of a BCC intervention in patients aged 65+ with heart failure, 2+ medical comorbidities plus mental distress or disorders.

Methods: We tested the feasibility (i.e. patient acceptance, working alliance [WAI-SR], goal attainment) of an adapted nurse-delivered BCC strategy supported by a dedicated electronic registry in 9 patients at one of the 11 planned study sites. Care managers supported all 9 patients for an abbreviated 3 month intervention period to educate about their conditions and treatment options, implement health behaviors, and address psychological burden. They worked in close collaboration with patients' GPs and under remote supervision of a multidisciplinary Specialist Team that included specialists from cardiology, primary care, pharmacology, nephrology, geriatrics, and psychosomatics.

Results: Of the 9 patients (age mean 71.1, 56% female, mean 10.7 comorbidities, mean HADS total score 16.1) 1 deceased. Surviving patients received an average of 6.6 CM contacts (range 1-20). On the WAI-SR they reported at follow-up that (a) the intervention contacts helped them "very often" work on their goals (16.6/20 points total), (b) they felt "fairly to very often" clearer about their treatment-related tasks (14.3/20), and (c) perceived the relationship as respectful and accepting (14.6/20). On average they reached more than 50% of their treatment goals. They also reported that their health behaviors benefitted from the intervention and their relationship with their

GPs had improved. No clear changes were found for distress and quality of life.

Conclusion: ESCAPE expands the BCC strategy addressing numerous conditions to support treatment of psychologically distressed older patients with multimorbidity. This feasibility study showed that patients appreciate the support and it can improve their health behaviors. However, the short duration of the intervention limited the number of goals reached and the effect on distress and quality of life. Currently, the ESCAPE BCC strategy is examined in a randomized multicenter trial over 9 months.

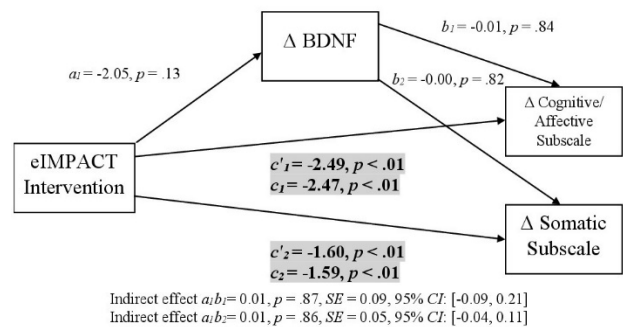
Abstract 334

EFFECT OF MODERNIZED COLLABORATIVE CARE FOR DEPRESSION ON BRAIN-DERIVED NEUROTROPHIC FACTOR (BDNF) AND DEPRESSIVE SYMPTOM CLUSTERS: DATA FROM THE EIMPACT TRIAL

Christopher A. Crawford, BA, Indiana University-Purdue University Indianapolis, Michelle K. Williams, MS, Indiana University-Purdue University Indianapolis, Aubrey L. Shell, MS, Indiana University-Purdue University Indianapolis, Krysha L. MacDonald, MA, Eskenazi Health, Robert V. Considine, PhD, Indiana University School of Medicine, Jesse C. Stewart, PhD, Indiana University-Purdue University Indianapolis

Depression is a heterogeneous mental health condition, varying in presentation across individuals. A candidate etiology that may help account for this heterogeneity is the neurotrophin hypothesis of depression, which proposes that stress downregulates brain-derived neurotrophic factor (BDNF) expression, leading to aberrant neurogenesis and depression. This etiology may manifest in a distinct symptom profile that may be reflected in depressive symptom clusters. Studies have consistently found that antidepressant medications restore BDNF levels of individuals with depression to those of healthy controls. The effect of psychological interventions on BDNF is less clear. Additionally, it is not known if BDNF levels mediate intervention effects on depressive symptom clusters. Using data from the eIMPACT trial (NCT02458690, supported by R01 HL122245), we examined if our modernized collaborative care intervention for depression (internet CBT, telephonic CBT, and select antidepressant medications) affected BDNF and if changes in BDNF mediated intervention effects on cognitive/affective and somatic depressive symptom clusters. 216 participants (primary care patients with depression and elevated cardiovascular disease risk ≥ 50 years from a safety net healthcare system) were randomized to 12 months of the eIMPACT intervention ($n=107$) or usual primary care for depression (primary care providers supported by embedded behavioral health clinicians and affiliated psychiatrists; $n=109$). Plasma BDNF was measured with commercial ELISA kits. Depressive symptoms were assessed by the PHQ-9 ($M=15.1$, $SD=5.0$) from which cognitive/affective and somatic subscale scores were computed. As shown in Figure 1, the intervention did not improve BDNF over 12 months. Similarly, 12-month changes in BDNF were not associated with 12-month changes in PHQ-9 cognitive/affective or somatic subscale scores. However, the intervention significantly improved PHQ-9 cognitive/affective and somatic subscale scores over 12 months. 12-month changes in BDNF did not mediate the effect of the intervention on 12-month changes in the PHQ-9 subscale scores. Our findings suggest that modernized collaborative care for depression does not improve BDNF. Modernized collaborative care does yield improvements in both cognitive/affective and somatic depressive symptom clusters, albeit not via changes in BDNF.

Figure 1. Results of Path Analytic Mediation Model Examining the Effect of the eIMPACT Intervention on 12-Month Change in BDNF and PHQ-9 Depressive Symptom Subscale Scores



Note. $N = 216$. Shading signifies statistical significance ($p < .05$). Results are from a path analytic mediation model employing full-information maximum likelihood (FIML) to handle missing data. BDNF = brain-derived neurotrophic factor. PHQ-9 = Patient Health Questionnaire-9. SE = standard error. CI = confidence interval.

Abstract 89

DEPRESSION SUBTYPES IN PATIENTS WITH HEART FAILURE WITH REDUCED EJECTION FRACTION: A SECONDARY ANALYSIS FROM THE RANDOMIZED CONTROLLED HOPEFUL HEART TRIAL

Monika Sadlonova, M.D., Massachusetts General Hospital, Mira-Lynn Chavanon, Ph.D., Philipps University of Marburg, Jeong Kwonho, M.S., University of Pittsburgh School of Medicine, Kaleab Z. Abebe, Ph.D., University of Pittsburgh School of Medicine, Christopher M. Celano, M.D., Massachusetts General Hospital, Jeff Huffman, M.D., Massachusetts General Hospital, Bea Herbeck Belnap, Dr. Bio. Hum., University of Pittsburgh School of Medicine, Bruce L. Rollman, M.D., M.P.H., University of Pittsburgh School of Medicine

Background Heart failure (HF) is a global health problem associated with an elevated risk of morbidity, mortality, and impaired quality of life (QoL). One potential contributor to these poor outcomes is depression, which is present in approximately one of every five HF patients. Yet the effectiveness of depression treatment in HF patients is mixed, perhaps due to the heterogeneity of depression. **Methods** This secondary analysis applied latent class analysis to data from the Hopeful Heart Trial to classify HF patients with reduced ejection fraction (HFrEF) and co-morbid depression into various depression subtypes based on symptom severity (PHQ-9), and examined whether these subtypes predicted treatment response and mental and physical health outcomes at follow-up. **Results** We classified 629 depressed participants (mean age 63.6 ± 12.9 ; 43% females) into four depression subtypes: mild (prevalence 53%), moderate (30%), moderately severe (12%), and severe (5%) (Fig. 1). The mild subtype was characterized by somatic symptoms (e.g., energy loss, sleep disturbance, poor appetite), while the other depressive subtypes were characterized by increasing probabilities of non-somatic symptoms of depression (e.g., depressed mood, anhedonia, worthlessness). At 12 months, more severe depressive subtypes were associated with greater improvements in mental QoL (moderate vs. mild: $B=0.29$, 95% CI 0.08-0.50, $p=0.006$; moderately severe vs. mild: $B=0.30$, 95% CI 0.01-0.59, $p=0.043$; severe vs. mild: $B=0.56$, 95% CI 0.17-0.95, $p=0.005$). Furthermore, there was a significantly

greater reduction in depressive symptoms over time (omnibus $p=0.002$), which was driven primarily by patients in the severe depression subtype (severe vs. mild: $B=-0.52$, 95% CI -0.82 - 0.22 , $p=0.001$) (Fig. 2). There were no differences between the depression subtypes in incidence of cardiovascular (CV)- or non-CV-related readmissions ($p=0.195$; $p=0.871$ respectively) or all-cause mortality ($p=0.089$). Finally, depression subtype did not moderate the effect of treatment for any outcome. **Conclusions** Among individuals with HFrEF, those with mildly elevated depressive symptoms on the PHQ-9 may not meet full criteria for major depressive disorder (MDD). When making a diagnosis of MDD, care should be taken to include only those individuals with the cardinal, non-somatic symptoms of depression, consistent with DSM-5 criteria.

Figure 1. Estimated symptom profile probabilities of endorsing depressive symptoms from latent class analysis

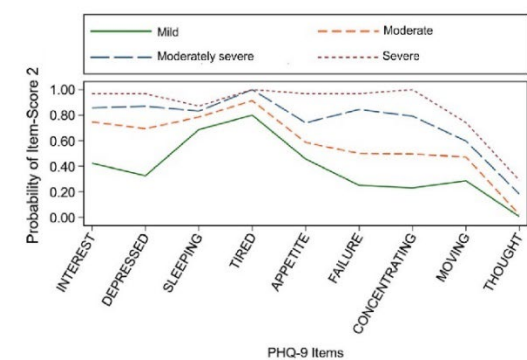
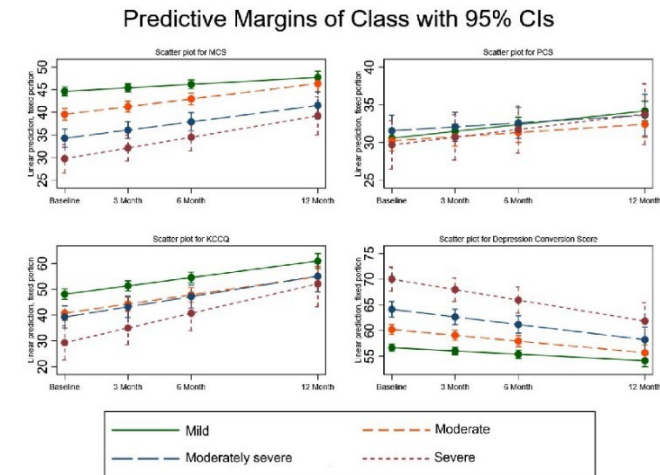


Figure 2. Predictive margins of class with 95% CIs among mental and physical health outcomes



12: Biological response to environmental context

Thursday March 9, 1:45-2:45pm

Abstract 84

PHYSICAL ACTIVITY AND SLEEP RELATE TO LONG-TERM ANTIBODY MAINTENANCE FOLLOWING NATURALISTIC INFECTION AND/OR VACCINATION IN OLDER ADULTS

Anna Whittaker, PhD, University of Stirling, Len De Nys, MSc, University of Stirling, Mark Drayson, PhD, University of Birmingham

Background: Identifying factors that affect maintenance of antibody levels induced by natural infection and/or vaccination

is important to improve biopsychosocial health, especially if they are modifiable factors. This is particularly crucial for our large population of older adults whose antibody response against many pathogens declines early in immunosenescence. Health behaviours such as low physical activity (PA) and poor sleep have been associated with increased susceptibility to infection and poorer antibody responses to vaccination. Less is known about how such factors might influence the longer-term maintenance of immunity following naturalistic infection and/or prior vaccination, particularly among older adults.

Objective: To explore antibody levels against a range of common infectious diseases in older adults and whether these relate to subjective measures of PA and sleep.

Method: A secondary data analysis of $N = 103$ (60 women) adults aged 65+ years was conducted examining associations between subjective sleep measures and typical PA levels using standardised questions and naturalistic antibody levels to a range of common pathogens, including pneumococcal (Pn) and meningococcal (Men) serotypes, *Haemophilus influenza* type b, diphtheria, and tetanus. Multiplex assays were used for antibody analysis.

Results: In age-adjusted analyses, higher PA related to higher antibody levels against six Pn serotypes. Longer time in bed related to higher antibody titres against Pn1, Pn4, and MenC, and longer sleep related to higher antibody titres against Pn19f. More naps in the day related to lower antibodies against Pn19f, Pn23a, and MenY. Associations between PA and antibodies were not attenuated following adjustment for sleep variables. Sensitivity analysis with clinically protective antibody levels as the outcome showed similar results for PA, but effects for sleep were mainly no longer significant.

Conclusion: Sleep and PA related to longer-term antibody maintenance following naturalistic infection/vaccination, but strongest clinically relevant effects emerged for PA. This extends existing literature demonstrating effects of PA and sleep on peak antibody response to vaccination. It is particularly important to intervene to improve health behaviours in older age to maintain immune protection; interventions increasing PA may benefit both sleep and immunity.

Abstract 661

INCREASES IN IL-6 IN RESPONSE TO THE INFLUENZA VACCINE PREDICT DECREMENTS IN RESPONSE INHIBITION

Gabriella Alvarez, MA, University of North Carolina Chapel Hill, Tatum Jolink, MA, University of North Carolina Chapel Hill, Taylor West, MA, University of North Carolina Chapel Hill, Megan Cardenas, BA, University of North Carolina Chapel Hill, Mallory Feldman, MA, University of North Carolina Chapel Hill, Keely Muscatell, PhD, University of North Carolina Chapel Hill

Cross-sectional and longitudinal work consistently demonstrate that sustained low-grade inflammation is associated with cognitive impairments and that chronic inflammation may even expedite age-related neurodegenerative diseases (e.g., Alzheimer's disease). However, few mechanistic studies have explored the acute effects of increases in inflammation on cognitive function. Of the few studies exploring these associations experimentally, there are mixed findings regarding whether inflammatory challenges impair or improve cognitive performance. To best delineate these associations, more work is needed to examine links between inflammation and distinct sub-components of cognitive function (i.e., working memory, attention, inhibition). Thus, our primary aim was to examine changes in response inhibition, a subcomponent of cognitive functioning important for self-regulatory health behaviors. Additionally, prior work has demonstrated that acute inflammation is associated with differential reward sensitivity

depending on the type of potential reward (social vs. monetary) an individual may gain. Our secondary aim was thus to explore whether social (vs. nonsocial) incentives could mitigate impairments in response inhibition. To explore these aims, 55 young adult participants were administered the influenza vaccine to elicit a low-grade inflammatory response. The morning before and approximately 24 h after the vaccine, participants provided a blood sample to measure interleukin-6 (IL-6) and completed an incentivized go/no-go task to measure response inhibition. Participants completed 4 blocks of the task where they could either win high or low monetary or high or low social incentives for their performance. We found that greater increases in IL-6 in response to the vaccine were associated with lower accuracy on all incentivized no-go trials, regardless of incentive type. Together, these findings reveal that increases in inflammation following the influenza vaccine are associated with impaired response inhibition and that the potential to gain social or non-social rewards does not necessarily modulate inhibitory behavior. These findings add to a growing literature aiming to characterize, with greater specificity, immune-related changes in cognitive and motivated behaviors.

Abstract 619

EXAGGERATED VASOCONSTRICTION DURING PSYCHOLOGICAL STRESS IN POST-TRAUMATIC STRESS DISORDER: A CO-TWIN CONTROL STUDY

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INTRODUCTION: Individuals with post-traumatic stress disorder (PTSD) face an increased risk of cardiovascular disease (CVD). Neurobiological dysregulation is a hallmark of PTSD, but the mechanisms linking PTSD to CVD remain incompletely understood. Therefore, we used a co-twin control study design to test the hypothesis that PTSD is associated with augmented peripheral vasoconstriction, an index of sympathetic activation, during a personalized trauma script task.

METHODS: We studied 190 older male twins from the Vietnam Era Twin Registry. Lifetime PTSD was assessed via structured clinical interview (SCID) and current (last month) PTSD symptoms via the Clinician-Administered PTSD Scale (CAPS). Twins listened to neutral and personalized trauma scripts while vascular tone was continuously assessed via peripheral arterial tonometry (PAT). PAT ratio was calculated as the ratio of the minimum PAT signal during script reading divided by the mean PAT signal at rest. Linear mixed-effects models for twin studies were used to assess the within-pair relationship between PTSD and PAT ratio expressed as SD difference.

RESULTS: The mean age was 68 ± 2 years; 76 twins (38 pairs) were discordant for PTSD and 108 (54 pairs) for current PTSD symptoms. Twins with PTSD, compared to their brothers without PTSD, were less physically active, had higher blood pressure, and more often had a history of hypertension, smoking, depression, and antidepressant medication use. Compared to their brothers without PTSD, twins with PTSD had a significantly lower PAT ratio during trauma scripts (0.73 ± 0.20 vs 0.85 ± 0.18 ; $p = .02$), corresponding to $\sim 2/3$ SD lower PAT ratio during trauma ($\beta = -0.68$; 95% CI, -1.25, -0.12) but not neutral ($\beta = -0.31$; 95% CI, -0.85, 0.24) scripts. This

association was not explained by CVD risk factors and medications ($\beta = -0.70$; 95% CI, -1.30, -0.10) and was only slightly attenuated when accounting for blood pressure/heart rate during trauma scripts ($\beta = -0.66$; 95% CI, -1.24, -0.08) and depression/antidepressant medications ($\beta = -0.63$; 95% CI, -1.23, -0.02). Findings were consistent when examining current PTSD symptoms: adjusted $\beta = -0.016$ (95% CI, -0.027, -0.004) for each 1-symptom increment in the CAPS score within pairs. **CONCLUSION:** PTSD is associated with an exaggerated vasoconstrictor response to traumatic stress reminders, which may contribute to elevated CVD risk.

Abstract 304

CELL-FREE MITOCHONDRIAL DNA IS AN ACUTE BIOMARKER OF PSYCHOLOGICAL STRESS WITH UNIQUE KINETICS IN BLOOD AND SALIVA

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Background: Stress triggers multiple pathways, including the sympathetic-adrenal-medullary (SAM) and hypothalamic-pituitary-adrenal (HPA) axes, to initiate signaling and energetic adaptations. At the cellular level, mitochondria are involved in both signaling and energy production. One emerging form of signaling is the release of cell-free mitochondrial DNA (cf-mtDNA) in response to psychological stress. However, cf-mtDNA stress reactivity kinetics are not well defined. Here, we mapped the stress-induced changes in serum and saliva cf-mtDNA levels in parallel with other stress biomarkers.

Methods: 82 participants (57 women), including some with mitochondrial disease, completed a modified Trier Social Stress Test as part of the Mitochondrial, Stress, Brain Imaging, and Epigenetics Study (MiSBIE). We collected serum and saliva at eight timepoints over two hours yielding 568 serum and 542 saliva samples. We quantified cf-mtDNA by qPCR and catecholamines/cortisol by mass spectrometry. Serum and saliva cf-mtDNA were compared using a mixed effects model; associations between stress biomarker reactivities (max change from baseline) were tested with Spearman rank correlations.

Results: Both serum and saliva cf-mtDNA levels increased following stress but displayed markedly different kinetics. Serum cf-mtDNA peaked at 47% above baseline at 60 min while saliva cf-mtDNA increased 1,120% at 10 min. In the model, there was a significant effect of time ($p = 0.0065$) and biofluid ($p = 0.0010$), and the interaction term ($p = 0.0042$) confirmed that blood and saliva cf-mtDNA response kinetics differ. Accordingly, neither cf-mtDNA from matched serum and saliva timepoints ($r^2 = 0.01$, ns) nor maximal reactivity ($r^2 = 0.00$, ns) were correlated; early saliva changes did not predict subsequent changes in blood. cf-mtDNA reactivity was not correlated with cortisol or epinephrine reactivity, but serum cf-mtDNA reactivity was negatively associated with norepinephrine reactivity ($r = -0.37$, uncorrected $p = 0.004$).

Discussion: This is the first study to demonstrate that psychological stress elicits cf-mtDNA reactivity in saliva. Unlike serum, the salivary cf-mtDNA response is rapid and large. The lack of correlation between cf-mtDNA reactivity and SAM or HPA stress biomarkers suggests that cf-mtDNA release may represent a complementary but distinct stress response axis requiring further research.

13: Adherence in heart disease
Thursday March 9, 3:00-3:45pm

Abstract 404

THE ROLE OF PSYCHOLOGICAL FACTORS IN ADHERENCE TO HEALTH BEHAVIORS AFTER PERCUTANEOUS CORONARY INTERVENTION: EFFECT MODERATION BY CARDIAC REHABILITATION

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Background: Percutaneous coronary intervention (PCI) is a primary treatment option for patients with coronary artery disease. Subsequent referral to cardiac rehabilitation (CR) results in a lower disease burden and lower risk of recurrent cardiac events. However, uptake and maintenance of health behaviors (physical activity, dietary habits, medication adherence, stress reduction, and smoking cessation) post-PCI require further improvement.

Objectives: To determine what psychological factors are associated with improved health behaviors post-PCI, and whether these effects are moderated by CR.

Methods: Data from 1,682 patients (22.1% female, $M_{age} = 64$, $SD_{age} = 10.5$) from the *Tilburg Health Outcomes Registry of Emotional Stress after Coronary Intervention (THORESCI)* cohort were included. Associations between psychological predictors and changes in health behaviors (baseline to 6- and 12-months follow-up) were examined using mixed models. Interactions between time and psychological predictors as well as between time, psychological predictors and CR participation were examined in separate models for each health behavior. All models were adjusted for relevant covariates.

Results: Lower optimism was associated with a higher physical activity score over time ($\beta = -0.0062$, 95% CI: -0.0104 ; -0.0019 , $p = 0.004$). Increased depressive symptoms ($\beta = -0.0100$, 95% CI: -0.0180 ; -0.0021 , $p = 0.01$), optimism ($\beta = -0.0184$, 95% CI: -0.0322 ; -0.0047 , $p = 0.009$) and cardiac self-efficacy ($\beta = -0.0030$, 95% CI: -0.0059 ; -0.0001 , $p = 0.037$) were associated with a lower dietary score over time. The strongest three-way interaction was found for CR with pessimism and time ($\beta = -0.0362$, 95% CI: -0.0591 ; -0.0134 , $p = 0.002$). Patients with high levels of pessimism who did not participate in CR (Figure 1a) lost some of their 6-month improvements in dietary scores at 12 months, whereas patients with high levels of pessimism who did participate in CR (Figure 1b) sustained their 6-month improvement at 12-months.

Conclusions: Several psychological factors are associated with health behavior change, with CR moderating some of these associations. Patients with high pessimism may disproportionately benefit from CR in terms of long-term dietary habits. Development of CR programs should take this into account, to improve the odds of health behavior change and maintenance during and after CR.

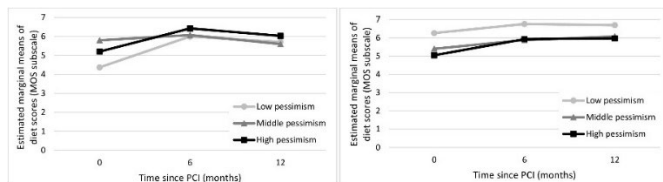


Figure 1a. Estimated marginal means of diet scores stratified according to levels of pessimism for people not participating in CR, adjusted for all covariates

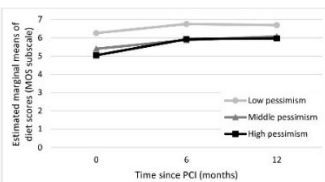


Figure 1b. Estimated marginal means of diet scores stratified according to levels of pessimism for people participating in CR, adjusted for all covariates

POSTTRAUMATIC STRESS SYMPTOMS PREDICT AMBULATORY HEART RATE INDEPENDENTLY OF HEALTH BEHAVIORS IN CARDIAC PATIENTS AFTER AN ACUTE HOSPITALIZATION

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Background. High sympathetic nervous system activity is a mechanism by which posttraumatic stress symptoms (PSS) may increase secondary risk in patients with cardiovascular disease. However, it is unknown whether cardiac-induced PSS predict heart rate. We examined the unique association of cardiac-induced PSS with heart rate in recently discharged cardiac patients by measuring ambulatory 24-hour electrocardiography for two weeks and adjusting for associations with demographic, clinical, and objectively measured health behavioral factors.

Method. Eligible participants had either high or low PSS 1 month after a suspected acute coronary syndrome (ACS) event (i.e., PCL-5 score ≥ 20 or ≤ 5), were prescribed a cardiovascular medication, and had either a confirmed ACS event or a history of obstructive coronary artery disease. In 117 patients ($M_{age} = 61.26$, 74.1% Hispanic), heart rate was measured for up to 14 days via a chestworn ZioPatch device. Medication adherence was assessed via eCAP pill bottle openings. Physical activity, sleep duration, and intrusive thoughts were assessed via a wristworn actigraphy/ecological-momentary-assessment ActiWatch Spectrum Pro device.

Results. In a multilevel linear regression model (2-hour epochs were nested in days, which were nested in participants), each 1-point increase in PSS (PCL-5 possible range: 0–80 points) was associated with higher mean heart rate, $B = 0.15$ bpm, 95% CI [0.03, 0.27], $p = .016$. This effect occurred over and above the unique variance explained by all other factors in the model, including significant effects for age, female sex, Charlson comorbidity score, mean epoch-level physical activity, day-level medication adherence, and previous night's sleep duration, all $ps \leq .030$, as well as non-significant effects of GRACE cardiac risk score and the momentary occurrence and severity of heart-related intrusive thoughts, all $ps \geq .128$.

Conclusion. PSS predicted heart rate over and above associations with physical activity, medication adherence, and sleep duration. The findings suggest that symptoms of posttraumatic stress disorder may have substantial explanatory power in accounting for heart rate elevations among distressed cardiac patients. Interventions should aim to reduce chronically elevated sympathetic arousal in patients experiencing psychological distress after acute cardiac events.

Abstract 613

DEPRESSION AND ADHERENCE TO GUIDELINE-DIRECTED MEDICAL THERAPIES FOLLOWING CORONARY INTERVENTION

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Abstract 538

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University of Pittsburgh School of Medicine, Jared Magnani,
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for Research on Health Care, Dept. of Medicine

Background: Depression is associated with increased risk of primary and secondary cardiovascular events. One potential explanation is lowered adherence with Guideline-Directed Medical Therapies (GDMT).

Objective: To investigate the association of depression and 12-month adherence to GDMT – antiplatelets agents, beta blockers, renin-angiotensin-aldosterone system inhibitors [RAAS], and statins – following percutaneous coronary intervention (PTCA).

Methods: We conducted a retrospective analysis using Optum's de-identified Clinformatics® Data Mart Database of patients with coronary intervention from 2014 through 2019. We quantified 12-month adherence to GDMT medication classes with proportion of days covered (PDC), categorizing adherence as limited (<80% adherence), adequate (PDC ≥80 to <90%) or optimal (PDC ≥90%). We determined rates of GDMT adherence by depression status and examined the effect of depression on achieving adequate or optimal adherence using multivariable-adjusted regression models. Covariates included demographics, comorbid medical and psychiatric conditions, educational attainment, annual household income, and insurance type.

Results: Of 124,443 individuals who underwent PTCA (age 69.3±10.6 years, 33% female, 27% non-White), 20,711 had a diagnosis of depression per claims data. Compared to those without depression, individuals with depressed were significantly less likely to adhere with antiplatelet therapy (Odds Ratio [OR], 0.81; 95% Confidence Interval [CI]: 0.77-0.85), beta blockers (0.85: 0.81- 0.89), RAAS (0.93: 0.87-0.99), and statins (0.90: 0.86- 0.94) and had similarly decreased likelihood of optimal 12-month adherence to GDMT agents (P for all <0.001).

Conclusion: Co-morbid depression may adversely impact cardiovascular morbidity through its effect on lowered adherence with GDMT. Targeted interventions to address medication adherence, such as depression screening and counseling, may improve secondary cardiovascular disease prevention.

14: Gut health

Thursday March 9, 3:00-3:45pm

Abstract 310

ASSOCIATIONS BETWEEN HEALTH BEHAVIOURS, GI SYMPTOMS, AND GUT MICROBIOTA IN A CROSS-SECTIONAL SAMPLE OF CANCER SURVIVORS: SECONDARY ANALYSIS FROM THE CHEMO-GUT STUDY

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Background: Health behaviours are a modifiable factor that may impact gastrointestinal (GI) symptoms, the gut microbiota, and psychosocial health in cancer survivors. Chemotherapy adversely affects the gut microbiota during treatment, but potential long-term effects or how health behaviours are related is unclear.

Methods: Using cross-sectional data, we investigated relationships between GI symptoms, gut microbiota, and health behaviours (i.e. diet and exercise) in cancer survivors. Gut microbial diversity and composition was assessed from stool samples using 16S rRNA gene sequencing. Descriptive statistics, one-way ANOVA, and correlation analyses are reported.

Results: Cancer survivors (N= 334) participated in the survey, and a subsample of 17 also provided stool samples. Mean age at diagnosis was 40.3 (±15) years. Mean time off treatment ranged from ≤3 months to 12 years. Within the last 2 years, 47% reported taking antibiotics while 35% reported probiotic use. Survivors tended to rate their diet as moderately healthy (56%) and reported engaging in low intensity exercise (54%) for ≤5 hours/week (69%). Survivors with one or more GI symptoms (91%) reported persistent symptoms for an average of 31 (±33) months post-treatment. Consuming a healthier diet was associated with fewer GI symptoms of belly pain ($p=0.027$), gas/bloating ($p=0.03$), and diarrhea ($p=0.038$). Higher abundance of *Lachnospiraceae* ($\rho=0.51$, $p=0.05$) correlated with better diet health, but higher *Bacteroides* ($\rho=-0.62$, $p=0.023$) abundance correlated with poorer diet health. Higher abundance of *Lachnospiraceae* ($\rho=0.51$, $p=0.035$), *Faecalibacterium* ($\rho=0.65$, $p=0.013$), *Anaerostipes* ($\rho=0.53$, $p=0.042$), *Subdoligranulum* ($\rho=0.59$, $p=0.027$), *Alistipes* ($\rho=0.75$, $p=0.013$), and *Bacteroides* ($\rho=0.66$, $p=0.027$) correlated with greater exercise frequency. Lower abundance of *Lachnospiraceae* correlated with higher exercise intensity ($\rho=-0.63$, $p=0.012$).

Conclusion: Results provide evidence of chronic GI symptoms in survivors of cancer, with potential associations between dietary and exercise behaviours and GI symptoms. Diet and exercise behaviours may be related to certain types of bacteria, but the direction of causality is unknown. Behavioural and dietary-based interventions may be optimally suited to address survivors' adverse GI symptoms by influencing the gut microbiota. Larger trials are needed.

Abstract 552

HAPPY GUT HAPPY MIND: ASSOCIATIONS BETWEEN GUT MICROBES AND POSITIVE EMOTION

Desiree Delgadillo, MA, UCI, Sarah Pressman, PhD, UCI, Jessica Borelli, PhD, UCI

Research indicates that human gut microbes impact both physiological and psychological processes, specifically, psychological well-being. Indeed, numerous preclinical studies reveal that higher levels of symbiotic bacteria (beneficial to health) increase prosocial behaviors and mitigate stress responses, however, little is known as to whether positive emotion is linked to microbial composition in humans. The current work explores whether certain symbiotic bacteria, namely, *Streptococcus* and *Dialister* are associated with positive emotion. Participants' ratings of Serenity, Joviality, and Emotional Well-Being were assessed in 71 healthy women (mean age = 41.6 years). Next-generation pyrosequencing was used to classify microbial composition from fecal samples and determine abundances of bacteria. Preliminary analyses revealed positive associations between *Streptococcus*, Serenity ($r_s=0.24$, $p=0.045$), Joviality ($r_s=0.27$, $p=0.024$), and Emotional Well-Being ($r_s=0.26$, $p=0.032$). *Dialister* was negatively associated with Emotional Well-Being ($r_s=-0.25$, $p=0.043$). Follow up analyses adjusting for relevant covariates will augment these initial analyses. Additionally, permutational analysis of variance will be conducted to determine differences in microbial composition between high and low positive emotion groups. These results suggest that certain microbes are linked to specific types of positive affect in this sample of

healthy females. Future researchers should test whether these results replicate in larger samples that include males as well as to what extent these microbial differences are responsible for known associations between positive affect and an array of physical health outcomes.

Abstract 308

WHY DO REFLUX PATIENTS PRESS THE BUTTON? FACTORS CONTRIBUTING TO REAL-TIME ESOPHAGEAL SYMPTOM REPORTING.

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Introduction: Physiological and psychological factors contribute to esophageal reflux symptoms such as heartburn and chest pain. However, most research assesses self-reported reflux symptom severity via questionnaires. We aim to evaluate which factors are associated with real-time reflux symptom reporting.

Aims/methods: Adult patients with reflux symptoms completed 11 psychosocial questionnaires and standard 24-hour pH-impedance monitoring to measure acid reflux levels. Reflux testing outcomes included the number of patient-reported symptoms (via a button press immediately after experiencing a symptom) and physiological acid reflux parameters (total number of acid reflux episodes, total volume exposure). Principal component analysis (PCA) with varimax rotation reduced the psychological questionnaires into components. Psychological components, proton-pump inhibitor (PPI) use, and reflux parameters served as independent variables, while the number of button presses served as the outcome variable. Data was evaluated using a Hurdle Poisson Model consisting of 1) a logistic model examining the variables associated with whether or not the button was pressed during the testing period (i.e. no symptoms vs. any symptoms), and 2) a Poisson model evaluating the variables associated with the number of button presses in those who pressed.

Results: 393 participants [mean (SD) age=48.5 (14.1); 60% female] were included. 301 (84%) participants had ≥1 button press (median = 8 presses). PCA identified 5 components: health anxiety, general psychological health, personality, pain coping, and social functioning. General psychological health was the only significant variable in the logistic model. Health anxiety, pain coping, total number of acid reflux episodes, total volume exposure, and PPI use were significant in the Poisson model. Table 1 provides an overview of the model parameters.

Conclusions: General psychological symptoms (e.g. depressive symptoms) are associated with the presence or absence of real-time reflux symptoms. In those who do report symptoms, illness-specific psychological processes and acid reflux parameters are associated with the frequency of real-time symptom reporting. Thus, reflux symptom reporting is a multifactorial and dynamic process. General and illness-specific psychological processes contribute to different aspects of the symptom experience.

Table 1. Hurdle Poisson model evaluating biopsychosocial aspects of real-time esophageal symptom reporting

Logistic Model						
Effect	Estimate	Standard Error	95% Confidence Limits		z Value	Pr > |z|
			Lower	Upper		
Intercept	1.6896	0.2297	1.2394	2.1398	7.36	<.0001
Health Anxiety	-0.01961	0.1469	-0.3075	0.2682	-0.13	0.8938
General Psychological Health	0.4093	0.1582	0.09923	0.7194	2.59	0.0097
Personality	-0.1307	0.1458	-0.4165	0.1551	-0.90	0.3701
Pain Coping	-0.06302	0.1419	-0.3411	0.2150	-0.44	0.6569
Social Functioning	0.2350	0.1466	-0.05239	0.5224	1.60	0.1090
Total reflux episodes	0.1479	0.2135	-0.2706	0.5663	0.69	0.4886
Total volume exposure	0.1403	0.2171	-0.2852	0.5658	0.65	0.5180
PPI use- off	0.1476	0.3055	-0.4512	0.7465	0.48	0.6290
PPI use- missing	0.07798	0.5107	-0.9230	1.0789	0.15	0.8786
PPI use- on	0	.	.	.	.	.
Poisson Model						
Effect	Estimate	Standard Error	95% Confidence Limits		z Value	Pr > |z|
			Lower	Upper		
Intercept	2.8642	0.02137	2.8223	134.06	134.06	<.0001
Health Anxiety	0.07413	0.01226	0.05010	6.05	6.05	<.0001
General Psychological Health	0.02150	0.01206	-0.00215	1.78	1.78	0.0747
Personality	0.006278	0.01191	-0.01706	0.53	0.53	0.5980
Pain Coping	0.03289	0.01221	0.008963	2.69	2.69	0.0071
Social Functioning	-0.01993	0.01263	-0.04469	-1.58	-1.58	0.1148
Total reflux episodes	0.3316	0.01902	0.2943	17.43	17.43	<.0001
Total volume exposure	-0.2317	0.01913	-0.2692	-12.11	-12.11	<.0001
PPI use- off	0.2479	0.02669	0.1956	9.29	9.29	<.0001
PPI use- missing	-0.4372	0.05636	-0.5476	-7.76	-7.76	<.0001
PPI use- on	0	.	.	.	.	.

15: Work related stress & health
Thursday March 9, 3:00-3:45pm

Abstract 561

EXAMINING THE EFFECT OF HEADSPACE ON REDUCING EVERYDAY STRESS LEVELS AMONG WORKING ADULTS
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Background: App-based mindfulness meditation programs have shown benefits in reducing stress levels. Yet, often interventions have used broad operationalizations of stress (e.g., changes on the perceived stress scale). Stress is a multidimensional construct and meditation may affect dimensions of stress differently. Also, interventions often employ pre-post designs that fail to assess when effects emerge during the intervention. Determining the timing of effects could help tailor interventions to a person's progress. This study examined the effect of the mindfulness-meditation app Headspace on reducing stress levels – operationalized as appraisals, coping, and perseverative cognitions – testing effects in everyday life throughout an eight-week intervention period. **Method:** Non-faculty employees ($n = 123$; aged 21 to 65, $M = 38.5$; 76.5% female; 54.5% White, 22.0% Hispanic) from a university of the Central Valley of California were randomized into either the Headspace condition (instructed to complete 10 minutes of meditation daily for 8 weeks) or a control group. Participants completed ecological momentary assessments of stress appraisals, perceived coping, and perseverative cognitions (rumination and worry) four times a day for four consecutive days at baseline, and then two, five, and eight weeks after randomization, resulting in 6,260 observations. Multilevel models examined the effect of the Headspace condition by time, while controlling for age, gender, ethnicity, baseline stress levels, day of week, and time of day. **Results:** By week two, participants in the Headspace condition appraised their lives as less stressful ($b = -0.54$, $SE = 0.15$, $p < .001$) and reported fewer perseverative conditions ($b = -0.29$, $SE = 0.11$, $p = .011$) compared to baseline.

Increased coping was observed by week five ($b = 0.49$, $SE = 0.10$, $p < .001$). All salubrious effects on stress continued to be observed at week eight ($ps < .007$). Participants in the control condition reported more stress at all weeks post-randomization compared to baseline ($ps < .001$). **Discussion:** Headspace reduced all forms of stress, albeit with a small delay in coping, in a high stress environment. Findings suggest the potential to leverage quick gains to reduce intervention lengths or provide tailored feedback demonstrating gains to boost compliance, which are typically low for eHealth interventions.

Abstract 493

THE IMPACT OF FIREFIGHTER WORK SCHEDULE ON PSYCHOSOMATIC SYMPTOMS

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Firefighters' exposure to traumatic events is associated with an increase in psychosomatic symptoms. Fire departments across the US are changing to work schedules that allow more consecutive days off work. Engaging in recovery experiences can reduce psychosomatic complaints; however, it is unknown if alternative schedules afford these benefits. Thus, the present longitudinal study examined the association between psychosomatic symptoms and recovery experiences assessed before (T1: January 2022) and 2-months after (T2: May 2022) a fire department transitioned from a 24-on/48-off (hours-on/-off, respectively) to a 24-on/72-off/48-on/72-off work schedule. To measure psychosomatic symptoms, 117 firefighters (92% male, 83% white/non-Hispanic) completed PROMIS questionnaires for sleep disturbance, fatigue, pain interference, and gastrointestinal belly pain. The Recovery Experience Questionnaire assessed relaxation and psychological detachment. Online surveys were completed at each time point. Mean scores at T1 and T2 were compared using paired t-tests. Cross-lagged panel models were calculated to investigate the temporal relationship between psychosomatic symptoms and recovery experiences. Mean sleep disturbance and fatigue scores improved (lower T-scores) from T1 to T2 (means \pm SEM: sleep disturbance 52.9 \pm 0.9 to 49.9 \pm 0.6; fatigue 57.3 \pm 0.8 to 53.6 \pm 0.8; both $p < 0.001$). Participants reported more psychological detachment at T2 compared to T1 (3.2 \pm 0.1 vs. 2.8 \pm 0.1, $p < 0.01$). Psychological detachment at T1 and T2, was longitudinally and cross-sectionally associated with sleep disturbance and fatigue at T2 (sleep disturbance: T1-T2, $b = 2.7$, $p < 0.01$; T2-T2, $b = -3.5$, $p < 0.001$; fatigue T1-T2, $b = 2.4$, $p < 0.05$; T2-T2, $b = -4.2$, $p < 0.001$). Neither sleep disturbance nor fatigue at T1 predicted psychological detachment at T2. Scores did not significantly change from T1 to T2 for pain interference, belly pain, or relaxation. The findings indicate that psychological detachment plays an important role for sleep disturbance and fatigue in firefighters. However, increased detachment at T1 predicts increased sleep disturbances and fatigue at T2, whereas increased detachment at T2 is associated with a reduction in symptoms. Additional follow up is required to determine if the increased psychological detachment under the new schedule (T2) continues to predict a reduction of symptoms.

16: Eating behavior, diabetes, and cardiometabolic health
Thursday March 9, 3:00-3:45pm

Abstract 311

ECOLOGICAL MOMENTARY ASSESSMENT OF EMOTIONAL DISTRESS AND TREATMENT ADHERENCE IN TYPE 2 DIABETES

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Objectives: Negative affect, depression, and diabetes-related distress have each been linked with diabetes treatment nonadherence. Few studies have evaluated these emotional distress constructs together and most have relied on examination of between-person differences in retrospective self-reports. We used ecological momentary assessment (EMA) to examine within- and between-person associations between measures of emotional distress and treatment adherence among diverse adults with sub-optimally controlled type 2 diabetes (T2D).

Methods: Participants ($N = 61$; Age = 55 [10] years; Women = 64%; Black = 62%; Latino = 36%; HbA1C = 8.5 [2.4]) completed EMA of negative affect (NA), diabetes distress and depression symptoms (DS) 3x daily for 14 days on smartphones. Medication nonadherence was measured via electronic monitoring of bottle openings for one prescribed oral diabetes medication (MEMS; binary) and one evening EMA self-rating item for all prescribed diabetes medications over the day (SR; continuous). Multilevel regression models using Bayesian estimation tested associations of emotional distress with MEMS and SR nonadherence at the within-person (same-day, controlling for time) and between-person levels.

Results: At the within-person level, no emotional distress measures significantly predicted same-day MEMS or SR nonadherence. However, within-person effects were largest for NA (MEMS: odds ratio [OR]=1.54, 95% CI [0.78, 3.06]; SR: $b = 0.44$ [-0.03, 0.93], standardized $\beta = 0.14$). Between-person effects were significant for NA ($b = 0.62$ [0.14, 1.10], $\beta = 0.35$) and DS ($b = 0.73$ [0.20, 1.27], $\beta = 0.36$) with SR nonadherence. All MEMS between-person effects were small and nonsignificant. Significant random effects in all models indicate substantial variation in the magnitude of within-person relationships from person to person.

Conclusions: Between-person findings replicate widely reported associations between aspects of emotional distress and self-reported T2D treatment nonadherence using EMA. The lack of significant within-person associations is inconsistent with a causal influence of emotional distress on adherence. However, even small effects may be clinically important if they accumulate over time. Low within-person variability in emotional distress and MEMS were noted limitations. Results will inform future intensive longitudinal studies if this dynamic relationship.

Abstract 388

DISORDERED EATING IS ASSOCIATED WITH BLUNTED BLOOD PRESSURE REACTIVITY AND POORER HABITUATION TO ACUTE PSYCHOLOGICAL STRESS

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Background: Psychological stress has been shown to influence the development and progression of eating disorders. Psychophysiological studies have reported that individuals with eating disorders exhibit atypical cardiovascular reactions to

acute psychological stress. Previous work has consisted of studies with relatively small sample sizes ($N < 55$), composed solely of female participants. Additionally, in order to obtain a more comprehensive profile of stress reactivity, recent work has accentuated the need to measure cardiovascular reactivity across multiple stress exposures to examine adaptation to recurring stress.

Aim: The current study examined the association between disordered eating and cardiovascular reactivity, as well as cardiovascular habituation to acute psychological stress.

Methods: A mixed-sex sample ($N = 450$, 61.3% female, 17.3% Hispanic, 65.3% White) of undergraduate students were categorized using a validated eating disorder questionnaire (SCOFF) and attended a laboratory testing session. The testing session included two identical stress-testing protocols, each consisting of a 10-minute baseline and 4-minute stress task (Paced Auditory Serial Addition Test; PASAT). Cardiovascular parameters including heart rate (HR), systolic/diastolic blood pressure (S/DBP) and mean arterial pressure (MAP) were recorded throughout the testing session. Reactivity scores were calculated for each stress exposure as: stress mean – baseline mean.

Results: In response to stress task 1, the disordered eating group exhibited statistically significant lower SBP ($p = .041$), DBP ($p = .04$), and MAP ($p = .006$) reactivity. There were no differences between groups in response to stress task 2 (p 's $> .14$). In comparison to the control group, those in the disordered eating group exhibited reduced MAP habituation from the first to the second stress exposure, $F(1, 433) = 5.11$, $p = .024$, $\eta_p^2 = .01$.

Conclusion: These findings indicate that disordered eating is characterized by dysregulated hemodynamic stress responsivity, which may constitute a physiological mechanism leading to poor physical health outcomes.

Abstract 537

INTERACTIVE RELATIONS OF GLYCATED HEMOGLOBIN LEVELS, SELF-IDENTIFIED RACE, AND AGE TO SUBCLINICAL CEREBROVASCULAR DISEASE IN OLDER ADULTS

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Objective: To examine the interactive relations of glycated hemoglobin (HbA1c) levels, self-identified race, and age to subclinical cerebrovascular disease in community-dwelling, predominantly middle-aged adults.

Background: Magnetic resonance imaging (MRI) assessed white matter lesion volume (WMLV) is an indicator of subclinical cerebrovascular disease prognostic for stroke, cognitive decline, disability, and death in the general

population. Several cardiometabolic diseases including diabetes mellitus and hypertension, have been strongly associated with greater WMLV. As rates of diabetes/prediabetes and stroke are notably higher, and at earlier age, among African American (AA) compared to White adults, we examined the potential interactive relations of HbA1c, self-identified race, and age to WMLV in community dwelling, urban adults.

Participants and Methods: Participants were 235 socioeconomically diverse, AA and White residents of Baltimore, MD (M age = 52.12; 40.9% African American; 54.5% female; 33.2% living in poverty) from the Healthy Aging in Neighborhoods of Diversity across the Life Span (HANDLS) SCAN sub-study. MRI were obtained using a Siemens Tim-Trio 3.0 Tesla unit. White matter (WM) lesion, gray matter, and total brain volumes were computed. HbA1c levels were assessed from blood samples by standard laboratory methods. Multivariable regression analyses, adjusted for sex and poverty status, examined up to three-way interactions of HbA1c, race, and age to WMLV.

Results: Findings revealed a significant three-way interaction of HbA1c*race* age on WMLV ($R^2 = 15.4\%$, $F(9, 205) = 4.14$, $p < .001$). Simple effects analysis indicated that among AA but not White participants, relations of higher HbA1c to greater WMLV were significantly more pronounced with increased age (mean age AA: $b = -573.24$, $p = .026$; older AA: $b = -1471.88$, $p = .007$).

Conclusions: Relations of higher HbA1c levels to greater WMLV were most prominent among middle-aged to older (> 50 years of age) AA adults; associations that were not noted in their White counterparts. Findings support the need for enhanced efforts toward diabetes prevention and early intervention among *midlife* AA adults to ameliorate race-related health disparities in early stroke risk.

17: Post-traumatic stress and sleep Thursday March 9, 3:00-3:45pm

Abstract 229

COMORBID INSOMNIA AND SLEEP APNEA INFLUENCE SOCIAL FUNCTIONING: VARIATION BY PTSD DIAGNOSIS

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Background: Trauma-exposed Veterans often present with posttraumatic stress disorder (PTSD), obstructive sleep apnea (OSA), and insomnia, which can significantly impair their ability to participate in social roles and activities. These conditions are independently associated with decreased social functioning but it is unclear if they have a combined impact when they are experienced comorbidly. Social functioning is an important indicator of quality of life and many Veterans report difficulty in this domain as they reintegrate into civilian life. This study aimed to examine whether the relationship between insomnia severity and social functioning varied by apnea-hypopnea index (AHI) level among Veterans with and without PTSD.

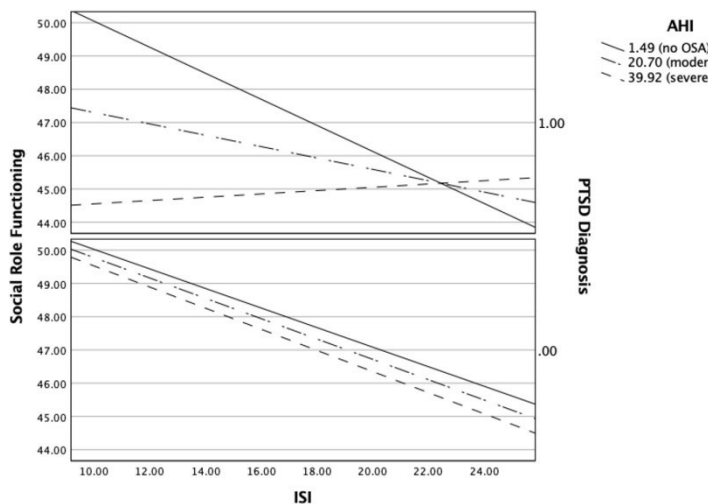
Method: Participants were 649 consecutive US Veterans (M age = 52, 85% male, 43% Hispanic) at high risk for sleep disordered breathing evaluated between 9/19 and 10/20 at the Miami VA Sleep Center. The sample completed psychosocial questionnaires on the type III polysomnography night. Medical record review was conducted to extract medical/psychiatric diagnoses and current medications. OSA was defined by an

AHI of ≥ 5 events/hr of sleep. Depression diagnosis, perceived stress, and daytime sleepiness served as covariates. The saturated structural equation model used in the study provided perfect fit, thus model fit indices were not relevant.

Results: After adjusting for relevant covariates, results showed that the relationship between insomnia and social functioning varied by AHI level in Veterans with PTSD ($b=.014$, $p=.006$). Simple slope tests revealed a significant negative association between insomnia and social functioning among those with no OSA ($b= -.39$, $SE=.16$), but there was no relation among those with moderate or severe OSA (Figure 1). In contrast, the association between insomnia and social functioning did not vary as a function of AHI among those without PTSD ($b=.002$, $p=.577$).

Conclusion: Comorbid insomnia and OSA are associated with impaired social functioning in Veterans with and without PTSD. Those with PTSD and OSA experience decreased social functioning even at subclinical levels of insomnia. Further research should examine these associations longitudinally after initiating CPAP treatment.

Figure 1. Simple slopes of AHI and its interaction with ISI and PTSD diagnosis (1=yes, 0=no) on functioning.



Abstract 443

ASSOCIATION OF POSTTRAUMATIC STRESS DISORDER WITH OBSTRUCTIVE SLEEP APNEA: A TWIN STUDY

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Study Objectives: Obstructive sleep apnea (OSA) is a common condition that may involve dysregulated physiological pathways both for sleep and psychological stress. Previous evidence suggests a high OSA prevalence in posttraumatic stress disorder (PTSD), but available data are mostly limited to individuals referred for OSA evaluation.

Methods: We conducted overnight polysomnography in a cohort of male veteran twins from the Vietnam Era Twin Registry to assess SDB. We examined PTSD symptoms with the PTSD Symptom Checklist (PCL) and conducted clinical interview for PTSD diagnosis. We examined participants for psychiatric and medical comorbidities as well. We examined

the relationships of PTSD symptoms and PTSD diagnosis with OSA metrics within PTSD discordant twin pairs using mixed models and adjusted for sociodemographic, psychological, body mass index, and CHD risk factors including customary alcohol use and smoking.

Results: We studied 66 male twin pairs with discordant PTSD symptoms. The mean (standard deviation) age was 68.4 (2.0) years and 6% were Black. In fully adjusted models, each five-point increased PCL score within pairs associated with a 1.9 (95% confidence interval, 0.6, 3.2) event/hour higher apnea-hypopnea index (AHI) and 1.8% (0.5%, 3.1%) greater overnight hypoxic burden (<90% saturation). Findings were similar with current PTSD diagnosis, which associated with a 7.5 (0.7, 14.2) event/hour higher AHI and 8.3% (1.9%, 14.6%) increased overnight hypoxic burden in fully adjusted models. **Conclusions:** In a controlled twin sample, we found a robust relationship of PTSD symptoms and PTSD diagnosis with measures of OSA that was independent of possible confounders. More research into the mechanisms that connect PTSD and OSA are warranted.

18: Meta-analyses and systematic reviews

Thursday March 9, 4:00-5:15pm

Abstract 233

PSYCHOLOGICAL AND EXERCISE INTERVENTIONS FOR REDUCING CARDIOVASCULAR REACTIVITY AND ENHANCING RECOVERY: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Repeated, exaggerated occurrences of stress-related cardiovascular (CV) reactivity and prolonged CV recovery are hypothesized to be associated with CV disease risk. Psychological and exercise interventions may change reactivity and recovery, yet their effectiveness is not established. Prior meta-analyses have reached discordant findings about exercise interventions likely due to their inclusion of observational and single-session experiments, whereas no previous meta-analysis has featured psychological interventions. This systematic review and meta-analysis examined whether physical exercise and psychological interventions improved systolic and diastolic blood pressure (SBP and DBP), heart rate (HR), reactivity and recovery to psychological stressors. PubMed and PsychInfo databases were used to identify relevant articles. Identified studies were screened and selected for inclusion using the following criteria: 1) includes SBP, DBP, and/or HR reactivity to and/or recovery from psychosocial stress task protocols that were performed at both pre- and post-intervention; 2) involves adults ages 18 and older; 3) published in a peer-reviewed journal. Studies with and without control groups were included. A pre-post contrast meta-analysis was performed using Comprehensive Meta-Analysis software. Hedge's g effect sizes were calculated from arithmetic differences between SBP, DBP, and/or HR values obtained from baseline and during the stressor task at both pre- and post-intervention timepoints. The systematic review yielded 46 studies consisting of 1909 participants. Psychological interventions were associated with improvements in SBP ($g=0.37$) and DBP reactivity ($g=0.33$), whereas exercise interventions were associated with improvements in SBP ($g=0.28$), DBP ($g=0.20$), and HR reactivity ($g=0.27$) and SBP ($g=0.14$), and HR recovery ($g=0.20$). However, only exercise interventions showed significant differences in SBP recovery from inactive controls

and marginal differences for DBP and HR reactivity. In the first meta-analysis to assess the effectiveness of psychological and exercise interventions on CV reactivity and recovery, only exercise interventions significantly improved SBP recovery. Changes in reactivity remain unclear. Further analyses will examine the role of intervention modality, intensity, and duration in order to identify any promising leads in this literature.

Abstract 301

HEAD-TO-HEAD COMPARISON OF E-HEALTH-DELIVERED COGNITIVE BEHAVIORAL THERAPY FOR INSOMNIA (ECBT-I) AND FACE-TO-FACE DELIVERED CBT-I (F2F-CBT-I) - A SYSTEMATIC REVIEW AND META-ANALYSIS OF EQUIVALENCE

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Objective: To meet the growing population needs for treating insomnia, various types of e-Health delivered cognitive behavioral therapy for insomnia (eCBT-I) have been tested and found efficacious. It remains unclear, however, how well eCBT-I compares to face-to-face CBT-I (F2F-CBT-I). We conducted a systematic review and equivalence meta-analysis of randomized head-to-head comparisons of eCBT-I and F2F-CBT-I. **Methods:** Key electronic databases (January 1991-October 2022) were searched for randomized head-to-head comparisons of any type of eCBT-I and any type of F2F-CBT-I. Eligible studies were compared with random effects meta-analyses and tested for equivalence using suggested minimal important differences (MIDs) to determine the equivalence interval. **Results:** Twelve eligible studies with a total of 628 participants were identified. Based on the chosen MIDs, eCBT-I and F2F-CBT-I were statistically significantly equivalent with respect to results on the insomnia severity index (ISI) (MID=6; mean difference =1.3; $p<0.001$; $K=7$), the Pittsburgh Sleep Quality Index (PSQI) (MID=4.4; mean difference = 2.1, $p<0.001$; $K=3$), and sleep diary-based sleep efficiency (SE) (MID=6%; mean difference 2.0%; $p<0.001$; $K=10$). While not statistically significant, the differences between changes in SE after eCBT-I and F2F-CBT-I tended to be smaller for eCBT-I with synchronous therapist contact, e.g. telephone or video (Hedges' $g = 0.05$; $K=3$) than for fully automated eCBT-I ($g=0.10$; $K=2$) and eCBT-I with asynchronous therapist contact, e.g., e-mail ($g=0.27$; $K=5$). **Conclusion:** The currently available evidence suggests that eHealth-delivered CBT-I and face-to-face-delivered CBT-I are equally efficacious in reducing insomnia severity and improving sleep quality and sleep efficiency.

Abstract 437

RACIAL DIFFERENCES IN COMMON INFLAMMATORY

MARKERS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Racial health disparities continue to be a critical area of focus for psychologists and physicians alike, as Blacks have consistently been shown to be afflicted with higher rates of health risk factors (e.g., hypertension) and chronic illnesses (e.g., cerebrovascular diseases) compared to Whites. The inflammatory response, or the body's primary defense against infection, is implicated in a myriad of diseases and disorders, and may therefore be a contributing factor to these observed health disparities. However, there remains a lack of research that comprehensively examines racial differences in inflammation and how these differences are reflected in overall health. Therefore, the current meta-analysis aimed to synthesize the extant literature to determine the magnitude of racial differences in several common inflammatory markers. A systematic literature search yielded 1368 articles that were screened for eligibility, resulting in a final sample of 90 studies. After conducting sensitivity analyses, results revealed significant standardized mean differences for baseline CRP ($k = 55$, $g = .238$, $SE = 0.042$, 95% CI [.156; .321], $p < 0.001$), IL-6 ($k = 32$, $g = .148$, $SE = 0.036$, 95% CI [.077; .219], $p < 0.001$), and Fibrinogen ($k = 18$, $g = .492$, $SE = 0.072$, 95% CI [.352; .633], $p < 0.001$), such that Blacks showed higher levels. Results also indicated significant differences for sICAM-1 ($k = 6$, $g = -.460$, $SE = 0.135$, 95% CI [-.725; -.196], $p < 0.001$), TNF- α ($k = 18$, $g = -.171$, $SE = 0.069$, 95% CI [-.308; -.035], $p = 0.014$), and IL-8 ($k = 5$, $g = -.191$, $SE = 0.073$, 95% CI [-.333; -.049], $p < .01$), such that Whites showed higher levels. The current findings indicate marked racial differences in common markers of inflammation and suggest a proclivity for greater pro-inflammatory responses in Black individuals compared to White individuals. Such findings, paired with prior evidence, suggest a disrupted inflammatory pathway in Black individuals relative to White individuals, which may be driven by unique psychological and physiological mechanisms that have major implications for health disparities.

Abstract 369

META-ANALYSIS OF THE EFFECTS OF ACUTE EXERCISE ON MOOD

Ali Weinstein, PhD, George Mason University, Kiersten Donovan, B.S., George Mason University, Robbie C.M. van Aert, PhD, Tilburg University, Lotte Muskens, MSc, Tilburg University, Willem Kop, PhD, Tilburg University

Background

Extensive literature has examined the effects of acute exercise on various psychological and biobehavioral measures. The literature remains mixed on the magnitude of these effects. A meta-analysis was conducted to examine the effects of an acute bout of exercise on an individual's general mood state (mood), anxiety, and depressive symptoms. We also examined whether specific sub-groups exist that experience a disproportionately elevated or dampened mood state response.

Methods

A total of 2,770 studies were identified from a MEDLINE/PubMed search and an additional 133 articles from

reviews of reference sections. For inclusion, studies had to have measured mood before the acute exercise bout and within 30 minutes after and be published in the last 20 years. The effect size was Hedges' *g* for a pre- and post-test design with effect sizes calculated such that a larger Hedges' *g* was indicative of improvement.

Results

For mood responses, a total of 126 effect sizes were reported in the 103 articles that met selection criteria. Mood improved from pre-exercise to post-exercise ($g=0.338$, 95%CI=0.236;0.441). A total of 55 effect sizes were available for anxiety, revealing a statistically significant decrease from pre-exercise to post-exercise ($g=0.491$, 95%CI=0.257;0.725). A statistically significant reduction in depressive symptoms from pre-exercise to post-exercise was also found ($g=0.417$, 95%CI=0.262;0.571; based on 33 effect sizes). The *Q*-test and *I*²-statistic indicated large heterogeneity across analyses. We investigated potential moderators (intensity of exercise, mode of exercise, previous level of activity of the participants, and weight status of participants) to determine if heterogeneity was reduced. None of these moderators were statistically significant.

Conclusion

This meta-analysis shows significantly improved mood, decreased anxiety, and lower depressive symptoms in response to an acute bout of exercise. There was substantial heterogeneity in the magnitude of the effect sizes. Information about potentially moderating variables was missing in many of the included articles, reducing the detectability of smaller effect sizes related to moderators. The present findings support the benefits of acute exercise on mood states, but more information is needed about which sub-groups of individuals will benefit from which types of acute exercise.

19: Health effects of relationships, or the absence thereof Thursday March 9, 4:00-5:15pm

Abstract 260

SOCIAL CONNECTEDNESS AND HEALTH: BRINGING EUDAIMONIC WELL-BEING INTO THE MIX

Elliot Friedman, PhD, Purdue University, Melissa Franks, PhD, Purdue University, Elizabeth Teas, MS, Purdue University, Patricia Thomas, PhD, Purdue University

Social connectedness, an umbrella term for multiple formulations of social relationships, is robustly linked to diverse health outcomes, including mortality, with effects that rival behavioral determinants like smoking, exercise, and diet. Most health-related research on social connectedness falls into one or more of three conceptual domains: structure (e.g., social integration/isolation), function (e.g., social support/strain), and quality. The lion's share of work on relationships and health has involved the structural and functional domains, with less research on relationship quality, especially outside of marital bonds. High quality social relationships that are meaningful, enduring, and mutual are central to most definitions of eudaimonic well-being, and these have been operationalized by Ryff's Positive with Others scale. We present two studies testing unique associations between positive relations with others and health in the Midlife in the United States (MIDUS) study. In the first, higher baseline scores on positive relations with others predicted greater longevity and less decline in mobility over a 20-year follow-up period. Importantly, these associations remained after including measures of social integration and social support in analytical models. In the second, latent profile analyses identified four unique groups based on presence or relative absence of high-quality social relationships across the life course. Compared to those with

high quality relationships in both childhood and adulthood, those with low adulthood scores on positive relations with others but high scores on social support had significantly more functional limitations. Collectively, these results suggest that eudaimonic aspects of social connectedness may matter for long-term health in ways that are not explained by more established measures of social connectedness, notably social integration and social support. Positive relations with others may therefore constitute a meaningful addition to the literature on social connectedness generally, and to conceptualizations of relationship quality, especially beyond marriage, specifically.

Abstract 340

EXAMINATION OF LINKS BETWEEN SOCIAL CONNECTEDNESS, DIURNAL CORTISOL PROFILES, AND INFLAMMATION IN OLDER AFRICAN AMERICAN ADULTS

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Background: Social isolation and loneliness have been associated with profound negative effects on health. Social isolation and loneliness may influence health via changes in the hypothalamic-pituitary-adrenal (HPA) axis and the innate immune system. Few psychoneuroendocrinology and psychoneuroimmunology studies of social connectedness and health have specifically examined African American populations. The present study investigated the degree to which social connectedness indexed by loneliness and social isolation was related to diurnal cortisol pattern and C-reactive protein (CRP)—measurements of HPA axis and innate immune system functioning, respectively—in a sample of older African American adults.

Methods: Data came from the Health among Older adults Living in Detroit study, an examination of healthy aging in African American adults, ($N=211$; $M_{age}=67.6$ yrs, $SD=8.5$, range=50–89). Loneliness was assessed using the Short Loneliness Scale, and social isolation was assessed using the Social Network Index and living status. Across five days, participants provided four saliva samples per day to assess multiple nonredundant parameters for diurnal cortisol pattern (i.e., cortisol at awakening, diurnal cortisol slope, cortisol awakening response [CAR]). Cortisol data were available for 203 individuals. CRP was assayed using blood samples collected during the home visit that followed the five days of saliva collection.

Results: Hierarchical linear models were run to test the effects of loneliness and social isolation on diurnal cortisol parameters and CRP. Neither loneliness nor social isolation was associated with CRP levels. Similarly, loneliness was unrelated to participants' diurnal cortisol profile. Living alone was significantly related to lower CAR ($p = .042$), over and above the effects of loneliness, depressive symptoms, and key sociodemographic and lifestyle covariates.

Conclusion: In contrast to previous work, the present analyses did not find significant links between social isolation or loneliness on either diurnal cortisol slope or CRP. Instead, living alone was associated with blunted CAR over and above the effects of both loneliness and depressive symptoms. Future studies should examine broader pathways through which loneliness and social isolation might affect health amongst older African American adults.

Effects of loneliness on diurnal cortisol profile and inflammation

Model	Diurnal cortisol profile		Inflammation	
	CAA	CAR	Diurnal slope	CRP
Model 1: no covariates	-.017 (0.099)	-.047 (0.045)	-.002 (0.003)	.023 (0.094)
Model 2: Model 1 + sociodemographic	-.014 (0.100)	-.044 (0.046)	-.003 (0.003)	-.002 (0.092)
Model 3: Model 2 + health	-.015 (0.101)	-.037 (0.044)	-.003 (0.003)	-.005 (0.091)
Model 4: Model 3 + behavioral	-.010 (0.102)	-.032 (0.044)	-.003 (0.003)	-.001 (0.091)
Model 5: Model 4 + social isolation	-.042 (0.105)	-.026 (0.046)	-.003 (0.003)	.024 (0.092)
Model 6: Model 5 + depressive symptoms	-.014 (0.115)	-.006 (0.051)	-.002 (0.003)	.022 (0.095)

Note. Unstandardized coefficients (standard errors) presented. CAA = cortisol at awakening; CAR = cortisol awakening response; CRP = C-reactive protein; * p ≤ .05.

Effects of social isolation on diurnal cortisol profile and inflammation

Model	Diurnal cortisol profile		Inflammation	
	CAA	CAR	Diurnal slope	CRP
Model 1: no covariates				
Living alone	.175 (0.098)	-.123 (0.060)*	-.005 (0.005)	-.093 (0.119)
Social contact	-.023 (0.029)	.003 (0.017)	.000 (0.001)	.054 (0.030)
Model 2: Model 1 + sociodemographic				
Living alone	.182 (0.104)	-.127 (0.061)*	-.002 (0.005)	-.087 (0.121)
Social contact	-.037 (0.031)	.003 (0.018)	.000 (0.001)	.058 (0.030)
Model 3: Model 2 + health				
Living alone	.192 (0.104)	-.139 (0.062)*	-.003 (0.005)	-.086 (0.120)
Social contact	-.037 (0.032)	.002 (0.018)	.000 (0.001)	.057 (0.30)
Model 4: Model 3 + behavioral				
Living alone	.186 (0.105)	-.127 (0.062)*	-.002 (0.005)	-.074 (0.136)
Social contact	-.037 (0.032)	.003 (0.018)	.001 (0.001)	.057 (0.030)
Model 5: Model 4 + loneliness				
Living alone	.191 (0.103)	-.125 (0.063)*	-.002 (0.005)	-.076 (0.121)
Social contact	-.039 (0.033)	.002 (0.018)	.000 (0.001)	.058 (0.030)
Model 6: Model 5 + depressive symptoms				
Living alone	.192 (0.103)	-.125 (0.062)*	-.002 (0.005)	-.076 (0.121)
Social contact	-.041 (0.033)	.002 (0.018)	.000 (0.001)	.058 (0.030)

Note. Unstandardized coefficients (standard errors) presented. CAA = cortisol at awakening; CAR = cortisol awakening response; CRP = C-reactive protein; * p ≤ .05.

Abstract 624

LONELY DAYS: THE UNIQUE ROLE OF DAY-TO-DAY LONELINESS IN BIOMARKERS OF AGING AND PHYSICAL FUNCTION

Stephanie J. Wilson, PhD, Southern Methodist University, Rachel E. Koffler, PhD, Arizona State University

Lonelier people age more quickly than their less lonely counterparts, in terms of accelerated biological aging, higher inflamm-aging, and greater functional limitations. Notably, the literature has conceptualized loneliness as a stable, trait-like risk factor rather than an experience that can vary. The current study examined whether loneliness in daily life was associated, beyond trait loneliness, with higher levels of inflammatory marker interleukin (IL)-6, lower levels of aging biomarker insulin growth factor-1 (IGF-1), slower gait speed, and greater limitations to instrumental activities of daily living (IADLs). The sample included 1,000 middle-aged and older adults who participated in the National Study of Daily Experiences and the Biomarker Project of the Midlife in the United States study. For 8 consecutive evenings, participants rated how lonely they felt that day, from which person-level means and standard deviations were calculated. In a lab visit, they completed a timed 50-ft walk to index gait speed and reported IADLs. Fasting serum samples were assayed for IL-6 and IGF-1. Contrary to its traditional treatment as a trait, loneliness varied substantially day-to-day (ICC=.57). Consistent with prediction, those who were lonelier in daily life had lower IGF-1 than people whose daily lives were less lonely (B(SE)=-10.1(4.7), p=.033), above and beyond trait loneliness, age, gender, comorbidities, BMI, physical activity, smoking, alcohol use, education, and time between projects. Those with larger daily fluctuations in loneliness had higher IL-6 (B(SE)=0.2(0.1), p=.037), regardless of their average loneliness. Likewise, larger daily fluctuations in loneliness predicted slower gait speed (B(SE)=1.7(0.6), p=.005), regardless of the daily mean and beyond trait loneliness, age, gender, comorbidities, physical activity, and time between projects. Higher daily loneliness was linked to greater IADL difficulties (B(SE)=0.2(0.1), p=.048), but became null when trait loneliness was included. These novel results reveal the unique importance of daily loneliness for objective measures of aging—beyond the widely studied effects of trait loneliness, which more strongly predicted self-reported IADLs. Both higher daily loneliness and larger fluctuations in loneliness, i.e., greater social fragility to daily experiences, may play key roles in paths toward unhealthy aging.

Abstract 199

MARITAL NEGATIVITY'S FESTERING WOUNDS: THE EMOTIONAL, IMMUNOLOGICAL, AND RELATIONAL TOLL OF COUPLES' NEGATIVE COMMUNICATION PATTERNS

Rosie Shrout, PhD, Purdue University, Megan Renna, PhD, University of Southern Mississippi, Annelise Madison, MS, Ohio State University, William Malarkey, MD, Ohio State University, Janice Kiecolt-Glaser, PhD, Ohio State University

Dyadic stress theories suggest that couples' negative communication patterns threaten immune and emotional health, leaving partners vulnerable to illness. Spouses' relationship perceptions can also color how they see and react to marital discussions. To identify pathways linking distressed marriages to poor health, this study examined how self-reported typical communication patterns augmented discussion-based behavioral effects on spouses' blister wound healing, emotions, and discussion evaluations. In this mixed-methods study, 42 married couples completed two 24-hour in-person visits. Spouses had their blood drawn to measure baseline interleukin-6 (IL-6), received suction blister wounds, reported their typical communication patterns (demand/withdraw strategies, mutual discussion avoidance, mutual constructive communication), and engaged in marital discussions. Discussions were recorded and coded for positive and negative behaviors using the Rapid Marital Interaction Coding System. Immediately after the discussions, spouses rated their emotions and evaluated the discussion tone and outcome. Wound healing was measured in-person for 12 days. Dyadic analyses revealed couples who reported typically using more demand/withdraw or mutual avoidance patterns had higher baseline IL-6, slower wound healing, greater negative and lower positive emotion, and poorer discussion evaluations (ps<.04). Additionally, couples' more negative communication patterns exacerbated behavioral effects: Spouses showed delayed wound healing, reported lower positive emotion, and evaluated the discussions less positively if their typical patterns and discussion-based behaviors were more negative (ps<.05). These findings suggest that even if spouses behave less negatively during discussions, they may view those discussions poorly if their typical communication involves negative patterns. Accordingly, their typical negative communication patterns may color spouses' reactions to marital discussions. Notably, the effects were particularly strong for women, illustrating chronic and acute marital negativity's heightened relational and health risks in women. These findings are important because distressed spouses have greater risks for chronic disease and divorce than satisfied spouses. Our study demonstrates how distressed marriages take such a strong biological, emotional, and relational toll.

20: Early biomarkers of health and disease
Thursday March 9, 4:00-5:15pm

Abstract 300

ASSOCIATIONS BETWEEN HISTORICAL REDLINING AND LEUKOCYTE TELOMERE LENGTH: THE MULTI-ETHNIC STUDY OF ATHEROSCLEROSIS (MESA)

Elleni Hailu, MPH, University of California, Berkeley School of Public Health, Xing Gao, MPH, University of California, Berkeley School of Public Health, Belinda Needham, PhD, University of Michigan School of Public Health, Teresa Seeman, PhD, University of California, Los Angeles Fielding School of Public Health, Tene Lewis, PhD, Emory University,

Redlining is an important legacy of structural racism that has historically prevented Black and other individuals from obtaining homeownership, building intergenerational wealth, and accruing associated health benefits. Whether redlining may influence aging-related outcomes, and the role of present-day neighborhood conditions in this complex relationship remains unknown. We used data on Black and Hispanic/Latinx participants from Exam I (2000-2002) and Exam V (2010-2011) of the Multi-Ethnic Study of Atherosclerosis Stress Ancillary Study (MESA; N=744, age range=45-84 years) to investigate the link between residing in redlined neighborhoods and Leukocyte Telomere Length (LTL; baseline and 10-year changes), and assessed effect measure modification by current neighborhood social and physical environment scores. We used the 1930s federal Homeowners' Loan Corporation maps to assign the neighborhoods (i.e. census tracts) in which MESA participants resided three historical grades (A&B: best/still desirable, C: declining, and D: hazardous/redlined). LTL was defined as the ratio of telomeric DNA to a single copy gene and was assessed during Exams I and V, and 10-year changes in LTL were adjusted for regression to the mean. In multilevel linear regression models accounting for baseline socio-demographic factors, health behaviors and conditions, and neighborhood socioeconomic status, we found no associations between redlining and either baseline LTL or 10-year changes of LTL, and associations did not vary by race/ethnicity. However, we found that this relationship was moderated by the current neighborhood social environment ($p=0.002$), such that among individuals living in neighborhoods with better social environment scores ($\geq 50^{\text{th}}$ percentile), residing in declining (C) neighborhoods was associated with longer baseline LTL, compared to those living in the best/still desirable (A&B) neighborhoods (50^{th} percentile $\beta = 0.03$, 95% CI: 0.00-0.08; 75^{th} percentile $\beta = 0.08$, 95% CI: 0.04-0.12). There were no associations between residing in hazardous (D) neighborhoods and LTL (50^{th} percentile $\beta = 0.02$, 95% CI: -0.02-0.05; 75^{th} percentile $\beta = 0.04$, 95% CI: -0.01-0.08). Albeit inconsistent with our hypotheses, results point to the complex biopsychosocial mechanisms behind the embodiment of markers of structural racism and the role that contemporary neighborhood environments may play.

Abstract 511

DAILY STRESS AND EATING BEHAVIORS IN ADOLESCENTS AND YOUNG ADULTS: EXPLORING THE ROLE OF CORTISOL REACTIVITY AND EATING STYLES

Daryl O'Connor, PhD, University of Leeds, Deborah Hill, PhD, University of Leeds, Matthew Bristow, PhD, Anglia Ruskin University, Mark Conner, PhD, University of Leeds

Background: Stress-related eating has been well documented in previous literature. However, the precise mechanisms underpinning the stress-eating relationship remain unclear, evidence suggests that biological (e.g., cortisol reactivity to stress) and psychological (e.g., eating styles) factors can, in part, explain individual differences in vulnerability to stress-related eating. Previous research has found that cortisol reactivity to stress is differentially associated with ad-libitum food intake following an acute stressor and between-meal snack intake when stressed in naturalistic settings. Differences in eating styles may also contribute to our understanding of individual variability in stress-eating associations. However, there is limited research investigating the role of cortisol reactivity and eating styles in daily stress-eating associations in samples of adolescents and young adults. Method: 123

participants completed a baseline questionnaire and the Trier Social Stress Test in groups. Four saliva samples were taken at -10, +00, +10 and +40 minutes during the stress-induction task. Following this, participants completed an online daily diary each evening for 14 consecutive days to record daily stress and between-meal snack consumption. Results: Multilevel modelling indicated that daily stress was positively associated with daily snack intake, specifically ego-threatening and work/academic stressors. Emotional and external eating styles were found to moderate the stress-snacking relationship. Cortisol reactivity also moderated stress-eating associations, such that as cortisol reactivity levels increased from lower to higher levels, the impact of stress on eating decreased. Conclusions: The current findings highlight the importance of cortisol reactivity status and eating styles in understanding the complex relationship between daily stress and eating behaviour in adolescents and young adults. Future research should endeavour to continue investigating stress-eating associations in these groups and explore the role of other aspects of hypothalamic-pituitary-adrenal axis functioning.

Abstract 650

NEURAL MECHANISMS UNDERLYING INDIVIDUAL DIFFERENCES IN DAILY AFFECTIVE EXPERIENCES AND CORTISOL ACTIVITY

E. Lydia Wu-Chung, M.A., Rice University, Bryan Denny, PhD, Rice University, Charles Green, PhD, University of Texas Medical School at Houston, Stephanie Leal, PhD, Rice University, Christopher Fagundes, PhD, Rice University

Diurnal cortisol patterns reflect same-day psychological experiences. However, individual differences in cortisol patterns exist, which have important implications for one's susceptibility to adverse health outcomes. Neural patterns underlying appraisal processes may explain variations in people's psychobiological responses to stress. In the present study, we examined whether neural activation patterns to affective stimuli explained interindividual differences in the relationship between daily psychological experiences and daily cortisol patterns. **Methods:** The analytic sample included 69 participants ($M=56.84$ yrs, $SD = 10.71$) from the MIDUS-2 dataset who completed the task-based fMRI session (i.e., viewing of IAPS images), daily interviews (e.g., negative and positive affect) and cortisol assessments. Area under the curve grounded (AUC_g) served as an index of daily total cortisol output. Contrasts ($neg > neu$) were conducted in the following a priori regions of interest: amygdala, prefrontal cortex (PFC), ACC, insula, and hippocampus. Mixed level models were run within a Bayesian framework. A 95% posterior probability threshold indicated a relationship between the predictor and outcome existed; an 85-90% probability threshold indicated a weaker but likely relationship existed. **Results:** Activity in the amygdala ($prob. = .99$), insula ($.95$), PFC ($prob. range = .95-.99$), and hippocampus ($.97$) moderated the relationship between daily negative affect and daily cortisol output. In general, simple slope tests revealed that people showing less reactivity to negative stimuli in these regions exhibited negative relationships between daily negative affect and cortisol output. Among those showing greater reactivity to negative stimuli in these regions, there was a slight positive relationship between daily negative affect and daily cortisol output. In addition, people showing less activity in the PFC ($prob. range = .96-.97$) exhibited a positive relationship between daily positive affect and cortisol output. **Conclusion:** Findings suggest that neural patterns of affective processing may explain individual differences in daily affect and neuroendocrine activity. Specifically, more and less reactivity to negative stimuli in prefrontal and limbic regions may, respectively, reflect

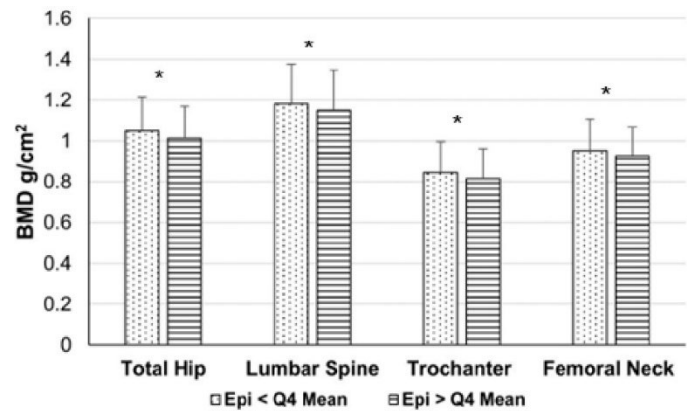
synchronized and asynchronized psychobiological patterns in daily life.

Abstract 607

ASSOCIATION BETWEEN EPINEPHRINE, BONE MINERAL DENSITY, AND ODDS OF OSTEOPOROSIS IN PUERTO RICAN OLDER ADULTS

David Cornell, PhD, DPT, Center for Population Health, University of Massachusetts Lowell, Liam Fouhy, MPH, Center for Population Health, University of Massachusetts Lowell, Kelsey Mangano, PhD, Center for Population Health, University of Massachusetts Lowell, Xiyuan Zhang, MPH, Center for Population Health, University of Massachusetts Lowell, Bess Dawson-Hughes, MD, Jean Mayer US Department of Agriculture Human Nutrition Research Center on Aging, Tufts University, Luis Falcón, PhD, Center for Population Health, University of Massachusetts Lowell, Katherine Tucker, PhD, Center for Population Health, University of Massachusetts Lowell, Sabrina Noel, PhD, Center for Population Health, University of Massachusetts Lowell

Background: Psychophysiological stress leads to elevated concentration of epinephrine (Epi). Chronically elevated Epi has been linked to the breakdown of bone matrix and reduced bone mineral density (BMD). Puerto Rican older adults living on the mainland have a higher prevalence of anxiety and depression compared to the general U.S. population, as well as higher or similar prevalence of osteoporosis (OP) compared to non-Hispanic whites, but the role of Epi in OP remains unknown. **Aim:** To examine the association between Epi and bone outcomes (BMD and OP). **Methods:** 955 participants (686 female) from the Boston Puerto Rican Health Study were included in this analysis (age: 59.9 ± 7.6 y). Epi was collected via 12-hr urine samples; elevated Epi was defined as ≥ 2.8 $\mu\text{g/g}$ creatinine for males and ≥ 3.6 $\mu\text{g/g}$ creatinine for females. BMD (g/cm^2) was assessed at the lumbar spine ($\text{L}_2\text{-L}_4$) and hip (femoral neck, trochanter, total hip) via dual x-ray absorptiometry. Presence of OP was defined as a T-score ≤ 2.5 SD below peak bone mass at the lumbar spine and/or femoral neck. Analyses of covariance were used to test for differences in BMD between participants with elevated and non-elevated Epi at each anatomical site. Multivariable logistic regression was used to model associations between Epi and odds of OP in non-estrogenic females and males. Models were adjusted for age, height, body mass index, smoking status, alcohol use frequency, education, glucocorticoid use, and diabetes, with a final sample of 889 participants after loss due to missing covariate data. Females who were pre-menopausal or taking estrogen medications ($n=97$) were excluded from the logistic regression models. **Results:** Significant differences in BMD were observed at the lumbar spine ($P=0.012$), femoral neck ($P=0.005$), trochanter ($P<0.001$), and total hip ($P<0.001$), with elevated Epi associated with lower BMD at all sites (Figure). Elevated Epi was not associated with presence of OP among non-estrogenic females ($\text{OR}=1.32$ [95%CI: 0.75, 2.32], $P=0.338$), but was associated with 4 times higher odds of OP among males ($\text{OR}=4.01$ [95%CI: 1.11, 14.54], $P=0.035$). **Conclusion:** Elevated Epi was associated with decreased BMD among both male and female Puerto Rican older adults, as well as higher odds of OP in males. Elevated Epi may be linked to the risk of OP development in this population, but longitudinal research is needed.



21: Discrimination & health Friday March 10, 11:45am-12:45pm

Abstract 506

SELF-COMPASSION AS A POTENTIAL MODERATOR BETWEEN PERCEIVED DISCRIMINATION, VERBAL VIOLENCE AND CHRONIC STRESS IN AN IMMIGRANT SAMPLE IN GERMANY

Felicitas Hauck, MSc, Department of Psychology, Friedrich-Alexander-Universität Erlangen-Nürnberg, Andrea Borho, MSc, Department of Psychosomatic Medicine and Psychotherapy, University Hospital Erlangen, Lucia Romero Gibu, MA, Department of Romance Studies, Friedrich-Alexander-Universität Erlangen-Nürnberg, Mojib Atal, MA, Institute of Political Science, Friedrich-Alexander-Universität Erlangen-Nürnberg, Petra Bendel, Professor, Institute of Political Science, Friedrich-Alexander-Universität Erlangen-Nürnberg, Silke Jansen, Professor, Department of Romance Studies, Friedrich-Alexander-Universität Erlangen-Nürnberg, Eva Morawa, PhD, Department of Psychosomatic Medicine and Psychotherapy, University Hospital Erlangen, Yesim Erim, Professor, Department of Psychosomatic Medicine and Psychotherapy, University Hospital Erlangen, Nicolas Rohleder, Professor, Department of Psychology, Friedrich-Alexander-Universität Erlangen-Nürnberg

Objective: Migrants and persons with migration background face various stressful situations during and after the migration process. Especially perceived ethnic discrimination may lead to adverse health outcomes. Self-compassion seems to buffer these detrimental consequences, as research showed for different samples. Still, especially perceived discrimination and experiences of verbal violence in German institutions, the potential moderating effect of self-compassion as well as their influence on chronic stress are scarcely examined.

Method: A sample of 232 persons (69.4 % female) between the age of 18 and 76 (mean = 39.01 ± 11.09 years), who immigrated themselves or have at least one parent who immigrated to Germany completed an online questionnaire. This included the EDS (Everyday Discrimination Scale), a self-developed questionnaire about experienced verbal violence in institutions as well as the SCS-SF (Self-Compassion Scale - short form) and the PSS-4 (Perceived Stress Scale).

Results: Descriptive analyses showed significant negative correlations between chronic stress and perceived discrimination as well as verbal violence ($p < .05$). A moderation analysis was run to determine whether an interaction between self-compassion and perceived ethnic discrimination predicts chronic stress. The overall model was significant ($F(3,216) = 30.72$, $p < .05$, $R^2 = 0.24$) as well as the interaction effect ($t = -2.10$, $p = .04$, 95% CI [-0.95, -0.03], $\Delta R^2 =$

0.01). Results indicated that the more perceived ethnic discrimination and the less self-compassion reported, the more chronic stress was experienced. To compare these results to the concept of institutional verbal violence, a second moderation analysis was run. The overall model was significant as well ($F(3,216) = 18.36, p < .05, R^2 = 0.20$), but not the interaction effect ($t = -0.64, p = .52, 95\% \text{ CI}[-0.04, 0.02]$).

Conclusion: In conclusion, results showed that self-compassion could buffer the negative effect of perceived ethnic discrimination on chronic stress, but not the negative effect of verbal violence in institutions. A more detailed investigation of other individual-related variables, such as migration history and circumstances could be of interest. Furthermore, these results may provide an approach for counteracting the negative consequences of discrimination-caused chronic stress.

Abstract 377

DISCRIMINATION AND SLEEP PROBLEMS AMONGST BLACK, LATINO/A/X, AND WHITE EMERGING ADULTS: TESTING FOR THE CULTURAL EQUIVALENCE OF MEASUREMENT

Hector Lopez-Vergara, Ph.D. , University of Rhode Island

Sleep problems are a transdiagnostic risk factor for various health outcomes and can be influenced by experiences of discrimination. However, most sleep problems measures have been developed in non-Latino/a/x White populations and there is a dearth of research on the comparability of such tools across race/ethnicity. Psychometric critiques of cross-cultural research (Lopez-Vergara et al., 2021) suggest that two forms of equivalent instrument functioning must be demonstrated to make valid between-group comparisons in covariances (metric invariance) and mean scores (scalar invariance). We applied Confirmatory Factor Analytic tests of equivalent factor loadings (metric invariance) and item intercepts (scalar invariance). Emerging adults were compensated for completing a survey; $n=404$ identified as Black, $n=430$ identified as Latino/a/x, and $n=412$ identified as White. Results suggest that the sleep problems measure had one item that was more reliable in the White group relative to the Black and Latino/a/x groups; the standardized factor loading for the item “*My sleep quality is usually...*” was .78 ($p < .01$) for White participants, was .37 ($p < .01$) for Black participants, and was .42 ($p < .01$) for Latino/a/x participants. Without correcting for such systematic measurement error (at the manifest level) it appears that Black and Latino/a/x participants had more sleep problems; however, after correcting for differential item functioning scores on level of sleep problems did not differ across race/ethnicity. Levels of discrimination were higher in Black participants than in Latino/a/x ($-.22, p < .01$) or White participants ($-.34, p < .01$). At the latent level, increased levels of perceived discrimination were positively associated with more sleep problems across all groups: $r = .17$ ($p < .01$) for Black participants, $r = .15$ for Latino/a/x participants, and $r = .23$ ($p < .01$) for White participants (correlations not statistically different from each other). Not testing for equivalent instrument functioning when making between-group inferences assumes that our instruments “work the same” across the groups being compared; if differential instrument functioning exists it will be a source of error which will bias between-group inferences. Using falsifiable measurement models when comparing cultural groups has the potential to create a more robust, replicable, and socially just scientific base.

Abstract 275

DIFFERENCES IN ETHNIC MINORITY FATHERS EXPERIENCES OF DISCRIMINATION AND STRESS

Josh Murillo, B.A., California State University, Long Beach, Annie Tong, B.A., California State University, Long Beach, Karissa Miller, Ph.D., California State University, Long Beach, Guido Urizar, Ph.D., California State University, Long Beach

Much of the research on fathers focuses on child-rearing (Baker, 2013), with less emphasis on father's stress. However, previous research has shown that ethnic minority fathers experience more stress in their everyday lives compared to their white counterparts (Williams, 2001). One factor that may explain this difference in father's stress is exposure to racism. The current study examined the relationship between everyday discrimination (Everyday Discrimination Scale), and perceived stress, (Perceived Stress Scale) among Fathers, and tested whether this relationship is influenced by ethnicity. Participants were fathers ($N=346$, $\text{Mage}=27$, $\text{SD}=6.79$, $\text{range}=18\text{-}58$) with an average adjusted per capita income of \$11,671.65 per year ($\text{SD}=\$14,422.57$). Furthermore, 70% of fathers had a high school education or less and 52% were working full time. Preliminary analysis revealed income to be a covariate of interest, such that those who had less income reported experiencing more discrimination ($r = -.095, p = .022$). A regression analysis (using SPSS PROCESS Model), controlling for income, found a significant relationship between everyday discrimination and perceived stress among all fathers, $b = .20, p = .002$. Although there was no significant moderation of the relationship by ethnicity, simple slopes testing indicated that there was a trend toward the relationship between perceived discrimination and stress being stronger among non-Hispanic white fathers. Additionally, results showed that non-Hispanic, White fathers report experiencing greater levels of perceived stress, $b = .19, p = .0875$. These results, contrary to popular beliefs, indicate that non-Hispanic, White fathers report experiencing more perceived stress compared to ethnic minority groups. A possible explanation for these results may be that ethnic minority fathers have habituated to the amount of everyday discrimination that they face, thus, not reporting higher amounts of perceived stress. This further emphasizes the need to understand the unique stressors that ethnic minority fathers are predisposed to (i.e., experiencing racism from a young age, how discrimination-related stressors transform into everyday norms for those who are from marginalized backgrounds, how ethnic minorities habituate and cope with systemic and structural prejudice and discrimination).

22: Technological innovation II **Friday March 10, 11:45am-12:45pm**

Abstract 638

FEASIBILITY, ENGAGEMENT, AND EFFICACY OF A DIGITAL HEALTH PROGRAM WITH HUMAN COACHING FOR MIGRAINE AND HEADACHE

Anthony Cocco, MBA, Head Health, Michael Stanton, Ph.D., California State University, East Bay, Tammy Scott, Ph.D., Dorothy J and Gerald R Friedman School of Nutrition and Science Policy at Tufts University

Objective: To assess the feasibility, engagement, and efficacy of a digital health program with human coaching for migraine and headache. **Background:** The migraine headache epidemic is one of the most pervasive and least understood health crises in the U.S. forcing the demand for better healthcare services for the migraine population. **Methods:** The study is a retrospective analysis of 32 episodic, chronic, and intractable migraine patients who participated in a pilot of the Migraine Elimination through Neuroindividual Treatments (MENT) Protocol from April 2019 – December 2021.

Participants received nine, 50-minute bi-weekly coaching sessions from a specialized health coach with supporting web-based modules over an 18-week period. The study participants were evaluated through a qualitative content analysis with an iterative coding process for the coaching notes and mediation regression analyses to examine the prediction of future outcomes in reducing pain, frequency, and duration of migraine. Self-reported efficacy data were collected at program completion and at a 6-month follow-up. **Results:** Of the 32 individuals who enrolled, 30 (94%) completed the 18-week pilot program; all 30 completers responded to the 6-month follow-up. 95% of the program participants were female. Reported headache types were predominantly tension (81%), rebound (80%), and chronic migraine (66%). Comorbidities were common, with 88% reporting one or more and 40% having three or more. Participants' most reported comorbidities were anxiety (75%), sinusitis (40%), autoimmune disease (38%), and depression (34%). The most used content and coaching lessons were cognitive behavioral therapy (93%), food triggers and nutrition (66%), breathwork (53%), and meditation (50%). At program completion, 91% of participants reported a reduction in migraine frequency, duration, or pain; 81% reported a sustained reduction at 6-month follow-up. **Conclusions:** These preliminary results show the feasibility and efficacy of the MENT program and demonstrate that a digital health program with human coaching for migraine and headache can produce positive health outcomes and promote chronic condition self-management.

Abstract 545

ENGAGEMENT AND CLINICAL OUTCOMES OF A DIGITAL MENTAL HEALTH BENEFIT

Lydia Roos, PhD, University of California, Los Angeles, Sara Sagui-Henson, PhD, Modern Health, Cynthia Castro Sweet, PhD, Modern Health, Brooke Smith, MS, Modern Health, Camille Welcome Chamberlain, MS, Modern Health, Myra Altman, PhD, Modern Health

Background: Digital mental health services are a growing employer health benefit that can improve access and remove barriers to mental health care. Clinical evaluation is needed to understand their benefit for mental health, as well as how engagement relates to changes in mental health over time. This study examined change in clinical outcomes (i.e., depressive and anxiety symptoms, well-being) among members of an employer-sponsored digital mental health benefit.

Methods: In a large prospective study, we examined changes in depressive symptoms, anxiety symptoms, and well-being over 3 months in 528 participants (Mean age = 33.9 ± 8.7 ; 61.7% women, 33.9% men, 4.4% non-binary; 40.2% BIPOC) who were newly enrolled into a digital mental health platform (Modern Health Inc., San Francisco, CA) and who used it at least once. We also investigated whether the volume of engagement in different care modalities (therapy, coaching, or digital self-guided content, e.g., meditations) was associated with clinically meaningful symptom improvement and/or recovery among participants with elevated baseline symptoms, or with good mental health maintenance among participants with no or mild baseline symptoms.

Results: Participants exhibited significant improvement in depressive and anxiety symptoms as well as well-being across the study period ($ps < .001$). Of the participants with elevated baseline symptoms, over half exhibited clinical improvement or recovery for depressive symptoms (65.8%), anxiety symptoms (59.2%), and low well-being (65.9%). In addition, of participants with no or mild baseline symptoms, the majority exhibited maintenance for low depressive (92.3%) and anxiety

(86.2%) symptoms, and high well-being (90.2%). Volume of engagement was not significantly associated with improvement or recovery, or mental health maintenance ($ps > .05$).

Conclusion: Participants with elevated baseline depressive and/or anxiety symptoms improved their mental health significantly from baseline to follow-up, and those who had no or mild symptoms successfully maintained their mental health at high rates. No critical volume of engagement in the available care modalities predicted greater likelihood of improvement or recovery. Results support the clinical effectiveness of digital services for improving mental health and preventing the incidence of mental health impairments.

Abstract 324

FEASIBILITY AND USER EXPERIENCE OF A 2-MONTH DIGITAL PHENOTYPING STUDY OF PEOPLE WITH DIABETES AND A CONTROL GROUP

Amy Mc Inerney, MSc, University College Dublin, Norbert Schmitz, PhD, University of Tübingen, Mark Matthews, PhD, University College Dublin, Sonya Deschênes, PhD, University College Dublin

Background. Digital phenotyping (in-situ data collection using a digital device) holds great potential for teasing apart the daily psychosocial, behavioural, and environmental processes underlying the development of mental health difficulties in people with diabetes. To realise this potential, evaluating whether rich longitudinal data can be captured practically and tolerably with people with diabetes is an important first step. Thus, this project aimed to (a) describe recruitment, methodology, retention, and technical issues and (b) assess user experiences of a digital phenotyping study. **Method.** Participants (N=82) with diabetes (46.34%) and a control group took part in a longitudinal digital phenotyping study in Ireland from February to August 2021. The Beive smartphone app collected active (daily ecological momentary assessments) and passive (e.g., GPS, accelerometer) data over 2 months. Psychosocial, lifestyle, and health questionnaires were completed at baseline, 1-month, and 2-months follow-up. A feedback questionnaire was included at study completion to assess participants' experiences. Participants rated how they felt about different elements of data collection on a 5-point Likert scale, from "not a problem" to "serious problem". Free text space was also provided for open responses.

Results. The feedback questionnaire was completed by N=66 (80.49%; 30/38 of diabetes group; 33/44 of control group) of the sample. Tolerability of aspects of the data collection method was high, with ratings of "not a problem" ranging from 75.5%-89.7% across questions. People with diabetes were significantly more likely to be comfortable with their healthcare provider hypothetically having access to data collected from their smartphone (88.88%) compared to the control (60%), $X^2(1, N = 66) = 7.4, p = .006$, and cited reasons reflecting the potential to help them better manage and monitor their health and to improve the quality of healthcare they receive. In free text responses, participants expressed a range of positive and negative experiences with the study and the app.

Conclusions. Digital phenotyping with people with diabetes is feasible and tolerable by participants. Open responses suggest people with diabetes might represent a population for which app-based digital phenotyping is seen as particularly acceptable and beneficial.

Abstract 391

DIGITAL HEALTH APPROACHES FOR PREDICTING PTSD: AN INTEGRATIVE CONCEPTUAL MODEL

Background: Post-traumatic stress disorder (PTSD) can be a debilitating consequence of traumatic events. Individual response to trauma exposure is heterogeneous as the underlying biological pathways. The identification of accurate predictors of chronic PTSD can inform PTSD risk stratification and the implementation of preventive interventions. Several studies used machine learning models, for example, to test routinely collectible data prior to the traumatic event, in the acute care setting, examined biomarkers, analyzed neurocognitive functioning shortly after trauma, and extracted digital biomarkers of stress and arousal to identify patients at high risk for PTSD. However, the results of various studies have not yet been examined for replicability, nor have attempts been made to integrate the results into a unified conceptual framework.

Methods: We examined predictors for PTSD before, during, and after trauma in multiple countries, e.g., demographic information, data from electronic health records (including clinical laboratory values, vital signs, Emergency Department (ED) environment characteristics such as ED crowding, time of admission, etc), biomarkers, and psychometric assessments. **Results:** We identified predictors prior, peri, and post-trauma across different samples (weighted average precision=0.86, recall=0.86, f1-score=0.86, AUC=0.86) and combined them into an integrative conceptual model.

Conclusions: We have shown that the time shortly after trauma provides an important window of opportunity to identify patients at high risk. The presented findings show that digital approaches bear a high potential for clinical application and may improve the scalability and sensitivity of clinical assessments using passive patient evaluations. Furthermore, we will discuss opportunities and challenges of implementing machine learning approaches in clinical practice (generalization, replicability, mechanistic vs. predictive yields).

23: Depression associated risk factors for morbidity and mortality

Friday March 10, 11:45am-12:45pm

Abstract 601

SOCIAL ENGAGEMENT, ALLOSTATIC LOAD, AND MORTALITY AMONG OLDER PUERTO RICANS

Luis M. Falcon, Ph.D., Center for Population Health, Xiyuan Zhang, MSc, Center for Population Health, Sabrina E. Noel, Ph.D., Center for Population Health, Josiemer Mattei, Ph.D., Chan School of Public Health, Harvard University, Katherine L. Tucker, Ph.D., Center for Population Health

Growing evidence suggests a relationship between social engagement, biological factors, and mortality. Social engagement has been associated with reduced mortality among African Americans and other groups. Allostatic load (AL), the cumulative burden of chronic stress due to life events, leads to poorer health outcomes and eventual mortality. Previous analyses with our data have shown that AL was significantly associated with abdominal obesity, hypertension, diabetes, and self-reported cardiovascular disease (CVD). The limited number of studies examining psychosocial stress, allostatic load, and mortality have focused mainly on non-minority populations, and most have been cross-sectional. Literature on factors impacting mortality for Puerto Ricans is scarce.

We used data from 1,499 participants (70% female; 57 ± 7.6 y at baseline) from the longitudinal Boston Puerto Rican Health Study (BPRHS), which began in 2004 and continued for three

additional waves of interviews. Data were analyzed with Cox proportional hazards models in SPSS, adjusting for age and sex. After excluding those with missing data, the sample size was 1281. AL was scored based on criteria from the MacArthur studies on Aging (range=0-10). Participants were asked if they participated, during the prior two weeks, in any of 14 social engagement activities (i.e., talking to friends, attending church, hobbies, etc.). They were also asked if they utilized any of the 15 distinct social services.

Over the lifetime of the study, 17% (255) of participants have died—confirmed as of 12/31/2020 by NDI data. On average, participants engaged in 6 social activities and received assistance from less than one service. Mortality was higher among men than women (HR=0.39; 95%CI=0.87-0.92). Social activities were protective (0.89; 0.84-0.95), while those using social services were more likely to die earlier (1.21; 1.10-1.33). Allostatic load was predictive of mortality (1.13; 1.02-1.21). Each of these was significant at $P < 0.001$.

Participation in social activities appears protective, while the use of services, likely due to poor health, appears predictive of mortality. Allostatic load, the accumulation of wear and tear on the body, is also predictive of mortality. More research is needed to understand better how to reduce allostatic load in this population.

Abstract 368

WINTER BLUNTS ASSOCIATIONS BETWEEN RETINAL RESPONSIVITY AND CIRCADIAN TIMING

Delainey Wescott, MS, University of Pittsburgh, Kathryn Roecklein, PhD, University of Pittsburgh

Growing evidence suggests circadian disruption is an underlying pathophysiological mechanism of physical and mental well-being. Altered responses to environmental light can disrupt circadian alignment with the solar day. The retina projects light information to the circadian clock through melanopsin-containing retinal ganglion cells (mRGCs). The responsivity of mRGCs can be measured using the post illumination pupil response (PIPR). The current study investigated how seasonal changes in light exposure affect this mechanistic pathway.

Participants included 148 individuals (78% female) during winter or summer (188 assessments), including individuals with seasonal depression ($n=51$), non-seasonal depression ($n=49$), and controls ($n=48$). Pupillometry assessments occurred between 10am-2pm and included alternating blue and red flashes of light. The PIPR was calculated as the average pupil diameter 10-20 seconds post stimulus. Dim Light Melatonin Onset (DLMO) procedures determined circadian timing with melatonin samples every 30min over 6-hours. Midsleep timing was determined from actigraphy. Circadian alignment with sleep timing was calculated as the DLMO-to-midsleep difference. Two multilevel models were used to test the interactions of retinal responsivity and season on circadian timing and circadian alignment. Models included ID as a random intercept to account for repeated seasonal assessments. Age, gender, and testing time were covariates. There was a significant interaction between season and retinal responsivity on circadian timing ($\beta = 4.7$; $SE = 1.7$; $p = 0.009$), such greater retinal responsivity was associated with later circadian timing in summer. The relationship was blunted in winter. A similar interaction was found for circadian alignment ($\beta = 4.7$; $SE = 2.2$; $p = 0.04$), such that greater responsivity was associated with shorter DLMO-midsleep phase angle in the summer with a blunted relationship in winter.

These findings suggest that changing environmental light levels are related to the retina's responses to light and downstream circadian functioning. When there is sufficient light

during the summer, individuals who are more responsive to light show delayed circadian timing, potentially due to the delaying effects of evening light. This supports recent circadian modelling work suggesting light differentially affects circadian photoentrainment.

Abstract 170

HIGHER INFLAMMATORY SIGNALING PREDICTS FUTURE DEPRESSION SEVERITY AMONG ADOLESCENTS WITH LOWER EMOTIONAL CLARITY

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Heightened levels of pro-inflammatory activity have been associated with depression in adolescents. Deficits in emotional clarity, which conveys an understanding and meta-knowledge of one's own emotional experience, may amplify the association of inflammatory protein signaling with depression because deficits in emotional clarity may reflect a difficulty processing the emotional experience caused by inflammatory-induced malaise and fatigue. However, this question has not been examined in prior research. Thus, the current study examined whether emotional clarity moderated the association between the levels of inflammatory proteins in circulation and depression severity.

Participants were 167 adolescents ($M_{age}=15.89$ years, $SD=1.57$, 56.3% Female, 55.7% Black) from a longitudinal study investigating the risk for adolescent depression. Self-report measures of emotional clarity and depressive symptoms were provided on regular intervals at and approximately six months after a visit for blood collection. Blood was centrifuged to obtain plasma, which was then assayed for 3 inflammatory measures: interleukin (IL)-6, C-reactive protein (CRP), and tumor necrosis factor-alpha (TNF- α). The levels were quantified with an electrochemiluminescence assay (Meso Scale Discovery). The Children's Depression Inventory (CDI) and the Emotional Clarity Questionnaire (ECQ) assessed depression severity and emotional clarity, respectively. Covariates included body mass index, sex, medication use, major illnesses, and depression severity on the day of blood collection.

Multiple regression analysis revealed a significant interaction between an Inflammatory Protein Level and Emotional Clarity on future depression severity (IL-6: $B=-.252$, $SE=.087$, $t=-2.908$, $p=.002$, $\Delta R^2=.022$; CRP: $B=-.118$, $SE=.034$, $t=-3.448$, $p=.002$, $\Delta R^2=.029$). That is, in the context of low levels of emotional clarity, higher inflammatory protein levels in adolescents predicted severity of depression in the future as adolescence progressed.

These findings suggest that low emotional clarity can synergize with and may potentiate the impact of higher levels of inflammatory activity on psychological processes that predispose to depression in adolescents. The theoretical implications for our understanding of mind-body relationships and the etiology of depression will be discussed.

Abstract 448

EXCESS RISK OF HOSPITALISATIONS FOR PHYSICAL ILLNESS IN PEOPLE WITH DEPRESSION: AN OUTCOME-WIDE MULTICOHORT STUDY

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PhD, Finnish Institute of Occupational Health, Jussi Vahtera, PhD, University of Turku, Glyn Lewis, PhD, University College London, Andrew Steptoe, FMedSci, University College London, Mika Kivimäki, FMedSci, University College London

BACKGROUND Depression is associated with an increased risk of physical illness, but the most common causes of hospitalisations among people with depression are unclear. We examined the association of depression with an array of physical diseases requiring hospital treatment.

DESIGN In this outcome-wide prospective multicohort study, primary analysis was based on 130,652 participants (49% women, mean age at baseline 63 years) from the UK Biobank study. Baseline depression and depression subtypes were examined using the Patient Health Questionnaire (PHQ-9) and four predefined UK Biobank depression indicators. Analyses were repeated in an independent dataset of 109,781 Finnish adults (79% women, mean age 42 years), with baseline depression assessed using self-reported doctor-diagnosed depression and hospitalisation data. In all studies, a total of 77 common health conditions were ascertained from linkage data to national hospital and mortality registries. Hazard ratios (HRs) with 95% CIs were computed for the associations between depression and incident disease. To examine total disease burden in individuals with depression, we calculated the cumulative incidence per 1000 persons.

RESULTS In the main analysis, depression was robustly associated with the incidence of 29 non-overlapping conditions during a 5-year follow-up. Twenty-five of these associations remained after adjustment for confounders and multiple testing (range of adjusted HRs 1.52–23.03) and were confirmed in the analysis of the Finnish cohort. These included hospital-treated obesity, sleep disorders, diabetes, ischaemic heart disease, chronic obstructive bronchitis, infections, back pain, and osteoarthritis. The highest cumulative incidence was observed for endocrine and related internal organ diseases (245 per 1000 persons with depression; risk difference relative to unaffected individuals: 9.8%), musculoskeletal diseases (91 per 1000; 3.7%) and diseases of the circulatory system (86 per 1000 persons; 3.9%). The cumulative incidence was markedly lower for hospital-treated mental disorders (20 in 1000; 1.7%).

CONCLUSION The most common causes of hospitalisations in people with depression were endocrine, musculoskeletal, and vascular diseases. These findings suggest that depression should be considered more widely as a target for the prevention of physical disease in clinical practice.

24: Individual differences in cardiovascular disease **Friday March 10, 2:00-3:00pm**

Abstract 496

ASSOCIATION BETWEEN SHIFT-AND-PERSIST AND CARDIOMETABOLIC MARKERS AND DYSREGULATION AMONG YOUNG ADULTS IN PUERTO RICO

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Background: Shift-and-persist (SP), defined as the ability to adapt the self to stressors while preserving focus in the future, is associated with favorable cardiometabolic (CMB) health. SP may be relevant in Puerto Rico (PR), a population with a high burden of CMB diseases and disproportionate exposure to adversity. This study examined the association between SP

and CMB markers and dysregulation among adults in PR. **Methods:** Baseline PR-OUTLOOK data collected between September 2020-September 2022 were used for this cross-sectional analysis. The analytic sample of $n=1,003$ was aged 18-29 and 63% female. SP was measured with the Chen & Miller scale and categorized into quartiles (Q1-Q4). Data from anthropometric measurements and fasting blood samples were used to assess CMB markers. These included markers of adiposity (BMI and waist circumference (WC)), blood pressure, glucose metabolism (blood glucose and HbA1c), lipid metabolism (cholesterol, HDL, LDL, triglycerides), fibrinogen, and hs-CRP. A composite score with the number of dysregulated parameters (using clinical cutoffs when available) was calculated. Analyses included adjusted linear regression models. **Results:** Low HDL (42%) was the most common dysregulated parameter and 72% had at least one parameter dysregulated. In adjusted models, compared to SP Q1, individuals in Q3 and Q4 had significantly lower BMI ($B=-1.34$, 95%CI=-2.43, -0.24; and $B=-1.53$, 95%CI=-2.76, -0.29, respectively) and WC ($B=-3.34$, 95%CI=-6.01, -0.68; and $B=-3.20$, 95%CI=-6.22, -0.18, respectively). Individuals in SP Q2-Q4 (vs. Q1) also had lower blood glucose levels ($B=-3.06$, 95%CI=-5.83, -0.29; $B=-4.56$, 95%CI=-7.22, -1.91; and $B=-3.62$, 95%CI=-6.62, -0.62, respectively). In addition, those in SP Q4 (vs. Q1) had lower HbA1c ($B=-0.08$, 95%CI=-0.15, -0.004) and diastolic blood pressure ($B=-1.80$, 95%CI=-3.42, -0.18). Lastly, individuals in SP Q3-Q4 (vs. Q1) had lower total CMB dysregulation ($B=-0.36$, 95%CI=-0.68, -0.04; and $B=-0.49$, 95%CI=-0.85, -0.12, respectively). **Conclusion:** Higher SP scores were associated with lower levels of adiposity, markers of glucose metabolism, diastolic blood pressure, and lower CMB dysregulation in PR adults. Studies of longitudinal nature are needed to confirm study findings and further understand how SP may promote biobehavioral mechanisms for CMB health in this understudied group.

Abstract 456

MEN AND WOMEN HAVE TO BE LOOKED AT DIFFERENTLY – PROCOAGULANT MARKERS IN DEPRESSED CORONARY ARTERY PATIENTS FROM THE SPIRR CAD TRIAL

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Introduction:

Depression and Type D worsen prognosis in coronary artery disease (CAD). A procoagulant state mediates vascular risk. Procoagulant markers were analyzed in depressed CAD patients from the SPIRR-CAD trial before (T0) and after 18

months of group psychotherapy (T3) (Deter et al 2021). We here aimed to check for differences between men and women since research reports sex specific features in CAD implying need for gender tailored cardiovascular medicine and interventions. We hypothesized more favorable biomarker profiles in men and Type D patients based on our and others' prework (Herrmann-Lingen et al 2016).

Methods:

Plasma levels of fibrinogen, D-dimer, FVII, VWF-Ag, PAI-1, and Tissue Factor (TF) were assessed. Sex differences were analyzed by t-tests, associations between biomarker levels and age by correlation analyses. Repeated measures ANOVA were performed: 2 time points, 2 groups (men versus women), biomarkers as dependent variable, Type D as further grouping factor, age as covariate.

Results:

From the 570 SPIRR-CAD patients (59 ± 9 y; 450 men) complete biomarker data were available in $n=158$ to $n=253$, resp. For fibrinogen, a significant time x group interaction ($F[df1]=6.671$; $p=.010$) was shown, referring to a decrease in men vs increase in women. Age and fibrinogen were significantly correlated at T0 ($p=.030$; $r=.137$). Women showed higher fibrinogen at T3 ($p=.015$).

For VWF-Ag, a significant time x group interaction ($F[df1]=4.747$; $p=.030$) was seen, indicating a decrease in men vs increase in women.

For FVII, a significant group effect ($F[df1]=26.252$; $p<.001$) emerged, referring to higher levels in women ($p<.001$; at T0 and T3, resp.).

For TF, a significant group effect for age ($F[df1]=72.069$; $p<.001$) and Type D ($F[df1]=5.066$; $p=.025$) was seen. TF correlated with age (T0: $r=.428$; T3: $r=.433$; $p<.001$ resp.). In Type D men, TF decreased whereas TF increased in all other subgroups.

Conclusion:

Backing our hypothesis, depressed CAD women seem to have higher levels of some procoagulant markers and less tendency for decrease within 18 months follow-up, inferring higher cardiovascular risk. Data further suggest heightened procoagulant risk with age. For Type D, some evidence regarding reduction of TF was manifest, as hypothesized. Further analyses on the interplay of sex, psychological profile, and coagulation are needed.

Abstract 415

PATIENT PROFILES RELATED TO TELEHEALTH SATISFACTION IN CARDIOLOGY OUTPATIENTS DURING THE COVID-19 PANDEMIC

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Background: Within the field of cardiology the use of telehealth has demonstrated important benefits regarding disease management and survival. During the COVID-19 pandemic, the upscaling of telehealth has highlighted its numerous benefits (e.g. increased health access, reducing hospital visits) which could prevail in the post-pandemic health care system. However, this approach is not preferred by all patients. The current study examines which patient characteristics (demographic, psychosocial, medical) are associated with attitude towards telehealth and satisfaction with telehealth use.

Methods: Patients ($N=313$, mean age = 64.2 (9.99) years, 31% women) were recruited at a cardiology outpatient clinic. All patients who had received telehealth care in the past two months were approached for participation. At baseline, 3 and 6

months follow-up standardized questionnaires were administered online. Repeated measures Latent Class Analysis was performed to identify time-dependent telehealth use patterns/subgroups. Latent group models were built for three outcome measures 1) satisfaction with telehealth use 2) general attitude towards telehealth and 3) implementation preferences. Regression analysis was used to identify patient characteristics associated with each subgroup membership. **Results:** The results showed that patients with elevated distress levels were classified as less satisfied with telehealth use (Wald= 13.36; $p=.010$). Regarding attitudes towards telehealth in general, results showed that younger patients (Wald= 15.43; $p = .002$), patients who were not with a partner (Wald= 10.42; $p=.015$), and patients with higher distress levels (Wald= 11.43; $p=.010$) were more often classified as having a negative attitude. Finally, current results showed that being married (OR= 2.78, 95%CI=1.4-5.52), having higher digital literacy (OR=2.55, 95%CI=1.63-3.93), and having less comorbidities (OR=2.08, 95%CI=1.06-4.07) was associated with a preference to implement telehealth in standard clinical practice.

Discussion: The findings from the current study show that a personalized approach towards telehealth implementation in the post-pandemic health care system is warranted and should be in line with patient preferences. In order to facilitate upscaling of telehealth patient characteristics should be taken into account.

Abstract 203

RACE MODERATES THE ASSOCIATION BETWEEN POST TRAUMATIC STRESS DISORDER AND CARDIOVASCULAR RISK

Stephanie Cook, DrPH, MPH, New York University, Allen Weng, MS, New York University, Yao Xin, MS, Medical University of South Carolina, Erica Wood, MPH, New York University

Researchers have found that posttraumatic stress disorder (PTSD) is associated cardiovascular disease (CVD) risk. PTSD may lead to CVD risk via its impact on biological processes such that exposure to trauma-related stress may enhance physiological reactivity and subsequent inflammation. Further, race/ethnicity may moderate this association due to the differences in the perceived impact of PTSD, level and types of PTSD experienced, as well as the potential differences in levels of inflammation by racial/ethnic category. Thus, this study sought to explore racial/ethnic differences in the association between PTSD and C-reactive protein (CRP) using the All of Us Research Program (AoU). The AoU data were selected over a three-year time period (2017 to 2019) and includes electronic health record data from 7,988 participants. CRP was categorized into groups of low (<1 mg/L), moderate (≥ 1 and <3 mg/L) and high CVD risk (≥ 3 mg/L), excluding values above 500 mg/L. PTSD history consists of diagnosis from a health professional (history versus none). Multinomial regression was used. Model 1 examined how PTSD history relates to CRP risk classification. Model 2 included an interaction term between race/ethnicity and PTSD. Each model controlled for race, gender, income, education, employment, marital status, BMI, and sexual orientation. In Model 1 we found that Blacks, as compared Whites, had 47% greater odds of being high-risk CRP as compared to low-risk (OR=1.47, CI=1.30, 1.64). In Model 2 we found that, in comparison to Whites, Blacks with a PTSD history had higher odds of being moderate-risk as compared to the low-risk (OR=1.89, CI=1.29, 2.49). No differences in the association between race/ethnicity and PTSD for the high-risk versus low-risk categories were observed. To explore the nature of the interaction, we built

predictive models for each category of CRP risk and stratified the results by race/ethnicity. A graphic presentation of the marginal probabilities is shown in Fig. 1. We found that, for Blacks, PTSD was associated with a 7.8% increase in probability of moderate-risk CRP ($p=.04$). Our findings provide evidence that PTSD history may uniquely impact CVD risk among Black individuals. Researchers and clinicians should adopt an intersectional perspective when seeking to understand differential CVD risk among racial/ethnic minorities.

25: Experience Sampling and Biological Variables Friday March 10, 2:00-3:00pm

Abstract 651

DOES HEADSPACE IMPROVE SLEEP QUALITY IN DAILY LIFE: A DAILY DIARY STUDY OF APP-BASED MINDFULNESS MEDITATION AND SLEEP

Zoltan Torok, PhD, Fresno Pacific University, Larisa Gavrilova, PhD, University of California, Merced, Amish Patel, N/A, Sonoma State University, Matthew Zawadzki, PhD, University of California, Merced

Background. A lack of sleep increases risk for cardiovascular disease. Mindfulness meditation can improve sleep. Yet there is a need to test if these effects can be achieved with app-based delivery of mindfulness meditation that is more accessible than in-person mindfulness programs, which can be financially and geographically limiting. It is also critical to test when sleep effects emerge to understand whether programs can be better tailored to individuals progress through meditation. This study tested whether the app-based mindfulness program Headspace improved sleep quality assessed with daily diaries systematically throughout an eight-week intervention period. **Method.** Employees from a public university in the San Joaquin Valley of California were participants in the study. They ($n = 132$) were aged between 21 and 65 ($M = 38.5$, $SD = 11.1$), were predominantly female (76.5%), and identified mostly as non-Hispanic White (54.5%) or Hispanic/Latino (22.0%). Participants were randomized to receive the Headspace app immediately or after four months. Those in the Headspace group were instructed to complete 10 minutes of meditation daily for eight weeks. At baseline, and weeks two, five, and eight post-randomization, participants completed a burst of daily diaries, with four consecutive days of morning assessments in each burst, resulting in 1,802 days of data. Each morning participants reported how well they slept the night before. **Results.** Multilevel models examined whether Headspace (compared to the control group) predicted changes in reported sleep quality post-randomization. Models controlled for gender, age, and day of the week, as well as mindfulness levels assessed at baseline. Results indicated that participants in the Headspace reported marginally better sleep quality at week two ($B = .53$, $SE = 0.28$, $p = .063$), and significantly better sleep quality in week five ($B = 0.94$, $SE = 0.30$, $p = .002$) and week eight ($B = 0.68$, $SE = 0.34$, $p = .044$) compared to baseline. Participants in the control group showed no difference in sleep quality at any week ($ps > .067$). Baseline levels of mindfulness predicted better sleep quality at all time points ($B = 0.34$, $SE = 0.07$, $p < .001$). **Discussion.** Results show the potential of app-based mindfulness to improve sleep early in the intervention process and have implications for deploying these apps more efficiently.

Abstract 465

GREATER ECOLOGICALLY-ASSESSED POSITIVE EXPERIENCES PREDICT HEIGHTENED SEX HORMONE

CONCENTRATIONS ACROSS TWO-WEEKS IN OLDER ADULTS

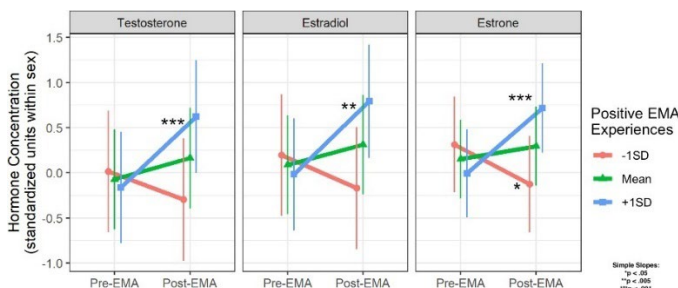
Erik L. Knight, PhD, University of Colorado Boulder, Jennifer E. Graham-Engeland, PhD, The Pennsylvania State University, Martin J. Sliwinski, PhD, The Pennsylvania State University, Christopher G. Engeland, PhD, The Pennsylvania State University

Sex hormones are critical components of healthy aging, and there is growing evidence that they function as an important resilience factor for both physical and mental health. Positive experiences – related to reward, elevated mood, lowered stress, and greater subjective well-being – also contribute to resilient health outcomes and, in younger adults, have been associated with elevated sex hormone levels. However, little is known about the association between positive experiences and sex hormones in older adults.

In this study, older men and women (N = 266, 70+ years of age, 42.7% Black) provided blood samples before and after a two-week period of ecological momentary assessment (EMA) of positive and negative experiences (indexed via 17 items related to affect, stress, and well-being). Self-reported retrospective positive and negative affect (recalled from the past month) was also examined. Concentrations of a panel of steroid sex hormones (testosterone, estradiol, estrone) were determined from blood. Participant race and sex were explored as possible moderators.

Higher levels of positive experiences reported in daily life across two-weeks were associated with increases in free (biologically active) levels of testosterone (B = 0.353, $t(221.3) = 2.801$, $p = 0.006$), estradiol (B = 0.373, $t(225.1) = 2.645$, $p = 0.009$), and estrone (B = 0.468, $t(224.3) = 3.535$, $p < .001$; Figure 1) between the same two-week period. This pattern was more robust for White participants than for Black participants, for whom positive experiences were more weakly associated with sex hormone fluctuations. No sex differences were observed, and self-reported retrospective affect was not associated with sex hormone levels.

Overall, this work suggests that older adult sex hormone fluctuations associate with ecologically-measured positive experiences, but not negative experiences and not with retrospectively reported affect. Future work is needed to investigate putative mechanisms and unpack possible race-based differences. The findings add to our biopsychosocial models of health by suggesting that sex hormones may be part of a pathway linking positive experiences in everyday life to the promotion and maintenance of better health in older adults.



Abstract 387

THE DAILY DYNAMICS OF STRESS AND SELF-REPORTED ATTENTION: MODERATION BY PHYSICAL ACTIVITY AND AGE

Nicole Stuart, BA, University of British Columbia, Jin H. Wen, MA, University of British Columbia, Patrick Klaiber, MSc, University of British Columbia, Anita DeLongis, PhD, University of British Columbia, Eli Puterman, PhD, University of British Columbia, Nancy L. Sin, PhD, University of British Columbia

Background: Previous literature has linked daily stress to decreased attention; however, much remains unknown about whether stress in daily life is associated with self-reported attention as they go about their day-to-day activities. This preregistered study aims to assess the associations between daily stress level and subjective attention and, further, if this relationship is moderated by daily physical activity engagement. On an exploratory basis, we also evaluated if the link between stress and attention differed by age.

Method: Ecological momentary assessment data were collected from adults aged 25-91 across British Columbia, Canada. For 14 days, participants (N = 251) wore a tri-axial physical activity monitor, reported stressor occurrence and perceived stressfulness of the events in mobile surveys 4 times per day, and rated their attention at the end of each day.

Results: Two moderated multilevel models were run to evaluate daily perceived stressfulness as a predictor of subjective attention. Physical activity engagement (activity counts above 148 counts per 60 sec epoch) and age were run as moderators. At the within-person level, on days when stressors were perceived as more stressful than usual, subjective attention was rated as relatively worse ($b = -0.185$, $CI[-0.326, -0.055]$, $p = .004$). Physical activity did not moderate the relationship between stress and same-day attention ($p > .05$). Finally, perceived stressfulness interacted with age, such that stress was associated with same-day deficits in attention for younger (age 30: $Est = -0.363$, $p < .001$) and middle-aged adults (age 47: $Est = -0.185$, $p = .004$), but not older adults (age 65: $Est = -0.007$, $p = .931$).

Conclusion: Higher perceived stressfulness of the day's stressors was negatively associated with same-day subjective attention, particularly among younger and middle-aged adults; however, physical activity did not buffer against the associations of daily stress with subjective attention. This age interaction may be due to differences in the types of stressors that older adults experience, compared to other age groups. Future work could examine the impacts of different intensity and forms of physical activity on stress, as well as pathways underlying age variations in stress and attention.

Abstract 375

HEART METRICS FROM WEARABLE SENSORS AT NIGHT PREDICT NEXT-DAY PAIN REPORTS: TWO STUDIES OF PRIMARY CHRONIC PAIN

Veronica Dudarev, Ph.D., University of British Columbia, Oswald Barral, Ph.D., HealthQb Technologies Inc., Guy Davis, MBA, HealthQb Technologies Inc, James Enns, Ph.D., University of British Columbia

Chronic pain is devastating and its measurement is elusive, making intervention difficult for sufferers and practitioners alike. In two studies we explored whether heart-based metrics may contribute to tracking the trajectory of pain over time and to possible interventions.

Last year at APS annual meeting we reported a study in which 30 adults with chronic pain and 24 pain-free controls wore a commercially available PPG-based sensor of cardiac biometrics and recorded their daily pain intensity for one month. The results showed that heart rate at night predicted pain reports the next day in participants with chronic pain, $b = 0.018$, $t(710) = 3.21$, $p = .001$, but not in pain-free participants. Since then, we have tested a new set of 75 participants with chronic pain, with the same protocol, in order to replicate and extend the association between night-time cardiac biometrics and pain intensity. In this study we focused on two of the most

prevalent types —chronic back pain and fibromyalgia — in order to see whether the correlation held for both of these etiologies. The results showed a predictive relationship between night-time heart rate and next-day pain intensity in both groups combined, $b = 0.03$, $t(2446) = 1.996$, $p = .046$, with no discernible difference between the two types of chronic pain, $ps > .3$.

We conclude that this relationship is a predictive one, because the opposite direction of effect (day to night) was not significant. In both studies, the correlation between daytime pain reports and next-night heart rate was not reliable, $ps > .1$. The results of these studies show that night-time heart rate predicts pain intensity on the following day across different types of primary chronic pain. We are therefore optimistic that cardiac biometrics obtained with wearable devices can serve as objective biomarkers of fluctuations in daily pain, for at least two frequently reported categories of chronic pain.

26: Aging and Lifespan Research **Friday March 10, 2:00-3:00pm**

Abstract 534

IMPACT OF PSYCHOSOCIAL STRESS IN EARLY LIFE ON DNA METHYLATION PACE OF AGING IN YOUNG ADULTHOOD

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Background: Emerging evidence suggests that early life exposure to disadvantaged environments can shorten a person's health lifespan. However, it is unclear whether this aging process occurs at young adulthood. In the current study, we aim to examine whether the stressful psychosocial environment in early life is already associated with accelerated aging in young adulthood and the potential health disparity between African and European Americans (AA vs. EA).

Methods: Participants were from the Georgia Stress and Heart study, a longitudinal youth cohort initiated in 1989. A formative indicator of early life stress was calculated using the canonical correlation analysis from multiple psychosocial measurements obtained during childhood visits including: (1) Adolescent Resources Challenge Scale, a measure of stressful life experiences from the neighborhood, family, and peer environments; (2) Adverse Childhood Experiences (ACE) questionnaire; (3) childhood socioeconomic status assessed by parents' education and occupation levels. DunedinPACE, a novel blood biomarker of the pace of aging, was calculated using the Illumina 450K Array data obtained from the peripheral blood DNA samples collected at visit 15 (mean age: 28; age range: 19-36).

Results: Data from 324 subjects were used for the analysis, including 160 AAs and 164 EAs, and 168 females and 156 males. Compared to EAs, AAs reported higher levels of early life stress (0.14 vs. -0.13, $p < 0.001$; effect size: Cohen's $d = 0.48$) and had a faster pace of aging (0.98 vs. 0.93, $p < 0.001$; effect size: Cohen's $d = 0.38$) in young adulthood. Linear regression analysis showed a positive association between early life stress and pace of aging ($\beta = 0.026$, $p = 0.006$; standardized $\beta = 0.13$) independent of age, sex, race, BMI and smoking. Mediation test showed that 19% of racial differences in the pace of aging could be explained by early life stress ($p = 0.02$).

Conclusion: Our findings suggest that a disadvantaged psychosocial environment in early life may accelerate

biological aging in young adulthood. In addition, AAs display a faster pace of aging than EAs, which can be partially explained by the racial difference in exposure to early life stress.

Abstract 565

LIFE COURSE SOCIOECONOMIC STATUS AND BIOLOGICAL AGING INDICATORS AMONG BLACK AND WHITE WOMEN IN NATIONAL GROWTH AND HEALTH STUDY

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Background: This study aimed to examine racial differences in biological aging indicators among Black and white women and to test whether life course socioeconomic status (SES) was associated with biological aging indicators among Black and white women.

Methods: Data were from 423 participants who self-identified as non-Hispanic Black ($n = 217$; Mean age = 39.5, range = 37-42) and non-Hispanic white ($n = 206$; Mean age = 39.6, range = 37-43) in the National Growth and Health Study (NGHS). We incorporated measures of SES across the life course, including parental education and household income, and participants' education and household income. We utilized the three frameworks of life course SES and health, including the sensitive period framework (i.e., direct association, childhood SES and biological aging), accumulation framework (i.e., the cumulative impact of SES across the life course on biological aging), and SES mobility framework (i.e., the association between intergenerational educational mobility and biological aging). We included three indicators of biological aging, including GrimAge, telomere length, and CRP. We conducted within-race analyses to examine the association between life course SES and biological aging indicators.

Results: Relative to white women, Black women in NGHS showed significantly older GrimAge and higher CRP. However, Black women showed longer telomere lengths. Within-race analyses indicated that lower parental education was only associated with higher CRP among Black women. Cumulative SES across the life course was associated with older GrimAge, shorter telomere length, and elevated CRP among Black women but not white women. Finally, upward educational mobility was associated with younger GrimAge among white women but not Black women.

Discussion: Due to the nonequivalence of life course SES between Black and white groups in the United States, intra-racial analysis is crucial to elucidate the complexity of the association between life course SES and indicators of biological aging within each racial group. We showed that cumulative socioeconomic disadvantage across the life course affects Black but not white women's biological aging. In addition, we found evidence of a diminishing return of upward educational mobility among Black women.

Life Course Socioeconomic Status and Biological Aging Indicators Among Black and White Women in National Growth and Health Study

Table 1. Comparisons of life course SES between Black and white women in the NGHs Study

	Non-Hispanic Black (n = 217)	Non-Hispanic white (n = 206)
Childhood SES		
Parental education		
- No college (%)	25.0	19.9
- Some college (%)	53.2	36.9
- College degree (%)	21.8	43.2
Parental household income		
- <20K (%)	52.7	19.8
- 20K - <40K (%)	26.1	30.2
- >= 40 K (%)	21.2	50.0
Current SES		
Participants' education		
- No college	25.3	15.0
- Some college	49.3	31.6
- College degree	25.3	53.4
Participants' household income		
- <50 K	47.5	22.4
- 50K - <100K	36.5	29.4
- >= 100K	16.0	48.3
Cumulative Life Course SES		
Cumulative score (Mean and SD; range = 0-2)	0.84 (0.75)	1.30 (1.25)
Intergenerational Educational Mobility		
Stable low (both parent and participant has no college degree)	63.9	36.4
Downwardly mobile (parent has college degree, participant has no college degree)	10.6	10.2
Upwardly mobile (parent no college degree, participant has college degree)	14.4	20.4
Stable High (both parent and participants have college degree)	11.1	33.0

Table 2. Racial comparisons of biological aging indicators between Black and white women in NGHs Study

	Epigenetic Age Horvath	Hannum	GrimAge	Skin & Blood	PhenoAge	Telomere Length	CRP (ln)	Metabolic Syndrome Severity
	N = 422 (n Black = 217)	N = 422 (n Black = 217)	N = 422 (n Black = 217)	N = 423 (n Black = 217)	N = 423 (n Black = 217)	N = 423 (n Black = 217)	N = 373 (n Black = 187)	N = 257 (n Black = 141)
Black women	Model 1 ^a 35.34 (0.35)***	37.18 (0.32)***	51.65 (0.33)***	37.51 (0.32)**	40.34 (0.48)**	Model 1 ^a 1.25 (0.02)***	Model 1 ^a 0.81 (0.09)*	Model 1 ^a 0.27 (0.12)**
White women	37.25 (0.37)	39.62 (0.33)	49.40 (0.33)	38.83 (0.32)	42.43 (0.50)	1.15 (0.02)	0.52 (0.09)	-0.16 (0.08)
Black women	Model 2 ^b 35.24 (0.37)***	37.56 (0.31)***	51.69 (0.28)***	37.79 (0.33)**	40.23 (0.49)**	Model 2 ^c 1.25 (0.02)***	Model 2 ^c 0.70 (0.08)	Model 2 ^c 0.13 (0.09)
White women	37.58 (0.38)	39.65 (0.32)	49.46 (0.28)	39.07 (0.34)	42.75 (0.51)	1.15 (0.02)	0.56 (0.08)	-0.02 (0.11)

Note: Model 1 = unadjusted models, Model 2 = adjusted models; a = no covariates included in the model, b = adjusted for age, BMI, smoking status, cell compositions, and cluster; c = adjusted for age, BMI, and smoking status; * = p < .05, ** = p < .01, *** = p < .001

Table 3. Life course SES and biological aging indicators among Black women

	Telomere Length ^a N = 217	CRP ^a N = 217	GrimAge ^b N = 217
Sensitive Period Framework^a			
Parental education			
- HS vs. some college	b = -0.06 (0.05)	b = 0.09 (0.18)	b = -1.45 (0.76)
- HS vs. college degree	b = 0.02 (0.06)	b = 0.52 (0.23) *	b = -0.71 (0.98)
Childhood family income			
- <20K vs. 20-<40K	b = -0.08 (0.05)	b = -0.01 (0.19)	b = -1.20 (0.80)
- <20K vs. 40K and higher	b = -0.07 (0.07)	b = 0.28 (0.22)	b = -1.91 (1.01)
Accumulation Framework^b			
Cumulative score from parental education (no college = 0, some college = 1, college degree = 2), childhood family income (<20K = 0, 20-<40K = 1, 40K or higher = 2), R's education (no college = 0, some college = 1, college degree = 2), and current household income (<50K = 0, 50-<100K = 1, >=100K = 2); mean score	b = -0.11 (0.04) *	b = 0.40 (0.16) *	b = -1.55 (0.65) *
Mobility Framework^b			
- Stable low vs. Downward	b = 0.07 (0.06)	b = 0.65 (0.24)	b = 1.32 (0.97)
- Stable low vs Upward	b = -0.07 (0.06)	b = 0.19 (0.22)	b = -1.46 (0.93)
- Stable low vs Stable high	b = -0.09 (0.07)	b = 0.55 (0.24) *	b = -2.36 (1.03) *

Note: a = adjusted for age, BMI, and smoking status; b = adjusted for age, BMI, smoking status, cell compositions, and cluster; * = p < .05, ** = p < .01, *** = p < .001

Table 4. Life course SES and biological aging indicators among white women

	Telomere Length ^a N = 206	CRP ^a N = 206	GrimAge ^b N = 205
Sensitive Period Framework^a			
Parental education			
- HS vs. some college	b = 0.03 (0.06)	b = -0.37 (0.24)	b = -0.47 (0.77)
- HS vs. college degree	b = 0.06 (0.06)	b = -0.40 (0.24)	b = -0.76 (0.81)
Childhood family income			
- <20K vs. 20-<40K	b = 0.03 (0.05)	b = 0.01 (0.23)	b = 0.61 (0.76)
- <20K vs. 40K and higher	b = 0.01 (0.05)	b = 0.14 (0.22)	b = 0.90 (0.72)
Accumulation Framework^b			
Cumulative score from parental education (no college = 0, some college = 1, college degree = 2), childhood family income (<20K = 0, 20-<40K = 1, 40K or higher = 2), R's education (no college = 0, some college = 1, college degree = 2), and current household income (<50K = 0, 50-<100K = 1, >=100K = 2); mean score	b = 0.01 (0.04)	b = 0.11 (0.16)	b = -0.76 (0.55)
Mobility Framework^b			
- Stable low vs. Downward	b = 0.06 (0.06)	b = -0.24 (0.27)	b = -1.25 (0.94)
- Stable low vs Upward	b = -0.01 (0.05)	b = 0.27 (0.23)	b = -1.75 (0.77) *
- Stable low vs Stable high	b = 0.01 (0.05)	b = 0.23 (0.21)	b = -1.66 (0.71) *

Note: a = adjusted for age, BMI, and smoking status; b = adjusted for age, BMI, smoking status, cell compositions, and cluster; * = p < .05, ** = p < .01, *** = p < .001

Abstract 458

ASSOCIATIONS BETWEEN CHILDHOOD STRESS EXPOSURES, STRESS HORMONES, AND BIOLOGICAL AGING IN MIDLIFE ADULTS

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Psychosocial stress and adversity have been linked to accelerated aging and increased risk for age-related diseases. Animal and *in vitro* studies have shown that exposure to stress hormones (catecholamines, glucocorticoids) can impact biological aging processes such as DNA damage and cellular senescence, suggesting they play a key role in links between stress and aging; however, these associations have not been well investigated in humans. We examined associations between chronic stress exposures, stress hormones, and biological aging markers in midlife adults and whether stress hormones mediated associations between stress and aging. Participants were 525 adults aged 26-78 years (*M*_{age}=53.9, 50.1% male) in the nationally representative Midlife in the United States Refresher cohort. They reported chronic stress exposures in childhood and adulthood (Stressful Life Event Inventory) and provided 12-hour urine samples used to assess norepinephrine (NE), epinephrine (E), and cortisol. RNA sequencing of peripheral blood mononuclear cells derived aging biomarkers: cellular senescence signal p16^{INK4a} (*CDKN2A*), the DNA damage response (DDR; 30-gene composite), and the pro-inflammatory senescence-associated secretory phenotype (SASP; 57-gene composite). Regression models adjusting for age, sex, race/ethnicity, BMI, smoking status, alcohol use, and medications revealed that more childhood exposures were associated with higher NE (β =0.09, *p*=.03) and marginally higher E (β =0.08, *p*=.095), independent from adult exposures. Higher NE related to elevated DDR expression (β =0.17, *p*<.001). Higher NE (β =0.14, *p*=.003) and E (β =0.10, *p*=.03) both related to elevated SASP expression. Higher cortisol was unexpectedly associated with lower p16^{INK4a} mRNA (β =-0.09, *p*=.04). Statistical mediation analyses implicated elevated NE as a plausible mediator of associations between childhood exposures and both DDR (β_{ab} =0.01, 95% CI [0.001, 0.03]) and SASP (β_{ab} =0.01, 95% CI [0.001, 0.03]). Further adjustment for mRNA markers of leukocyte subsets suggested that increased T cell and monocyte prevalence may mediate associations between NE and DDR and SASP. Findings provide preliminary evidence in humans that stress hormones may impact key biological aging processes in the stress-senescence-inflammation pathway and may be a mechanism linking chronic stress exposures in childhood to accelerated aging.

LIFE-COURSE SOCIAL PARTICIPATION AND PHYSICAL ACTIVITY IN MIDLIFE: LONGITUDINAL ASSOCIATIONS IN THE 1970 BRITISH COHORT STUDY (BCS70)

Stergiani Tsoli, MPhil, University College London, Daisy Fancourt, PhD, University College London, Alice Sullivan, PhD, University College London, Mark Hamer, PhD, University College London, George Ploubidis, PhD, University College London, Ichiro Kawachi, PhD, Harvard T.H. Chan School of Public Health

Background: A hypothesized benefit of social participation is that it encourages people to be more physically active. However, limited evidence exists on the association between social participation over the life-course and physical activity in midlife. We sought to apply a life-course framework to examine the association of social participation and device measured physical activity in midlife in the UK.

Methods: We used the 1970 British Birth Cohort Study (BCS70), which includes all people born in Britain during a single week in 1970. Social participation was assessed at ages 16, 30, 34 and 42. Physical activity was measured by accelerometry at age 46, as mean daily step count and time spent in Moderate to Vigorous Physical Activity (MVPA). The associations of social participation and physical activity were tested using two different life-course models: the sensitive period model and the accumulation model.

Results: Individuals with medium and high participation compared to no social participation over their life-course had higher mean daily step count and MVPA in midlife, supporting the accumulation model. In the sensitive period model, only those that actively participated at age 42 had higher mean daily steps and MVPA compared to those who did not participate.

Conclusion: Our study provides empirical evidence on the importance of sustaining social participation at all ages over the life-course rather than at a particular timepoint of someone's life. Interventions to promote social participation throughout the life-course could be an avenue to promote physical activity in middle life.

27: Cardiometabolic risk in the young and the old Friday March 10, 3:15-4:30pm

Abstract 273

EATING BEHAVIORS AS PATHWAYS FROM EARLY CHILDHOOD ADVERSITY TO ADOLESCENT CARDIOMETABOLIC RISK

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Background: Adversity in infancy and childhood is associated with later cardiometabolic risk (Doom et al., 2017; Slopen et al., 2014; Suglia et al., 2018), though the mediators of this association are not well-understood. Obesogenic eating behaviors, such as overeating and emotional eating, may mediate the association between adversity in childhood and infancy and later cardiometabolic risk. It is unclear whether different types of early adversity may be associated with specific eating behaviors, which could lead to greater cardiometabolic risk. This knowledge could inform personalized interventions to improve health following early adversity.

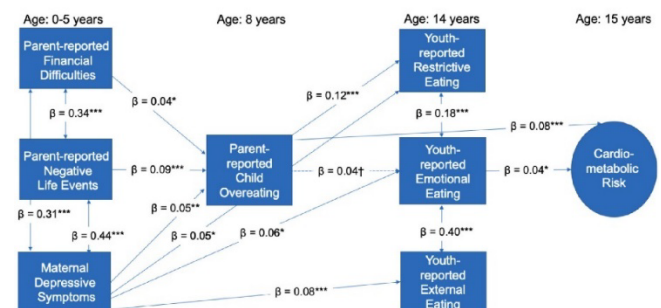
Objective: To identify specific eating behavior pathways from financial difficulties, negative life events, and maternal depressive symptoms from 0-5 years to cardiometabolic risk in adolescence.

Methods: Aims were tested using the Avon Longitudinal Study of Parents and Children (ALSPAC; $n = 2,983$). Mothers reported financial difficulties, negative life events, and maternal depressive symptoms at multiple points from 0-5 years and reported on child overeating at 8 years. Youth self-reported restrictive, emotional, and external eating at age 14. At age 15, the cardiometabolic risk indicators of waist circumference, triglycerides, high-density lipoprotein, and insulin resistance were measured in youth. Structural equation modeling with bootstrapping was used to test mediation models between childhood adversities from 0-5 years and a latent variable of cardiometabolic risk at 15 years. Child overeating at age 8 and restrictive, emotional, and external eating behaviors at age 14 were tested as mediators of these associations.

Results: Financial difficulties, negative life events, and maternal depressive symptoms predicted greater overeating at age 8, which directly predicted both greater restrictive eating at 14 and cardiometabolic risk at 15, controlling for BMI at ages 8 and 14. Emotional eating at 14 directly predicted greater cardiometabolic risk at age 15.

Conclusions: Different types of childhood adversity in infancy/early childhood are associated with restrictive eating behaviors and cardiometabolic risk in adolescence through increases in overeating. These results suggest that overeating in middle childhood may be a target for intervention following early adversity to reduce cardiometabolic risk in adolescence.

Figure 1. Longitudinal structural equation model testing mediators between adversities in infancy/early childhood and cardiometabolic risk in adolescence.



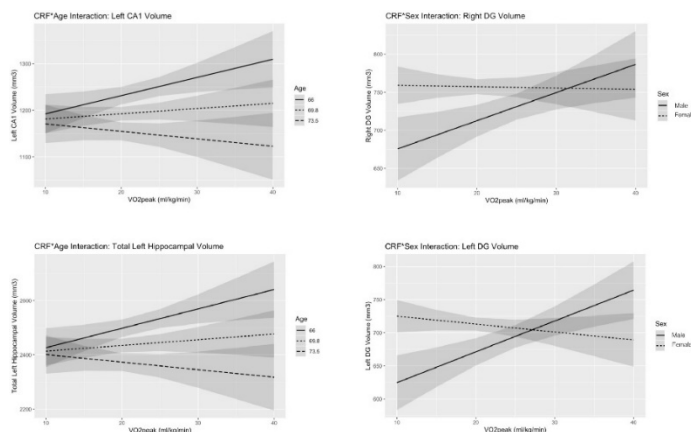
Note. Paths from financial difficulties, negative life events, and maternal depressive symptoms from 0-5 years to cardiometabolic risk at 15 years through parent- and self-reported eating behaviors at 8 and 14 years. Values are standardized coefficients. Solid blue lines represent significant pathways ($p < .05$) and dotted lines represent pathways with p -values between .05-.10. $^*p < .10$, $^*p < .05$, $^{**}p < .01$, $^{***}p < .001$.

Abstract 98

ASSOCIATIONS BETWEEN CARDIORESPIRATORY FITNESS AND HIPPOCAMPAL SUBFIELD MORPHOLOGY IN OLDER ADULTS

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The hippocampus experiences age-related atrophy, which may contribute to age-related memory loss, but remains modifiable throughout the lifespan. Higher cardiorespiratory fitness (CRF) is associated with larger hippocampal volume, and exercise interventions can increase hippocampal volume. In animal studies, exercise has regionally-specific effects on hippocampal subfields, but subfields have rarely been examined in human studies. In addition, age and sex might differentially affect the relationship between exercise or CRF and hippocampal volume, but few studies have been powered to test this. We address these gaps and examine (1) the associations between CRF and hippocampal subfield volumes, and (2) whether age or sex moderate the associations. Participants were 641 inactive and cognitively-normal older adults aged 65-80 ($M=69.8$, $SD=3.7$, 71.6% female) who underwent a graded exercise test to assess CRF and an MRI with a focal T2 hippocampal sequence. CRF was calculated as relative (ml/kg/min) peak oxygen uptake (VO_{2peak} ; $M=21.7$, $SD=5.1$), and we used the Automated Segmentation of Hippocampal Subfields (ASHS) to calculate the volume of the hippocampal subfields (CA1, CA2, CA3, dentate gyrus (DG), and subiculum). After controlling for age, sex, education, intracranial volume, and study site, CRF was associated with total right hippocampal volume ($B=5.05$, $p=0.02$), right CA1 volume ($B=2.57$, $p=0.04$), right CA2 volume ($B=0.12$, $p=0.003$), and right subiculum volume ($B=0.10$, $p=0.02$). There was a CRF*sex interaction for left DG volume ($B=-5.84$, $p=0.0004$) and right DG volume ($B=-3.89$, $p=0.02$), such that the association was positive and significant for males but not for females. There was a CRF*age interaction for total left hippocampal volume ($B=-1.32$, $p=0.01$), and left CA1 volume ($B=-0.73$, $p=0.02$), such that the association was positive and significant in younger ages but not in older ages. The regional specificity of these findings suggests that there may be distinct cellular mechanisms underlying the associations between CRF and hippocampal volume, and that these mechanisms may be moderated by age and sex. Examining subfield volumes is a more precise way to assess the relationship between CRF and hippocampal morphology, and may help account for mixed findings in the literature and inform who might experience the greatest brain benefits of increasing their CRF.



Abstract 123

THE ROLE OF FAMILY CONTEXT IN SHAPING DEPRESSIVE SYMPTOMS AND CARDIOMETABOLIC RISK IN CHILDHOOD

Julie M. Brisson, B.A., University of Georgia, Elizabeth R. Wiggins, B.S., University of Georgia, Katherine B. Ehrlich, Ph.D., University of Georgia

Family assistance and household chaos are proximal factors that shape children's mental and physical health. Family assistance has been found to be both beneficial and detrimental to children's mental (Telzer et al., 2015) and physical health (Fuligni et al., 2009), which suggests it may be context dependent. Household chaos, a family context that has been linked to poor mental and physical health (Marsh et al., 2020), may confer additional risk for children. The current study investigated how family assistance was associated with depressive symptoms and cardiometabolic risk, and whether these links varied depending on levels of household chaos. Youth ($n = 165$, $M_{age} = 11.5$) identified as Black, African American, Hispanic, and Latinx. Children completed a family assistance scale (Fuligni et al., 1999) and depressive symptoms scale (Radloff, 1977), and their caregiver completed a household chaos scale (Matheny et al., 1995). Cardiometabolic risk was assessed using HbA1c, triglycerides, HDL cholesterol, systolic and diastolic blood pressure, and waist circumference.

Regression analyses evaluated how family assistance was related to depressive symptoms and cardiometabolic risk and whether these associations differed as a function of household chaos. Analyses indicated a significant family assistance by household chaos interaction for both depressive symptoms ($b = -0.25$, $p = .04$) and cardiometabolic risk ($b = -0.73$, $p = .003$; Table 1). Post hoc probing revealed that when household chaos was higher, family assistance was negatively associated with depressive symptoms ($b = -0.17$, $p = .03$; Figure 1) and unrelated to cardiometabolic risk. Further, when household chaos was lower, family assistance was unrelated to depressive symptoms and positively associated with cardiometabolic risk ($b = 0.43$, $p = .01$; Figure 2). These findings suggest that family assistance was beneficial for children's mental health when household chaos was high, and family assistance was detrimental to cardiometabolic health when household chaos was low. Future research should continue to investigate the role that family context plays in shaping child health and the nuanced ways in which family assistance differentially predicts mental and physical health in childhood.

Table 1. Predictors of depressive symptoms and cardiometabolic risk.

	Depressive Symptoms		
	<i>b</i>	<i>SE</i>	<i>p</i>
Constant	1.03	0.24	< .001
Sex	0.05	0.07	.49
Age	-0.01	0.01	.35
Race	-0.09	0.08	.23
SES	0.01	0.03	.67
Assistance	-0.06	0.06	.33
Chaos	0.13	0.08	.13
Assistance × Chaos	-0.25	0.12	.04
	Cardiometabolic Risk		
	<i>b</i>	<i>SE</i>	<i>p</i>
Constant	1.39	0.47	.004
Sex	-0.02	0.15	.92
Age	-0.02	0.03	.40
Race	-0.09	0.15	.54
SES	0.01	0.05	.86
Assistance	0.10	0.11	.36
Chaos	0.02	0.16	.88
Assistance × Chaos	-0.73	0.24	.003

Figure 1. Family assistance × household chaos interaction predicting depressive symptoms.

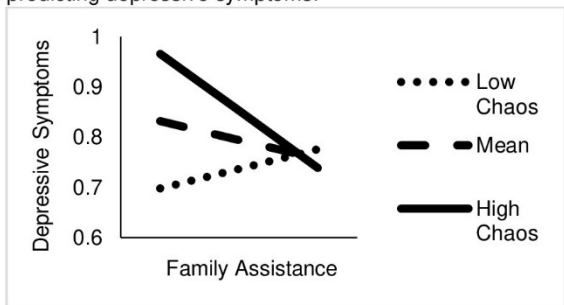
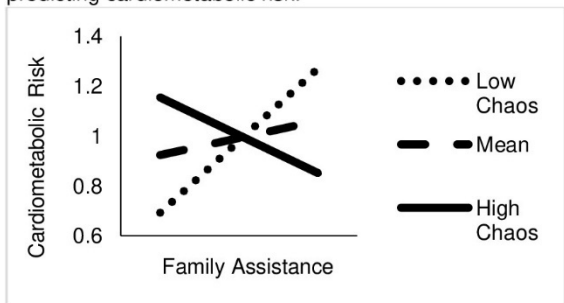


Figure 2. Family assistance × household chaos interaction predicting cardiometabolic risk.



Abstract 239

PSYCHOLOGICAL WELL-BEING AS A DETERMINANT OF CARDIOVASCULAR DISEASE RISK AND RELATED

BIOLOGICAL PROCESSES IN OLDER ADULTS: A PROSPECTIVE STUDY

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Background: Psychological well-being (PWB) is linked with reduced risk of incident cardiovascular disease (CVD), but it is unclear whether this association is similar when considering different facets of PWB. Moreover, while PWB is hypothesized to influence CVD incidence through direct biological alterations, prospective studies assessing associations between PWB facets and CVD-related biomarkers are lacking. **Objective:** In a sample of adults aged >50 who were CVD-free at baseline, we evaluated the prospective associations between 4 PWB facets (i.e., life satisfaction, purpose in life, optimism, and positive affect) and 1) incident CVD; and 2) CVD-related biomarkers. **Methods:** In 2006/2008 (baseline), participants in the Health and Retirement Study completed validated measures of PWB. Incident CVD was documented every 2 years until 2016. At baseline and after 4 and 8 years of follow-up, CVD risk was defined using 7 clinically assessed biomarkers by summing their Z-scores. Separate Cox regression models (N=9,281) estimated likelihood of incident CVD associated with each PWB facet individually and additively (i.e., having high levels on multiple facets). Linear mixed effects models (N=5,429) further examined if PWB facets predicted biomarker levels over time. **Results:** After adjusting for baseline sociodemographic, health-related, and behavioral covariates, higher vs. lower levels of life satisfaction were associated with lower incident CVD risk (fully adjusted HR=0.93, 95% CI: 0.89, 0.97) and with lower biomarker levels across time (fully adjusted β = -0.10, 95% CI: -0.17, -0.03). We found slightly weaker evidence of associations between purpose, optimism, and positive affect scores with incident CVD risk, and no evidence of associations between these PWB facets and biomarker levels in fully adjusted models. When considering potential additive effects, experiencing high levels of ≥ 1 (vs. none) PWB facets was related to lower CVD risk (e.g., high levels on 4 vs. 0 PWB facets, fully adjusted HR=0.74, 95% CI: 0.62, 0.88), but not to biomarker levels. **Conclusions:** This study illustrates how the link between PWB and risk of incident CVD and related biomarkers varies across PWB facets. Findings suggest that while life satisfaction is associated more strongly with CVD indicators, experiencing high levels on multiple PWB facets also has protective effects.

Abstract 175

ADOLESCENTS' PERCEIVED SUPPORT FROM FRIENDS MODERATES THE LINK BETWEEN PARENTS' SUBJECTIVE SOCIAL STATUS AND ADOLESCENTS' SYSTEMIC INFLAMMATION

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Both objective socioeconomic status (SES) and subjective social status (SSS) affect people's health and disease risk. Although adolescents' SSS affects their health independent of family SES, little research has examined whether parents' SSS affects adolescents' health. Given the mechanistic role of chronic inflammation in many socially patterned diseases, the

current study examined whether parents' SSS is associated with inflammatory profiles in their adolescents. Furthermore, because of the important role peer friendships play in adolescence, this study examined whether high levels of friend support could buffer hypothesized associations between parents' SSS and adolescents' inflammation. 277 dyads of adolescents (63.3% female; mean age = 13.9 years, SD = 0.52) and one of their parents participated in the Time 1 phase of a two-wave longitudinal study. 257 adolescents (92.4%) and 241 parents (86.7%) participated in the Time 2 phase roughly two years later. Parents reported family SES (i.e., gross income, savings, and education) and completed the MacArthur Scale of SSS. Adolescents completed the youth version of the MacArthur Scale and the Social Support Scale for Children. Fasting antecubital blood was drawn from adolescents at both visits. For analyses, systemic inflammatory activity was represented by: 1) a composite of the biomarkers CRP, IL-6, IL-8, IL-10, TNF- α , and suPAR, measured by immunoassay; and 2) numbers of classical monocytes measured by flow cytometry. The results showed that support from friends moderated the associations of parents' SSS with both inflammatory biomarkers and classical monocytes cross-sectionally (at Time 1) and longitudinally (at Time 2). Specifically, lower parent SSS was associated with higher levels of inflammatory biomarkers and higher numbers of classical monocytes for adolescents who had lower support from friends, but these associations were nonsignificant for those with higher friend support. These results held after controlling for objective family SES, adolescents' SSS, and relevant covariates (i.e., adolescents' sex at birth, age, race, ethnicity, pubertal status, and BMI). These findings suggest a link between the perceived social status of parents and the inflammatory profiles of their adolescents, but also demonstrate that this effect can be buffered by the support adolescents receive from their friends.

28: Physiological and emotional reactivity to stress
Friday March 10, 3:15-4:30pm

Abstract 374

EVALUATION OF THE ASSOCIATION OF PARENTAL AND YOUNG ADULT SOCIO-ECONOMIC STATUS VARIABLES WITH CARDIOVASCULAR PHYSIOLOGY IN REST AND IN RESPONSE TO STRESS INDUCTION; THE PHEMORE STUDY.

Nina Kupper, PhD, CoRPS, Dept. of Medical & Clinical Psychology, Sophie van den Houdt, MSc, Tilburg University, Willem Kop, PhD, Tilburg University

Background: Low socio-economic status (SES) has been associated with higher cardiovascular event rates, and increased mortality, and some results indicate that spousal educational level affects cardiovascular risk in men. While low SES has consistently been related to higher allostatic load, particular metabolic and cardiovascular components, it is yet unclear which mechanisms are contributing.

Aim: To find out whether parental social disadvantage or own financial struggles in young adult university students are related to cardiovascular physiological activity during rest and in response to stress.

Methods: A subset of the PHEMORE study (N=317, 33% men, mean age = 20.3 \pm 2.5 years) self-reported on parental (educational level, family income, family situation) and personal (making ends meet, spendable income) socio-economic status variables. All came to the lab to undergo the Trier Social Stress test (TSST), while cardiovascular (BP, HR), autonomic cardiac control (HRV, PEP) and breathing rate (RR) were assessed. Linear regression and mixed linear models

were used to assess the relation of the SES variables with baseline levels and the stress response profile.

Results: Female participants knew more financial hardship than males in terms of parental, familial, and personal SES. Parental indicators of low SES only mildly related to levels of resting cardiovascular physiology (i.e., increased heart rate, withdrawn parasympathetic tone, and somewhat increased sympathetic cardiac drive; all β < .14, p between .055 and .027). In particular, resting breathing rate was higher in female students with low SES parents (β = .21, p = .009), while it was significantly lower in men. Personal financial struggle (low spendable income + trouble making ends meet) was associated with decreased resting IBI (β = -.24; p = .015), and decreased resting heart rate variability (SDNN: β = -.23; p = .018; RMSSD: β = -.26; p = .008; RSA: β = -.22; p = .023), suggesting a more aroused cardiovascular resting level, due to withdrawn parasympathetic cardiac tone. Stress reactivity profiles were unrelated to both parental and personal SES variables.

Conclusion: Both parental and personal socio-economic variables were associated with increased cardiovascular arousal in rest, which is suggestive of increased allostatic load. Stress reactivity profiles were unrelated to SES variables.

Abstract 531

BODILY FREEZING AS A RESPONSE TO ACUTE PSYCHOSOCIAL STRESS

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Objective: Human emotions such as anxiety and sadness are expressed in various behavioral changes and can be interpreted by others. Emotions are not only communicated through facial expressions, but also via body posture and movement. For example, slow gait and slumped posture are frequently observed in patients diagnosed with depression. While the effects of stress on facial expressions have already been investigated, less is known about its effects on body movements. Establishing a stronger link between specific movement patterns and stress could enable the use of movement as an easy-to-use, continuous, and non-invasive biomarker for stress analysis. Thus, it might serve as a surrogate parameter for traditional stress assessment methods, such as saliva- and blood-based biomarkers, which require complex and invasive laboratory procedures.

Methods: N=41 healthy participants (age = 24.1 \pm 3.5 years; 44% female) exposed to the Trier Social Stress Test (TSST) and the friendly-TSST (f-TSST) on two consecutive days in randomized order. Two participants had to be excluded due to problems with the recording. The f-TSST was expanded with the mental arithmetic task of the Placebo-TSST to provide better comparability between f-TSST and TSST. The movements of the participants during the (f-)TSST were recorded using an inertial measurement unit (IMU)-based motion capture system (Xsens, Enschede, Netherlands). Salivary cortisol samples were used to measure the physiological stress response. Further, questionnaires to

examine changes in affect and perceived stress were applied. Motion features were extracted for multiple body parts.

Results: Participants showed a significant reduction in body motion in the TSST compared to the f-TSST condition (e.g. head [$t=5.4$, $p<0.001$]; hands [$t=5.4$, $p<0.001$]; chest [$t=3.8$, $p<0.001$]; total body [$t=6.5$, $p<0.001$]), which correlates to a significantly larger increase in maximum cortisol levels ($t(38)=5.9$; $p<0.001$; $g=1.02$). No effects were found when testing for gender differences.

Discussion: Our study showed a significant link between objective movement features and acute psychosocial stress. Together with past research that demonstrated similar effects, this could provide the basis for contactless stress detection.

Abstract 637

AIRWAY RESPONSE TO EMOTION-INDUCTION BY FILMS IS ASSOCIATED WITH FMRI BOLD ACTIVATION IN CORTICAL AND SUBCORTICAL REGIONS

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Emotional stimuli have been shown to constrict the airways in asthma and health. Although it has been established that this is most likely due to central vagal excitation that acts as a bronchoconstrictor, central nervous system (CNS) activity linked to emotion-induced airway responses is largely unexplored. In this study, emotion-induction by negative (blood and injury-related) and neutral brief (44 s) films clips was conducted in one session with respiratory resistance measurements (Rrs5Hz, by impulse oscillometry, as a dynamic measure of airway diameter) and a second session with functional magnetic resonance imaging (fMRI). Thirty-one young to middle-aged participants were included, among these 15 with mostly persistent, predominantly well-controlled asthma. Exploratory regions of interest (ROI) analysis of fMRI BOLD activity was performed on key areas that have been identified for central adaptive control or salience networks as well as appraisal and control of emotion: dorsolateral prefrontal cortex (PFC), anterior insula, dACC, amygdala, ventral striatum, ventral tegmentum, periaqueductal gray (PAG), hippocampus, ventromedial PFC, and ventrolateral PFC. Findings showed that BOLD activation was associated with Rrs5Hz increases in a number of areas, including bilateral hippocampus and ventrolateral PFC, and right anterior insula, more consistently for those with asthma and during film presentation. Additional associations between airway responses and BOLD activations specific to the emotional quality of the film clips were found across both groups in the right amygdala and bilateral hippocampus, ventrolateral PFC, and ventral tegmental area, as well as left ventral striatum, however, they were reduced to trend-level after multiple comparison correction. Thus, airway constriction due to emotion induction by films is associated with activation in a range of CNS sites especially in asthma, but is not limited to central adaptive control/salience networks or PFC sites involved in appraisal and control of emotion.

Abstract 309

DISTRESSED ABOUT THE STRESS RESPONSE: ASSOCIATIONS BETWEEN HORMONAL CONTRACEPTIVE

USE, WOMEN'S STRESS RESPONSES, INFLAMMATION, AND MOOD

Summer Mengelkoch, PhD, UCLA / Stanford, Sarah Hill, PhD, Texas Christian University

Past research finds women using hormonal contraceptives (HCs) exhibit a blunted cortisol response to psychosocial stress, which could have detrimental effects on women's mental and physical health. As such, the current research aimed to better understand women's biological and subjective stress responses. Participants included naturally cycling (NC) women ($n = 67$) and women using oral HCs ($n = 60$), who were all exposed to the stress condition of the Trier Social Stress task. Researchers assessed women's (a) cortisol responses to stress, (b) inflammatory responses to stress, including pro-inflammatory cytokines (interleukin 1 beta [IL-1 β], IL-6, and tumor necrosis factor-alpha [TNF- α]), (c) subjective stress responses, and (d) mood following stress. Results revealed that while women using HCs did not exhibit a blunted cortisol response to stress compared to NC women, women using HCs and NC women exhibited different patterns of proinflammatory cytokine levels in response to stress. In NC women, cortisol and IL-6 rose together in response to stress, and these biological responses to stress were accompanied by more positive moods. In women using HCs, cortisol and TNF- α rose together in response to stress, and these biological responses were accompanied by increases in subjective stress levels. These results indicate that the biological responses to stress in women using HCs, compared to NC women, may influence their ability to psychologically manage the stress they experience, which may have widespread implications for their mental and physical health.

29: The latest in neuroscience **Friday March 10, 3:15-4:30pm**

Abstract 320

INTRUSIVE THINKING ALTERS GABAERGIC AND GLUTAMATERGIC NEUROTRANSMISSION WITHIN ANTERIOR CINGULATE CORTEX AND RELATED-FUNCTIONAL CONNECTIVITY

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Alterations in neurotransmission mediated by gamma-aminobutyric acid (GABA) and glutamate (Glx), respectively the main inhibitory and excitatory neurotransmitters, are posited to play a pathophysiological role in stress-related disorders. Evidence, however, comes from comparisons between pathological and healthy samples at rest, making it difficult to understand the processes underlying this assumption. The present study used magnetic resonance spectroscopy to investigate the effects of an experimental induction of intrusive thinking on GABA and Glx in the Anterior Cingulate Cortex in pathological worriers ($n = 29$; 11 males) and controls ($n = 29$; 16 males). While increases in GABA were elicited in pathological worriers, an opposite pattern emerged for Glx with an increase in controls and a decrease in high worriers. Notably, the pre-to post induction increase in GABA in pathological worriers was associated with a dampened concomitant autonomic arousal and an increased resting state functional connectivity within areas belonging to the Central Autonomic Network. Current

results are in line with the view of intrusive thinking as a “better safe than sorry” strategy that aims to avoid the transition from a relaxed state to a sudden spike of autonomic activation.

Abstract 187

HEART RATE VARIABILITY IS ASSOCIATED WITH GLOBAL COGNITION AND COGNITIVE IMPAIRMENT

Carol Derby, PhD, Albert Einstein College of Medicine, Jiyue Qin, MS, Albert Einstein College of Medicine, Grace Liu, MS, Columbia University Irving Medical Center, Cuiling Wang, PhD, Albert Einstein College of Medicine, Richard Sloan, PhD, Columbia University Irving Medical Center

Background:

The role of autonomic function in cognitive impairment is unclear. We derived high frequency heart rate variability (HF-HRV) from 7-day ambulatory ECG recordings from the Einstein Aging Study and examined its relationship to measures of global cognition and cognitive impairment.

Methods:

Analyses included 84 participants free of dementia (mean age 78.1 (± 5.2) years; 82% female; 39% non-Hispanic White, 44% non-Hispanic Black, mean education 14.7 (± 3.3 years)). Participants wore an ambulatory single lead ECG device continuously for 7 days. HF-HRV (0.15-0.40 Hz) was derived from these recordings and was log transformed to adjust for skewness. Demographics, comorbidities, and cognition were assessed during clinic visits. Two tests per domain evaluated memory, executive function, language, visuo-spatial and attention with impairment defined as performance ≥ 1.5 SD below the age, sex, education standardized norm on at least one test. Global cognition was assessed using the MoCA and Mild Cognitive Impairment (MCI) was defined using Jak-Bondi criteria. Associations of HF-HRV with cognition were examined using logistic (MCI, domain specific impairment) and linear (MoCA) regression adjusting for age, sex, race/ethnicity and education, diabetes, and hypertension.

Results:

Mean MoCA score was 24 (SD 3.5), 21 (25%) had MCI and impairment was identified in 25% (memory), 28.6% (executive function), 21.4% (attention), 17.9% (language) and 27.4% (visuospatial). HF-HRV was inversely associated with MCI (OR per 1 SD increase in log HF-HRV: 0.47, p=0.02) and with memory impairment (OR per 1 SD increase in log HF-HRV: 0.52, p=0.03). Higher HF-HRV was associated with better MoCA score (β for 1 SD increase in log HF-HRV: 0.65, p=0.046).

Conclusions:

Our findings suggest that parasympathetic nervous system activity is directly related to better cognitive performance and inversely related to impairment.

Abstract 421

EXAMINING PEER RELATIONSHIPS AS MODERATORS OF SOCIOECONOMIC STATUS AND NETWORK CONNECTIVITY IN ADOLESCENTS

Erin Bender, BS, UNC Chapel Hill, Natsha Duell, PhD, UNC Chapel Hill, Keely Muscatell, PhD, UNC Chapel Hill

Research has shown that lower socioeconomic status (SES) is associated with worse health and differential brain function in adolescence. Given prior work showing the salient influence of peers on adolescent health and brain function, it is possible that peer relationships, both positive and negative, associate with developing brain network connectivity differentially across levels of SES. This study thus aimed to explore if bullying

and/or peer support during adolescence moderate the relationship between SES and brain network connectivity at rest. We investigated this question with a sample of 7652 youth (ages 10-13) from the Adolescent Brain Cognitive Development (ABCD) Study. A composite SES measure was created by combining standardized scores of parental education and household income, bullying was measured with the victim subscale of the Peer Experiences Questionnaire, and peer support was measured with the Peer Network Health Questionnaire. Network connectivity reflected the average correlation between pairs of neural networks as defined by the Gordon network parcellation. We focused on pairings of the frontoparietal network (FPN), salience network (SN), default mode network (DMN), and ventral attention network (VAN) given prior literature demonstrating the relations of these networks with SES and peer relationships. Results of moderation analyses showed that SES was independently associated with greater DMN-VAN, FPN-SN, FPN-VAN, and SN-VAN connectivity, and lower DMN-FPN connectivity. Bullying was also independently associated with greater DMN-FPN and DMN-SN connectivity and lower DMN-VAN connectivity (Table 1). There was no interaction between SES and bullying, however peer support significantly moderated the association between SES and FPN-SN connectivity. Follow-up analyses probing the interaction indicated that SES was associated with greater FPN-SN connectivity at moderate and high but not low levels of peer support (Table 1). Findings demonstrate that positive (but not negative) peer experiences moderate the association between SES and brain networks commonly implicated in important processes including executive function, reward processing and cognitive control. These results underscore the importance of peer support in brain network function, which could have meaningful implications for SES inequities in adolescent health and brain development.

Table 1: Significant findings from moderation analyses examining associations among SES, bullying, and peer support on brain network rsFC					
		Networks	B	SE	p
SES		DMN-FPN	-.003	.001	<.001
		DMN-VAN	.006	.001	<.001
		FPN-SN	.002	.001	<.001
		FPN-VAN	.003	.001	<.001
		SN-VAN	.01	.001	<.001
Bullying		DMN-FPN	.002	.001	.023
		DMN-SN	.003	.002	.049
		DMN-VAN	-.004	.001	.003
SES X Support	Overall SES X support	FPN-SN	.004	.001	.002
	16th percentile support		-.002	.0015	.1847
	56th percentile support		.0019	.0008	.0186
	84th percentile support		.0044	.0011	.0001

Note: Analyses were conducted separately for bullying and peer support. Follow-up analyses probed the interaction between peer support and SES on network connectivity at the 16th, 56th, and 84th percentiles of peer support.

Abstract 459

SOMATIC SYMPTOMS AND BRAIN MORPHOLOGY: A POPULATION NEUROIMAGING STUDY IN 12,286 PRE-ADOLESCENTS
Fernando Estevez-Lopez, PhD, Harvard University, Hannah H. Kim, MSc, Harvard University, Mónica López-Vicente, PhD, Erasmus MC University Medical Centre, Jeroen S. Legerstee, PhD, Erasmus MC University Medical Centre, Manon H. J. Hillegers, PhD, Erasmus MC Sophia Children's Hospital, Henning Tiemeier, PhD, Harvard University, Ryan L. Muetzel, PhD, Erasmus MC University Medical Centre

Somatic symptoms are those for which medical examinations do not reveal a sufficient underlying root cause (e.g., pain and fatigue). The extant literature of the neurobiological underpinnings of somatic symptoms is largely inconsistent and primarily comprises of (clinical) case-control studies with small sample sizes. We studied the association between dimensionally measured somatic symptoms and brain morphology in pre-adolescents from two population-based cohorts; the Generation R Study ($n=2,649$, 10.1 ± 0.6 years old) and ABCD Study ($n=9,637$, 9.9 ± 0.6 years old). Somatic symptoms were evaluated using continuous scores from the somatic complaints syndrome scale from the parent-reported Child Behavior Checklist. High-resolution structural magnetic resonance imaging (MRI) was collected using 3-Tesla MRI systems. Linear regression models were fitted for global brain metrics (cortical and subcortical grey matter and total white matter volume) and surface-based vertex-wise measures (surface area and cortical thickness). Results were meta-analysed. Symptoms of anxiety/depression were studied as a contrasting comorbidity. In the meta-analyses across cohorts, we found negative associations between somatic symptoms and surface area in the (i) left hemisphere; in the lateral orbitofrontal cortex and pars triangularis and (ii) right hemisphere; in the pars triangularis, the pars orbitalis, insula, middle temporal gyrus and caudal anterior cingulate cortex. However, a subset of regions (left lateral orbitofrontal cortex and right pars triangularis) were specifically associated with somatic symptoms, while others were also related to symptoms of anxiety/depression. No significant associations were observed for cortical thickness. This study, the most representative and well-powered to date, showed that surface area of the prefrontal cortex mostly, is modestly related to somatic symptoms in preadolescents. While these effects are subtle, future prospective research is warranted to understand the longitudinal relationship of somatic symptoms and brain changes over time. Particularly, to elucidate whether somatic symptoms are a potential cause or consequence of distinct neurodevelopmental trajectories.

30: Socio-Economic Influences on health **Saturday March 11, 2:00-3:00pm**

Abstract 473

SOCIAL MOBILITY AND IMMUNOMETABOLIC RISK AT MID-LIFE

Kristina Dickman, MS, University of Pittsburgh, Rachel Koffer, PhD, Arizona State University, Brian Chin, PhD, Trinity College, Sheldon Cohen, PhD, Carnegie Mellon University, Anna Marsland, PhD, University of Pittsburgh, Thomas Kamarck, PhD, University of Pittsburgh

Lower socioeconomic status (SES) in childhood and adulthood are both linked with poorer physical health across the lifespan. Less is known about how change, or mobility, in SES from childhood to adulthood impacts health risk. It is possible that upward mobility protects against negative impacts of low early life SES, but it is also possible that the physiological embedding of early SES risk is unimpacted by later increases in SES. Literature thus far is mixed. **The present study explores the link between social mobility and immunometabolic risk in a sample of healthy adults.** Participants included 380 adults (Mage=52.55, 61% female, 21% Black, Indigenous, and people of color (BIPOC)) who underwent a fasting blood draw and had their blood pressure (BP), height, weight, and waist circumference measured. Child and adult SES were conceptualized based on parent and participant education (for both, low=no bachelor's degree, high=bachelor's degree or higher). Participants were sorted

into four social mobility groups: persistent low SES, persistent high SES, upwardly mobile, and downwardly mobile. Immunometabolic risk was modeled as a second-order latent factor with five first-order factors: insulin resistance (glucose, insulin), obesity (BMI, waist circumference), blood lipids (HDL cholesterol, triglycerides), BP (systolic and diastolic BP), and inflammation (IL-6, CRP). Covariates included age, sex, and race. Hypotheses were tested through structural equation modeling. All measurement and structural models demonstrated good fit. Persistently high SES and upwardly mobile individuals had lower immunometabolic risk than the those with persistent low SES ($\beta=-0.31$, $B=-0.70$, $CI[-1.02,-0.39]$, $p<.001$; $\beta=-0.24$, $B=-0.53$, $CI[-0.83,-0.24]$, $p<.001$). Individuals with persistently high SES did not differ from those upwardly mobile. These results exist in the context of racial/ethnic differences in the model pathways. Results outlined above persist for individuals who identify as White. For the smaller group who identify as BIPOC, low SES was linked with greater immunometabolic risk compared to persistently high SES ($\beta=-0.30$, $B=-0.97$, $CI[-1.74,-0.19]$, $p=.015$) but not compared to upward mobility. Results suggest that upward mobility may be related to improved immunometabolic health compared to low lifespan SES; Associations may differ by social contexts related to race/ethnicity.

Abstract 169

IS LOWER SUBJECTIVE SOCIAL STATUS UNIQUELY ASSOCIATED WITH MULTIYEAR, LONGITUDINAL INCREASES IN CIRCULATING LEVELS OF INTERLEUKIN-6 INDEPENDENTLY OF OBJECTIVE SOCIOECONOMIC STATUS?

Emily Jones, PhD, University of Pittsburgh, Anna L. Marsland, PhD, RN, University of Pittsburgh, Thomas E. Kravak, PhD, University of Pittsburgh, Elizabeth Votruba-Drzal, PhD, University of Pittsburgh, Peter J. Gianaros, PhD, University of Pittsburgh

Background. Subjective social status (SSS) refers to a person's perception of their social rank relative to others. SSS cross-sectionally associates with markers of systemic inflammation independently of objective measures of socioeconomic status (SES), such as income and education. Yet, it is unclear whether SSS uniquely relates to multiyear *changes* in inflammation, or whether associations differ by sex assigned at birth or race. It is also unclear whether longitudinal changes in SSS and income relate to concurrent changes in inflammation. **Methods.** Healthy midlife adults ($N=331$; 30-51 years, 50.5% female, 24.2% Black, 69.5% white, 60.4% Bachelor's degree or higher) completed a baseline visit and 279 participants returned for a second visit 2.85 years later (interquartile range (IQR)=3.47 years). At both visits, participants underwent a fasting blood draw and completed the MacArthur Scale of SSS, which measures SSS relative to the local community (SSSc) and broader United States (SSSUS). Multiple linear regression analyses examined change in IL-6 predicted by each type of SSS, adjusting for time between visits, sex, race, age, body mass index, smoking status, baseline IL-6, and objective measures of SES (family-adjusted income, educational attainment). Additional analyses adjusted for potential psychosocial mediators (hopelessness, depressive symptoms). Interaction terms examined moderations by sex and race. **Results.** SSSUS and SSSc were correlated with one another ($r=.51$) and with education and family-adjusted income ($r_s = .23$ to $.49$). Lower SSSUS was longitudinally associated with greater IL-6 independently of education and income ($\beta=-.06$, $p=.047$), but not when adjusting for hopelessness ($\beta=-.05$, $p=.055$) and depressive symptoms

($\beta=-.05$, $p=.057$). Similarly, lower SSS_C was longitudinally associated with greater IL-6 independently of education and income ($\beta=-.06$, $p=.021$) as well as hopelessness ($\beta=-.06$, $p=.021$) and depressive symptoms ($\beta=-.06$, $p=.022$). There were no moderation effects by sex or race ($ps>.10$) and no evidence of changes in SSS and income relating to concurrent changes in IL-6 ($ps>.10$), perhaps because changes in SSS (IQR=2) and income (IQR=\$13,889.76) were marginal. **Discussion.** Once replicated, findings may suggest that lower SSS could confer risk for poor physical health through SSS's role in accelerated multiyear increases in circulating IL-6.

Abstract 403

EVERYDAY DISCRIMINATION, EDUCATION, AND SUBCLINICAL ATHEROSCLEROSIS IN EARLY MIDLIFE AFRICAN-AMERICAN WOMEN

Jennifer Wells, MPH, University of Pittsburgh, Emma Barinas-Mitchell, PhD, University of Pittsburgh, Laura Tirado-Ramirez, MD, University of Pittsburgh, Christy Erving, PhD, University of Texas at Austin, Kennedy Blevins, MA, University of California, Irvine, Shivika Udaipuria, MPH, Emory University, Bianca Booker, MA, Emory University, Rachel Parker, MPH, Emory University, Raphael Murden, PhD, Emory University, Renee Moore, PhD, Drexel University, Viola Vaccarino, MD, PhD, Emory University, Arshed Quyyumi, MD, Emory University, Tene T. Lewis, PhD, Emory University

Background: Exposure to discrimination has been associated with cardiovascular disease (CVD) risk factors and considered a possible contributor to adverse CVD outcomes among African-American women in the US. However, studies have primarily focused on older midlife populations with limited socioeconomic status (SES) diversity. Thus, we examined associations between exposure to discrimination and atherosclerosis by SES in early midlife African-American women.

Methods: The Everyday Discrimination Scale, which measures chronic, non-acute experiences of unfair interpersonal treatment, was administered to N=422 African-American women ages 30-46, from a range of SES backgrounds in the Atlanta, Georgia metropolitan area. Participants were premenopausal with no history of clinical CVD. Carotid ultrasound scans measured two markers of atherosclerosis: carotid plaque presence and intima-media thickness (IMT). Plaque was defined as at least one plaque and/or a maximum IMT above 75th percentile.

Results: Participants had a mean everyday discrimination score of 7 (SD =5.5), 31% had sustained hypertension, and 35% had plaque. Everyday discrimination was not associated with carotid plaque presence in logistic regression models adjusted for age, sustained hypertension, current smoking, BMI and lipid-lowering medications (OR= 0.985, 95% CI 0.95, 1.03) in the overall cohort. However, there was a significant interaction ($p=0.005$) between discrimination and education such that higher discrimination was associated with plaque presence in women with low education (high school or less) (OR=1.08, 95% CI 1.00, 1.16) compared to those with some college or higher (OR=0.95, 95% CI 0.90, 0.99).

Conclusion: Although in the overall group discrimination was not associated with subclinical atherosclerosis, SES may moderate this relationship, with associations most pronounced in African-American women with the lowest level of education. To our knowledge this is the youngest group of African-American women examined among studies that have previously looked at discrimination and early subclinical atherosclerosis. Clarifying critical ages and temporality in the relationship between discrimination and atherosclerosis could

inform social and healthcare policies to reduce discrimination and potential associated CVD risk.

Abstract 546

SUBJECTIVE SOCIAL STATUS AMONG MOTHERS WITH NEUROTYPICAL AND NEURODIVERSE CHILDREN

Agus Surachman, Ph.D., Drexel University, Nancy Adler, PhD, University of California, San Francisco, Elissa Epel, PhD, University of California, San Francisco

Background: Subjective social status (SSS) has not been widely utilized in interdisciplinary disability research. In this study, new questions were developed to complement the original measure of SSS (i.e., the MacArthur US and community ladder), including a community ladder based on objective SES of community, a view of a child's social status, and four questions on expectations and mobility (expected current social status, prediction of peak social status, prediction of lifetime peak social status in five years, and ease of mobility to climb social status).

Methods: We asked this set of questions regarding SSS to 183 mothers ($M_{age} = 42.4$; 76% non-Hispanic white) with children with autism condition ($n = 92$ caregiver mothers) and neurotypical children ($n = 91$ control mothers). We compared relations between the original and new SSS measures. Exploratory factor analysis (EFA; goemin rotation) was conducted to explore the factor structure of the SSS measures. Finally, we examined SSS between caregiver and control mothers and tested how SSS measures predicted maternal psychosocial and biological outcomes.

Results: The new measures were moderately correlated with the original SSS measures. Results from EFA showed that the two-factor model was the best fit model. Items in the first factor indicated general SSS, including the original US and community ladder, community ladder based on objective SES of community, and prediction of lifetime peak social status. The second factor included items associated with SSS (intra- and inter-generational) mobility, including prediction of social status in five years, ease of mobility, and view of a child's social status. Compared to mothers in the control group, caregiver mothers had lower perceived SSS across ratings, especially regarding their view of their child's social position. Peak social status in five years was most associated with maternal psychosocial well-being. Finally, the latent factor of SSS mobility, but not the latent general SSS, was significantly associated with maternal psychosocial and biological outcomes, including perceived stress, depressive symptoms, and insulin levels.

Discussion: These findings highlight the value of including SSS in interdisciplinary disability research to understand better the intersectionality between social hierarchy and disability on impacting health and well-being.

Submission ID: 546	
Subjective Social Status Among Mothers with Neurotypical and Neurodiverse Children	
Table 1 Measures of subjective social status (SSS) included in the study	
Original SSS measures	SSS Measures
	1. Think of this ladder as representing where people stand in the United States. At the top of the ladder are the people who are the best off – those who have the most money, the most education, and the most respected jobs. At the bottom are the people who are the worst off – those who have the least money, least education, the least respected jobs, or no job. The higher up you are on this ladder, the closer you are to the people at the very top; the lower you are, the closer you are to the people at the very bottom. Where would you place yourself on this ladder?
Newly developed measures	Community ladder
	2. Think of this ladder as representing where people stand in their communities. People define community in different ways; please define it in whatever way is most meaningful to you. At the top of the ladder are people who have the highest standing in their community. At the bottom are the people who have the lowest standing in their community. Where would you place yourself on this ladder?
	3. Where would you place yourself on this ladder, in relation to where you stand in your own community based on your income, education, occupation?
	4. Where would you place your child on this ladder, compared to all the other children his/her age?
	5. Where did you expect you would be at this point in your life in terms of your education, income, occupation?
	6. What do you think is the highest point on the ladder you will ever reach in your life?
Expectations and mobility	7. Thinking about your future, on which step do you think you will stand about five years from now?
	8. If you wanted to be a few rungs higher on the ladder than you are now, how hard do you feel it would be to move up?
1=impossible 2=very difficult 3=somewhat difficult 4 = easy 5 = very easy	



Table 2: Descriptive statistics of mothers' sociodemographic and psychosocial well-being, and children's behaviors

Characteristic	All participants	Based on groups		
		Caregiver	Control	|t| or χ^2
Mothers' Sociodemographic				
Age (mean; <i>SD</i>)	42.43 (5.09)	42.77 (5.63)	42.07 (4.49)	0.93, <i>ns</i>
Number of children (mean; <i>SD</i>)	1.91 (0.83)	2.02 (0.91)	1.80 (0.73)	1.79, <i>ns</i>
Non-Hispanic white (%)	76	76.1	75.8	0.01, <i>ns</i>
Currently married (%)	86.3	89.0	84.6	0.77, <i>ns</i>
Bachelor's degree or higher (%)	84.7	82.2	91.0	2.98, <i>ns</i>
Having partner with bachelor's degree or higher (%)	72.7	82.1	75.3	1.19, <i>ns</i>
Household income \geq \$85K (%)	83.6	79.1	89.0	3.32, <i>ns</i>
Mother's Psychosocial Well-Being				
Perceived stress (mean; <i>SD</i>)	1.88 (0.55)	2.19 (0.47)	1.57 (0.44)	9.18 ***
Depressive symptom (mean; <i>SD</i>)	0.56 (0.29)	0.69 (0.30)	0.43 (0.21)	6.84 ***
Life satisfaction (mean; <i>SD</i>)	4.49 (1.52)	3.63 (1.31)	5.33 (1.20)	9.07 ***
Relationship satisfaction (mean; <i>SD</i>)	4.15 (1.44)	3.75 (1.56)	4.54 (1.19)	3.75 ***
Autistic Children's Behaviors				
Current autism treatment (mean; <i>SD</i>)	–	3.35 (1.39)	–	–
Autism severity (mean; <i>SD</i>)	–	2.21 (0.59)	–	–
Social responsiveness (mean; <i>SD</i>)	–	100.47 (28.27)	–	–
Social communication (mean; <i>SD</i>)	–	19.06 (6.66)	–	–
Behavior problems (mean; <i>SD</i>)	–	0.43 (0.31)	–	–
Challenging behavior (mean; <i>SD</i>)	–	2.89 (0.70)	–	–

Note: *SD* = standard deviation; |t| = absolute t value based on the comparison between high stress and control group for continuous indicators; χ^2 = absolute chi-square value based on the comparison between high stress and control group for categorical indicators; *ns* = $p > .05$, *** = $p < .001$.

Table 3 Bivariate Correlations Between Original SSS Measures and the Newly Developed Items

Newly developed measures	Original measures					
	Overall sample		Within caregiver group		Within control group	
	US ladder	Community ladder	US ladder	Community ladder	US ladder	Community ladder
1. Community ladder based on objective SES (1 to 10)	.71***	.56***	.74***	.63***	.61***	.39***
2. View of child's social status (1 to 10)	.30***	.32***	.10	.18	.28***	.29**
3. Expected current social status based on objective SES (1 to 10)	.21**	.24**	.07	.23**	.43**	.26*
4. Prediction of peak social status (1 to 10)	.48***	.45***	.44***	.45***	.47***	.39***
5. Prediction of peak social status in 5 years (1 to 10)	.43***	.43***	.42***	.44***	.28**	.26*
6. Ease of mobility in social status (1 = impossible, 5 = very easy)	.23**	.19*	.23*	.21*	.02	.04

Table 4 Geomin rotated loadings for the SSS measures

	Factor 1: General SSS	Factor 2: SSS (intra- and inter-generational) Mobility
US Ladder	.73*	.06
Community ladder	.50*	.21
Community ladder based on objective community SES	.97*	-.06
Prediction of peak lifetime social status	.66*	.01
Perception of child SSS	.01	.59*
Prediction of peak social status in 5 years	-.01	.86*
Ease of mobility in social status	.12	.34*
Expected current social status based on objective SES	.16	.12
Geomin factor correlation with Factor 1	1	.61*

Note: * = significant at 5% level

Table 3 Descriptive summary of subjective social status measures and the comparisons across all measures between the caregiver and control group

Subjective social status		Mean (<i>SD</i>)			
		All participants	Based on groups		|t| or χ^2
			Caregiver	Control	
General SSS	1. US ladder (1 to 10)	6.84 (1.58)	6.43 (1.74)	7.23 (1.30)	3.48 **
	2. Community ladder (1 to 10)	6.98 (1.46)	6.64 (1.74)	7.32 (1.29)	3.22 **
	3. Community ladder based on objective SES (1 to 10)	6.83 (1.48)	6.49 (1.66)	7.16 (1.21)	3.06 **
	4. Prediction of peak lifetime social status (1 to 10)	8.04 (1.19)	7.80 (1.31)	8.27 (1.01)	2.65 **
SSS (intra- and inter-generational) mobility	5. Perception of child SSS (1 to 10)	6.29 (2.47)	4.41 (1.88)	8.13 (1.33)	15.25 ***
	6. Prediction of peak social status in 5 years (1 to 10)	7.69 (1.58)	7.00 (1.75)	8.36 (1.02)	6.26 ***
	7. Ease of mobility in social status (1 = impossible, 5 = very easy)	2.77 (0.71)	2.58 (0.68)	2.97 (0.69)	3.75 ***
Item did not load to any factor	8. Expected current social status based on objective SES (1 to 10)	7.50 (1.32)	7.44 (1.42)	7.56 (1.22)	0.57

Note: *SD* = standard deviation; |t| = absolute t value based on the comparison of SSS indicators between high stress and control group; χ^2 = absolute chi-square value based on the comparison between high stress and control group for categorical indicators; * = $p < .05$, ** = $p < .01$, *** = $p < .001$.

Table 5 Findings from multivariable regression analyses on the association between SSS and mothers' psychosocial well-being

Predictor	Unstandardized Estimate (Standard Error)			
	Perceived Stress ^a	Life Satisfaction ^a	Relationship Satisfaction ^a	Depressive Symptoms ^a
US ladder				
Intercept	1.39 (0.30) ***	6.65 (0.81) ***	6.39 (0.94) ***	0.13 (0.17)
Group (0 = control, 1 = high stress)	0.57 (0.07) ***	-1.52 (0.19) ***	-0.52 (0.19) *	0.23 (0.04) ***
US ladder	-0.01 (0.04)	0.17 (0.10)	0.13 (0.12)	-0.01 (0.02)
Group x US ladder	-0.10 (0.05) *	0.13 (0.12)	0.15 (0.14)	-0.07 (0.03) **
<i>F</i>	13.31 ***	15.08 ***	5.04 ***	9.59 ***
Adj. <i>R</i> ²	0.36	.40	.16	.29
Community ladder				
Intercept	1.51 (0.29) ***	6.27 (0.80) ***	5.92 (0.95) ***	0.23 (0.17)
Group (0 = control, 1 = high stress)	0.55 (0.07) ***	-1.48 (0.19) ***	-0.57 (0.22) *	0.23 (0.04) ***
Community ladder	-0.04 (0.04)	0.22 (0.10) *	0.07 (0.12)	-0.02 (0.02)
Group x Community ladder	-0.06 (0.05)	0.05 (0.13)	0.05 (0.15)	-0.03 (0.03)
<i>F</i>	13.15 ***	15.26 ***	3.80 ***	7.89 ***
Adj. <i>R</i> ²	0.36	.40	.12	.24
Community ladder based on objective SES				
Intercept	1.42 (0.29) ***	6.47 (0.79) ***	6.27 (0.94) ***	0.15 (0.17)
Group (0 = control, 1 = high stress)	0.58 (0.07) ***	-1.52 (0.18) ***	-0.56 (0.22) *	0.23 (0.04) ***
Community ladder based on SES	-0.04 (0.04)	0.27 (0.11) *	0.12 (0.12)	-0.01 (0.02)
Group x Community ladder based on SES	-0.08 (0.05)	0.07 (0.13)	0.14 (0.15)	-0.06 (0.03) *
<i>F</i>	13.70 ***	16.61 ***	4.69 ***	9.77 ***
Adj. <i>R</i> ²	0.37	.42	.15	.29
Expected current social status				
Intercept	1.62 (0.30) ***	6.19 (0.83) ***	5.71 (0.94) ***	0.28 (0.17)
Group (0 = control, 1 = high stress)	0.60 (0.07) ***	-1.61 (0.19) ***	-0.62 (0.22) **	0.24 (0.04) ***
Expected current social status	-0.05 (0.04)	-0.03 (0.10)	-0.06 (0.12)	-0.01 (0.02)
Group x Expected current social status	-0.04 (0.07)	0.11 (0.14)	-0.14 (0.17)	0.02 (0.03)
<i>F</i>	11.03 ***	12.37 ***	4.01 ***	6.66 ***
Adj. <i>R</i> ²	0.32	.35	.13	.21
Prediction of peak social status				
Intercept	1.43 (0.30) ***	6.39 (0.83) ***	6.00 (0.95) ***	0.15 (0.17)
Group (0 = control, 1 = high stress)	0.57 (0.07) ***	-1.58 (0.19) ***	-0.62 (0.22) **	0.23 (0.04) ***
Prediction of peak social status	0.01 (0.05)	0.09 (0.13)	-0.01 (0.15)	0.00 (0.03)
Group x Prediction of peak social status	-0.15 (0.06) *	0.18 (0.17)	0.27 (0.21)	-0.10 (0.03) **
<i>F</i>	12.46 ***	13.54 ***	3.98 ***	10.26 ***
Adj. <i>R</i> ²	0.35	.37	.13	.31
Prediction of peak social status (5 years)				
Intercept	1.73 (0.30) ***	5.88 (0.67) ***	5.35 (0.84) ***	0.30 (0.16)
Group (0 = control, 1 = high stress)	0.39 (0.07) ***	-0.92 (0.18) ***	-0.04 (0.22)	0.16 (0.04) ***

Prediction of peak social status (5 years)	-0.20 (0.04)*	0.65 (0.10)***	0.55 (0.13)***	-0.08 (0.03)**
Group x Prediction of peak social status (5 years)	-0.09 (0.05)	-0.18 (0.12)	-0.14 (0.16)	0.01 (0.03)
<i>F</i>	17.96***	29.67***	9.92***	10.93***
Adj. <i>R</i> ²	0.44	.57	.30	.32
View of child's social status				
Intercept	1.78 (0.30)***	5.60 (0.81)***	5.58 (0.96)***	0.31 (0.18)
Group (0 = control, 1 = high stress)	0.39 (0.11)***	-0.81 (0.29)**	-0.20 (0.34)	0.20 (0.06)**
View of child's social status	-0.09 (0.04)*	0.26 (0.10)**	0.11 (0.11)	-0.02 (0.02)
Group x View of child's social status	-0.08 (0.04)	-0.08 (0.12)	-0.01 (0.14)	0.02 (0.03)
<i>F</i>	12.16***	15.02***	3.97***	6.81***
Adj. <i>R</i> ²	0.34	.40	.13	.21
Ease of mobility in social status				
Intercept	1.64 (0.30)***	5.99 (0.83)***	6.08 (0.95)***	0.31 (0.17)
Group (0 = control, 1 = high stress)	0.56 (0.07)***	-1.49 (0.20)***	-0.58 (0.23)*	0.22 (0.04)***
Ease of mobility	-0.14 (0.07)*	0.19 (0.19)	0.05 (0.21)	-0.10 (0.04)*
Group x Ease of mobility	0.07 (0.10)	0.37 (0.28)	0.43 (0.31)	0.06 (0.06)
<i>F</i>	12.37***	13.37***	4.58***	7.98***
Adj. <i>R</i> ²	0.35	.37	.15	.25

Note: a = mother's age, race, marital status, education, and household income included as covariates; * = $p < .05$, ** = $p < .01$, *** = $p < .001$.

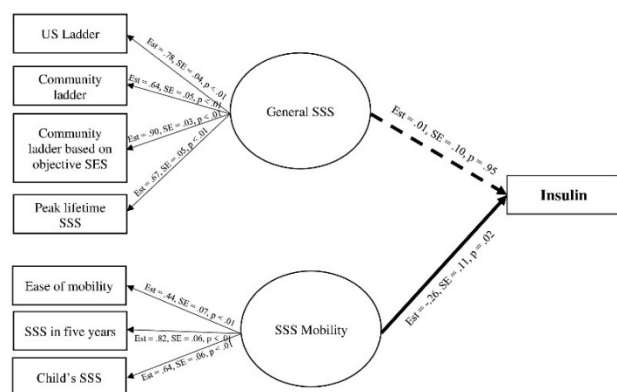


Figure 1. The latent factor of SSS mobility, but not the latent factor of general SSS, was significantly associated with insulin levels, controlling for age and BMI (CFI = .98, TLI = .97; RMSEA = .04; standardized estimates showed; circles = latent factors, squares = observed variables).

31: Biological processes relevant to psychosomatic health Saturday March 11, 2:00-3:00pm

Abstract 471

DOES RACE MODERATE THE RELATIONSHIP BETWEEN HEART RATE VARIABILITY AND PRECLINICAL CARDIOVASCULAR DISEASE?

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Higher heart rate variability (HRV) is typically associated with reduced risk for cardiovascular disease (CVD). However, this association may not be apparent for Black individuals, who, despite their higher burden of risk for CVD compared to all other races, also have higher HRV. Hence, we test here whether HRV differentially associates with CVD risk for White versus Black individuals. The study sample consists of healthy midlife adults, recruited as part of two phases of the Pittsburgh Adult Health and Behavior project. Participants (N = 1750, aged 30-54, 53% female, 1462 White, 288 Black) were screened to exclude those with chronic illnesses (including CVD and metabolic disorders), and, for a subset of the sample (N = 758), those using psychotropic, cardiovascular, lipid, and glucose control medications. HRV metrics (root mean square of successive differences between normal heartbeats (RMSSD) and high-frequency HRV) were derived from artifact-

corrected inter-beat intervals measured during a 5-minute resting electrocardiogram protocol. Participants underwent ultrasonography to assess carotid artery intima-media thickness (IMT), a surrogate indicator of preclinical CVD. To retain the sample of 1750, median imputation was applied to variables of interest with missing data. All models were controlled for age and sex, which are known to influence both HRV and IMT. ANCOVA results revealed significant race differences in RMSSD, such that Black individuals had higher RMSSD than White individuals, $F(1, 1746) = 4.90$, $p = 0.03$. Regression models showed that IMT in the common carotid artery (CCA-IMT) was significantly lower in Black individuals than in White individuals, $\beta = -.41$, $p = .03$. Additionally, while the overall effect of RMSSD on CCA-IMT was not significant, $p = 0.77$, the interaction effect of race and RMSSD on CCA-IMT was significant, $F(1, 1744) = 4.66$, $p = 0.03$. RMSSD was positively associated with CCA-IMT in Black participants ($B = 0.029$, $p = 0.03$), but no association was found in White participants ($B = -0.002$, $p = 0.74$). The analyses were also run using high-frequency HRV, where the latter interaction was not replicated. These results suggest that while HRV may not have the same cardioprotective properties for Black individuals as it does for their White counterparts, this differential association may depend on the HRV metric used.

Abstract 367

PREDICTIVE POWER OF THE NEURO-IMMUNOMODULATORY INDEX (NIM) AT HOSPITAL ADMISSION OF COVID-19 PATIENTS FOR COVID-RELATED OUTCOMES – A RETROSPECTIVE STUDY

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Introduction: Previous literature suggested a measure of neuro-immunomodulation (NIM) from hospital routine data to be a reliable predictor of all-cause mortality in two cancer patient populations. This method has not yet been applied to hospitalized COVID-19 patients.

Methods: A total of 366 medical records of patients admitted to the infection department of a university hospital in Germany between 04/01/2020 and 06/30/2021 were screened. Inclusion criteria were: COVID-19 being the primary diagnosis for hospital admission. Exclusion criteria were: invasive procedure or treatment in the past 6 weeks prior to admission, no confirmed SARS-CoV-2 infection, retransfer from intermediate or intensive care units (N=213). Parameters were extracted by trained personnel and included date of admission, date of transfer to IMC or ICU, date of death, or date of discharge, C-reactive protein (CRP), Interleukin-6 (IL-6) and 10sec ECG stripe to calculate SDNN and RMSSD. NIM-ratio was calculated from z-transformed parameters as RMSSD/CRP. The outcomes were regressed on NIM as follows: length of hospital stay (linear regression model), ICU referral, death (logistic regression model), time to ICU, time to death (Cox regression model). All regression models were adjusted for age, sex, number of diagnosis and SPO2 at admission to indicate COVID19 severity.

Results: Of N=153 records, 14 had insufficient ECG data, 26 missing IL-6, and one missing CRP. A total of 42% of the

N=139 records included were female. Neither NIM-ratio was a significant predictor in any model for the outcomes (all $p>0.05$, explained variance 3%). However, CRP, IL-6, and RMSSD alone were significant predictors of length of hospital stay (explained variance >12%) but not of ICU transfer (no/yes) or mortality (no/yes) nor in time-to-event models (time to ICU or time to death). Entering RMSSD and CRP together resulted in a significant point estimate for RMSSD ($p=0.013$) but not CRP ($p=0.12$)

Conclusions: Based on this single-center retrospective study, inflammatory markers and HRV individually, but not in combination in the NIM-ratio, seemed suitable for risk-stratification in hospitalized COVID-19 patients. It may be carefully concluded that the NIM-ratio is not suitable for risk prediction during an acute viral infection. It should be considered that the quality of patient records was rather weak.

Abstract 655

RACIAL DIFFERENCES IN THE RELATIONSHIP BETWEEN C-REACTIVE PROTEIN AND LEFT VENTRICULAR MASS

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Previous research suggests higher circulating proinflammatory cytokines, such as C-reactive protein (CRP), predicts greater left ventricular hypertrophy, defined as greater left ventricular mass (LVM). Indeed, both higher CRP and LVM predict worse cardiovascular outcomes. Black Americans consistently show a greater prevalence and incidence of cardiovascular disease, which has been linked with both higher inflammation (i.e., CRP) and LVM, relative to White Americans. Despite such differences in inflammation and LVM across the lifespan, no study has investigated whether higher inflammation is more consequential for LVM in Black Americans relative to White Americans. Our cross-sectional study thus examined if the link between baseline CRP, as an index of inflammation, and LVM (index) differed as a function of race in Black ($n = 232$) vs. White ($n = 271$) apparently healthy young adolescents' (mean age 16 years, age range 13 to 19 years). Adjusting for age, gender, body mass index, percentage of body fat, and waist-to-hip ratio, CRP did not predict LVM in the full sample ($B = -.002$ (.008), $p = .761$), however race significantly moderated this association ($R^2\text{Change} = .004$, $B = -.024$ (.011), $p = .030$), such that there was a significant difference ($z = 2.07$, $p = .036$) between the positive association among White Americans ($B = .011$ (.008), $[-.004, .025]$, $p = .160$, $r = .086$) relative to the negative slope among Black Americans ($B = -.013$ (.009), $[-.031, .004]$, $p = .130$, $r = -.104$). In sum, results suggest higher circulating CRP may have a differential effect on LVM in Black and White Americans, thereby suggesting a potential different inflammatory and/or physiological pathway underpinning increased LVM among Black Americans relative to White Americans. Ultimately, such differences might contribute to racial differences in the development and complications of cardiovascular disease. Future studies are necessary to further explore the mechanisms underlying the association between race and inflammation, and their combined interactive effect on LVM across the lifespan.

32: Intervening on bio-behavioral symptoms
Saturday March 11, 3:15-4:15pm

Abstract 449

PREDICTORS OF TREATMENT RESPONSE

TRAJECTORIES IN CHRONIC FATIGUE SYNDROME

Maaïke Van den Houte, PhD, KU Leuven, Elfi Vergaelen, MD, PhD, KU Leuven, Stephan Claes, MD, PhD, KU Leuven, Lukas Van Oudenhove, MD, PhD, KU Leuven

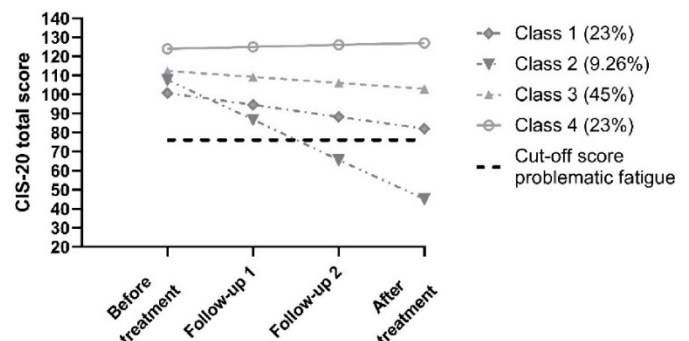
Introduction The response to standardized cognitive behavioral therapy (CBT) programmes for Chronic Fatigue Syndrome (CFS) may vary greatly between patients, but predictors of treatment success are largely unknown. Therefore, we aimed to identify patient subgroups based on treatment response trajectory, and identify pre-treatment predictors of trajectory membership.

Methods 297 CFS patients (254 women, mean age 41 ± 10 years) diagnosed according to the 1994 CDC criteria were enrolled in a standardized treatment programme consisting of a group psychoeducation session and 17 individual 50-minute CBT sessions. Questionnaire data were collected pre-treatment, after sessions 3 and 10, and post-treatment. The Checklist Individual Strength (CIS-20), measuring different aspects of fatigue, was the primary outcome. Marginal Linear Mixed Model Analysis and Latent Class Growth Analysis (LCGA) were used to test evolution of fatigue levels throughout the treatment at the group level, and identify subgroups based on treatment response trajectory, respectively. The depression (PHQ-9), anxiety (GAD-7), and somatic symptom (PHQ-15) modules of the Patient Health Questionnaire and the Perceived Stress Scale served as pre-treatment predictors in the latter model.

Results At the group level, fatigue levels decreased in response to treatment ($p<0.001$, $\eta^2=0.06$), with significant decreases between all consecutive timepoints (all $p\text{Tukey}<0.05$), but 81% of patients retained scores above the cutoff for clinically significant fatigue post-treatment. LCGA identified four treatment response trajectory subgroups, which can be labeled as "no improvement" (Class 4, 23%), "weak improvement" (Class 3, 45%), "moderate improvement" (Class 1, 23%), and "strong improvement" (Class 2, 9%) (Figure 1). Higher pre-treatment levels of depressive, anxiety, and somatic symptoms, and stress significantly predicted membership of the "no improvement" subgroup.

Conclusion A standardized CBT treatment programme for CFS is only moderately effective at the group level, with important individual differences in treatment response. Higher pre-treatment levels of anxious, depressive, somatic and stress symptoms are predictors of lack of response, suggesting these may need to be treated separately prior to enrolling patients in the standardized CBT treatment programme.

Figure 1 Estimated treatment response trajectories from LCGA



Abstract 306

EFFECTS OF 12 WEEKS OF APP-BASED EXERCISE ON DEPRESSIVE SYMPTOMS OF HEALTHCARE WORKERS: A RANDOMIZED CONTROLLED TRIAL

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Background: During the COVID-19 pandemic, healthcare workers (HCWs) reported a significant decline in their mental health (i.e., depression, anxiety). One potential intervention that has been shown to be effective for improving mental health is exercise, which may be facilitated by taking advantage of mobile application (app) technologies.

Methods: A two-arm randomized trial was conducted to test the extent to which a 12-week exercise intervention reduced depression symptoms in HCWs. Participants were recruited from an urban health care organization in British Columbia, Canada. Participants completed the 10-item Centre for Epidemiological Studies – Depression Scale (primary outcome) before randomization (exercise, $n = 140$; waitlist, $n = 142$) and every 2 weeks thereafter. Participants in the exercise group were asked to complete 4 x 20-minute sessions per week using a suite of Down Dog™ high-intensity interval training (HIIT), yoga, barre, and running apps. Intention-to-treat analyses were completed with multilevel structural equation modeling.

Results: A total of 282 participants were recruited, aged 41 years (± 10.8), identifying as predominantly women (86%) and nursing staff (43%). Of the participants, 40.5% identified as a member of a minority, and 7% identified as LGBTQ+. Results revealed that those in the exercise group had a significant treatment effect ($p = 0.006$) for depressive symptoms compared to waitlist. The week-to-week effect sizes were in the small-to-medium range (Feingold's ES range: -0.06 at wk1, -0.36 at wk12). App use, at least 80+min/wk, ranged from 69% (week 1) to 24% (week 12).

Conclusion: Although the intervention was able to reduce depressive symptoms among HCWs, adherence was low towards the end of the trial. Optimizing adherence to exercise programming is the next challenge to help maintain improvements in mental health among HCWs. Without any prioritisation of health and well-being, the mental health decline faced by HCWs should be cause for concern among public health organizations, with potential impacts on medical errors, burnout, and absenteeism.

Abstract 444

CHANGE IN EMOTIONAL EATING, INFLAMMATION, AND METABOLIC MARKERS ACROSS TWO BEHAVIORAL WEIGHT LOSS PROGRAMS

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Standard behavioral treatments (SBT) and acceptance-based treatments (ABT) for weight loss are associated with decreases in emotional eating. However, it is unclear if SBT or ABT produces greater reduction in emotional eating or if these reductions predict change in inflammatory or metabolic markers. We tested 1) if ABT vs. SBT resulted in differential change in emotional eating, and 2) if change in emotional eating was associated with change in inflammatory or metabolic markers across treatments. Participants were adults with excess adiposity (aged 21-65) enrolled in a weight loss program (Identifier-NCT02786238). Participants were randomized to ABT (or SBT (both 6-month durations). The Emotional Eating Scale (EES) was measured at baseline and

post-treatment (PTx). Inflammation (high sensitivity C-reactive protein, hs-CRP in mg/dl; interleukin-6, IL-6 in pg/ml; tumor necrosis factor, TNF- α in pg/ml) and metabolic indicators (fasting glucose in mg/dl; insulin in mIU/L; hemoglobin A1c (HbA1c; %) were assessed at baseline and PTx. Residualized change (Δ_{resid}) scores were created for all variables (i.e., follow-up values with the influence of baseline removed). Paired samples t-tests were employed to assess change in emotional eating between baseline and PTx. EES Δ_{resid} was tested in independent samples t-tests to compare differences across ABT and SBT. EES Δ_{resid} was utilized as a predictor for Δ_{resid} in inflammatory and metabolic indicators. Baseline BMI and weight change percent were included as covariates. EES decreased from baseline ($M = 27.07 \pm 17.14$) to PTx ($M = 19.96 \pm 14.49$): $t(69) = 4.00$, $p = .001$. EES change did not differ by treatment: $t(68) = .631$, $p = .530$. EES change was related to decreases in IL-6 only ($t = -2.30$, $p = .025$). This relationship persisted when controlled for baseline BMI and weight change. EES change was not significantly associated with other biomarkers, but the change in biomarkers trended negatively overall. Emotional eating scores decreased by 25% overall. In ABT scores decreased by 22% and SBT scores decreased by 28%. Greater decreases in emotional eating predicted greater reductions in certain cytokines (i.e., IL-6). Such findings suggest that both standard and acceptance-based protocols reduce emotional eating symptoms with corresponding reduction in inflammation.

33: Predictors of cardiometabolic health **Saturday March 11, 3:15-4:15pm**

Abstract 558

IS CARDIORESPIRATORY FITNESS PROTECTIVE AGAINST THE NEGATIVE EFFECTS OF AIR POLLUTION ON BRAIN HEALTH? CROSS-SECTIONAL RESULTS FROM THE 4HAIE STUDY

Vera Jandackova, Ph.D., University of Ostrava, Steriani Elavsky, Ph.D., university of ostrava, Lukas Cipryan, Ph.D., university of ostrava, Daniel Jandacka, Ph.D., University of Ostrava

Air pollution, as a group of environmental neurotoxin, may affect cellular and molecular events in the brain via various biological pathways. Exercise enhances neural plasticity and improves cognition partially through its effects on cardiorespiratory fitness. Whether enhanced fitness benefits the brain also when exercise is performed in polluted air remains unclear. Therefore we aimed to investigate the interactions between neurocognitive correlates, air pollution and cardiorespiratory fitness. Data from the Czech Healthy Aging in Industrial Environment study-Programme 4 was used. The sample for this presentation included 427 participants aged 40-65 years living in either an area with historically high air pollution or in an area with no or low air pollution (control region). All participants were non-smokers. We used the following neurocognitive markers: cognitive score (z-scores of memory and executive function tests) and total grey matter volume. Neuroimaging was performed using 1.5T Siemens Magnetom Scanner. MRI sequences include T1wMPRAGE, T2wTSE, T2wTSEFS, EP2D-DIFF3-ScanTrace. Based on level of cardiorespiratory fitness (indexed by maximum oxygen uptake during graded exercise), participants were categorised into tertiles as those with low, medium or high fitness. Multivariable regression was applied. A greater grey matter volume and cognitive score was observed with increasing fitness. There were no differences in grey matter volume and cognitive score by residential area (polluted/control) ($p > 0.245$). However, in participants with low

physical fitness, smaller grey matter volume and worse executive functioning was observed in those living in the polluted area compared with the control area ($p=0.01$ and $p=0.05$). Models were controlled for age, sex, education, socioeconomic status, ill-health, BMI, height, fatigue and noise during cognitive testing. We concluded that aerobic fitness may be a natural protective factor against the negative effects of air pollution and potentially positively support neuroplasticity and mechanisms of oxygen transport even in people living in areas with air pollution.

Abstract 494

ASSOCIATION BETWEEN PSYCHOLOGICAL DISTRESS FROM NATURAL DISASTERS AND ADIPOSITY AMONG YOUNG ADULTS IN PUERTO RICO

Andrea Lopez-Cepero, PhD, Emory University, Tené Lewis, PhD, Emory University, Shakira Suglia, ScD, Emory University, Cynthia Pérez, PhD, University of Puerto Rico - Medical Sciences Campus, Milagros Rosal, PhD, UMass Chan Medical School

Background: Puerto Rico (PR) is susceptible to environmental events. Most recently, PR experienced some of its most devastating natural disasters: hurricane María in 2017 and a sequence of tremors (ST) in 2020. In parallel, individuals in PR experience a high burden of overweight and obesity. Current knowledge on the impact of natural disasters on physical health has focused on hospitalizations and acute illnesses, while others have documented their negative impact on mental health. Nonetheless, data on the mental health impact of natural disasters on adiposity are lacking. The objective of this study was to evaluate the association between perceived mental health impact of natural disasters, specifically hurricane María and the ST, and adiposity. **Methods:** Data from the PR-OUTLOOK study were used for this cross-sectional analysis. Participants completed baseline questionnaires and clinic visits between September 2020 to September 2022. The analytic sample ($n=1,006$) was aged 18-29, from diverse socioeconomic backgrounds and 63% female. Two items assessed the mental health impact of Hurricane María and the ST, with responses being categorized as no/little impact vs. some/a great deal. Data from anthropometric measurements were used to evaluate BMI and waist circumference (WC) as markers of adiposity. Analyses included linear regression models adjusted for sociodemographic and behavioral characteristics. **Results:** Overall, 40% and 27% of the sample perceived an adverse mental health impact from Hurricane María and the ST, respectively. Mean (SD) BMI and WC measures were 26.8kg/m^2 (6.68) and 83.9cm (16.9), respectively. In adjusted models, individuals reporting perceived adverse mental health impact from Hurricane María (vs. no/little) had higher BMI ($B=0.87$; $95\%CI=0.01-1.72$) and WC ($B=2.60$, $95\%CI=0.51-4.69$). No associations were observed for adverse mental health impact from the ST and adiposity. **Conclusion:** Adverse mental health impact from Hurricane María, but not from the ST, was associated with greater adiposity. Future studies are needed to evaluate how psychological distress from natural disasters, particularly those causing long-lasting damages (like hurricane María), impacts weight over time and uncover potential mechanisms. Such knowledge is needed to inform obesity prevention efforts in high-risk populations.

Abstract 413

RELATIONSHIP BETWEEN MYOCARDIAL INFARCTION SEVERITY AND SUBSEQUENT DISTRESS: THE VAGUS SETS THE TONE

Reham Dyab, MA, University of Haifa, Mary Princip, PhD, university of Zurich, Claudia Hackl-Zuccarella, PhD, university of Zurich, Roland Von Käne, MD PhD, university of Zurich, Yori Gidron, PhD, University of Haifa

Background: Myocardial infarction (MI), results in various mental consequences like depression and post-traumatic stress disorder (PTSD). Such consequences also predict post-MI mortality. It is important to investigate the risk and protective factors of such outcomes. One possible protective factor is vagal nerve activity, indexed by heart-rate variability (HRV). This study's purpose was to examine the relation between MI severity and future mental health consequences and the moderating role of vagal nerve activity. **Method:** in a reanalysis of the MISPRINT study, 154 post-MI patients participated. MI severity was measured by the Killip Scale, depression was assessed by the Beck Depression Inventory (BDI), and PTSD by the Post Traumatic Distress Scale (PTSDS) at 3 and 12 months. Vagal nerve activity was indexed by the HRV parameter of RMSSD, measured during 5 minutes. **Results:** The Killip score positively and significantly correlated with depression and PTSD at 3- and 12-months post MI, but only in patients with low HRV ($r=0.39$, $p<0.05$, $r=0.56$, $p<0.01$, for depression, and $r=0.54$, $p<0.01$, $r=0.68$, $p<0.001$ for PTSD). However, Killip scale did not predict mental distress in patients with high HRV at 3 or 12 months ($r=0.15$, $r=-0.18$ for depression, $r=-0.02$, $r=-0.11$ for PTSD, all non-significant). **Conclusions:** MI severity predicts post-MI depression and PTSD, but only in patients with low vagal activity. Thus, the vagal nerve is a protective factor in this association.

Abstract 381

BEAT-TO-BEAT LOW FREQUENCY BLOOD PRESSURE VARIABILITY IS DIFFERENT FROM VISIT-TO-VISIT AND AMBULATORY BLOOD PRESSURE VARIABILITY

Tara Gruenewald, PhD, Chapman University, Martina Pavlicova, PhD, Columbia University Irving Medical Center, Tse-Hwei Choo, MS, Columbia University Irving Medical Center, Richard Sloan, PhD, Columbia University Irving Medical Center

Background

Like heart rate, blood pressure (BP) is not steady but varies over intervals as long as months to as short as consecutive cardiac cycles. This blood pressure (BPV) variability typically is computed as the standard deviation of multiple clinic visit-to-visit (VVV-BP) measures or from 24-hour ambulatory BP recordings (ABPV). BP also varies on a beat-to-beat basis, quantified by methods that parse variation into discrete bins, e.g., low frequency (0.04 – 0.15 Hz, LF). However, beat-to-beat BPV requires continuous recordings that are not easily acquired. As a result, whereas we know a great deal about the relationship between VVV-BPV and ABPV and basic sociodemographic characteristics such as age, sex, and race and clinical conditions, their relationships to beat-to-beat BPV are unknown.

Methods:

We computed LF-BPV during an 11-minute seated resting period in 2118 participants in the Midlife in the US (MIDUS) study. In addition, sociodemographic indices and clinical information also were measured.

Results:

In contrast to VVV-BPV and ABPV, LF-BPV was inversely associated with age ($p<.001$), greater in men than women ($p=.03$), and unrelated to race or socioeconomic status. It was greater in participants with hypertension ($p=.03$) but unrelated to hyperlipidemia, hypertriglyceridemia, diabetes, elevated

CRP, or obesity. LF-diastolic BPV (DBPV), but not -systolic BPV (SBPV), was inversely related to IL-6 and s-ICAM ($p=.01$) and directly related to urinary epinephrine and cortisol ($p=.04$). Finally, LF-DBPV was inversely related to mortality ($HR = 0.74$, $CI\ 0.61\ 0.89$), an effect attenuated by age but not by other sociodemographic characteristics.

Conclusions:

These findings, the first from a large, national sample, suggest that LF-BPV differs significantly from VVV-BP and ABPV. Confirming its relationship to sociodemographic risk factors and clinical outcomes requires further study with large and representative samples.

Late Breaking

Saturday March 11, 3:15-4:15pm

Abstract 648

POSITIVE AFFECT TREATMENT TARGETS PHYSIOLOGICAL, BEHAVIORAL, AND EXPERIENTIAL REWARD HYPOSENSITIVITY: A RANDOMIZED-CONTROLLED TRIAL

Alicia Meuret, PhD, SMU, David Rosenfield, PhD, SMU, Aileen Echiverri-Cohen, Ph.D., UCLA, Michelle Craske, PhD, UCLA

This randomized clinical trial sought to determine whether a novel psychosocial treatment for positive affect improves clinical outcomes and reward sensitivity more than a form of cognitive behavioral therapy that targets negative affect, and whether improvements in reward sensitivity correlate with outcomes. In this assessor-blinded, parallel-group, multi-site, 2-arm randomized-controlled clinical superiority trial, eighty-five treatment-seeking adults with severely low positive affect, moderate-to-severe depression or anxiety, and functional impairment received 15 weekly individual therapy sessions of Positive Affect Treatment (PAT) or Negative Affect Treatment (NAT). Measures were self-reported positive affect, interviewer-rated anhedonia, and self-reported depression and anxiety. Target measures were eleven physiological, behavioral, cognitive, and self-report measures of reward anticipation-motivation, response to reward attainment, and reward learning. All analyses were intent-to-treat. Results showed that, compared to NAT, individuals receiving PAT achieved superior multivariate clinical outcomes at post-treatment. In addition, compared to NAT, individuals receiving PAT achieved significantly higher multivariate reward anticipation-motivation, including more stable cardiac responses, compared to a decline in cardiac acceleration in NAT in anticipation to monetary reward, and significantly higher multivariate response to reward attainment at post-treatment. Measures of reward learning did not differ between the two conditions. Improvements in reward anticipation-motivation and response to reward attainment correlated with improvements in self-reported positive affect, interviewer-rated anhedonia, and self-report measures of depression and anxiety. In conclusion, targeting positive affect results in superior improvements in clinical outcomes and reward sensitivity than targeting negative affect. This is the first demonstration of differential target engagement in two psychological interventions for anxious or depressed individuals with low positive affect.

Late Breaking 1: Mental health

Thursday March 9, 10:45-11:45am

Abstract 692

BODY DISSATISFACTION IN BLACK WOMEN REMAINS

STABLE ACROSS AGE 12 TO AGE 40 AND PREDICTS MENTAL AND PHYSICAL HEALTH OUTCOMES

Jordan Parker, MA, University of California, Los Angeles, Jordan Levinson, MA, University of California, Los Angeles, Craig Enders, PhD, University of California, Los Angeles, Jeffrey Hunger, PhD, Miami University, Stephanie Fitzpatrick, PhD, Kaiser Permanente Center for Health Research, Mahasin Mujahid, PhD, University of California, Berkeley, Barbara Laraia, PhD, University of California, Berkeley, Elissa Epel, PhD, University of California, San Francisco, A. Janet Tomiyama, PhD, University of California, Los Angeles

Objective: In the present study, we aimed to characterize the relationship between body dissatisfaction in adolescence and in midlife in a sample of Black women. Informed by our prior work, we also investigated whether Black women's unique body image concerns—specifically their skin color satisfaction—may be directly associated with body dissatisfaction across the lifespan and indirectly associated with longitudinal mental and physical health outcomes.

Methods: In a sample of 455 Black women, we examined whether body dissatisfaction in adolescence (ages 12, 14, 16, 18, 19) predicted body dissatisfaction in adulthood (age 40), controlling for parental income and education. Next, we examined whether the longitudinal stability of body dissatisfaction would mediate the relationship between skin color satisfaction in adolescence and adult mental and physical health outcomes (e.g., self-esteem, self-reported health, depression, and cardiovascular risk).

Results: At all time points, adolescent body dissatisfaction significantly predicted body dissatisfaction in adulthood. In turn, adolescent body satisfaction mediated the relationship between skin color satisfaction and adulthood body satisfaction. No significant direct or indirect effects of adolescent skin color satisfaction were observed for depression outcomes. Greater skin color satisfaction was: (a) directly associated with lower self-esteem and greater self-reported health and (b) indirectly associated with greater self-esteem, greater self-reported health, and lower cardiovascular risk.

Conclusions: Among Black women, body dissatisfaction appears to arise in adolescence and remain stable into adulthood. Moreover, the longitudinal stability of body satisfaction may be one pathway through which the lasting effects of adolescent skin color satisfaction are associated with adult health outcomes. Future studies should continue to explore factors that influence Black girls' body satisfaction across the lifespan, as they may have direct and indirect implications for adult psychophysiological health.

Abstract 713

SARS-COV-2 INFECTION AND DEPRESSIVE SYMPTOMS AMONG FRAIL INDIVIDUALS LIVING IN LONG-TERM CARE FACILITY.

Jean-Philippe Gouin, Ph.D., Concordia University, Diana Cruz-Santiago, MD, University of Montreal, Michelle Canac-Marquis, M.PH., McGill University Health Center, Donald Vinh, MD, McGill University Health Center

Background: Observational studies suggest that SARS-CoV-2 infection may increase risk for neuropsychiatric disorder in the post-acute period. However, it is unclear how long this increased risk last. Furthermore, the increased risk for depression following COVID-19 has not been tested among individuals in long-term care facility.

Methods: In this study, 241 residents in nursing facility were recruited in January 2021 during the 3rd wave of the COVID-19 pandemic. Participants received at least 3 doses of a mRNA

SARS-CoV-2 vaccine during the 24-month follow-up study period. Nurses rated participants' depressive symptoms using the Cornell Depression Scale at baseline, 3 months, 12 months, and 24 months. RT-PCR tests were conducted to assess SARS-CoV-2 infection if the participant or a patient on their unit had symptoms consistent with COVID-19 throughout the study period.

Results: During this 24-month period, 29.9% of participants remained SARS-CoV-2 negative, 54.4% had one infection, and 15.8% had two infections. SARS-CoV-2 infection were associated with elevated depressive symptoms at baseline, Cohen's $d = .34$, $p = .01$, and at 3 months, Cohen's $d = .36$, $p = .008$, but not at the 12-month, Cohen's $d = .10$, $p = .51$, and 24-month follow-ups, Cohen's $d = .22$, $p = .21$. Reinfection was not associated with elevated depressive symptoms, compared to a single SARS-CoV-2 infection.

Conclusion: In this sample of frail individuals who received at least 3 doses of mRNA vaccine, a SARS-CoV-2 infection was initiated associated with increased depressive symptoms, but this association was no longer significant in the longer-term follow-up assessments.

Late Breaking 1: Psychiatry
Thursday March 9, 10:45-11:45am

Abstract 603

MATERNAL CARE PREDICTS NEURAL AND BEHAVIORAL EFFECTS OF OXYTOCIN ADMINISTRATION DURING EMPATHIC ACCURACY IN SCHIZOPHRENIA AND MATCHED CONTROLS

Casey Brown, PhD, Georgetown University, Lize De Coster, PhD, University of California, San Francisco, Lisa Lin, BA, University of California, San Francisco, Junghee Lee, PhD, University of Alabama, Birmingham, Joshua Woolley, MD, PhD, University of California, San Francisco

Empathic accuracy, the ability to accurately rate other's emotions, is a complex social cognitive skill that is often impaired in schizophrenia and this impairment is associated with poor functional outcomes. Intranasally administered oxytocin, a neuropeptide implicated in social behavior, is thought to improve empathic accuracy for individuals with schizophrenia. However, early experiences related to caregiving may shape the oxytocinergic system and influence individual responses to oxytocin administration. Using a cross-over, double-blind, placebo-controlled design coupled with fMRI, the current study investigated whether administration of oxytocin (compared to a matched placebo) improves empathic accuracy in individuals with schizophrenia ($n=23$) and neurotypical controls ($n=25$). The study also examined the moderating role of early maternal care. Results revealed that, compared to controls, individuals with schizophrenia had lower empathic accuracy and recruited a sparser pattern of neural activation to achieve empathic accuracy. Oxytocin administration was not associated with higher empathic accuracy for either group. However, in both groups, individuals reporting higher maternal care demonstrated the greatest improvements in empathic accuracy with oxytocin administration, accompanied by decreased activity in the right dorsolateral prefrontal cortex, a region implicated in selective attention to socioemotional stimuli. Findings highlight the importance of examining individual differences in responses to oxytocin administration and suggest that early social experiences influence later responses to oxytocin administration.

Late breaking 2: Qualitative research
Saturday March 11, 2:00-3:00pm

Abstract 696

UNDERSTANDING BEHAVIOURS IN RESPONSE TO RESPIRATORY INFECTIONS: THE CARI CYMRU STUDY

Kimberly Dienes, PhD, Swansea University, Rhiannon Phillips, PhD, Cardiff Metropolitan University, Britt Hallingberg, PhD, Cardiff Metropolitan University, James Blaxland, PhD, Cardiff Metropolitan University, Mike Beeton, PhD, Cardiff Metropolitan University, Catherine Moore, MD, Public Health Wales, Simon Cottrell, MD, Public Health Wales, Jemma Jaheed, MSc, Swansea University, Simon Williams, PhD, Swansea University

Background Respiratory Tract Infections (RTIs) pose a burden to individuals, healthcare systems, and society. With COVID-19 restrictions easing, high-quality research on RTI-related health behaviours is needed to inform the public, policymakers, and organisations about the prevention and management of RTIs. The Community Action on Respiratory Infections (CARI) study aims to understand people's engagement with infection-reducing behaviour to inform community-based strategies to reduce RTI burden.

Method The CARI study adopted a longitudinal mixed method approach with a baseline survey ($n=3475$), bi-weekly follow-up symptom surveys ($n=1061$) (Dec 2022-Jan 2023), and the inclusion of microbiology analysis (to detect the presence of viruses) using Polymerase Chain Reaction (PCR) testing in a sub-sample of participants (Feb-March 2023). Participants were adults based in Wales recruited by the HealthWise Wales (HWW) research registry in addition to social media snowball sampling (Twitter, Facebook, and Instagram), press releases, and community recruitment. Participants were predominately female (85%) and older adults ($M=62.94$, $SD=12.83$).

Results Most participants were 'not at all' or 'a bit' worried about RTIs in general (89%), but significantly more were worried about COVID than flu ($p < 0.05$). Mask wearing (60% 'never' or 'rarely') and social isolation (51%) were uncommon, but handwashing/hand hygiene (84.9% 'often' or 'always') was. Amongst those experiencing self reported symptoms of an RTI; Flu was perceived as the most common cause, COVID-19 as least common, 20% had used over-the-counter medicines, 5% had sought help from a health professional, 4% went into work, 17% took a COVID test, 10% wore a mask, and 10% self-isolated. COVID-19 anxiety significantly predicted health behaviours with greater anxiety associated with increased engagement in non-pharmaceutical interventions.

Conclusions This study provides novel insights into public RTI-related attitudes, infection-reduction behaviours, and symptomatology in a population of older adults. Worry about COVID remains low and health behaviours such as mask wearing have declined while basic hygiene remains. Health behaviours when symptomatic indicate a need for targeted public health messaging.

Abstract 156

LIVING WITH SPONTANEOUS CORONARY ARTERY DISSECTION: A MULTICENTER, PATIENT-INFORMED INVESTIGATION

Karen Bouchard, PhD, University of Ottawa Heart Institute, Kathleen Lalonde, PhD, University of Ottawa Heart Institute, Alexandra Chiarelli, MSc, University of Ottawa Heart Institute, Thais Coutinho, MD, University of Ottawa Heart Institute, Sharon Mulvagh, MD, Dalhousie University, Christine Pacheco, MD, University of Montréal Hospital Centre, Shuangbo Liu, MD, Max Rady College of Medicine, Jacqueline

Saw, MD, University of British Columbia, Helen Robert, Patient Partner, University of Ottawa Heart Institute, Nadia Lappa, Patient Partner, University of Ottawa Heart Institute, Elisa Stragapede, BA, University of Ottawa Heart Institute, Heather Tulloch, PhD, University of Ottawa Heart Institute

Spontaneous coronary artery dissection (SCAD), a form of acute coronary syndrome, disproportionately affects women (77-98% of cases) who are younger in age (<50 years). The underlying etiology is incompletely understood, post-morbid psychological distress and recurrent major adverse cardiac events are high, and best practices for secondary preventive care remain elusive. Information on SCAD is increasing but is almost exclusively informed by research using quantitative research designs. Qualitative research is required for understanding multifaceted health problems and to inform the development of complex interventions, particularly in understudied and potentially vulnerable populations. Only two qualitative studies have been published on SCAD from the patients' perspective; both elucidate the psychosocial impacts and patients' needs. There are no studies that have investigated the full range of patients' experience from symptom onset to long-term management. Therefore, the purpose of this study was to describe the defining features of the SCAD illness and recovery trajectory using a qualitative research design. Patients with a diagnosed SCAD were recruited from five cardiovascular care hospitals in major cities within 5 Canadian provinces. Patients completed a sociodemographic and medical questionnaire and participated in a 1-hour interview using a patient-piloted semi-structured interview guide. Interviews were transcribed and subjected to framework analysis using inductive and then deductive coding techniques. Participants (N=90; 81% female; *M* age=54.5; *M* time since diagnosis= 2.58 years) identified the key features of 'living with SCAD' as: (1) questioning spontaneity; (2) identifying symptoms as a cardiovascular event; (3) variations in quality of care based on access to information; (4) adjusting to new limits; (5) recurring chest pain and fearing a subsequent major adverse cardiac event; (6) desiring continued follow-up and tailored support; and, (7) long-term healing of the body and the mind. Taken together, the SCAD patient experience is broadly defined by its spontaneity, unpredictability, and the limited information available on short- and long-term management. These qualitative results will inform the development of primary and secondary prevention initiatives at cardiovascular health care centres across Canada (phase I) and globally (phase II).

Abstract 714

THE EXPRESSION AND TREATMENT OF DEPRESSION IN RENAL DIALYSIS PATIENTS: A QUALITATIVE STUDY IN A CULTURALLY DIVERSE POPULATION EXPLORING PATIENT PERSPECTIVES

Simone Jayakumar, BSc, MSc, Queen Mary University of London, Tamanna Malhotra, BSc, MSc, University of Exeter, Christophe Clesse, PhD, MSc, MRes, BSc, CPsychol, University of Roehampton, Livia Carvalho, BSc, MRes, PhD, Queen Mary University of London, Georgina Hosang, BSc, MSc, PhD, Queen Mary University of London, Muhammad Magdi Yaqoob, MD, PhD, Queen Mary University of London, Kamaldeep Bhui, MD, FRCPsych, FRCP(E), FRSA, PFHEA, University of Oxford

Background: Depression is the most common psychopathological condition in patients undergoing renal dialysis. The prevalence of depression varies across ethnic minority populations and is underdiagnosed in ethnically diverse populations, such as the local East London dialysis

population. Cultural influences can impact on help seeking and caution about using antidepressants or psychological therapies as they may contradict cultural norms/values. **Aim:** To gain an understanding of depressive symptoms (DS) experienced and views on treatment for depression (including anti-inflammatory treatment), in a culturally population. **Methods:** Semi-structured interviews were carried out with 11 haemodialysis patients in East London, England. Recruitment continued until data saturation was reached. All interviews were transcribed, and major themes were identified using thematic analysis. **Results:** Seven themes were identified: (1) symptoms of depression, (2) treatment and management of depression, (3) views on relationship between depression and inflammation, (4) coping and help seeking behaviours, (5) dialysis care, (6) adversity and (7) information about dialysis. **Discussion:** Most patients reported experiencing DS like low mood, worthlessness, helplessness and hopelessness, with few reporting suicidal thoughts. DS were unrelated to dialysis and associated with comorbid illnesses, unemployment, and not having an instrumental role within the family. Tiredness, fatigue, and lack of appetite were reported as ESKF symptoms rather than DS. Antidepressants were negatively viewed due to side effects such as becoming more depressed, fatigued, and numbness. Psychological/talking therapies and anti-inflammatory treatments were favoured if evidence supported treatment effectiveness with minimal side effects. Culture negatively impacted coping, especially in relation to diet and perceptions about health/illness. Despite overall satisfaction, patients felt that social/emotional support and shared decision making was lacking. Culturally and dialysis appropriate depression-screening tools should be used for improved detection and treatment of depression. Further research is needed on cultural adaptation of psychological therapies to ensure accessibility for culturally diverse groups and the efficacy of anti-inflammatory treatments for inflammation induced depression in dialysis patients.

Abstract 269

MEDICATION ADHERENCE IN PATIENTS FOLLOWING HEMATOPOIETIC STEM CELL TRANSPLANTATION: A QUALITATIVE STUDY

Emma C. Deary, BA, Brigham and Women's Hospital, Elizabeth L. Daskalakis, BA, Brigham and Women's Hospital, Lauren Goldschen, MD, Brigham and Women's Hospital, Cynthia Peng, MD, Brigham and Women's Hospital, Hermioni L. Amonoo, MD, MPP, Dana-Farber Cancer Institute

Background: Although medication adherence is critical for optimal health outcomes in patients undergoing hematopoietic stem cell transplants (HSCT), >50% of this population struggle with medication non-adherence. However, research that comprehensively describes the complex patient- and medication-related factors which drive treatment non-adherence in this population is lacking. Hence, we used semi-structured qualitative interviews to explore the diverse and complex factors contributing to treatment non-adherence in HSCT.

Methods: We conducted 30 semi-structured interviews with patients who have undergone HSCT at the Dana Farber Cancer Institute. The interviews explored the physical, psychological, social support, and sociodemographic factors that could impact treatment adherence, as well as their preferences for a medication adherence intervention tailored to the needs of HSCT recipients. Interviews were audio-recorded, transcribed, and coded using the NVivo software.

Results: Four themes emerged from patient experiences about facilitators and barriers influencing medication adherence. Psychological distress and medication side-effects

(e.g., nausea) were barriers to adherence. Caregiver and social support and organizational resources such as pill boxes facilitated adherence. Throughout recovery, participants reported forgetfulness and losing track of time increased barriers to adherence. Therefore, increasing organizational tools such as pill alarms and frequent medication check-ins may improve adherence.

Conclusion: Facilitators and barriers to medication adherence can be physical, psychological, organizational, or social. Hence, supportive interventions to improve medication adherence in patients undergoing HSCT may need to incorporate strategies to manage medication side-effects, and skills to improve psychological wellbeing and social support.

Late breaking session 3 **Saturday March 11, 3:15-4:15pm**

Abstract 680

THE 12-MONTH COST-EFFECTIVENESS OF TELEPHONE-DELIVERED "BLENDED" COLLABORATIVE CARE FOR TREATING HEART FAILURE AND COMORBID DEPRESSION

Bruce Rollman, MD, University of Pittsburgh, John Dickerson, PhD, Kaiser Permanente Center for Health Research Northwest Region, Scott Rothenberger, PhD, University of Pittsburgh, Amy Anderson, MA, University of Pittsburgh, Kwonho Jeong, MA, University of Pittsburgh, Kaleab Abebe, PhD, University of Pittsburgh, Bea Belnap, PhD, University of Pittsburgh, Frances Lynch, PhD, Kaiser Permanente Center for Health Research Northwest Region

Background: Depression is co-morbid in 20-25% of patients with heart failure (HF) and associated with poorer clinical outcomes. We earlier reported "blended" telephone-delivered collaborative care (CC) for treating HF and depression improves health-related quality of life and mood symptoms more than primary care physicians' (PCPs') usual care (UC), and now report the cost-effectiveness of our intervention. **Methods:** From 3/14-10/17 we enrolled 629 hospitalized patients with systolic HF who screened positive for depression; had at least a moderate level of mood symptoms two weeks post-discharge (PHQ-9 ≥ 10); and randomized them to either 12-months of nurse-provided "blended" CC, CC for HF-alone, or to their PCPs' UC. Later, we obtained 12-months continuous enrollment insurance claims data from Medicare and the two largest health insurers in our region and applied 2016 Medicare prices to merge claims datasets. We then approximated interventions' costs, used generalized linear models to correct for skewness in costs, conducted a sensitivity analysis removing the 1% most costly patients, and converted SF-12 MCS scores to preference-based utilities to calculate the incremental cost per quality-adjusted life year (QALY).

Results: At baseline, the 503 patients with continuous 12-month claims data were similar to the 126 excluded due to incomplete data (58% male, 65.3 mean age, 77.5% White, PHQ-9 14.0 (SD: 3.6)). At 12-months, "blended" CC, CC for HF-alone, and UC all had similar mean total claims costs (\$285,499, \$306,727, and \$322,359, respectively) after adjusting for gender, hospital recruitment type, claims for the 12 months before randomization, or removing the 1% most costly patients (12-month costs $> \$2.7M$). Rehospitalizations accounted for most expenditures (\$337,203 "blended", \$392,084, HF-only, and \$412,209 UC, respectively). Blended CC yielded incremental cost effectiveness ratios per QALY of - \$798,276 (95% CI: -\$31.8M to +\$4.9M) versus UC, and -\$1.9M (-\$5.5M to +\$5.0M) versus HF-alone. A bootstrapped cost-effectiveness plane demonstrated a 61% probability of blended

CC "dominating" UC, and an 80% probability of blended CC "dominating" HF-alone (more QALYs at lower cost). **Conclusions:** Telephone-delivered blended CC for treating HF and depression is a quality-improving and cost-effective treatment that meets generally accepted criteria for high-value care.

Abstract 683

INTERGENERATIONAL CO-PRODUCTION TO INCREASE PHYSICAL AND SOCIAL ACTIVITY FOR HEALTH IN THE GOALD PROJECT (GENERATING OLDER ACTIVE LIVES DIGITALLY)

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Background and Aims: The Generating Older Active Lives Digitally (GOALD) project aims to explore how to use digital technology to keep older people physically active and socially connected for health and wellbeing, building on previous intergenerational physical activity and sports-based reminiscence work. It is taking an inclusive interdisciplinary approach working with a range of collaborating organisations and small- and medium-sized enterprises (SMEs) to review and co-design digital technologies that support social connectedness, physical activity, and sports-based reminiscence. These proposed intergenerational co-production methods have been preceded by the researchers engaging with and learning from an 'advisory' group invited to consult on key aspects of the GOALD project to develop patient-tailored research and care.

Methods: Participants were 28 individuals with experience in working with older people (range: 1-41 years) across different contexts (e.g., nursing care, social work, family care) and with some themselves being older (age range: 32-79 years). Between October 2021 and May 2022, advisory group members were invited to ten 1hr meetings facilitated by GOALD researchers to help develop baseline data collection measures, and address recruitment issues for future co-production and design plans. Recordings were transcribed and subjected to thematic content analysis.

Results: Attendance at advisory group meetings was variable (range: 3-8 members per meeting, excluding GOALD research team members) and had several challenges. These provided a proxy for anticipated challenges as the GOALD project unfolds. Key challenges were continuing COVID-19 restrictions in England and Scotland, internet disruptions, care home staffing, family responsibility. Key findings were the shared expertise from the advisory group through their working and lived experiences such as questionnaire considerations, contextual realities of research in care homes, appropriate consideration of people with different abilities.

Conclusions: Co-produced research has several challenges, particularly in the care home setting. This presentation will discuss challenges and mitigation strategies to help future researchers navigate intergenerational and/or co-productive research methods and design of tools to enhance older adult health and social care.

Abstract 682

TO AVOID OR NOT TO AVOID: THE PARADOX OF PAIN-RELATED AVOIDANCE IN FEELING SAFE AND STRATEGIES TO PREVENT RELAPSE

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Avoidance behavior is adaptive in the acute pain stage, but when it persists beyond healing time, it may become disabling. Previous research has focused on passive fear correlates (arousal and verbal reports) largely ignoring active behavioral avoidance. However, fear and avoidance affect each other. For example, avoidance behavior during exposure may hamper corrective learning because the non-occurrence of the feared event is misattributed to the avoidance response. Therefore, exposure protocols usually imply *response prevention with extinction (RPE)*, i.e., avoidance is prohibited. This technique however may shift the problem because the unavailability of the avoidance response may constitute a context-switch (from therapy context to the patient's daily life) impeding the transfer of corrective learning and leading to return of avoidance or *renewal* (return of fear due to context-switch). I will present new data testing a potential intervention to prevent relapse, i.e., increasing approach/reward-motivation (operationalized by lottery tickets increasing the chance of winning a valued prize) to compete with avoidance behavior. We also tested the effect of cognitive load on extinction retrieval. Extinction and inhibiting the first-learned excitatory memory after extinction are resource-demanding processes that may be impaired by low availability of cognitive resources, leading to more return of pain-related avoidance and fear. Using a robotic arm avoidance paradigm, healthy participants ($n = 88$) learned to avoid pain by performing more effortful arm movements. During RPE, they could only perform the pain-associated movement, but pain was omitted. To test for return of fear/avoidance, participants received two unsignaled pain stimuli (reinstatement) and all trajectories were made available again. During the test one group performed a low cognitive load task, another a high cognitive load task, and a third group received lottery tickets (reward) during the high cognitive load task. All groups showed return of fear $F(2.54, 172.42) = 55.24, p < .001, \eta^2p = .448$. As predicted, however, the presence of a competing reward-goal reduced the return of pain-related avoidance compared to the low load group, $t(44) = 4.01, p < .001$, and the high load group, $t(45) = 3.76, p < .001$. Implications the treatment of chronic pain will be discussed.

Session 21: Discrimination & health **Friday March 10, 11:45am-12:45pm**

Abstract 684

THE INFLUENCE BETWEEN TESTOSTERONE, EMOTIONAL REGULATION, AND SOCIAL SUPPORT ON SEVERITY OF INTIMATE PARTNER VIOLENCE PERPETRATION AMONG HISPANIC MALES ON PROBATION

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Intimate partner violence (IPV) is defined as aggression or violence directed at a current or former intimate partner and manifesting forms of physical violence, stalking, and psychological or emotional aggression (Breiding et al., 2015). Emotional regulation (Pollard & Cantos, 2021) has been associated with IPV perpetration. The influence of testosterone levels and social support on IPV perpetration needs further exploration. This study examined the independent influence of these three variables on severity of IPV perpetration. Sixty IPV perpetrators ages 18 to 64 ($M = 31.1, SD = 8.9$) on probation in

Hidalgo County, Texas, were assessed on testosterone levels (measured via saliva samples), level of social support (assessed with the Texas Risk Assessment System-TRAS), and emotional regulation (assessed with the Difficulties in Emotion Regulation Scale, DERS; Gratz & Roemer, 2004). Severity of perpetration of IPV was assessed through police reports that were coded for the event of IPV that placed them on probation as a dichotomous variable, minor (1) or severe (2) based on victims' and perpetrators' accounts of the incident given to the reporting officer at the arresting event (Goldstein et al., 2016). In this study, 27 engaged in minor severity and 33 engaged in severe severity of IPV perpetration. Three logistic regression analyses were performed for this study. This study found that the odds of perpetrating minor or severe violence against an intimate partner when having higher testosterone levels ($B = 0.003, p = .294 > .05$, odds ratio (OR) = 1.003), social support ($B = 0.135, p = .661 > .05$, odds ratio (OR) = 1.145), and difficulties with regulating their emotions ($B = -0.018, p = .182 > .05$, odds ratio (OR) = 0.982) were nonsignificant. This may be due to testosterone levels varying among those engaging in IPV perpetration, having different types of support, and having different ways of regulating emotions. This may influence how they seek help and in dealing with their emotions before perpetrating IPV to help reduce it. These findings suggest that we must not assume the kind of support an individual needs and instead genuinely engage to come to an understanding of what specific type of support the individual needs, how they regulate their emotions, and understanding biological mechanisms involved to help reduce severity in perpetration of intimate partner violence.

Session 31: Biological processes relevant to psychosomatic health **Saturday March 11, 2:00-3:00pm**

Abstract 705

BRAIN ATROPHY IN ANOREXIA NERVOSA, BUT INCREASE WITH CLINICAL SYMPTOMS IN THE PREFRONTAL AND POSTERIOR INSULAR CORTICES: A MULTICENTER NEUROIMAGING STUDY

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Background: Brain morphological abnormalities have been reported in anorexia nervosa (AN), but the reliability and

reproducibility of previous studies were due to insufficient sample size and lack of exploratory analysis of the whole brain rather than regions of interest (ROI). Objective was to determine the association between brain morphological abnormalities and AN severity in AN by structural brain MRI in a multicenter study and to perform an exploratory analysis of the whole brain.

Methods: A cross-sectional multicenter study was conducted using T1-weighted imaging (T1WI) data collected in Japan between May 2014 and February 2019. MRI data from 103 female AN patients (58 anorexia nervosa restricting type [ANR] and 45 anorexia nervosa binge-purging type [ANBP]) and 102 age-matched female healthy controls (HC) were analyzed. MRI data from 5 centers were preprocessed using harmonization methods to correct for differences between centers. Gray matter volume (GMV) was calculated from T1WI data of all participants. 179 of the 205 participants, including 87 in the AN group (51 ANR, 36 ANBP) and 92 HCs, completed the Eating Disorder Examination Questionnaire (EDE-Q) 6.0 to obtain an eating disorder Examination Questionnaire (EDE-Q) 6.0 which was used to obtain severity scores of eating disorder symptoms.

Results: In the AN brain, regions of reduced GMV were observed in the bilateral cerebellum, middle and posterior cingulate gyrus, supplementary motor area, medial portion of the anterior central gyrus, and thalamus. Orbitofrontal cortex (OFC), ventral medial prefrontal cortex (vmPFC), rostral anterior cingulate cortex (ACC), and posterior insula were positively correlated with symptom severity.

Conclusions: This is a multicenter study conducted with a large sample size to identify brain morphological abnormalities in AN. The results may lead to a better understanding of the pathogenesis of AN and to the development of brain imaging biomarkers for AN.

administered 2 hours following the injection to assess willingness to expend effort for rewards. Blood was sampled pre- and post-injection to quantify inflammatory proteins, including interleukin-6, tumor necrosis factor- α , and C-reactive protein. **Results:** Less high-effort task choice was made by obese than normal-weight individuals, $B=-2.658$, $p<.05$. A significant interaction effect between reward magnitude and interleukin-6 concentrations at the time of EEfRT reflected that less high-effort task choice was made for higher reward during immune activation, $B=-.00003$, $p<.05$. This effect did not significantly differ between normal-weight and obese individuals, $B=.001$, $p=.64$. **Conclusions:** Consistent with the claim that obesity biases towards energy conservation, obesity exhibited an overall reduced willingness to expend effort for reward. Inflammation-induced decrease in willingness to expend effort became prominent as reward value increased, similarly observed for obese and normal-weight individuals.

Session 32: Intervening on bio-behavioral symptoms

Saturday March 11, 3:15-4:15pm

Abstract 700

OBESITY AND IMMUNE CHALLENGE MODULATE THE WILLINGNESS TO EXPEND EFFORT FOR REWARD

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Background: Obesity has been linked to alterations in energy metabolism, with a bias towards energy conservation. During an inflammatory state, the priority on energy conservation in obesity may be further amplified in response to the increased immunometabolic energy demands. This bias may link obesity to health issues via impairing effort-based decisions for reward, a transdiagnostic feature of psychopathology, albeit research is sparse. This study predicted a reduced willingness to expend effort for reward in obesity, particularly when energy demands increase (i.e., during an immune challenge). **Methods:** Obese ($n=15$) vs. normal-weight young adults ($n=25$) were intravenously injected with an endotoxin (lipopolysaccharide [0.8 ng/kg body weight]) triggering inflammatory response and placebo (saline) in a within-subject, randomized, crossover design. The Effort Expenditure for Reward Task (EEfRT) was