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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.

1) Abstract 1245

RACIAL TRAUMA AND RESILIENCE: THE BUFFERING EFFECTS OF COGNITIVE FLEXIBILITY ON THE RELATION BETWEEN RACIALIZED STRESS AND PSYCHOLOGICAL DISTRESS IN BLACK MOTHERS
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Chronic psychosocial stressors, like racial discrimination, disproportionately impact Black Americans and confer increased risk for cognitive decline and psychological distress (PD). PD has also been associated with executive dysfunction. However, there is little evidence on cognitive flexibility (CF), an executive function theorized to reflect the ability to adapt thoughts/behaviors to changing environmental stimuli. As such, we aimed to analyze the relation between racialized stress and PD and the buffering effects of CF. Data were drawn from The Family Life Project and included ~500 predominantly rural mothers of preadolescents from households experiencing poverty. Racial Socialization (RS) was used to measure various parenting strategies used to protect children against racial discrimination and has three subscales: exposure to culture (e.g., celebrated cultural holidays of child's racial group), racial discrimination warnings (e.g., told child that people might try to limit them because of their race), and mistrust of other racial/ethnic groups (e.g., told child not to trust kids from other racial/ethnic groups). RS can provide insight into the effect of race (i.e., structural racism) on Black mothers' life experiences. PD was assessed with the Center for Epidemiologic Studies Depression Scale (CES-D), and CF was determined by perseverative errors on the Wisconsin Card Sorting Task-64. Results revealed significant correlations between the CES-D and perseverative errors ($r = 0.16$, $p < 0.001$), warnings ($r = 0.25$, $p = 0.00000084$), and mistrust ($r = 0.25$, $p = 0.00000077$). Ordinary least squares regressions were run to assess the moderation effects of CF for high/low CF groups. Results showed a significant interaction between RS and CF ($b = 0.43$, $SE = 0.20$, $p < 0.05$) and the cultural exposure subscale and CF ($b = 0.25$, $SE = 0.11$, $p < 0.05$). Significance tests revealed increased impact of RS and cultural exposure on PD in the low CF group ($F[1, 373] = [4.63]$, $p < 0.05$; $F[1, 373] = [5.81]$, $p < 0.05$ respectively). These preliminary findings suggest a disparity in the effects of racialized stress on PD and CF. There may be unique facets of racialized stress that differentially impact risk for PD, and CF potentially buffers this relation. Future research should investigate these relations and discern how resilience to PD is conferred amongst Black mothers.

2) Abstract 1101

CHILDHOOD MALTREATMENT PREDICTS MORE COGNITIVE DEFICITS, BUT NOT CHANGE IN COGNITIVE FUNCTION OVER 5-YEARS AMONG OLDER ADULTS WITH CHRONIC DISEASE
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Background: Childhood maltreatment (CM) may increase risk for cognitive deficits and dementia later in life. However, most research has been cross-sectional in nature, and has typically focused on specific types of CM, despite considerable co-occurrence in diverse maltreatment exposures. Moreover, it is unclear to what extent individual differences and risk factors for dementia, such as sex and coronary artery disease (CAD), influence this relation.

Objectives: To examine 1) the association between childhood maltreatment and cognitive function at study onset and at a 5-year follow-up in older men and women suffering from chronic disease, and whether 2) sex and CAD status influence these relations.
Methods: Men and women (N=1254; 39.6% women; 65.56 ± 6.97 years old) with CAD or other non-cardiovascular (NCV) chronic diseases completed the Childhood Trauma Questionnaire (CTQ) to assess childhood sexual, physical, and emotional abuse in addition to physical and emotional neglect. The Montreal Cognitive Assessment (MoCA), a screening test for mild cognitive decline and early signs of dementia, was administered twice at 5-year intervals. Main analyses involved hierarchical regressions and moderation analyses on continuous values, controlling for sociodemographic and health parameters.
Results: Childhood maltreatment was experienced by 32% of the sample, while scores suggestive of cognitive deficits were obtained by 32.7% and 40.2% at Times 1 and 2, respectively. CM was associated with significantly lower MoCA scores at study onset (b= -0.013, p=0.020), but not with change in MoCA over time. While MoCA scores did differ as a function of Sex and CAD status, the latter did not influence the relations between maltreatment and MoCA. Additional analyses indicated that the attention subscale of the MoCA was most affected by CM at Time 1 (r_s=-0.076) and Time 2(r_s=-0.122).
Conclusion: Childhood maltreatment predicted poorer cognitive functioning among older individuals with chronic illness but did not play a role in any further cognitive decline over the follow-up period. This likely reflects the emergence of other more salient pathophysiological processes with aging.

3) Abstract 1420

LONGITUDINAL AND MULTIYEAR PROGRESSION OF ARTERIAL STIFFNESS MEASURED BY DUAL IMPEDANCE CARDIOGRAPHY
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Measures of arterial stiffness, a known indicator of cardiovascular (CV) disease risk, are increasingly important in biopsychosocial science and medicine. Dual impedance cardiography (d-ICG) provides a non-invasive measure of pulse wave velocity (PWV), in which impedance signals are collected from both the thorax and the calf. d-ICG measures PWV based on the onset of aortic blood flow and the arrival time of pulse waveforms in the periphery, which can be used to estimate arterial stiffness based on pulse transit time. Studies have yet to determine whether this measure is sensitive to detecting changes in arterial stiffness across several years, as blood vessels age. In a sample of 209 adults aged 28-56 (M = 42.4 years), PWV was calculated at two time points separated by ~2 years. As hypothesized, arterial stiffness measured by PWV increased across the 2-year period (baseline: M = 8.52 m/s ± SD = 1.10, posttest: M = 8.670 m/s ± SD = 1.26, p = 0.023). Additionally, age appeared to moderate the rate of

arterial stiffening; hence, among 3 age groups, the oldest participants exhibited a significant increase in PWV (M = 0.346 m/s, p = 0.016), while the middle (M = 0.187 m/s) and youngest (M = -0.057 m/s) age groups exhibited relatively less change (p > 0.129). The latter may indicate that arterial stiffening becomes more prominent later in midlife. Correlation analyses also revealed a strong positive association of PWV with age and blood pressure (r's ≥ 0.23, p's ≤ 0.001), which is consistent with previous research. The results suggest that d-ICG is a viable, non-invasive measure of arterial stiffness that is capable of detecting the progression of vascular aging over time.

4) Abstract 1233

RELATIONS OF NEIGHBORHOOD DISORDER, AGE, AND RACE TO CORTICAL WHITE MATTER INTEGRITY
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Associations of greater perceived neighborhood disorder (ND) and lesser white matter integrity (WMI) have been demonstrated in several community-based samples. However, it is unknown whether the relations of ND to WMI are moderated by both self-identified race and age which we examined herein. Participants were 194 socioeconomically diverse, stroke and dementia-free African American (AA) and White urban dwelling adults (M_{age}=52.75 SD=9.27; 41.6% AA, 54.6% female) from the Healthy Aging in Neighborhoods of Diversity across the Life Span (HANDLS) SCAN study. Perceived social and physical ND was measured with the Neighborhood Problems Scale. Diffusion tensor images were acquired on a Siemens Tim-Trio 3.0 Tesla scanner using a multi-band spin echo EPI sequence. Fractional anisotropy (FA) maps were computed with in-house software. Multivariable regression analyses (with backward elimination), adjusted for sex and poverty status, were computed to examine the interactive relations of ND, race, and age to white matter FA in right and left cortical regions. Results did not reveal any significant ND*race*age interactions. However, the interaction of ND*age was significant for FA bilaterally in the occipital lobe and in the left frontal lobe (*p's*<.01). Significant conditional effects analyses demonstrated that greater ND was associated with lower FA at older ages in the right occipital lobe (*b*=-.01, *p*=.02) and left frontal lobe (*b*>-.00, *p*=.01), and at mean and older ages in the left occipital lobe (*b*=-.01, *p*=.02). Additionally, a significant ND*race interaction was noted for FA in the left occipital lobe (*p* = .04). Conditional effects were significant for Whites (*b*=.02, *p*=.05) and AAs (*b*=.02, *p*=.01) and indicated that higher ND was associated with greater FA; this relation was more pronounced among AA's. All findings withstood further individual adjustment for alcohol and cigarette use, body mass index, diabetes, hypertension, waist circumference, total cholesterol, and health insurance. The

findings suggest that, irrespective of race, greater ND is related to lesser frontal and occipital WMI at older ages perhaps via complex chronic stress pathways. The association of higher ND with greater left occipital WMI, more so in AA than Whites, could conceivably reflect enhanced visual attention to, and processing of, environmental cues in the context of higher ND.

5) Abstract 1154

CONNECTING THE BEHAVIORAL AND BIOLOGICAL IMMUNE SYSTEM: HOW INFLAMMATORY CHALLENGE IMPACTS INTERGROUP DYNAMICS.
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Introduction: Humans have the ability to alter their perceptions of and behavior toward others depending on if they share group membership or identity with them. Interestingly, inauspicious contexts, such as the threat of infectious disease, can lead to changes in perception and behavior toward in-group vs. out-group members. Specifically, disease threats have been shown to lead to increased rejection of out-group members and increased favoritism of in-group members, presumably due to increased motivation to mitigate risk and protect members of one's own group. Inflammation may be a key driver of this tendency to favor the in-group and reject the out-group, as prior literature has shown that inflammatory reactivity leads to avoidance of unfamiliar social targets. However, little work has sought to understand the biological basis of out-group mistrust and rejection during times of disease risk.
Methods: To address this gap in knowledge, we administered the influenza vaccine, a mild inflammatory challenge, to 45 healthy young-adult participants. Participants provided blood samples before and approximately 24 hours after receiving the vaccine, which were assayed for levels of the inflammatory cytokine, interleukin-6 (IL-6). Pre-vaccine IL-6 was subtracted from post-vaccine IL-6 to compute an IL-6 reactivity score. Before and after receiving the vaccine, participants completed a task where they were asked to rate the trustworthiness of racialized in-group and out-group faces (based on participant's self-identified racial in-group).
Results: Results showed a positive association between inflammatory reactivity to the vaccine and trustworthiness ratings, such that those who experienced a greater increase in IL-6 following the vaccine rated out-group faces as less trustworthy than in-group faces.
Discussion: This work implicates inflammation as physiological process that contributes to mistrust of out-group members, thus expanding prior work suggesting that increases in inflammation may alter behavior toward unfamiliar social targets. These results also have important implications for understanding how group dynamics may be impacted by disease outbreaks and the physiological mechanisms underlying these effects.

6) Abstract 1176

THE ROLE OF SYSTEMIC INFLAMMATION IN THE WITHIN-PERSON ASSOCIATIONS BETWEEN PEER VICTIMIZATION AND DEPRESSIVE SYMPTOMS DURING ADOLESCENCE

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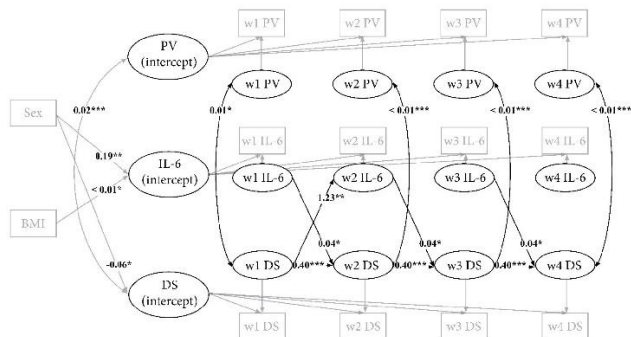
Victimized adolescents are at an increased risk to develop various adverse health outcomes, most prominently depressive symptoms (Bowes et al., 2015; Copeland et al., 2013). Theoretical models aimed at better understanding potential underlying mechanisms suggest that elevated inflammation may serve as a biological pathway linking social stressors to the emergence of depression (e.g., Slavich & Irwin, 2014). However, this hypothesis has not yet been tested with regard to peer victimization. To address this gap, we examined whether low-grade systemic inflammation mediated the longitudinal associations between peer victimization and depressive symptoms in adolescence. We used a multi-wave design and estimated within-person associations, which allowed us to strengthen causal inferences from observational data.

We examined longitudinal data from 207 secondary school students in the Netherlands (at baseline M_{age}=12.65; SD=.50; 44% female). Assessments started in the fall of the first year of secondary school and were repeated half-yearly over the span of 1.5 years. At each wave, participants reported their peer victimization experiences and depressive symptoms via online questionnaires. Additionally, dried blood spots were collected from which IL-6 was assayed as a marker of low-grade systemic inflammation. Data were analyzed using random intercept cross-lagged panel models (RI-CLPM) to examine within-person associations.

In the final model (see Figure 1), the cross-lagged paths from IL-6 to depressive symptoms were significant across all waves (β_{12}=.15; β_{23}=.14; β_{34}=.09). A significant cross-lagged path from depressive symptoms to IL-6 was also observed from wave 1 to wave 2 (β=.28). However, no significant cross-lagged within-person associations emerged between peer victimization and either IL-6 or depressive symptoms.

Our results provide no evidence for the hypothesized mediating role of inflammation in the within-person associations between peer victimization and depressive symptoms. However, they indicate directional associations from IL-6 to depressive symptoms. Our study extends prior research, indicating that when adolescents' levels of low-grade systemic inflammation are above their person-specific average, they may report increased levels of depressive symptoms six months later.

Figure 1

Random Intercept Cross-Lagged Panel Model for Peer Victimization, IL-6 and Depressive Symptoms

Note. For ease of interpretation, only significant paths are shown. Estimates are unstandardized. Observed variables are shown in grey. Abbreviations: BMI, body mass index; PV, peer victimization; IL-6, interleukin-6; DS, depressive symptoms; w1 – w4, waves 1 – 4. *p < .05, **p < .01, ***p < .001.

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7) Abstract 1411

SEVERE MENTAL ILLNESS AND INFECTIOUS DISEASE MORTALITY: A SYSTEMATIC REVIEW

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Background: Numerous systematic reviews and meta-analyses have concluded that patients with severe mental illness (SMI) are at increased risk of dying from COVID-19 than people without SMI. Proposed risk factors for increased risk of dying from COVID-19 are likely common risk factors that also increase the likelihood of mortality from other infections. However, to date this risk has not been reviewed. The aim of this systematic review was to describe and quantify the risk of death from infection (excluding COVID-19) in people with SMI.
Methods: PubMed, Web of Science, PsycINFO, and EMBASE were searched for relevant studies up to June 2023. Studies were included if they assessed the impact of SMI (bipolar disorder, schizophrenia and schizoaffective disorders, other psychoses) on risk of mortality from any infectious disease excluding COVID-19. Study designs eligible for review included observational cohort studies, case-control studies, and randomised controlled trials. The review protocol was registered in PROSPERO (CRD42023422151).
Results: Twenty-six studies were eligible for review. All were observational cohort studies. The majority were carried out in Sweden and the United States (n=10). Three studies assessed the impact of SMI (combined diagnoses), 20 studies assessed the impact of schizophrenia, schizoaffective disorder, and other psychoses, and seven studies assessed those with bipolar disorder. Thirteen studies examined death from any infection, 12 assessed the likelihood of death from respiratory infections (e.g. pneumonia and influenza), six studies looked at death from septicaemia, and four studies looked at mortality relating to 'other' infections (e.g. pyelonephritis). The majority of studies found that people with SMI were at increased risk of dying from any infection (12 of 13), respiratory infection (11 of 12), and septicaemia (4 of 6). Results for 'other' infections were more mixed.
Conclusions: The evidence to date suggests that SMI increases risk of death from infections other than COVID-19. More work is needed to understand how and why this risk is increased in order to inform prevention and improve health equity in this population.
Note: Although the narrative part of the systematic review is complete, we are currently undertaking the meta-analysis and anticipate presenting these results at the APS conference in March 2024.

8) Abstract 989

PSYCHOLOGICAL AND SOCIOECONOMIC FACTORS ASSOCIATED WITH PERSISTENT PAIN AND FATIGUE OVER 12 MONTHS IN A RHEUMATOID ARTHRITIS COHORT

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Background: Pain and fatigue are prominent in rheumatoid arthritis (RA) and often persist over time, even where inflammation is well-controlled. While influenced by peripheral drivers e.g. joint inflammation, these symptoms may also be sustained by non-inflammatory processes such as psychological and socioeconomic factors.

Objectives: We aim to describe trends in somatic symptoms (pain and fatigue) over 12 months in an RA cohort and identify associated factors.

Methods: We used data from 225 RA patients starting or switching disease-modifying treatment recruited between 12/2018 and 9/2022. Somatic symptoms were measured at baseline, 3- and 12-months including ratings of pain and fatigue due to RA on a 0-100 visual analog scale (VAS), widespread pain index (WPI), and symptom severity score (SSS). Additional data collected included demographics, clinical variables, and psychological factors (e.g. Patient Health Questionnaire (PHQ9), Generalized Anxiety Disorder (GAD7) questionnaire, and Cognitive and Behavioral Response to Symptoms (CBRQ) questionnaire).

Mixed-effects models estimated the association between outcomes and predictor variables over time. Multiple imputation accounted for missing baseline data.

Results: Reported pain and fatigue VAS decreased significantly over 12 months but remained at clinically significant levels. WPI and SSS did not decrease significantly (Table 1). At baseline, somatic symptoms were significantly associated with education, disease severity, current symptoms of depression/anxiety, and coping behaviors, particularly all-or-nothing (i.e. doing things in bursts) and avoidance (Table 2). Persistent symptoms over time were also significantly associated with the above factors and additionally ethnicity and financial insecurity. More severe disease activity was associated with higher pain VAS and WPI than with fatigue VAS and SSS. Higher levels of mental distress were consistently associated with all somatic symptom assessments.

Conclusion: In this cohort, pain and fatigue decreased but remained high over 12 months. Current RA treatments focus on suppressing inflammation, however, somatic symptoms were influenced by both inflammatory and non-inflammatory processes, which were largely psychological rather than contextual factors. Disease management should incorporate strategies that target mental health and coping behaviors.

Table 1: Mean values of pain and fatigue outcomes assessed at baseline, 3-months, and 12-months.

Month (visit)	Pain VAS	Fatigue VAS	WPI	SSS
0 (baseline)	49.8 (CI:[48.3, 51.2])	57.2 (CI:[55.2, 58.6])	4.9 (CI:[4.7, 5.1])	6.4 (CI:[6.1, 6.6])
3	45.4 (CI:[43.4, 47.3])	50.0 (CI:[47.8, 51.5])	4.2 (CI:[4.0, 4.5])	6.6 (CI:[6.3, 7.0])
12	45.9 (CI:[43.1, 48.6])	51.6 (CI:[48.37, 54.5])	5.1 (CI:[4.7, 5.5])	6.8 (CI:[6.4, 7.3])

Table 2: Mixed effects model results (coefficients and confidence intervals). P≥0.005 were considered non-significant (gray). *Six CBRQ subscales: AN=all or nothing; RA=resting avoidance; FA=fear avoidance; DB=damage beliefs; SF=symptom focusing; EA=embarrassment avoidance. **Disease activity assessments: TJC=tender joint count (subjective assessment of joint pain); SJC=swollen joint count; CRP=C-reactive protein.

	Pain VAS		Fatigue VAS		WPI		SSS	
	Baseline	Persistent	Baseline	Persistent	Baseline	Persistent	Baseline	Persistent
White ethnicity	-1.4, [-12.5, 9.7]	11.9, [2.1, 21.7]	-5.1, [-15.8, 5.7]	17.7, [6.0, 29.3]	0.2, [-1.5, 1.9]	1.4, [0.04, 2.8]	1.0, [-1.1, 3.1]	3.3, [1.6, 5.0]
Higher education	-11.9, [-20.4, -3.5]	-9.9, [-18.4, -1.4]	-1.3, [-9.6, 6.9]	1.9, [-9.0, 12.7]	-0.03, [-1.3, 1.2]	-1.1, [-2.4, 0.2]	-0.6, [-2.2, 1.1]	-1.6, [-3.2, 0.0]
In work	-2.3, [-10.1, 5.5]	-5.1, [-18.4, -1.4]	1.7, [-5.3, 8.7]	4.4, [-6.4, 15.2]	-1.2, [-2.5, 0.0]	-0.5, [-2.2, 1.2]	-1.3, [-2.8, 0.1]	-0.4, [-2.9, 2.1]
Financial insecurity	5.1, [0.8, 9.5]	6.4, [2.3, 10.4]	1.8, [-3.4, 7.0]	7.1, [1.8, 12.4]	0.3, [-0.5, 1.1]	0.7, [0.1, 1.3]	0.4, [-0.3, 1.0]	1.3, [0.6, 2.1]
PHQ9	1.1, [0.5, 1.8]	2.7, [2.1, 3.2]	1.6, [1.0, 2.2]	2.6, [2.0, 3.3]	0.1, [0.0, 0.2]	0.4, [0.3, 0.5]	0.3, [0.2, 0.3]	0.6, [0.5, 0.6]
GAD7	0.8, [0.1, 1.5]	2.9, [2.2, 3.6]	1.5, [0.8, 2.1]	2.2, [1.3, 3.1]	0.1, [0.0, 0.2]	0.4, [0.4, 0.5]	0.3, [0.1, 0.4]	0.7, [0.6, 0.8]
AN*	1.4, [-0.1, 3.0]	4.3, [3.1, 5.5]	2.5, [1.0, 4.0]	3.7, [2.1, 5.2]	0.02, [-0.3, 0.3]	3.7, [3.1, 5.2]	0.2, [-0.1, 0.5]	0.2, [-0.1, 0.5]
RA*	0.8, [-0.7, 2.3]	3.4, [1.9, 5.0]	1.1, [-0.3, 2.4].	2.9, [1.2, 4.7]	0.2, [-0.04, 0.4]	2.9, [1.2, 4.7]	0.2, [-0.1, 0.4]	0.2, [-0.04, 0.6]
FA*	2.5, [0.7, 4.3]	3.4, [1.7, 5.1]	1.8, [0.6, 4.0]	0.8, [-1.2, 2.8]	0.2, [-0.1, -0.5]	0.3, [0.1, 0.5]	0.3, [-0.1, 0.8]	0.7, [0.4, 1.0]
DB*	0.5, [-2.4, 3.3]	1.9, [-0.5, 4.3]	2.2, [0.2, 4.2]	0.9, [-2.4, 4.2]	-0.2, [-0.5, 0.1]	0.3, [-0.1, 0.6]	-0.1, [-0.1, 0.4]	0.3, [-0.2, 0.7]
SF*	1.2, [-1.2, 3.6].	3.6, [2.2, 5.0]	1.6, [0.3, 3.0]	1.9, [0.4, 3.5]	0.1, [-0.2, 0.3]	1.9, [0.4, 3.5]	0.1, [-0.1, 0.3]	0.5, [0.2, 0.7]]
EA*	1.4, [-0.2, 3.0]	3.4, [2.2, 4.7]	1.7, [0.1, 3.4]	3.2, [1.8, 4.5]	0.2, [-0.1, 0.3]	3.2, [1.8, 4.5]	0.1, [-0.1, 0.3]	0.3, [0.1, 0.5]
TJC**	1.3, [0.6, 2.0]	3.5, [1.6, 5.5]	0.5 [0.4, 0.6]	-3.2, [-7.0, 0.6]	0.02, [-0.1, 0.1]	0.6, [0.3, 0.8]	0.1, [-0.1, 0.2]	0.7, [0.3, 1.1]
SJC**	0.7, [-0.5, 1.8]	3.0, [0.5, 5.4]	0.5, [0.4, 0.6]	-0.1, [-4.3, 4.1].	0.1, [-0.1, 0.3]	0.3, [0.0, 0.6]	-0.1, [-0.3, 0.04]	0.7, [0.2, 1.1]
CRP**	2.7, [-0.7, 6.1]	7.3, [2.5, 12.0]	0.4, [0.4, 0.5]	4.5, [-3.1, 12.1]	0.3, [-0.4, 1.0]	1.3, [0.6, 1.9]	0.2, [-0.3, 0.8]	1.3, [0.4, 2.2]

9) Abstract 1386

PROSPECTIVE MEMORY AND LIFESTYLE ON POLYCYSTIC OVARY SYNDROME: AN EMPIRICAL INVESTIGATION
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Polycystic Ovary Syndrome (PCOS) is a common hormonal disorder in women primarily affecting the reproductive system. However, research increasingly suggests its wider detrimental effect on daily functioning, including potential impacts on cognitive functions like attention, memory, etc. Though the influence of PCOS on memory is well established, no study has been done on prospective memory. Further, the individual's lifestyle has a bearing on PCOS; therefore, the current study attempts to investigate prospective memory and lifestyle on PCOS. These residential areas impacting lifestyle are the modern urban, agrarian rural, and forest-dwelling tribal.   The Prospective and Retrospective Memory Questionnaire (PMRQ) was administered to 566 participants from India, comprising 295 women with PCOS (M_{age}= 25.46) and 271 without PCOS (M_{age}= 25.72). Participants were further categorized based on lifestyle: 162 from urban areas (78 PCOS and 84 non-PCOS), 222 from rural areas (128 PCOS and 94 non-PCOS), and 182 from tribal areas (89 PCOS and 93 non-PCOS). An analysis of variance (ANOVA) was carried out to analyze PMRQ scores (memory, cue, and term). The main effects of PCOS were statistically significant for all three components but not for lifestyle. All the interaction effects were significant for condition, residence and three components of the PMRQ (memory, cue,

and term). The results suggest that PCOS were performing significantly poorer on prospective memory, not retrospective memory. PCOS also reported more issues with short-term memory than long-term memory. PCOS also experienced more difficulty in using self-generated cues to remember when compared to environmental cues. It was evident that the PCOS group was reporting significant deterioration in performance when compared to the non-PCOS group. The trend was that the urban sample had the poorest performance, followed by the rural and tribal samples, but this was not statistically significant. As per our knowledge, this study is among the first to look at a cross-section impact of memory issues as experienced in PCOS across different socio-cultural backgrounds in Indian women. Keywords: cognition, memory, questionnaire, socio-cultural environment

10) Abstract 1423

ASSOCIATIONS BETWEEN PRENATAL DISTRESS, MITOCHONDRIAL HEALTH, AND GESTATIONAL AGE

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Introduction Prenatal distress during pregnancy is associated with younger gestational age at birth but the underlying mechanisms remain unclear. Emerging evidence suggests that alterations in mitochondrial biology are potential pathways for the physiological embedding of life experiences. Cell-free mitochondrial DNA (cf-mtDNA) and growth differentiation 15 (GDF15) are emerging markers of mitochondrial biology associated with health trajectories and psychopathology. Here, using two independent longitudinal pregnancy studies, we evaluated the associations between perceived stress, depressive and anxiety symptoms, mitochondrial biology, and gestational age at birth. **Methods** *Study 1, EPI (United States):* Pregnant women aged 20-45 (N=187) provided plasma samples at four timepoints:12-22 (early 2nd trimester), 23-28 (late 2nd trimester), 34-36 weeks (3rd trimester) during pregnancy and post-partum (16-56 weeks after birth). *Study 2, BABIP (Turkey):* Pregnant women aged 23-44 (N=198) provided plasma samples at two timepoints: 20-26 (2nd trimester) and 30-37 (3rd trimester) weeks during pregnancy. cf-mtDNA and GDF15 levels were quantified using qPCR and ELISA, respectively. Mixed effect modeling was used to assess changes over time. Spearman rank correlations were used to assess continuous associations. **Results** While cf-mtDNA levels did not change over time, GDF15 levels gradually increased across pregnancy (p<0.0001, 1.1 fold from early to late 2nd trimester and 1.9-2.1 fold from late 2nd to 3rd trimester) before dropping sharply in the post-partum period (-60.6 fold). In early pregnancy (n=15, Study 1), lower plasma cf-mtDNA was associated with higher perceived stress (r=-0.72, p<0.01), as well as higher depressive (r=-0.56, p<0.05) and anxiety symptoms (r=-0.51, p=0.05). In Study 1 and 2, no significant associations were found later in pregnancy between mitochondrial health markers and perceived stress, anxiety and depressive symptoms. In Study 1, higher GDF15 in late 2nd trimester was associated with younger gestational age (r=-0.22, p<0.01, n=153). **Discussion** While preliminary, our results show selective changes in markers of mitochondrial health across pregnancy, and link mitochondrial health to perceived stress, consistent with the hypothesis that mitochondrial biology may play a role in the embedding of prenatal psychological stress impacting birth outcomes.

11) Abstract 985

THE PRICE OF PERSISTENCE: AN EXAMINATION OF HIGH-EFFORT COPING, SOCIOECONOMIC STATUS, AND SLEEP OUTCOMES AMONG AFRICAN AMERICAN WOMEN

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Sleep is an imperative biological function necessary for optimal physical and mental well-being. Yet, many people, especially African American women, do not experience sufficient and good quality sleep. The Superwoman Schema (SWS), which describes endorsements of strength, emotional suppression, vulnerability resistance, motivation to succeed despite limited resources, as well as prioritizing caregiving over self-care, is one framework that might assist in explaining worse sleep among African American women. Such use of prolonged high effort coping in combination with limited access to social and economic resources, or lower SES, may be particularly detrimental for sleep. Initial evidence suggests that women who endorse high effort coping have worse sleep quality. However, it is not yet known whether SWS also predicts sleep *quantity* or whether high effort coping and sleep associations may be moderated by SES. In this study, a sample of 305 African American women from the United States (*M* age= 23 $\pm$ 14.35; median annual income was $20,000 - $49,999) completed measures of high effort coping (Giscombé Superwoman Schema Questionnaire and John Henryism Active Coping Scale), sleep behavior over the past month (Pittsburgh Sleep Quality Index), and SES (MacArthur Scale of Subjective Social Status). Our results indicate that African American women with greater Superwoman Schema scores also reported worse sleep outcomes, including less sleep duration, $F(1, 300) = 9.25$, $p < .01$, $R^2 = .030$, and worse sleep quality, $F(1, 298) = 35.16$, $p < .01$, $R^2 = .106$. Additionally, though a significant main effect was found for SES and sleep quality (lower SES was associated with worse sleep), $F(1, 298) = 13.49$, $p < .001$, $R^2 = .040$), SES was unrelated to sleep quantity and did not moderate SWS-sleep effects. We also found that coping-sleep associations were not significant when measuring high effort coping via JHAC. Our findings highlight the importance of using culturally specific frameworks when measuring constructs such as stress coping, and we call for continued efforts to reveal how factors such as SES and social determinants of health might affect or moderate the relationships between minority stress, coping, and sleep.

12) Abstract 1419

POSITIVE PSYCHOSOCIAL FACTORS AND IMMUNE CELL MITOCHONDRIAL BIOENERGETICS

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Background: Positive psychosocial factors including positive mood and well-being confer protection against stress and stress-related disease, but the mechanisms underlying this psychobiological connection are not fully understood. Based on the energetic model of allostatic load (EMAL), stress exerts its health-damaging effects by causing excessive energy consumption in vulnerable tissues like the immune system. In line with this model, we hypothesized that higher levels of positive psychosocial factors may promote resilience by way of reducing energy consumption particularly within monocytes, which have been identified as a specific target for the embedding of psychosocial experiences.

Methods: Participants were 66 healthy controls (68% women, 18-60 yr) from the Mitochondrial Stress, Brain Imaging, and Epigenetics (MiSBIE) study. Positive psychosocial factors were assessed using the Modified Differential Emotions Scale (MDES) for positive mood, the Psychological Well-Being Scale (PWBS), and the Sense of Coherence Scale (SOC). Monocytes, lymphocytes, and neutrophils were purified from fasting blood samples and bioenergetically profiled for three measures reflecting cellular energy needs and energy transformation capacity using Seahorse Bioenergetic Flux analysis. Associations between positive psychosocial factors and cellular bioenergetics were assessed using Spearman correlations.

Results: As hypothesized, the largest and most consistent effects were observed in monocytes, with 7 out of 9 correlations exhibiting negative directionality. Individuals reporting higher positive mood over the last day (MDES) exhibited the strongest negative associations with bioenergetic parameters (average r=-0.15), particularly for spare energy transformation capacity (r=-0.21, unadjusted p=0.094). As expected, more marginal effects were observed in lymphocytes, and no effects were observed in short-lived neutrophils.

Discussion: These cellular bioenergetic results add to prior findings that psychosocial exposures particularly influence gene expression in monocytes. If validated, lower monocyte energy requirements and energy transformation capacity could reflect reduced mitochondrial allostatic load, and support stress resilience. Further analyses in larger cohorts with a broader spectrum of mitochondrial health are required to confirm these findings.

13) Abstract 1354

TOXIC EXPOSURE DURING DEPLOYMENT IS ASSOCIATED WITH DECLINING MENTAL AND PHYSICAL HEALTH AMONG VETERANS DEPLOYED AFTER 9/11

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Exposure to toxins—such as heavy metals and air pollution—can result in poor health and wellbeing. Recent scientific and media attention has highlighted negative health outcomes associated with toxic exposures for U.S. military personnel deployed overseas. During the past three decades, approximately 3.5 million service members deployed to military combat zones in Southwest Asia (e.g., Afghanistan, Iraq, and Kuwait) and were at increased risk for toxic exposures. Possible toxicants in these areas included common exposures, such as particulates from burn pits, as well as rarer events, such as exposure to chemical or biological weapons. Despite established health risks, much of the empirical work studying deployment-related toxic exposures are cross-sectional and focused on Gulf War deployments, rather than those deployed following September 11, 2001. Using data from 659 U.S. veterans, we tested whether self-reported toxic exposures were associated with poorer mental and physical health at initial study enrollment, as well as 10 years later. Toxic exposures were assessed using the Deployment Risk and Resilience Inventory-2, mental health was assessed using the Symptom Checklist-90-Revised, and physical symptoms and chronic diseases were assessed using the National Vietnam Veterans Readjustment Study Medical Questionnaire. At baseline, veterans who reported more toxic exposures also reported more mental health symptoms, $\beta = 0.14$, 95% CI [0.04, 0.23], $p = .004$, and physical health symptoms, $\beta = 0.21$, 95% CI [0.11, 0.30], $p < .001$. Over the next ten years, veterans reporting more toxic exposures also had greater increases in mental health symptoms, $\beta = 0.23$, 95% CI [0.15, 0.31], $p < .001$, physical health symptoms, $\beta = 0.22$, 95% CI [0.14, 0.30], $p < .001$, and chronic disease diagnoses, $\beta = 0.15$, 95% CI [0.07, 0.23], $p < .001$. These associations accounted for demographic and military covariates, including combat exposure. Our findings suggest that self-reported toxic exposures are associated with worsening mental and physical health after military service, and this method of assessing exposure is in line with the self-report screenings used to determine U.S. veterans' eligibility for benefits relating to exposure. Our results suggest this recent cohort of veterans will have increased need for mental health and medical care as they grow older.

14) Abstract 1081

THE RELATIONSHIP BETWEEN LONELINESS, RUMINATION, AND ANTICIPATORY STRESS IN DAILY LIFE

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Background: Loneliness is linked to stress-related diseases and health outcomes, often evident in later life. Past theoretical work suggests that the psychological distress that accompanies the experience of loneliness (e.g., rumination, anticipatory stress) is a potential pathway to such negative health outcomes; however, little is known about how momentary feelings of loneliness relate to rumination and anticipatory stress in daily life. The present study thus focused on whether loneliness daily life is associated with self-reported rumination and anticipatory stress among older adults. Method: Participants included a diverse sample of 317 older adults (mean age = 77.45 years, 40% Black, 13% Hispanic, 67% women) recruited from the Bronx, NY completed 14 consecutive days of ecological momentary assessment (EMA) during which they reported on momentary states 5 times throughout the day. Separate multilevel models tested whether lagged momentary loneliness (t-1) predicted levels of rumination at the next assessment (3-4 hours later), and whether daily loneliness predicted anticipatory stress for the next day, controlling for gender, race/ethnicity, years of education, age, trait depressive symptoms, trait anxiety symptoms, marital status, and living arrangement (living alone). Loneliness was measured with the EMA item "right now, do you feel lonely?", rumination was defined as the aggregate of two EMA items ("were you having a train of

thought you couldn't get out of your head?; "were you thinking about personal problems or worries"), and anticipatory stress was assessed each night ("overall, how stressful do you expect tomorrow to be?").

Results: Multilevel models indicated that higher than typical levels of loneliness at one assessment predicted significantly higher levels of rumination at the next assessment and days characterized as lonelier than typical predicted greater levels of anticipatory stress for the next day. Results persisted with and without covariates.

Discussion: These findings highlight the connection between loneliness and psychological distress in daily life, and support the theoretical notion that loneliness is implicated in a maladaptive cognitive cycle. It would be valuable for future research to investigate factors that weaken these associations and whether these associations relate to physical health outcomes.

15) Abstract 1400

ESSENTIAL NUTRIENTS, ADDED SUGAR, AND EPIGENETIC AGE AMONG BLACK-WHITE WOMEN AT MIDLIFE

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Background/objective: Nutritive compounds play critical roles in DNA replication, maintenance, and repair, and also serve as anti-oxidant and anti-inflammatory agents. This study assessed relations between epigenetic age and diet relative to established dietary recommendations in a diverse women cohort. The central hypothesis was healthier diet indicators would be associated with lower epigenetic age.

Methods: Cross-sectional analyses were conducted in past women participants of the 1987-1997 NHLBI Growth and Health Study (NGHS), an obesogenic health study that studied a community cohort of Black and white girls from age 9/10-19/20. Participants were re-recruited from NGHS' California site (2015-2019) and completed 3-day food records and provided salivary DNA. Diet quality (Alternate Mediterranean Diet [aMED], Alternate Healthy Eating Index-2010 [AHEI-2010]) scores, a novel Epigenetic Nutrient Index (ENI) score, and mean added sugars intake were calculated as was the new epigenetic clock "GrimAge2".

Results: N=347 women comprised the analytical sample (49.9% Black, mean age =39.2 years). In fully-adjusted models, aMED (-0.48, 95% CI: -0.19, -0.77; effect size w^2 =0.03), AHEI-2010 (-0.06, 95% CI: -0.02, -0.10; w^2=0.03), and ENI scores (-0.21, 95% CI: -0.09, -0.33; w^2=0.03) as well as mean Added Sugars (0.03, 95% CI: 0.01, 0.04; w^2=0.04) were each significantly associated with GrimAge2. When healthy diet measures (i.e., aMED, AHEI-2010, ENI) were each separately put into the same fully-adjusted model with added sugar intake, all diet-related associations remained statistically significant, albeit slightly diminished in magnitude from when each dietary indicator was tested alone. This indicates independent associations for healthy diet and added sugars with epigenetic age.

Conclusion: These are the first findings to demonstrate links between added sugar and epigenetic aging. In addition, we have extended findings linking dietary intakes aligned with recommendations with younger epigenetic age to a diverse

Black and White population of women at midlife. Promotion of diets aligned with chronic disease prevention recommendations and replete with anti-oxidant/anti-inflammatory and pro-epigenetic-health nutrients plus decreased added sugar consumption may support slower cellular aging relative to chronological age, although longitudinal analyses are necessary.

16) Abstract 1157

THE MODERATING ROLE OF ADVERSE CHILDHOOD EXPERIENCES ON LONGITUDINAL CHANGES IN ADIPOKINES

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Adverse childhood experiences (ACE) are associated with an increased risk of developing chronic health conditions in adulthood, including cardiometabolic disease and obesity. Adipokines, such as leptin and adiponectin, play vital roles in biological processes regulating appetite, metabolism, and immune activation. Small cross-sectional studies suggest that adipokines may be altered among individuals exposed to ACE. The aims of this study were to 1) examine whether ACE moderates longitudinal changes in leptin and adiponectin over 30 months in adults, and 2) examine whether chronic caregiving stress further moderates changes in adipokines, after accounting for BMI and sociodemographic variables including race, education, and health status. This longitudinal study includes 192 middle-aged (mean 46.93 years old) mothers of adolescents with developmental disabilities (n=109; higher caregiving stress group) and mothers of typically developing adolescents (n=84; lower caregiving stress group). Blood samples, height and weight were collected across three timepoints spanning 30 months to measure adipokines and BMI. Retrospective accounts of ACE using the Childhood Trauma Questionnaire, and sociodemographic variables were collected at Time 1. Multilevel models showed that leptin and adiponectin significantly increased over time in our sample. ACE moderated changes in leptin but not in adiponectin, such that individuals who experienced greater ACE had larger increases in leptin over time. Chronic caregiving stress did not moderate changes in adipokines. Changes in BMI from Time 1 to 3 moderated changes in adipokines, such that increases in BMI were associated with increases in leptin and decreases in adiponectin over time. The moderating role of ACE on changes in leptin remained after accounting for changes in BMI and sociodemographic factors. These findings suggest that ACE may increase vulnerability to poor health outcomes in adulthood through its influence on longitudinal changes in leptin.

17) Abstract 1065

SELF-RATED HEALTH AND CARDIOVASCULAR RISK FACTORS IN ETHNICALLY DIVERSE ADULTS

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Introduction: Self-rated health (SRH) is a simple yet meaningful subjective measure of health known to be a strong predictor of cardiovascular disease (CVD) and mortality. In contrast to objective health measures, SRH uniquely captures persons' views of their own health in the context of their social identity. Limited research has examined how CVD risk factors align with persons' SRH. This study assessed 1) the extent to

which cardiometabolic and lifestyle factors were associated with SRH and 2) whether these associations vary by race/ethnicity and sex.

Method: A large community sample of adults (n=34,838; aged 36.1±13.5 years; 57% women; 49% Hispanic, 37% White, 6% Black, 4% Asian) visited the *Heart Smart* museum exhibition in Miami, FL designed to educate the general public about CVD prevention. Visitors consented to contribute data to the study, including SRH, lifestyle factors (fruit intake, vegetable intake, physical activity, screen time, stress, and attempt to reduce stress), waist circumference, body mass index (BMI), and blood pressure using the exhibition's interactive stations.

Results: Multiple linear regression of SRH showed negative associations with BMI, waist circumference, blood pressure, stress, and screen time. Conversely, there were positive associations between fruit intake, vegetable intake, physical activity, and having attempted to reduce stress and SRH ($ps<.001$). The overall model explained 28% of the variance in SRH ($R^2=.281$), with stress ($sr^2=.028$) and physical activity ($sr^2=.034$) having the strongest unique contributions. Significant interactions showed that race/ethnicity and sex moderated some associations. Vegetable intake (2-3 servings/day) had a stronger positive association with SRH for women (b=.53) than men (b=.36), whereas men showed a stronger positive relationship between physical activity and SRH (b=.16), relative to women (b=.14). Waist circumference had a weaker negative association with SRH for Black visitors (b=-.016), compared to White visitors (b=-.025).

Conclusion: Findings provide insight into which CVD risk factors might differentially influence subjective health ratings based on race/ethnicity and sex. SRH is an efficient and powerful social measure of health that may be used in conjunction with objective health measures to facilitate the holistic assessment, identification, and intervention of CVD risk.

18) Abstract 1031

HEART RATE VARIABILITY - A LONG-TERM INDICATOR OF THE CARDIOVASCULAR AND PSYCHOSOCIAL RISK FACTOR NETWORK IN HEALTHY MIDDLE-AGED SWEDISH FEMALES

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Objective: A previous study in our sample demonstrated significant associations between heart rate variability (HRV) and cardiovascular risk factors in healthy women (Horsten 1999). We wanted to investigate the predictor quality of HRV parameters for 26-year all-cause mortality (ACM) and hypothesized that HRV is an independent predictor. Methods: The study group consisted of 300 healthy women (median age 57.5 y) -representative of women in the Stockholm area. At baseline a cardiac examination and a 24-hour ambulatory ECG monitoring were obtained: SDNN index ,VLF, LF , HF power, and the LF/HF ratio were computed. Health behavior was measured by means of standard questionnaires, social isolation and household size by the ISEL and depressive symptoms by the Pearlin scale. A follow-up examination collected in 299 subjects ACM after 26 years. An exploratory analysis using machine learning algorithms compared the effects of HRV variables with standard risk factors. Results: At baseline age, sedentary lifestyle, social isolation, smoking, obesity, blood pressure (SBP), and BMI correlated significantly with SDNN and depressive symptoms

with the LF/HF ratio. Analyzing data from the 26y.-follow-up, decreased HRV (SDNN) became part of the model and showed a tendency of mortality risk with a small overlap with no effect levels (HR 0.98, 95% CI 0.96–1.0, p = 0.076). Women with complete HRV records compared to women with incomplete HRV records, possibly caused by dysrhythmias, showed a high survival (HR 0.20, 95% CI 0.81–0.48; p = 0.001). As independent psychosocial factors we could confirm low physical exercise at baseline as the only predictor significant in the model (HR 1.62 (95% CI 1.10–2.40; p = 0.016). Smoking (HR 1.59, 95% CI 0.93–2.72; p = 0.089) and depressive symptoms (HR 1.89, 95% CI 0.89–3.99; p = 0.097) became part of the model, but not social class, few social contacts, BMI, SBP or CRP. Conclusions: Two HRV variables were predictors of ACM and could be triggered by cardiac factors or social strain. Due to the low number of ACM cases in this sample, we should interpret our model findings cautiously. The results suggest that HRV is partly an independent predictor for ACM beside physical activity, smoking, and depression. Further long-term studies are needed to understand the interplay between HRV factors and cardiovascular risk factors in the long run.

19) Abstract 1006

SOCIAL DISRUPTION, PERCEIVED EFFICACY OF PATIENT-PHYSICIAN INTERACTIONS, AND HEALTH ANXIETY IN HISPANIC PROSTATE CANCER SURVIVORS
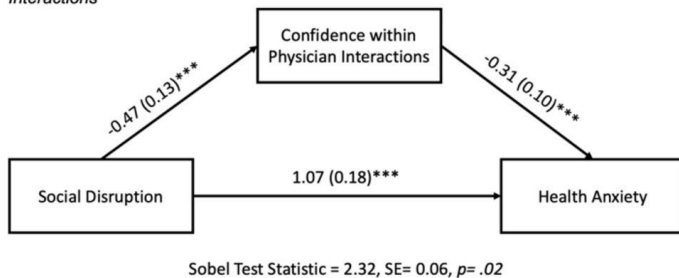
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Prostate cancer (PC) accounts for nearly half of all male cancer diagnoses. Patients with PC often struggle with debilitating side effects and psychosocial challenges. Social engagement has been linked to greater effectiveness within healthcare interactions among Hispanic medical populations. Notably, Hispanic PC survivors report greater social isolation than non-Hispanic survivors, which may interfere with the physician relationship. The patient-physician relationship has been shown to alleviate health anxiety, yet work evaluating this relationship among Hispanics with cancer is limited. This study examined the relationship of social disruption, confidence with physician interactions (CPI), and health anxiety in Hispanic PC survivors. Hispanic men (N=198) who completed treatment for localized PC enrolled in a behavioral trial at an academic medical center in South Florida (60.2% Spanish monolingual, *M*age=65.7) and completed baseline questionnaires. The Memorial Anxiety Scale for Prostate Cancer (MAX-PC) captured health anxiety, the Perceived Efficacy in Patient-Physician Interactions Questionnaire measured CPI, and the Sickness Impact Profile-Social Interaction subscale evaluated social disruption. We tested associations of social disruption, CPI, and health anxiety using linear regression and the Sobel test of mediation, adjusting for age, treatment type, and time since treatment. 11.9% of participants met criteria for clinically significant health anxiety (i.e., MAX-PC score >27; M=16.7, SD=8.58). Greater social disruption was negatively associated with CPI (B=-0.47, SE=0.13, p<.001), and greater CPI was negatively associated with health anxiety (B=-0.31, SE=0.10, p=.003). The effect of social disruption on health anxiety was mediated by way of CPI (see Figure 1; Sobel test statistic=2.32, SE=.06, p=.02), such that patients with greater social disruption exhibited less CPI and worse health anxiety. Greater CPI may mitigate the effects of social disruption on health anxiety. These findings may

reflect that less isolated individuals engage better with their healthcare team, which could prevent health anxiety. Further research is needed to examine longitudinal implications of these effects and to explore these factors as intervention targets.

Figure 1

Effect of Social Disruption on Health Anxiety by Way of Confidence With Patient-Provider Interactions

Sobel Test Statistic = 2.32, SE= 0.06, p= .02

Note. Simplified path model shown excluding covariates of age, time since treatment, and treatment type. *** denotes *p*<.01. PC = prostate cancer.

20) Abstract 1161

AGE MODERATION OF COMMUNITY DISADVANTAGE AND INFLAMMATION IN HEALTHY ADULTS

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Background:
Declining health in older adults is significantly more prevalent in those experiencing more severe community-level disadvantage. Community disadvantage is associated with higher levels of systemic inflammation which, in turn, predicts risk for chronic disease and tends to increase with age. The present study examined whether age moderates the correlation between objective community disadvantage and systemic inflammation. We hypothesized that a positive correlation between community disadvantage and systemic inflammation would be stronger at older ages.
Methods:
Participants were 977 adults ages 28-71 (M = 53 years; 51% female; 85% White) in the Neurobiology of Adult Health (NOAH) and the Adult Health and Behavior (AHAB) cohorts. Circulating levels of interleukin (IL)-6 and C-reactive protein (CRP) were measured in fasting morning blood samples. Participants were assigned a census-based Area Deprivation Index (ADI) score based on current residential address. Participants also completed a self-report neighborhood quality questionnaire assessing built environment, social threat, and social environment, to account for the influences of subjective neighborhood appraisals. IL-6 and CRP concentrations were moderately correlated (r = 0.53) and thus combined in a composite measure of systemic inflammation. The interaction of age with ADI score in the prediction of systemic inflammation was assessed in a model that also included subjective neighborhood appraisals, individual income and education, BMI, age, and sex at birth.
Results:
Higher ADI score (indicating worse community disadvantage) predicted higher systemic inflammation (β = 0.02, *p* = 0.01, 95% CI [0.004, 0.031]); age moderated this relationship, although contrary to expectation the correlation became less positive as age increased (β = -0.0003, *p* =0.03, 95% CI [-0.0005, -0.00003]) and was attenuated above age 56.
Conclusion:

This finding suggests that individuals who live in disadvantaged communities show higher levels of systemic inflammation. However, the magnitude of this effect decreases with age, possibly reflecting the greater impact of other factors, such as current health or subclinical inflammatory conditions, on levels of inflammation among older adults.

21) Abstract 1255

VITAL EXHAUSTION IN HIV POSITIVE INDIVIDUALS: THE ROLE OF DEPRESSIVE SYMPTOMS

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Background: Persons with Human Immunodeficiency Virus (PWH) are at an increased risk of depression compared with their uninfected counterparts. PWH face unique stressors that may influence fatigue/vitality and feelings of exhaustion, which may elevate risk of psychological dysregulation. Thus, the present study assessed variation in vital exhaustion (VE) relative to the group (between) and the individual (within) mean in the association of VE with: 1) BDI total depression scores; 2) BDI cognitive depression scores; and 3) BDI somatic depression scores. Additional analyses examined whether the association of BDI with VE changed over time.
Methods: Data were collected from 283 PWH (67.7% men, 18-55 years) in a clinical trial evaluating selenium supplementation. Measures of depression and VE were obtained at 3-time points; baseline (*n*=283), 9 months (*n*=175), and 18 months (*n*=123) post-study entry. Depression was measured by the Beck Depression Inventory (BDI) and VE was measured by the Maastricht Questionnaire. Multilevel modeling analysis was used to examine study aims. Mean-centered (continuous), and dummy-coded (0,1), covariates (age, sex, treatment group, viral load, and CD4 count) were included.
Results: Higher levels of VE were observed among PWH who tended to have higher total BDI scores than the average participant, (b(se)=.90(.06), p<.001), as well as when PWH reported higher levels of total BDI scores relative to the individual mean (b(se)=.62(.08), p<.001). PWH who reported higher levels of cognitive depressive symptoms relative to the group average (b(se)=1.22(.1), p<.001), and relative to the individual mean (b(se)=.78(.13), p<.001) experienced greater VE. A similar pattern of association between increased VE and higher reported scores of somatic depressive symptoms was observed both relative to the group (b(se)=1.97(.13), p<.001) and individual mean (b(se)=1.46(.21), p<.001). However, these associations were not moderated by time.
Conclusion: In sum, study findings highlight the positive association of both cognitive and somatic dimensions of depressive symptoms with VE in PWH. If VE reflects underlying energy regulation status as the basis of cellular functionality in HIV disease progression, future research should examine whether these biomechanisms are influenced by the association of depressive symptoms and VE in HIV pathophysiology.

22) Abstract 962

SOCIOECONOMIC STATUS, HEALTH LOCUS OF CONTROL, AND INFLAMMATION AMONG CANCER SURVIVORS

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Background: Recent research suggests that health locus of control (HLOC), or the perception of control that one has over one's health, may mediate the association between socioeconomic status (SES) and inflammation. However, little is known about whether this association persists among cancer survivors. The goals of this study were: 1) to examine if inflammation was associated with SES and HLOC among cancer survivors, and 2) to test whether HLOC mediates the association between SES and inflammation among cancer survivors.

Method: Data are from 298 cancer survivors (87.54% white; Mean age = 63.6) who participated in the Midlife in the United States (MIDUS) study wave 2 and Refresher. The two measures of HLOC were based on whether participants felt others had control over their health outcomes (external HLOC) or if they felt they were in control of their health outcomes (internal HLOC). SES was measured by participant education, and the marker of inflammation was c-reactive protein (CRP). Regression and mediation analyses for external and internal HLOC were tested separately. Mediation analyses were conducted using the PROCESS package in R (using 10,000 bootstrapped samples). Analyses were adjusted for age, sex, race, body mass index (BMI) and smoking status.

Results: In the regression model where age, sex, and race were added as covariates, education, internal HLOC, and external HLOC were significantly associated with CRP. Relative to those with bachelor's degrees, participants with lower education showed more elevated CRP ($b = -0.50$, $SE = 0.14$, $p < .001$). Higher internal HLOC was associated with lower CRP ($b = -0.22$, $SE = 0.11$, $p = .043$), while higher external HLOC was linked to more elevated CRP ($b = 0.16$, $SE = 0.06$, $p < .01$). After adding BMI and smoking as additional covariates, only education and external HLOC were significantly associated with CRP. Results from mediation analyses showed that external HLOC partially mediated the association between lower education and more elevated CRP.

Discussion: Our results show that cancer survivors from lower socioeconomic backgrounds may tend to perceive that their health is outside of their control. Together, these socioeconomic and psychosocial factors can lead to elevated inflammation. These results should be taken cautiously, given that our mediation analyses were based on cross-sectional data.

Tables and Figure

Abstract title: Socioeconomic Status, Health Locus of Control, and Inflammation Among Cancer Survivors

Table 1
Results from regression analyses on the association between education, internal health locus of control (HLOC), and CRP (N = 298)

Predictor	MODEL 1 Estimate (SE)	p-value	MODEL 2 Estimate (SE)	p-value	MODEL 3 Estimate (SE)	p-value
Internal HLOC and CRP						
Age	0.008 (0.007)	0.214	0.009 (0.007)	0.160	0.010 (0.006)	0.127
Sex	-0.280 (0.142)	0.050	-0.312 (1.419)	0.029	-0.355 (0.133)	0.009
Race	-0.295 (0.251)	0.241	-0.294 (0.248)	0.238	-0.287 (0.235)	0.223
Education	**-0.477 (0.138)**	**< 0.001**	**-0.451 (0.136)**	**0.001**	**-0.323 (0.132)**	**0.015**
Internal HLOC			**-0.220 (0.108)**	**0.043**	-0.149 (0.103)	0.148
BMI					0.059 (0.011)	6.31e-08
Smoking					0.129 (0.129)	0.321
F-Statistic	$R^2=0.05887$				$R^2=0.1725$	
R-squared	$F (4, 247) = 4.925$ ***				$F (7, 244) = 8.474$ ***	

Table 2
Results from regression analyses on the association between education, external health locus of control (HLOC), and CRP (N = 298)

Predictor	MODEL 1 Estimate (SE)	p-value	MODEL 2 Estimate (SE)	p-value	MODEL 3 Estimate (SE)	p-value
External HLOC and CRP						
Age	0.008 (0.007)	0.214	0.007 (0.006)	0.278	0.008 (0.006)	0.199
Sex	-0.280 (0.142)	0.050	-0.249 (0.403)	0.076	-0.306 (0.133)	0.022
Race	-0.295 (0.251)	0.241	-0.247 (0.248)	0.319	-0.248 (0.233)	0.289
Education	**-0.477 (0.138)**	**< 0.001**	**-0.413 (0.137)**	**0.003**	**-0.290 (0.132)**	**0.029**
External HLOC			**0.155 (0.055)**	**0.005**	**0.130 (0.052)**	**0.013**
BMI					0.059 (0.010)	4.28e-08
Smoking					0.103 (0.129)	0.421
F-Statistic	$R^2=0.05887$		$R^2=0.08465$		$R^2=0.1862$	
R-squared	$F (4, 247) = 4.925$ ***		$F (5, 246) = 5.643$ ***		$F (7, 244) = 9.204$ ***	

Table 3

Results from mediation analyses between education, internal health locus of control (HLOC), and CRP (N = 298)

Predictor	(M) Internal HLOC Coeff. (SE)	p-value	(Y) CRP Coeff. (SE)	p-value
(X) Education	0.094 (0.082)	0.251	**-0.3232 (0.132)**	**0.015**
(M) Internal HLOC	-	-	-0.150 (0.103)	0.148
Age	0.005 (0.004)	0.240	0.010 (0.006)	0.127
Sex	-0.136 (0.083)	0.102	-0.355 (0.134)	0.009
Race	0.011 (0.146)	0.994	-0.287 (0.235)	0.223
BMI	-0.013 (0.007)	0.053	0.059 (0.011)	< 0.001
Smoking	0.003 (0.080)	0.997	0.129 (0.130)	0.321
F-Statistic	$R^2= 0.038$		$R^2= 0.442$	
R-squared	$F (6, 245) = 1.616, p = 0.143$		$F (2, 244) = 8.475, p < 0.001$	

Table 4

Results from mediation analyses between education, external health locus of control (HLOC), and CRP (N = 298)

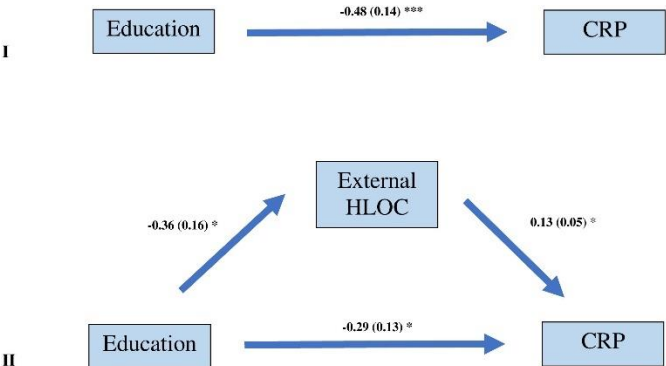| Predictor	(M) External HLOC Coeff. (SE)	p-value	(Y) CRP Coeff. (SE)	p-value
(X) Education	**-0.363 (0.160)**	**0.024**	**-0.290 (0.132)**	**0.029**
(M) External HLOC	-	-	**0.1301 (0.052)**	**0.013**
Age	0.007(0.008)	0.352	0.008 (0.006)	0.199
Sex	-0.219 (0.163)	0.180	-0.306 (0.133)	0.022
Race	-0.303 (0.290)	0.291	-0.248 (0.234)	0.289
BMI	0.015 (0.013)	0.257	0.059 (0.010)	< 0.001
Smoking	0.192 (0.158)	0.225	0.104 (0.129)	0.421
F-Statistic	$R^2= 0.054$		$R^2= 0.209$	
R-squared	$F (6, 245) = 2.314, p = 0.034$		$F (7, 244) = 9.204, p < 0.001$	

Figure 1. (I) Education was associated with CRP; (II) External health locus of control partially mediated the association between education and CRP (N = 298); The analyses were adjusted for age, sex, race, BMI, and smoking status; $p < 0.05*$, $p < 0.01**$, $p < 0.001***$.

23) Abstract 928

FRAMING HEALTH MESSAGES AS MORE SOCIAL-FOCUSED IMPROVES PERCEIVED MESSAGE EFFECTIVENESS AMONG INDIVIDUALS WITH LOWER SUBJECTIVE SOCIOECONOMIC STATUS

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Socioeconomic status (SES)-related disparities in morbidity and mortality rates persist for numerous chronic diseases, in part due to disparities in preventative behaviors (e.g., sunscreen use, diet, physical activity, screenings). Ineffective health messaging likely contributes to health disparities, as most current health messaging campaigns are self-focused, highlighting personal goals and individual benefits of a healthy lifestyle. While such messages may resonate with higher SES individuals, lower SES individuals tend to be more social-focused, in which they often think about the thoughts and feelings of others and engage in more prosocial behaviors. Thus, we wondered: Could framing health messages to emphasize how a healthy lifestyle benefits social others be more effective for lower SES individuals? To test this, we recruited 127 adults (77 females), aged 40-60 years ($M = 49.60$, $SD = 6.99$), with varying levels of subjective SES (e.g., relative social rank). In a within-subjects design, participants evaluated the perceived effectiveness of three message types: control messages (stating facts about prevention behaviors), social-focused messages (emphasizing how behaviors benefit

others), and self-focused messages (emphasizing how behaviors benefit the self). Multilevel modeling revealed a significant main effect of message type, with participants rating social-focused and self-focused messages as more effective than control messages (b = .14, p < .001; b = .09, p < .001). Additionally, participants with higher subjective SES tended to rate the health messages as more effective across the board (b = .06, p < .05). Importantly, there was a significant interaction between subjective SES and message type. The magnitude of the effect of subjective SES on effectiveness ratings was significantly reduced for social-focused messages compared to control messages (b = -.03, p < .05), but not for self-focused messages compared to control messages. These findings suggest that framing health behaviors as benefiting others in addition to the self may be more effective among lower SES individuals and may help to close the gap in SES disparities in health. In a second study, we are currently moving beyond perceived effectiveness to examine the effect of these messages on behavior change across the socioeconomic spectrum.

24) Abstract 1054

CHEMOTHERAPY-INDUCED GUT MICROBIOME DISRUPTION, INFLAMMATION, AND COGNITIVE IMPAIRMENT IN FEMALE BREAST CANCER PATIENTS

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Background: Many breast cancer (BC) patients and survivors experience debilitating behavioral side effects during and after chemotherapy treatment, including cognitive impairment. The etiology of these effects is not understood, impeding prevention and treatment. We hypothesize that chemotherapy-induced disruption of the gut microbiome is related to inflammation and cognitive impairment in BC patients.
Methods: The Intelligut Study was a clinical study of 77 female BC patients treated at the Ohio State University Comprehensive Cancer Center between 2019 and 2022. Participants were 29-74 years old, with stage IA–IIIB BC, and receiving chemotherapy. Participants completed 3 visits which occurred at their first chemotherapy appointment (pre-chemotherapy), last chemotherapy appointment (during chemotherapy), and after a wash-out period of at least 4 weeks (post-chemotherapy). For each visit, fecal and plasma samples were collected, and participants completed cognitive assessments.
Results: Chemotherapy induced gut microbiome disruption, changes in plasma inflammatory markers, and cognitive impairment. Chemotherapy altered the overall gut microbiome from pre- to during chemotherapy as measured by multiple measures of beta diversity, including Bray-Curtis ($p \leq 0.05$). For inflammation, TNF-α ($p \leq 0.02$) increased from pre- to during chemotherapy and increased further post-chemotherapy,

whereas IL-6 only increased post-chemotherapy ($p \leq 0.01$). In the Hopkins Verbal Learning Test, a test of learning and memory, a discrimination index decreased from during to post-chemotherapy ($p=0.001$), indicating a deficit.
Conclusions: In summary, chemotherapy impaired memory, increased markers of inflammation, and altered the gut microbiome. Analyses are ongoing to explore associations between changes in the gut microbiome, inflammation, and cognition over chemotherapy treatment, and how participant and treatment characteristics modulate these changes. This work has implications for future microbe-based prevention and treatment options for chemotherapy-induced behavioral side effects.

POSTER SESSION 1

1) Abstract 1449

THE INFLUENCE OF SLEEP QUALITY AND STRESS ON CARDIOVASCULAR HEALTH IN WHITE VERSUS BLACK ADULTS
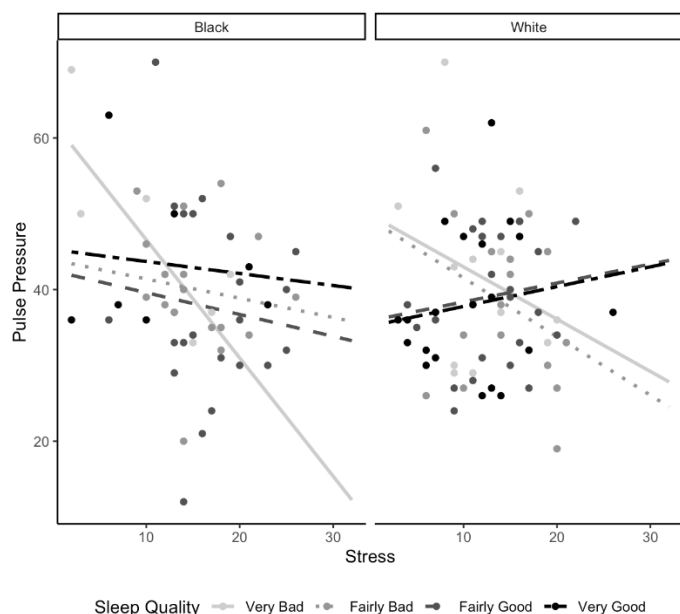
CJ Concepcion, B.A., Columbia University, Sierra Semko Krouse, B.A., University of California, Berkeley

Introduction. Research on the links between perceived stress, subjective sleep quality and cardiovascular functioning have produced mixed results. While poor sleep and high stress have independently been linked to increased hypertension risk, especially for Black/African American individuals, separate lines of research show that poor sleep and chronic stress exposure can influence perceptions of stress. The current work aims to integrate these bodies of research by examining associations between sleep, stress, and blood pressure in a healthy sample of Black and White Americans.
Methods. 169 Black (N=64) and White (N=96) participants reported their sleep quality and perceived stress over the previous month. Upon arrival for an in-lab visit, a baseline blood pressure (BP) measurement was obtained. Baseline pulse pressure (PP) was then calculated as the difference between systolic and diastolic BP (M=40.06, SD=11.39). PP is a proxy for understanding cardiovascular health by representing the ability of the arteries to vasoconstrict and vasodilate to circulate blood to properly meet activity demands.
Results. There was no difference in sleep quality by participant race, though Black participants reported higher stress (p=0.04). There was an effect of sleep quality on PP such that better sleep predicted lower PP (β=-5.76, p=0.01). There was also an effect of stress on PP such that overall, higher stress predicted lower PP (β=-0.97, p=0.005). This counterintuitive effect of stress on PP was explained by the three-way interaction between sleep, stress, and participant race. While Black participants demonstrated across levels of sleep quality that higher stress predicted lower PP (p=0.06), only White participants who had poor sleep also exhibited this effect. White participants who slept well showed higher PP in response to higher stress (p=0.02).
Discussion. These findings suggest that sleep quality and stress predict cardiovascular well-being, albeit differently for Black and White Americans. Moreover, chronic sleep deprivation may contribute to a blunted appraisal of life stress, a possible explanation for lower perceived stress being associated with higher levels of PP. This underscores the importance of better tools for stress measurement that allow for better capturing the heterogeneity in experiences of and exposure to chronic stress.

Sleep Quality ━ Very Bad ┄ Fairly Bad ━ Fairly Good ━ Very Good

2) Abstract 1431

STRESSFUL LIFE EVENTS ACROSS THE LIFESPAN AND INFLAMMATION: AN INTEGRATIVE DATA ANALYSIS OF THE HRS AND ELSA COHORTS

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Background: Experiencing more stressful life events has been linked to higher levels of inflammation, but this association may depend on when in the lifespan the stressors occurred. We tested associations between the total number of stressful events and their life stage occurrence and C-reactive protein (CRP) using integrative data analysis to harmonize two cohorts of older adults.
Method: Participants (N_{total}=7,884, 58% female, M_{age}= 69) from the Health and Retirement Study (HRS: N= 5,136, M_{age}= 71) and the English Longitudinal Study of Aging (ELSA: N= 2,748, M_{age}= 66) completed retrospective surveys of stressful life events (death of child, natural disaster, combat experience, victim of assault, self-illness, close other-illness, partner addiction) and indicated what year(s) each event occurred. Stressors were summed across the participants' lifespans (age 0 to current age) and within childhood (0-17 years), young adulthood (18-39), midlife (40-59), and late adulthood (60+). Blood was drawn an average of 5 years after survey completion. CRP was harmonized across cohorts by removing outliers (+/- 3SD), log transforming, and creating comparable units using the proportion of maximum possible scores technique.
Results: In multilevel models accounting for dependent observations and adjusted for age, sex, BMI, cohort, and time between the stressor survey and blood draw, we tested the main and independent effects of total number of stressors and stressors in individual life stages on CRP. In main effects models, total stressors (g= .05, SE=.02, p=.013) and experiencing more stressors in young adulthood (g= .06, SE= .03, p=.040) were associated with higher CRP. In models with all life stages together among adults age 65+ (N=4,927) the effect of stressors in young adulthood was weakened (g= .07, SE= .04, p=.074), and experiencing stressors in midlife

emerged as a significant predictor of higher CRP (g= .08, SE= .04, p=.031).
Conclusion: Our findings replicate prior evidence of an association between cumulative stressors and inflammation but extend this work by identifying stressors in young adulthood and midlife as more predictive of higher levels of later-life inflammation than events in other life stages. Individuals in these life stages may not only experience these stressors but also hold the most responsibility as support providers in stressful situations.

3) Abstract 1406

A FEASIBILITY STUDY OF A SMARTPHONE APPLICATION FOR EATING DISORDER PATIENTS WITH BINGE-EATING

Ken Kurisu, MD, The University of Tokyo, Yoshiharu Yamamoto, PhD, The University of Tokyo, Kazuhiro Yoshiuchi, MD, PhD, The University of Tokyo

Background: Cognitive behavioral therapy (CBT) is an evidence-based treatment for binge-eating symptoms of eating disorders. However, due to the long duration and frequent sessions required, its full implementation is often challenging within routine clinical practice. To address this issue, we hypothesized that a smartphone application with an optimization function based on reinforcement learning could be an effective support for the treatment. The present study aimed to develop and evaluate the feasibility of such a smartphone application for binge-eating symptoms in eating disorders.
Methods: We developed a smartphone application to assist in conducting alternative behaviors to binge eating, one of the techniques in CBT for eating disorders. This application employed Thompson sampling, a multi-armed bandit algorithm, to optimize the presentation of alternative behaviors that suppress binge eating. We recruited 20 patients with eating disorders who have binge eating symptoms. The participants used the application for four weeks, and the daily usage rate was quantified. Measures related to treatment effects, including the number of binge-eating episodes per week, Eating Disorder Examination Questionnaire, Eating Disorder Quality of Life, and Bulimic Investigatory Test Edinburgh, were measured at the beginning and end of the study. The statistical significance of changes was evaluated using Wilcoxon's signed-rank test.
Results: All 20 participants with eating disorders completed the four-week study. The median application usage rate was 92.5%. There were significant reductions in the frequency of binge-eating episodes per week (median at start: 5 episodes per week; median at end: 2.5 episodes per week, P=0.002) and other measurements.
Conclusion: The feasibility of the smartphone application developed in this study was sufficient, and its potential effectiveness in treatment was also indicated. This application may be applicable to obese individuals with binge eating behaviors.

4) Abstract 1384

UTILITY OF PSYCHOSOCIAL ASSESSMENTS TO PREDICT 90-DAY OUTCOMES AFTER LEFT VENTRICULAR ASSIST DEVICE (LVAD) IMPLANTATION FOR ADVANCED HEART FAILURE: A PRELIMINARY ANALYSIS

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Introduction:

The left ventricular assist device (LVAD) is a mechanical pump implanted to treat severe heart failure, a condition that affects half a million patients in the US. Consensus guidelines recommend comprehensive psychosocial assessment for evaluation of LVAD candidacy, but it remains unclear what impact, if any, psychosocial factors have on clinical outcomes after LVAD implantation. The Stanford Integrated Psychosocial Assessment for Transplantation (SIPAT) is a standardized tool used to assess psychosocial risk for post-transplant outcomes. This study assesses the impact of SIPAT score and other pre-LVAD psychological measures on 90-day post-LVAD outcomes.

Methods:
This is a single-center retrospective cohort study of 33 patients (mean age 56.9 ± 12.9 years; female 24.2%) who completed comprehensive psychosocial evaluation, including SIPAT and other standardized psychological measures before LVAD implantation. We compared the differences in pre-LVAD variables between those with or without any adverse outcome within 90 days of implantation, including mortality, readmission, driveline infection, bleeding, or stroke.

Results:
We found no difference in baseline demographic and medical characteristics and pre-LVAD psychological measures between the two groups (Table 1). Interestingly, psychosocial risk indicated by SIPAT total score was significantly lower after Bonferroni correction ($p < 0.001$) among those with any adverse event than those without.

Discussion:
Contrary to the usual SIPAT score interpretation, our results suggest that this composite score of psychosocial risk, which includes domains such as psychiatric history, support system, and cognition, may not predict 90-day outcomes after LVAD implantation. It remains unclear whether psychosocial assessment could predict longer-term outcomes in this population. Limitations include small sample size and short length of follow-up.

Conclusion:
Although psychosocial assessment provides essential insights into a patient's mental health and social needs, it does not necessarily predict 90-day LVAD outcomes. The findings of this preliminary analysis question whether patients should be excluded from LVAD candidacy based solely on psychosocial factors. An integrated biopsychosocial approach to LVAD candidacy should incorporate the full range of medical and psychosocial factors.

Table 1. Baseline characteristics by outcome

Variables	No adverse event (n = 21)	Any adverse event (n = 12)	p-value*
Demographics			
Age at implant	56.7 ± 14.1	57.3 ± 11.1	.90
Female (%)	19.0	33.3	.42
Race (%)			
White	85.0	83.3	1.0
Black	10.0	16.7	.62
Others	5.0	0.0	1.0
Ethnicity (%)			
Non-Hispanic	100	100	-
Marital status (%)			
Married/partnership	38.1	25.0	.70
Single	38.1	33.3	1.0
Other	23.8	41.7	0.43
Years of education	12.0 (1)	13.0 (3)	.50
Pre-implant medical status			
BMI	28.0 (7.4)	37.4 (15.4)	.26
INTERMACS Profile (%)			
Profile 1	28.6	16.7	.68
Profile 2	19.0	8.3	.63
Profile 3	52.4	58.3	1.0
Profile 4	0.0	16.7	.13
NYHA class (%)			
Class 3	4.8	16.7	.54
Class 4	95.2	83.3	.54
Cardiac index (L/min/m²)	2.0 ± 0.6	2.0 ± 0.4	.99
Severe diabetes (%)	4.8	25.0	.13
Liver dysfunction (%)	23.8	8.3	.38
Pulmonary hypertension (%)	87.5	63.6	.19
Creatinine (mg/dL)	1.4 (1.0)	1.3 (0.6)	.63
Pre-implant psychosocial assessment			
PHQ-9	5.7 ± 4.4	5.8 ± 4.5	.98
GAD-7	4.0 ± 3.5	4.9 ± 3.8	.49
AUDIT	0.5 (2)	0 (2)	.83
DAST-10	0 (1)	0 (1)	.49
CUDIT-R	0 (0)	0 (0)	.61
PCL-C	20.0 (9)	24.0 (10)	.43
MoCA	22.2 ± 4.5	22.8 ± 5.3	.73
SIPAT total score	25.0 (23)	19 (21)	<0.001
SIPAT risk category (%)			0.30
Low	38.1	58.6	
High	61.9	41.7	

* Independent samples T-test reported as mean ± standard deviation for normally distributed values, Mann-Whitney U test reported as median (interquartile range) for non-normal distribution, or Fisher's exact test for categorical variables.
Abbreviations: AUDIT = Alcohol Use Disorders Identification Test; BMI = body mass index; CUDIT-R = Cannabis Use Disorder Test – Revised; DAST-10 = 10-item Drug Abuse Screening Test; GAD-7 = 7-item Generalized Anxiety Disorder scale; INTERMACS = Interagency Registry for Mechanically Assisted Circulatory Support; MoCA = Montreal Cognitive Assessment; NYHA = New York Heart Association; PCL-C = Post Traumatic Stress Disorder Checklist – Civilian Version; PHQ-9 = 9-item Patient Health Questionnaire; SIPAT = Stanford Integrated Psychosocial Assessment for Transplantation

5) Abstract 1337

MALE CAREGIVERS HAVE A LOWER ANTIBODY RESPONSE TO THE COVID-19 VACCINATION

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Background: Antibody response to vaccination is a powerful paradigm for studying the effects of chronic stress on immune function. In the present study, we used this paradigm to examine whether informal family caregivers had poorer antibody response to a single dose of a COVID-19 vaccination compared to non-caregivers and to see if this varied by sex.
Methods: COVID-19 antibody data was extracted from 165 caregivers (98-Females) and 386 non-caregivers (244-Females) from Understanding Society COVID-19 study from the UK. Relevant socio-demographics, health and lifestyle, and depression variables were also gathered as potential co-variates.
Results: In a 2 x 2 ANOVA we found no main effect of caregiving. However, the interaction between caring and sex was significant, here we found that male caregivers had a lower antibody response to the vaccine compared to female $F(1,547)$, =24.82, $p <.001$, η^2 = .043. Paired contrasts, with adjustments, revealed that male caregivers had the lowest antibody response relative to all other groups. Moreover, male caregivers reported higher levels of depressive symptoms, and following bonferonni adjustment, this effect was only evident in comparison to their male non-caregiver counterparts, p = .002.
Conclusion: This study found that male caregivers had poorer antibody response to a single shot of the COVID-19 vaccination, and they also reported higher levels of depression compared to non-male caregivers. Our findings will be

discussed in relation to the caregiver-control model of chronic stress.
Keywords: Antibody response; Caregiving; COVID-19; Depression; Sex

6) Abstract 1365

SOCIAL DETERMINANTS OF HEALTH AND PSYCHOSOCIAL RESOURCES ASSOCIATED WITH MENTAL AND PHYSICAL HEALTH OUTCOMES DURING PREGNANCY: A STRUCTURAL EQUATION MODELING APPROACH

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Objectives
The comorbidity of poor mental and physical health during pregnancy are of particular concern among individuals who experience adverse social determinants and/or discrimination because of psychosocial resource deficiencies which can perpetuate health disparities. The purpose of this study was to investigate associations between social determinants of health, psychosocial resources, and mental and physical health among a prenatal sample, and to explore if these relationships vary by race using a multi-group structural equation modeling approach.
Methods
English-speaking pregnant individuals were recruited using Centiment, an online survey platform that relies on panel recruitment to reach broad and representative audiences (n=340). Participants completed a 121-item cross-sectional survey which consisted of questions related to social determinants of health, psychological and social resources, and mental and physical health outcomes. We conducted a single- and multi-group structural equation model to test hypothesized relationships simultaneously while controlling for covariates, and then differences by White versus Black, Indigenous, and People of Color (BIPOC) pregnant individuals.
Results
Our final single-group model exhibited good model fit ($\chi 2$ (43) = 99.07, p<.01, CFI = 0.97, SRMR = 0.04, and RMSEA = 0. 06 (0.05 - 0.08)). Experiencing food and higher numbers of adverse social determinants were statistically significantly associated with elevated anxiety and depression scores (both p<.01). Higher levels of mindfulness were statistically significantly related to lower anxiety and depression scores (both p<.01). Higher levels of social supports were statistically significantly related to lower anxiety scores. Scale measurement invariance was confirmed for the multi-group model and the structural model was statistically significantly different between pregnant White individuals and BIPOC in this sample ($\Delta \chi 2$ (27) = 116.71, p <.01).
Conclusions
Identification of core components of psychosocial resource interventions, consideration of upstream structural determinants, mindfulness and valued-living (MVL)-based strategies, and an emphasis on resilience rather than psychopathology may result in improved mental and physical health outcomes among pregnant individuals traditionally underrepresented in research.

7) Abstract 1190

EMOTION REGULATION CONTRIBUTES TO THE PREDICTION OF DEPRESSION AFTER CONTROLLING FOR STRESS

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Increased stress is a known predictor of depression and adverse health outcomes (e.g., CVD), and difficulties in self-regulation of affect may contribute to the onset of depression. Emotion regulation (ER) refers to one's ability to respond to emotions, which can be adaptive or nonadaptive. Though ER often occurs in response to stress, it is unclear whether ER has additional value in predicting depression above the well-known influence of stress. The current investigation examined whether ER predicts clinical depression after accounting for perceived stress using logistic regression analyses controlling for gender, sexual orientation, and race. Participants (*N* = 197, *M*$_{age}$ = 21.17) completed the Perceived Stress Scale, Cognitive Emotion Regulation Questionnaire, and Center for Epidemiologic Studies Depression (CES-D) Scale. As expected, each unit increase in stress was associated with a 1.24 increase in likelihood to score above the clinical depression cutoff, 95% CI .14-1.35. When nonadaptive ER was added to the model, both stress and nonadaptive ER predicted clinical depression (*p* < .001), with each unit increase in nonadaptive ER associated with a 2.42 increase in likelihood of depression, 95% CI 1.26-4.64. Finally, when adaptive ER was added to the model, stress, nonadaptive, and adaptive ER significantly predicted depression (*p* < .001), with each unit increase in adaptive ER associated with a .32 decrease in likelihood of depression, 95% CI .17-.58. Additionally, these results were confirmed in a multiple linear regression analysis examining whether ER predicted depression scores above the contribution of stress. Results indicated that greater nonadaptive ER significantly predicted depression controlling for perceived stress, ß = .28, *p* < .001; and adaptive ER significantly predicted depression controlling for perceived stress and nonadaptive ER, ß = -.19, *p* = .001. Results indicated that ER added more predictive value for depression above the contribution of perceived stress alone. These results held for both the prediction of clinical depression and increased symptomatology of depression. Future research should examine the specific pathways through which both adaptive and nonadaptive ER interact to influence the relationship between stress and depression.

8) Abstract 1366

LONGITUDINAL INCREASE IN SUPAR IS RELATED TO CONCOMITANT DECLINE IN EXECUTIVE FUNCTION ACROSS MIDLIFE.

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Cognitive decline in adulthood is associated with adverse outcomes, such as loss of independence, functional impairment, and increased risk for dementia. Evidence suggests that systemic inflammation may accelerate cognitive decline. However, extant studies are largely cross-sectional and examine markers of inflammation, such as interleukin (IL)-6, that are not specific to the immune system and are influenced by infections and other acute contemporaneous factors. Here, we examine a newer marker of chronic inflammation, soluble urokinase Plasminogen Activator Receptor (suPAR) alongside the more traditional immune markers, IL-6 and C-Reactive Protein (CRP). We hypothesized that higher baseline and greater increases in suPAR across an

8-19 (median 17) year period of midlife would associate with larger age-related declines in executive function (EF). Data were drawn from the Adult Health and Behavior (AHAB) study (n=599). Participants (55.5% female, 86.2% white, mean age 45 years at T1and 60 years at T2 completed a neuropsychological battery and blood draw at both waves. EF was assessed using a composite of the Trail Making Test, the STROOP Test, and Matrix Reasoning. Univariate and bivariate latent change score models (LCSM) examined whether baseline and change in circulating levels of inflammatory mediators were associated with change in EF from T1 to T2. All models were adjusted for age at T2, sex, and time between visits. All models had adequate fit. As expected, EF declined over time (ΔEF = -0.924). In separate models examining relations between baseline inflammation markers and change in EF, no significant associations were observed. However, in the bivariate LCSM, change in suPAR from T1 to T2 was significantly negatively related to concomitant change in EF (r = -0.315; p <.05). No similar effects were observed for IL6 or CRP. Further research should examine suPAR as potential marker of chronic systemic inflammation and its relationship to cognitive decline.

9) Abstract 903

INTERPERSONAL VIOLENCE AND LOW SENSE OF CONTROL'S EFFECT ON PARENTAL STRESS

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The stress of parenting weighs down a community of victims, shamed into silence. Research shows that interpersonal violence increases parenting stress significantly more than those without those violent experiences. A study confirmed that African American and Hispanic mothers experiencing interpersonal violence had more stress leading to a change in parenting style. Mothers were less responsive, more likely to use physical punishment, and disengaged. While children tend to be the focus of literature surrounding this topic, the abused parent is also a victim. Starting at the root of the issue instead of the child affected would provide better insight on how to prevent parenting issues. Filipino women who chose to stay in abusive relationships reported feeling like slaves who had to follow all their abuser's commands. A common theme of abuse is the victim feeling a lack of control around the situation. When mothers have lower feelings of control it is directly related to experiencing more parenting distress. The present study aims to see if interpersonal violence affects parenting stress and if sense of control impacts this relationship somehow. Utilizing the multi-site longitudinal study, the Community Child Health Network data, a total of 4,268 parents (41% fathers, 59% mothers) who identified as low income (M = 12425.21), ethnic minority (African American (40%), Latino (30%), White (30%). Participants self-reported parenting stress, interpersonal violence, and sense of control using the Perceived Stress Scale, the modified HITS (Hurts, Insults, Threatens, and Screams) scale, and the modified 7-item Mastery Scale Questionnaire respectively. A multiple regression was run to examine if interpersonal violence and sense of control predict parenting stress. Results concluded that more interpersonal violence (β = .21,p < .001) and less sense of control (β = -.12, p <.001) accounted for a significant amount of variance (6.5%) of parenting stress, $F(2,820)$ = 28.41, p < .001. The combination of interpersonal violence experienced and a lack of sense of control increases parenting stress. This stress could be cause for concerning actions against the child, and

assessment of what risk factors for poor child care are. Support groups and awareness of risk factors can lead to fundamental changes in parental support that have gone overlooked.

10) Abstract 1010

EFFECT OF TWO DIFFERENT STRESS MANAGEMENT E-HEALTH INTERVENTIONS IN BREAST CANCER PATIENTS: A RANDOMIZED CONTROLLED TRIAL

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Background: Although survival rates after breast cancer are steadily increasing, many breast cancer patients experience stress and psychological and physical impairment beyond the initial treatment phase. There is a need for effective, inexpensive, and easily implementable tools for breast cancer survivors to cope with cancer-related late effects. Psychosocial stress-management as e-health interventions have been shown to mitigate the negative impact of stress. In this randomized controlled trial, Coping After Breast Cancer (CABC), two stress management intervention programs were created from the original StressProffen^{TM} stress-management in cancer program: one with predominantly cognitive-behavioral stress-management content (CBI), and one with predominantly mindfulness-based stress-management content (MBI).
Objective: To investigate the effects of offering CBI and MBI compared to a usual follow-up (control group) in breast cancer survivors. Primary outcome is between-group changes in perceived stress six months after accessing the intervention.
Methods: Women aged 21-69 years when diagnosed with early breast cancer (stage I-III, unequivocally HER2+ or ER-tumors) or DCIS who have previously completed a health-related quality of life population survey, were invited to the CABC trial about seven months after primary diagnosis. Women who consented were randomized (1:1:1) to: CBI, MBI or the control group. The intervention groups were given access to either the StressProffen CBI or the MBI app, with 10 modules of stress management content delivered through text, sound, video, and images.

Results: A total of 430 women were recruited. Preliminary results of six-months´ access to the CBI or MBI interventions compared to the control group will be presented.

Conclusion: If the CMI or the MBI intervention (or both) are shown to be effective, the StressProffen app version(s) could be beneficial, inexpensive, and easily implementable tool(s) for breast cancer survivors in coping with late effects after cancer diagnosis and/or treatment.

11) Abstract 1106

PSYCHOLOGICAL BURDEN PREDICTS SUBSEQUENT HEALTH OUTCOMES IN CHRONIC ILLNESS: SEX AND CAD STATUS MATTER

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Background: Diverse psychological factors increase risk for morbidity and mortality in individuals with coronary artery disease (CAD), with inconsistent evidence for other chronic illnesses. Its influence on health care utilization, specifically hospitalizations, or on the factors that may modify these relationships, is less clear.

Objectives: To assess 1) the association of psychological risk factors with a composite endpoint over a period of up to 8 years in men and women with stable CAD or other non-cardiovascular (NCV) chronic disease, and 2) whether results differ by sex and CAD.

Methods: Men and women (*N*=1267; 60.38% men; 60.85±7.01 years) with CAD or NCV disease completed validated questionnaires on depression, anxiety, stress, hostility, and social support. The primary outcome was a composite defined by at least one cardiac event, all-cause hospitalization, or death, using Quebec administrative databases. Analyses included multivariable Cox proportional hazard models and controlled for sociodemographic and health parameters.

Results: Over a median follow-up of 6.06 years, at least one non-fatal cardiac event, all-cause hospitalization, or death were experienced by 342, 388, and 10 individuals, respectively, for a total of 481 cases. Depressive symptoms increased the risk for the primary outcome by 21% for each standard deviation (SD) increase in score (95%CI, 1.12-1.31), while anxiety (HR=1.15 per 1SD, 95%CI, 1.03-1.29) and stress (HR=1.26 per 1SD, 95%CI, 1.11-1.42) significantly increased risk only among those with CAD. Only in men did greater social support tend to decrease risk (HR=0.95 per 1SD).

Conclusion: Psychological factors predicted increased risk of adverse outcomes in patients with chronic disease, particularly among CAD individuals. Greater attention to patients' psychological well-being appears essential to minimize human and societal costs.

12) Abstract 944

PERCEIVED STRESS AND ADIPOSITY AMONG PUERTO RICAN YOUNG ADULTS IN THE SOUTH BRONX, NY, AND SAN JUAN, PUERTO RICO

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Objective: To evaluate the relationship between perceived stress and adiposity measures among young Puerto Rican adults residing in New York and Puerto Rico and to examine potential effect modification by sex and site.

Methods: A community-based sample of 818 Puerto Rican young adults from two distinct sociocultural contexts underwent a health assessment from 2015 to 2020 as part of the Boricua Youth Study Health Assessment. The sample consists of 441 individuals residing in San Juan, Puerto Rico, and 377 in the South Bronx, New York. Perceived stress, assessed with the Perceived Stress Scale (PSS-10), was analyzed cross-sectionally with objective measures of adiposity, including continuous measures of BMI, body fat, and waist circumference, and categorical measures of obesity.

Results: Notable differences in PSS-10 mean scores (higher scores indicating greater perceived stress) were observed between Puerto Rico (mean score: 11.4) and New York (mean score: 14.0). Site-specific differences in means were also observed for BMI (PR: 24.2, NY: 28.2), body fat (PR: 25.7, NY: 28.3), waist circumference (PR: 35.2, NY: 37.3), and the prevalence of obesity (PR: 18.9, NY: 34.9). Effect measure modification by site was identified in the associations between perceived stress and adiposity measures ($p<0.05$). In PR, perceived stress was inversely associated with waist circumference (β: -0.04 (-0.13, 0.05)), body fat (β: -0.09 (-0.26, 0.07)), and BMI (β: -0.09 (-0.18, 0.01)), while in NY, the opposite effects were observed for waist circumference (β: 0.08 (-0.05, 0.20)), body fat (β: 0.10 (-0.09, 0.29)), and BMI (β: 0.05 (-0.09, 0.19)), though not statistically significant after adjusting for age, sex, smoking, and socioeconomic status. Similar patterns were also observed for obesity, suggesting that increases in perceived stress may reduce the odds of obesity in PR (OR: 0.97 (0.93, 1.02)) and increase them in NY (OR: 1.03 (0.99, 1.06)).

Conclusions: Our results indicate site-specific differences in the association between perceived stress and adiposity among Puerto Rican young adults residing in PR and NY. The contrasting outcomes between the two sites highlight the unique potential role of sociocultural and environmental factors in each location. Future studies should explore these differences in larger samples.

13) Abstract 1011

A SCOPING REVIEW TO IDENTIFY FACTORS CONTRIBUTING TO WELLBEING IN AUTISTIC INDIVIDUALS ACROSS THE LIFESPAN

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Background
Autism is a neurodevelopmental condition predominantly defined by persistent differences in social communication, specific behaviours, or interests. Historically, the field of autism research has taken a deficit-based perspective, such as an overrepresentation of research into co-morbid physical and mental health conditions. There is a gap in studies from neurodiversity affirmative perspectives, including questions about what contributes to autistic wellbeing. In line with this, a scoping review is currently beneficial to map emerging data within a biopsychosocial context.

Method
This scoping review was pre-registered: https://doi.org/10.17605/OSF.IO/P8UAH. A Lived Experience Advisory Panel was conducted prior to data selection to inform the review question and methods. PRISMA-ScR guidelines were utilised to collate studies using a pre-defined selection criterion. The selection criteria included

autistic individuals over the age 2 with a formal or self-diagnosis. Exclusion criteria were any studies with Applied Behavioural Analysis principles and not in line with the core principles of the neurodiversity movement. Data extraction was conducted by two independent authors and charted using Microsoft Excel.

Results

89 studies were collated and charted in total, with biological (N=8), psychological (N=70) and social (N=59) factors discussed independently. A trend of increasing research output was identified, with 50 studies being published between 2020-2023 alone. Autistic adults (N=48) were the most prevalently researched whilst children (N=3) were the least represented. Biological factors contributing to autistic wellbeing focused on nutrition, physical activities, and the experience of menopause. Psychological factors included the role of autonomy, positive self-identity, and impact of receiving a diagnosis. Social factors included social connections and connectedness, and environmental adaptations with some practical benefits to wellbeing, including some lessons learnt from the COVID-19 pandemic.

Conclusion

Neurodiversity-affirmative perspectives into autistic wellbeing within the biopsychosocial context is an emerging area with increasing research outputs in recent years. Overall, the factors identified and discussed are all interlinked, and further research needs to explore how these multiple facets contribute to autistic wellbeing.

14) Abstract 1321

DEVELOPING A PSYCHOSEXUAL INTERVENTION AND TREATMENT MODEL FOR PEOPLE WITH MULTIPLE SCLEROSIS AND SEXUAL DIFFICULTIES USING THEORY AND EXPERIENCE-BASED CO-DESIGN

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Multiple Sclerosis (MS) is a long-term condition with one of the greatest negative impacts on quality of life (QoL). Sexual difficulties (SDs) are a distressing symptom affecting 50-80% of people with MS (PwMS). SDs in MS arise from the complex interplay of disease processes, treatments, and psychosocial factors. These can further reduce QoL and negatively affect body image, relationships, and psychological distress. However, treatments are largely limited to medications and physiotherapy. Psychological interventions show promise in treating SDs in PwMS but are difficult to integrate into regular care. The purpose of this study was to adapt existing psychosexual interventions to suit the needs of PwMS. First, we developed a working theoretical model of disease (primary), treatment (secondary), and psychosocial (tertiary) etiological factors of SDs in MS based on existing empirical evidence. Identified mechanisms were then mapped onto possible medical and psychosexual treatment techniques such as Acceptance and Commitment Therapy (ACT) and psychosexual education. We then used experience-based co-design (EBCD) to 1) determine areas of importance and 2) finalize content for a self-directed intervention that could be delivered in routine care. EBCD is a systematic method for working with patients and healthcare practitioners (HCPs) to improve healthcare delivery and outcomes. First, qualitative interviews were conducted with 4 PwMS to create a video highlighting common experiences with SDs. The video and slides of the theory-based treatment model formed the basis of discussion at 3 ECBD workshops (WS). WS1 with 7 PwMS identified key areas of treatment and intervention delivery structure. WS2 with 5 MS HCPs identified barriers to delivery of care for SDs. WS3 brought together PwMS and HCPs to determine the most desired and feasible intervention structure. We then iteratively worked with a group of 7 PwMS to finalize the intervention manual. Through EBCD, we created an integrative 8-session manualized Psychosexual Intervention for people with Multiple Sclerosis (PIMS): 6 sessions are self-guided and 2 are facilitated by trained MS HCPs. We will present our finalized treatment model, findings from EBCD WS, and the PIMS intervention. PIMS, and its current investigation within a feasibility RCT, is funded by the NIHR Research for Patient Benefit Funding stream.
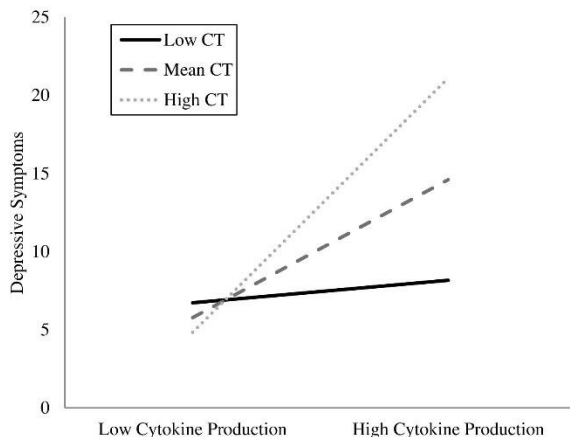
15) Abstract 1179

INFLAMMATORY MARKERS AND DEPRESSIVE SYMPTOMS IN SPOUSAL DEMENTIA CAREGIVERS: THE MODERATING EFFECT OF CHILDHOOD TRAUMA

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Spousal dementia caregivers are at risk for adverse mental and physical health. Loneliness, anticipatory grief, and proinflammatory cytokine production contribute to depressive symptoms. People who report childhood trauma are more likely to have exaggerated stress responses that may also contribute to depressive symptoms in adulthood. Studying childhood trauma is important for identifying caregivers most at risk for depressive symptoms, which can increase the risk of disease, poorer care for the care recipient, and premature death for a spousal couple. **Methods:** A sample of 103 spousal dementia caregivers provided self-report data on demographics, health information, loneliness (UCLA Loneliness Scale), anticipatory grief (Anticipatory Grief Scale), childhood trauma (Childhood Trauma Questionnaire), and depressive symptoms (Center for Epidemiological Studies Depression Scale). We also determined lipopolysaccharide-induced whole blood cytokine production as the primary measure of inflammation. We measured interleukin-6 (IL-6), IL-1β, tumor necrosis factor-α, and IL-10 and converted z-scores of each individual cytokine into a composite panel. We conducted linear regressions, adjusting for demographic and health-related covariates. **Results:** Proinflammatory cytokine production ($B = 0.96$, $p = .03$) and childhood trauma ($B = 2.26$, $p = .001$) were associated with depressive symptoms. The interaction between cytokine production and childhood trauma was significant in adjusted and unadjusted models. Proinflammatory cytokine production is only associated with depressive symptoms at mean and high levels of childhood trauma, but not at low levels of childhood trauma ($B = 0.36$, $p = .78$). Childhood trauma also moderates the main effects of anticipatory grief ($B = 10.43$, $p < .001$) and loneliness ($B = 0.53$, $p < .001$) on depressive symptoms. **Discussion:** In vitro proinflammatory cytokine production is only associated with depressive symptoms at mean and high levels of childhood trauma in a sample of spousal dementia caregivers, but not at low levels of childhood trauma. The effects of grief and loneliness on depressive symptoms also depend on self-reported childhood trauma in this sample. Our findings contribute to ongoing efforts to identify risk factors for adverse mental and physical health in spousal dementia caregivers.

Figure 1

Interaction Between Cytokine Production and Childhood Trauma

Note. CT represents childhood trauma. Low levels of childhood trauma refer to one standard deviation below the mean and high levels refer to one standard deviation above the mean. Low cytokine production refers to two standard deviations below the mean and high cytokine production refers to two standard deviations above the mean.

16) Abstract 960

STARTING AND KEEPING ON JOGGING! ROLE OF COMMUNITY-ORIENTED APPROACH TO SUPPORT MOTIVATION AND HABIT FORMATION FOR BEHAVIOUR CHANGE

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Starting a new habit such as physical activity is challenging especially for those who have been sedentary. Community-based groups, such as jog groups, can be a source of motivation and provide support for the start and maintenance of running. Our aim was to understand the experience of starting to participate in a jog group and the factors that impact on continued attendance in jog sessions. We conducted an interview study with participants of jog groups based in Scotland. All (N = 20) were members of jog groups organised by jogscotland, Scotland's recreational running network aimed to encourage running. Interviews were analysed by reflexive thematic analysis using a deductive-inductive approach. To understand the motivation about starting and maintaining running activity, Self-Determination Theory has been applied deductively. Themes generated included: 1) Diversity and inclusivity of runners experienced as encouraging and welcoming: This theme was apparent from the first day where newcomers felt welcomed and encouraged to participate at the level that felt comfortable to them. 2) Autonomy and competence: Joggers were able to use the training sessions in the way they wanted and this autonomy increased participation. Especially those who were new to jogging could also see they were able to do more than they thought and the awareness of rapid increase in fitness and competence boosted motivation and participation. 3) Benefits: Expected and experienced benefits of joining a jogging group and starting jogging included: health and fitness and weight loss but an unexpected benefit included being a part of a community that supported jogging training and creating a structure and habit to run. The community aspect clearly helped maintain the jogging activity. Being able to run with others also provided an element of competition and using others as a reason to join the jogging and a motivation to improve running. In sum, community-based groups provide benefits to new as well as experienced joggers to start and improve their physical activity levels. Regular training sessions with others foster a habitual element to jogging which is supported by all participants in training. Creating an atmosphere that encourages autonomy over jogging training and welcomes diverse groups of jogging is critical in physical activity habit formation.

17) Abstract 1148

THE IMPACT OF DEPRESSION AND SEX ON THE LONG-TERM PROGNOSIS OF PATIENTS WITH CORONARY ARTERY DISEASE WITH INTEREST IN PSYCHOLOGICAL TREATMENT

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Objective: Depression is a well-known risk factor of all-cause mortality (ACM) in coronary artery disease (CAD) within 2 to 5 years follow-up. Results in follow-up intervals of more than 10 years are inconsistent. We investigated whether in a long-term follow-up severity of depression and sex are associated with ACM in CAD patients. Methods: We studied 180 CAD patients (mean age ± SD: 60.6±9.2 years, 26% women) from three prior treatment trials with depressed and/or anxious CAD patients. Self-reported depression was assessed using the Hospital Anxiety and Depression Scale (HADS). ACM was assessed using a community-based registry. We compared ACM in depressed (HADS-D≥8) vs. non-depressed patients and highly depressed (HADS-D≥12) vs. not-to-moderately depressed patients (HADS-D<12) using unadjusted Kaplan-Meier log-rank tests. Adjusted models were performed using Cox proportional hazards survival regression. Interaction with sex was tested accordingly. Results: We obtained information on ACM in 175 patients (96.7%) after a mean follow-up of 13.6±2.1 years (range 10.5-17.3 years). Of these participants, 53.2% had prior MI, 94.8% PCI and 23.0% CABG. 88.4% of the patients reported NYHA class I and II dyspnea, 25.9% had diabetes and 39.1% were smokers. Mean HADS depression score was 8.3±4.0 at study entrance. Non-depressed patients showed significantly higher ACM (χ^2(1)=4.66, p=.031). In the adjusted model, depression was not significant (HR:1.12, CI:0.61-2.05, p=.72), while higher age (HR:1.08, CI:1.04-1.11, p=.001) and lower LVEF (HR:0.96, CI:0.94-0.99, p=.001) significantly predicted higher ACM. Highly vs. not-to-moderately depressed patients showed a similar pattern of results. There was an interaction between sex and high depression (χ^2(3)=9.84, p=.020). Non-depressed vs. depressed males (χ^2(1)=6.59, *p*=.010) showed significantly higher ACM, but not females. Conclusion: These first data didn't confirm our hypothesis. Depression as a single risk factor was associated with a reduced ACM and seems to be influenced by sex. Possible explanations of these results could be the long follow-up of 13 years or a special sample selection with young, highly depressive CAD patients interested in a psychosocial treatment and favorable prognosis. Our surprising results on

CAD treatment samples should be further investigated in future long-term follow-up studies.

18) Abstract 1408

A BLENDED DIGITAL SELF-MANAGEMENT TREATMENT FOR FATIGUE IN MULTIPLE SCLEROSIS: DESCRIBING THE PROCESS OF CO-DEVELOPING "REFUEL-MS"

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Background: Fatigue is a common and burdensome symptom of multiple sclerosis (MS). Evidence suggests the role of biopsychosocial factors in MS fatigue and new treatment recommendations emphasize the use of behavioral therapy and exercise over pharmacological approaches. However, in the UK, such treatments are rarely offered to people living with MS (pwMS) and are seldom implemented in routine care. Moreover, such treatments are often not designed to meet the needs of all pwMS, e.g., those with progressive types of MS. REFUEL-MS is a healthcare professional (HCP) guided digital self-management intervention for MS fatigue which aims to overcome the implementation gap and reach pwMS from diverse backgrounds.
Methods: Intervention development was informed by existing evidence, the person-based approach, and the Medical Research Council and National Institute of Health Research framework for complex interventions. A systematic review was conducted on behavioral and psychosocial factors related to MS fatigue. Co-production workshops and qualitative studies with HCPs, caregivers, and pwMS were conducted to further inform the intervention and implementation process. The focus was on reaching underserved groups in the MS community, working with diversity experts, and culturally adapting the intervention to ensure that the intervention meets the diverse needs of pwMS in terms of gender, ethnicity, socioeconomic status, level of disability, digital literacy, and type of MS.
Results: A theoretical model was developed outlining the biopsychosocial factors related to MS fatigue. This informed a logic model of the intervention techniques used (including cognitive behavioral, exercise, and balance techniques). Qualitative studies with pwMS, caregivers, and HCPs directly informed intervention content, e.g., loss of identity and disclosure of MS fatigue. Co-production workshops with pwMS and HCPs informed intervention features and functionality to increase engagement, accessibility, and inclusivity.
Conclusions: REFUEL-MS is a 16-week intervention with 11 app-based sessions (6 core sessions and 5 technique-specific) and up to 5 HCP appointments. Stakeholder and community input has offered unique perspectives to ensure that REFUEL-MS provides an integrated and personalized digital intervention for MS fatigue. This will be tested in a large multicenter stepped-wedge trial.

19) Abstract 1264

INVESTIGATING AGE IN RELATION TO INTEROCEPTION & ALEXITHYMIA

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Interoception plays a prominent role in homeostasis, providing information about the internal state and condition of the human body. It is most typically measured using heartbeat tasks, though there are mounting criticisms against focusing exclusively on signals that originate from the cardiac domain. Alexithymia, a subclinical trait that is defined as a marked inability to identify, describe, regulate, and express one's emotions (Taylor, 1984), has also been shown to have associations with poor interoceptive ability. While prior research has illustrated the variability in interoception present when examined in relationship to numerous health, biological, and psychiatric factors, the role age holds remains largely unexamined. The primary goal of this study was to assess interoception in two distinct domains, cardiac and respiratory, across a community sample (n = 40) of twenty younger (mean age = 24.9 years) and twenty older (mean age = 69.3 years) adults. A secondary aim was to investigate the role of age in relation to the alexithymia construct. Two laboratory tasks measured interoception: a Heartbeat Tracking Task and a Respiratory Discrimination Task. Three measures of interoception were extracted: Interoceptive accuracy (IAcc), Interoceptive awareness (IAwe), and Interoceptive sensibility (ISen). Alexithymia (and its three-factor structure) was measured via the Toronto Alexithymia Scale (TAS-26). Results from this experiment indicated that IAcc and IAwe were not correlated across domains. Of note, a significant difference was found between the two estimates of IAcc, indicating that participants were more accurate at assessing interoception in the respiratory than in the cardiac domain. Furthermore, younger adults (M= 0.49, SD = 0.29) exhibited significantly higher IAcc than older adults (M= 0.67, SD = 0.23); (t(36) = -2.04, p < 0.02) in the cardiac domain. Group differences were also found amongst the TAS-26 subscales, indicating that older adults have marked difficulties with identifying and distinguishing feelings from the bodily sensations of emotional arousal. These results indicate dissociable outcomes for two methods of assessing interoception, as well as illustrate the potentially prominent role age may hold when examining variability in interoceptive ability and body awareness across domains.

20) Abstract 1343

FUNCTIONAL CONNECTIVITY CHANGES ASSOCIATED WITH REDUCED BODY-IMAGE CONCERNS BY BODY-IMAGE INTERVENTION

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Body-image concerns such as body dissatisfaction and the drive for thinness are major risks for eating disorders. A body-image intervention reduces body-image concerns, where participants describe their bodies without negative expressions. However, its neural mechanisms remained unclear. It is suggested that functional connectivity (FC) from bodily visual processing regions (i.e., extrastriate body area and fusiform body area) while looking at bodies is related to body-image concerns. Thus, we conducted the body-image intervention and examined FC changes associated with a reduction in body-image concerns. Twenty-eight undiagnosed young women were recruited. Participants underwent a 40-min intervention once and described 15 body parts according to an experimenter's instruction. fMRI data was recorded before and after the intervention as well as a measurement of body-image concerns adopted from Eating Disorder Inventory 2. Based on previous studies, FC during two types of body estimation were separately examined; while looking at their distorted body

images, participants estimated self-body size which they thought was their actual bodies and ideal body size which they subjectively thought was ideal. FC related to general body estimation was evaluated as the sum of data from the self and ideal body size estimation. Seed-to-voxel FC analysis was performed (seeds: extrastriate body area and fusiform body area). We performed correlation analysis regarding connectivity for three estimation processes (i.e., self-body, ideal body, and general body estimation). Participants who reduced body-image concerns showed an increase in FC from the left extrastriate body area to the left somatosensory cortex for the ideal body estimation. They also showed an increase in FC from the right extrastriate body area to the left anterior hippocampus for the general body estimation. These results implied that explicit non-negative descriptions regarding one's body helped participants to learn to process their bodies based on external information (i.e., somatosensory feedback and memories from visual scene perception), which may allow for reducing pathological emotional processing regarding their bodies. Our study will help in understanding how to reduce body-image concerns and may lead to developing effective treatments for eating disorders.

21) Abstract 1061

PREDCITING INTENTIONS TO PARTICIPATE IN SELF-MANAGEMNT BEHAVIORS IN FAMILIAL HYPERCHOLESTEROLEMIA PATIENTS: A META-ANALYTIC REVIEW

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Familial Hypercholesterolemia (FH) is an inherited dominant metabolic disorder of lipoprotein metabolism, which, if left untreated, leads to an increased risk of premature cardiovascular disease. This risk can be ameliorated by engagement in pharmacological treatment and salient lifestyle behaviors: physical activity and healthy eating. To develop effective interventions aimed at promoting FH self-management behaviors, it is important to identify theory-based, modifiable determinants of these behaviors. The present study aimed to identify the belief-based social cognition constructs associated with intentions to perform, and actual participation in, FH self-management behaviors in the extant research, and to estimate the size and variability of the association between these constructs, FH self-management behavioral intentions, and behavior using meta-analysis. We also aimed to test a predictive model specifying the unique effects of the social cognition constructs on FH self-management behavioral intentions as well as the effects of past self-management behavior on these constructs and intentions. A systematic data base search was conducted to identify studies (k=10, N=1505) reporting relations between social cognition constructs and intention toward, or actual participation, FH self-management behaviors. Using random effects multi-level meta-analysis structural equation modeling, relations among the constructs and intentions were tested. The results revealed non-zero sample-weighted averaged correlations among key model constructs (attitudes, norms, intention, self-efficacy, and past behavior), intentions, and past behavior. Structural equation modeling indicated non-zero-averaged direct effects of attitudes, norms, self-efficacy, and past behavior on FH self-management intentions. Indirect effects of past behavior on intension through social cognition constructs were also observed. These findings remained consistent even after accounting for study quality as a covariate. The study findings support our proposed model predicting FH self-management intentions and indicates unique effects of key social cognition constructs on intentions when accounting for past behavior. The model provides important data on constructs that may be targeted in behavioral interventions aimed at promoting participation FH self-management behaviors.

22) Abstract 1447

EXAMINING QUANTITATIVE METRICS OF ACCEPTABILITY, FEASIBILITY, AND TARGET ENGAGEMENT IN AN APP-BASED JITAI

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Introduction: For sexual minority men (SMM) living with HIV (LWH) intersectional sexual minority and HIV-related stress add to general life stressors to increase health risks, including transmission risk behaviors (substance use). Interventions targeting stress may be useful for HIV risk reduction among substance-using (SU) SMM LWH. This study builds on pilot study where we adapted a positive psychological intervention for app-delivery, using a just-in-time adaptive intervention (JITAI) design to address intersectional minority stress among SMM LWH.
Methods: In Phase 1 we enrolled eight SUSMM-LWH in a 90-days open-phase pilot to use our app and complete a daily EMA. If participants reported stress or cravings in the EMA, they received a JITAI activity. Here examine quantitative metrics of feasibility and acceptability, and test for preliminary evidence of target mechanism engagement (mindfulness, self-compassion, gratitude, positive affect). Our benchmarks were: >68 on the *System Usability Scale* (SUS) and > 3 on the *Mobile App Rating Scale* (MARS). The benchmark for determining preliminary efficacy of engaging target mechanisms was a statistically significant change from pre-to-post test, as well as an effect size of d=0.4 or >
Results: Participants completed 32 JITAI activities over 90 days; 84.25% were triggered by stress, and 66.25% by cravings reported in the EMA. MARS scores exceeded our benchmark for *functionality* (M=3.8), *aesthetic* (M=3.1), and *information* (M=3.6), and fell just short of the mark for *engagement* (M=2.9) and *subjective quality* (M=2.8). SUS scores were right at the benchmark (M=67.9). For target mechanism engagement, we saw a significant increase in mindfulness, (*Cognitive and Affective Mindfulness Scale)*, from pre-test (M=2.55) to post-test (M=2.84); t(6)=-2.62, p=.047, with a large effect size (d = 1.07). We also saw a significant decrease in feelings of isolation (*Self-Compassion Scale)*, from pre-test (M=3.58) to post-test (M=2.66); t(6)=2.6, p=.048, with a large effect size (d = 1.06). We did not see a significant change for gratitude or positive affect.
Conclusion: While the app meets the minimum requirements for acceptability and feasibility, there is significant room for improvement. We're currently finalizing app changes, in preparation for Phase 2, which is a factorial optimization trial to further adapt our JITAI for SUSMM-LWH.

23) Abstract 1381

USING A MIXED METHODS APPROACH TO INFORM A CULTURALLY-SENSITIVE SLEEP HEALTH INTERVENTION FOR AMERICAN INDIAN/ ALASKA NATIVE YOUTH

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American Indian/Alaskan Native (AI/AN) youth are significantly underrepresented in sleep and health disparities research. Recognizing the need for culturally sensitive approaches, we employed a mixed-methods strategy to inform the development of a culturally tailored sleep health intervention for AI/AN teens. Our community-based research was conducted in two phases during the COVID-19 pandemic, utilizing qualitative interviews with AI/AN adolescent (mean age = 13.9 years, range 12-16 years) and surveys of their parents/ guardians. The first phase (N = 25) occurred during the pandemic (Spring 2020), and the second (N = 21) towards the end of pandemic-related shutdowns (December 2020- June 2021). We also gathered data from 110 parent surveys focused on parental involvement in their teen's sleep habits.

Findings showed considerable changes in sleep behaviors and parental involvement during the pandemic. Key themes included increased use of nighttime electronics, historical narratives of cultural survival to cope with pandemic changes as well as identification with traditional symbols and practices related to sleep (e.g., dreamcatchers, sage burning), heightened parental concern about sleep, and varying responses to parental involvement based on the adolescents' age. Importantly, the adolescents provided valuable insights into the desired components of a sleep health intervention, emphasizing the need for strategies to facilitate sleep onset and a preference for video-based modalities. Parental survey data further highlighted the challenges and preferences in managing teen sleep health. Over 80% of parents encouraged specific bedtimes and limited electronic device usage at night. However, a significant portion reported feeling overwhelmed and experienced conflicts with their teens regarding bedtime routines. Preferences for receiving intervention guidance varied, with half favoring written materials or a mobile app and a third opting for workshops on parenting strategies for promoting healthy sleep habits.

Our study underscores the importance of culturally sensitive and age-appropriate interventions in addressing sleep health disparities in AI/AN youth. The pandemic has provided unique insights into sleep behavior changes and parent-teen dynamics, guiding the development of targeted interventions that correspond to the community's needs and preferences.

24) Abstract 1050

NEIGHBORHOOD-LEVEL CORRELATES ARE ASSOCIATED WITH SYSTEMIC INFLAMMATION AND IMMUNE DYSREGULATION IN SEXUAL MINORITY MEN WITH HIV WHO USE STIMULANTS

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Background
This study investigated the relationships between neighborhood-level factors including rates of poverty and prevalence of uninsured residents and related impact on markers of systemic inflammation, immune dysregulation, and cellular aging in 110 treated sexual minority men (SMM) living with HIV who used stimulants.

Methods
Participants were recruited between 2013-2017 in San Francisco, California. HIV status and recent stimulant use within the past three months were self-reported at baseline. Participants additionally provided urine samples for screening the presence of stimulants metabolites. Soluble markers of systemic inflammation and immune dysregulation including interleukin-6 (IL-6) and tumor necrosis factor-α (TNF-α) were measured at baseline using the Human Quantikine Immunoassay. Leukocyte telomere length, a marker of cellular aging, was measured using the quantitative polymerase chain reaction technique. We obtained neighborhood-level data by collecting addresses at baseline. We then utilized Geographic Information Systems (GIS) to geocode addresses and linked data to previously published geospatial data from the Centers for Disease Control and Prevention. Hierarchical linear modeling was employed to investigate the impact of neighborhood-level adversities on baseline markers of systemic inflammation, immune dysregulation, and leukocyte telomere length.

Results
After adjusting for age and recent stimulant use, we noted a significant association between elevated plasma IL-6 and neighborhoods with higher estimated rates of poverty (β = .33, p = .001). Residing in neighborhoods with higher estimated rates of individuals lacking healthcare insurance was significantly associated with elevated levels of TNF-α (β = .24, p = .03), after adjusting for age and recent stimulant use. While leukocyte telomere length did not show any associations with neighborhood-level factors, after controlling for age, recent stimulant use predicted shorter baseline telomeres (β = -.31, p =.002).

Conclusions
Our study revealed associations between neighborhood rates of poverty and lack of healthcare insurance with markers of immune dysregulation in treated SMM with HIV who used stimulants. Future longitudinal research should further explore complex pathways linking neighborhood adversities, stimulant use, and HIV with inflammation and immune dysregulation.

25) Abstract 852

A LONGITUDINAL ANALYSIS OF OPTIMISM AND QUALITY OF LIFE AFTER PERCUTANEOUS CORONARY INTERVENTION FOR ACUTE CORONARY HEART DISEASE, THE THORESCI STUDY
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Background –Psychological health is an essential aspect of patient well-being. While negative psychological factors are detrimental to cardiac prognosis and quality of life (HRQoL), positive factors like optimism may improve outcomes. Optimism though may vary with time, especially in the aftermath of a (traumatic) coronary event. The current study examined whether the level and change in optimism across the year post-event were associated with changes in HRQoL across the same time period. Importantly, optimism has been associated with several mechanisms that may explain its association with better HRQoL, including the relative absence of negative moods, and better adherence to health behaviors. So, we tested to what extent depression, anxiety, and health behavior adherence explained these associations.

Methods - Patients who underwent percutaneous coronary intervention (PCI) for ≥1 coronary occlusions (n=953, 79% male, mean age = 64±10) filled out a survey including positive (optimism; LOT-R) and negative factors (depression (BDI) & anxiety (GAD-7)), HRQoL (WHOQOL-BREF), and adherence

(MOS) at inclusion (1-2 weeks post-PCI) and one year later. Hierarchical linear mixed modeling with time-varying predictors and covariates was employed.

Results – Median 1-yr change in optimism was 0.0 (SD=2.3; range:-8 – 9.5; 57% increasing, 24% decreasing; $r_{intraclass}$=.66). Optimism was associated with a higher level of and more positive change in HRQoL over time, adjusting for demographic and clinical covariates (B = .25-.97 all p<.001). One-year improvements in optimism were related to higher HRQoL (all aspects), and with larger increases in physical and psychological HRQoL. Adding depression and anxiety (B = -.23 - -.04; p<.001) explained part of the between-subject relations of optimism with physical, psychological, and environmental HRQoL, but did not affect social HRQoL. While adherence was a significant covariate for all but one (general) HRQoL aspect, it did not affect optimism estimates.

Conclusion – The majority of patients may have experienced post-traumatic growth, as reflected in the increase in optimism. Both the level and the increase in optimism were associated with better and improving HRQoL. Depression, and anxiety, but not adherence explained some of this relation. Optimism may be a good training target in cardiac rehabilitation to improve outcomes.

26) Abstract 1009

SEX DIFFERENCES IN ACUTE BIOLOGICAL STRESS RESPONSES TRIGGERED BY THE VIRTUAL REALITY STROOP ROOM

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Background
The Virtual Reality Stroop Room (VRSR) is a novel research paradigm allowing the assessment of executive functions while simultaneously enabling researchers to easily modify potentially stressful parameters. An initial implementation of the VRSR in a pilot study showed promising results. Here we report results of an adapted replication study with a larger sample to further the understanding of this new research paradigm.

Methods
Eighty-nine participants (23.60 ± 3.88 years old; 52 women) performed the congruent and incongruent phase of the VRSR in a quasi-randomized design. They were either assigned to a regular condition, a condition with greater time pressure or a condition with higher spatial difficulty. Measures included salivary alpha amylase (sAA) and cortisol at five time-points, as well as self-reports before and after the experiment, and continuous recording of the electrocardiogram (ECG).

Results
For sAA there was a significant time effect (F = 4.918, p = .005). All other effects were n.s. For cortisol a threefold interaction (time*gender*order; F = 5.442, p = .005) and a fourfold interaction (time*gender*order*condition; F = 3.068, p = .018) were observed. Women exhibited a rise of cortisol levels only when undergoing the paradigm with the congruent phase first, while men showed the opposite pattern. These effects appear in the condition with greater time pressure and spatial difficulty for women, whereas men exhibited a reaction pattern in the time pressure condition only.

Discussion
This study shows the potential of the newly developed VRSR as a research paradigm that induces low dose stress and potentially activates the hypothalamus-pituitary-adrenal axis. However, the sequence of the congruent and incongruent phase appears to lead to different reaction patterns in women and men. Future work should therefore address this issue in a design assessing the different reaction patterns for women and men to the individual phases of the VRSR.

27) Abstract 975

HEART RATE VARIABILITY AND COGNITIVE PERFORMANCE IN OLDER ADULTS: THE INFLUENCE OF DIETARY CHOICES

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Objectives: Heart Rate Variability (HRV), a measure of beat-to-beat differences in the heart, has been linked to cognitive processes. This study examines the association between HRV, heart rate (HR), and cognition. It also examines the influence of diet on the relationship between the cardiovascular system and cognitive performance.

Design: A correlational study design.

Methods: One hundred healthy participants (50-80 years) living in London and Southeast performed two tasks (digit span and the maths processing) which varied from easy to difficult. The cardiac response was measured using the HEXOSKIN cardiac sensor vest. Diet was assessed qualitatively using the Mediterranean Diet Adherence Screener. Statistical analyses investigated HRV/HR reactivity (task activity to rest) and recovery (baseline to rest). A 2x2 mixed ANOVA investigated the influence of diet on the relationship between cardiac response and cognitive performance. Linear regression models examined the association of HRV/HR and diet with cognition in unadjusted models and after progressive adjustment for age, gender, education, occupation, and BMI.

Results: ANOVA analyses showed a non-significant main effect of time for the two workload tasks on the cardiac response. There was a significant main effect of diet on cardiac responses for both tasks. However, the interaction between diet and mental workload in relation to cardiac response was non-significant. Regression analyses showed HR/HRV were not associated with cognitive performance.

Conclusions: Cardiac variability was not particularly sensitive to the mental demands of the two tasks. Diet alone may have an influence on cardiac response but does not modulate response to mental stress overload.

28) Abstract 1135

TOSSING AND TURNING AT NIGHT DEPENDS ON DISCLOSURES DURING THE DAY: A DYADIC INVESTIGATION IN PATIENTS WITH CANCER AND THEIR SPOUSAL CAREGIVERS

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Compromised sleep is not only common among adult patients with cancer but also interrelated within patient-caregiver dyads. Disclosing feelings and thoughts to one's partner is known to alleviate stress and promote restorative sleep. However, the extent to which self-disclosure associates with sleep patterns interdependently in patients and their caregivers is understudied.

Participants were patients newly diagnosed with colorectal cancer and their sleep-partner spousal caregiver (*N*=138

dyads, *M* age=56.2 years, 34.1% female patients, 63.4% Hispanic, 7 months post-diagnosis). Over the course of 14 consecutive days, participants individually completed evening diaries assessing self-disclosure to their partner and morning diaries assessing the prior night's sleep. Daily sleep efficiency (SE), an overall marker of sleep health, was calculated from each sleep diary entry.

Patients and caregivers reported moderate levels of self-disclosure and suboptimal levels of SE (83.1% and 84.2%, respectively), with minimal to moderate variability across days. Continuous time structural equation modeling indicated that caregivers' change in SE on a day was more likely to influence their patients' change in SE in the same direction on subsequent days (*b*=.151, 95% CI: -.057, .355), rather than patients' SE influencing their caregivers' SE on subsequent days (*b*=.004, 95% CI: -.270, .257). Patients' greater self-disclosure on a day predicted greater influence of caregivers' SE on their patients' SE on subsequent days (*b*=0.75, *p*<.001). In contrast, patients' lower self-disclosure (*b*=-0.53, *p*<.001) and caregivers' greater self-disclosure (*b*=0.66, *p*<.001) on a day predicted greater influence of patients' SE on their caregivers' SE on subsequent days.

Findings highlight the unique roles of self-disclosure in dyadic sleep relations, which differed by patients versus caregivers. Findings also hint at the need for tailored communication skills training within patient-caregiver dyads in oncology sleep medicine services. Further studies are warranted to investigate emotional and neuroendocrine synchrony between partners as potential psychobiological mechanisms underlying such relations, as well as perceived support and role strains as plausible social factors contributing to the differential effects of self-disclosure on the sleep health of individuals touched by cancer.

29) Abstract 1257

ATTACHMENT HIERARCHY REORGANIZATION AND INFLAMMATION AMONG THE SPOUSALLY BEREAVED
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Throughout the lifespan, people orient attachment functions toward one primary attachment figure, as well as a few other secondary attachment figures, organized hierarchically (Bowlby, 1969/1982; Trinke & Bartholomew, 1997). These "attachment hierarchies" (AHs) reorganize across the lifespan to adapt to new social circumstances. In adulthood, spouses or long-term romantic partners typically act as primary attachment figures (i.e., the primary person someone turns to for support in times of need); romantic partners share a pattern of interwoven physiology, reciprocally co-regulating biobehavioral systems (Sbarra & Hazan, 2008). When a person's partner dies, the surviving partner loses their primary source of felt security, often reflected in a dysregulated HPA axis. As proposed in LeRoy et al., (2019), people who are unable to find new outlets for their attachment-related needs, may be at a greater risk for inflammation (e.g., Fagundes et al., 2019), and related health consequences (e.g., cardiovascular disease). Conversely, people who reorient their attachment-related behaviors to other figures (e.g., other family members or new relationships), may exhibit healthier physiological responses to loss. We asked 81 recent widow/ers, to retrospectively, list the primary 4 people

they turned to in times of need (a modified version of the WHOTO; Hazan & Zeifman, 1994), during the last 5 years. They also answered the WHOTO in terms of who they "currently" turn to (at 3 months post-loss). Then, at a follow-up visit 6 months later (9 months post-loss), they underwent a single-stick blood draw. We found a positive association between the number of new people reported in participants' AH at 3 months post-loss and higher IL-6R (*b*= .21, *p*= .01), indicating a pro-inflammatory state, even when adjusting for age, BMI, statin use, and perceived stress; it is unclear, however whether this pro-inflammatory state was due to the stress associated with turning to new figures for feelings of safety and security. Interestingly, however, those with more new people in their AH at 3 months post-loss did report a greater sense of belonging, 6 months later (INQ; *b*= 6.18, *p*=.04). Future research should examine whether the downstream health benefits of new attachment bonds may take more time to appear compared to the more immediate social benefits of integrating new people into one's AH.

30) Abstract 1210

THE EFFECTS OF GROUP-BASED INTERVENTIONS AND THEIR UNDERLYING PROCESSES ON PHYSIOLOGICAL STRESS: A SYSTEMATIC REVIEW
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Recent research has highlighted that group-based interventions where participants identify with others in the group, have positive outcomes for self-reported psychological and physical health. However, little is known about how participating in group interventions impacts on objective physiological indicators of health. Additionally, there is a need to unravel and understand the mechanisms (e.g., identification, sense of connectedness) that render social groups conducive to better health. To address this, we systematically reviewed articles reporting on group-based interventions that measured underlying group processes and stress biomarkers. The search strategy, published on PROSPERO, yielded 1,139 published studies and grey literature sources; of which seven met the inclusion criteria. Participation in group-based interventions was associated with changes across a range of physiological indicators, including lowered resting systolic and diastolic blood pressure, improved heart rate variability, and lowered salivary cortisol levels. Perceived dysfunction in one group was linked to increased cardiovascular reactivity to a stress task. Potential mechanisms underlying the effectiveness of the interventions included, but were not limited to, individuals' perceptions of social norms within the group, feelings of group cohesion, and feeling understood and supported by other group members. Interpretation of these findings is constrained by some missing data and potential bias in the reporting of the reviewed studies. In sum, group-based interventions that effectively mobilized group processes appeared to influence physiological stress responses, which has implications for long-term health. However, additional rigorous research is needed to disentangle the range of processes that underpin the curative effects of groups.

31) Abstract 1223

BREAST CANCER SURVIVORS FROM MINORITY ETHNIC GROUPS IN THE UK REPORT HIGHER RATES OF NON-ADHERENCE TO ADJUVANT ENDOCRINE THERAPY THAN WHITE BRITISH WOMEN: AN EXPLORATION OF

PSYCHOSOCIAL FACTORS ASSOCIATED WITH TREATMENT NON-ADHERENCE

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Background: Two million women are diagnosed with breast cancer annually with 80% requiring adjuvant endocrine therapy (AET) for 10 years to prevent recurrence. Survival is significantly worse in women from minority ethnic groups (MEG) compared to white women, even after adjusting for stage and phenotype. By year 5, 50% of women have discontinued AET, which is significantly higher in MEG. This study aimed to understand psychosocial factors associated with AET non-adherence for intervention.
Methods: An observational cross-sectional survey design was used. N=2009 breast cancer survivors prescribed AET within three years were recruited from clinics across the UK. Due to lack of diversity, the sample was dichotomised into White British and MEG. The Medication Adherence Rating Scale (MARS) was categorised as overall, intentional and unintentional non-adherence. Illness perceptions (IPQ-BCS), treatment beliefs (BMQ-AET), perceived (GASE) and experienced symptoms (BCPT), distress (PHQ2; GAD7) and relationship with healthcare professionals (HCPs; CARE) were measured. t tests and chi-squared tests were used with Hedges g to compare differences between ethnic groups.
Results: Women from MEG were 2.04 (1.47:2.85, p<.001) more likely to report overall non-adherence than white British women and 2.70 (1.67:4.38, p<.001) and 1.76 (1.25:2.48, p<.001) more likely to report intentional and unintentional non-adherence respectively. Women from MEG had higher treatment concerns (g=.31), more negative illness perceptions (g=.24-.46), higher depression (g=.32) and anxiety (g=.34), reported (g=.19) and expected (g=.25) more side-effects and had worse HCP relationships (g=.27) than white British women. After controlling for clinical/demographic factors including socio-economic status, significant differences persisted in treatment concerns (g=.06), depression (g=0.08), anxiety (g=.07), breast cancer consequences (g=.07) and HCP relationship (g=.08).
Discussion: Women from MEG were twice as likely to report AET non-adherence and had a more negative breast cancer and AET experience even after controlling for clinical-socio-demographic factors. This may lead women to disengage from treatment, contributing to worse mortality and morbidity. Better understanding of cultural nuances and HCP training is needed to reduce ethnic disparities in breast cancer survival.

32) Abstract 1126

EMOTIONAL EXHAUSTION AND DEPRESSIVE SYMPTOMS AS INDIRECT LINKS BETWEEN SLEEP QUALITY AND AUTONOMIC DYSREGULATION: THE DRESDEN BURNOUT STUDY

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Emotional exhaustion (EE), the core symptom of burnout, is associated with increased risk for insomnia and depression, as well as decreased heart rate variability (HRV). Longitudinal evidence indicates that sleep disturbance precedes increases in EE; while poor sleep, greater EE and depression are all correlates of lower HRV. Partially due to a high degree of somatic symptom overlap (i.e., EE and depression), the exact relationship among these constructs remains elusive.
The present study examined EE and depression as simultaneous conduits in the relation between HRV and subjective sleep quality (SSQ) using data from the Dresden Burnout Study (DBS | T4[2018] n =493). The EE subscale of the Maslach Burnout Inventory (MBI) and the somatic symptoms subscale of Patient Healthcare Questionnaire-9 (PHQ-9) were used to represent emotional exhaustion and depressive symptoms, respectively. Sleep quality was assessed only at T4 using the German version of the Pittsburgh Sleep Quality Index. Inter-beat interval data were collected at each DBS wave to derive HRV [root mean square of the successive differences between adjacent RR intervals | RMSSD]. We first tested the direct and indirect relations between HRV and SSQ, through age, EE, and depressive symptoms at T4 (Model 1). Model 2 tested the alternative with T4 SSQ predicting T4 HRV. Lastly, we examined whether T1 HRV [n =171] predicted SSQ indirectly through T4 EE (Model 3).
In Model 1, T4 HRV inversely predicted T4 SSQ (Total effect: *b* = -.61, se = .22, 95% C.I. [-1.05, -.17]), through both EE and depressive symptoms (Indirect effect: *b* = -.23, se = .12, 95% C.I. [-.47, -.004]). In model 2, SSQ negatively associated with HRV (Total effect: *b* = -.03, se = .01, 95% C.I. [-.042, -.007]) through both age (Indirect effect: *b* = -.015, se = .005, 95% C.I. [-.02, -.006]), and EE (Indirect effect: *b* = -.013, se = .003, 95% C.I. [-.02, -.002]) at T4. In Model 3, T1 HRV was marginally predictive of T4 SSQ (Total effect: *b* = -.86, se = .50, 95% C.I. [-1.85, .15], *p* =.098).
Our findings demonstrate that EE and depression likely play a synergistic role in linking poor sleep to autonomic dysregulation and elevated disease risk. Importantly, novel observations emphasize that unique effects of EE on health *persist*, but may be difficult to discern in the likely context of co-morbid poor sleep and/or other depression symptoms.
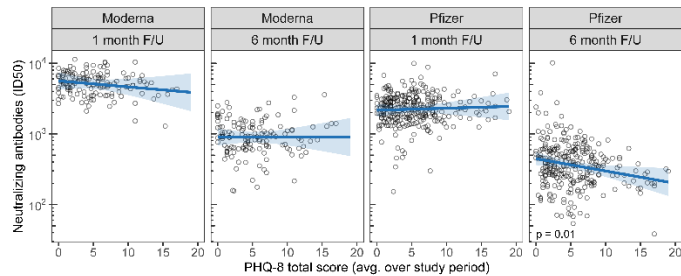
33) Abstract 1270

STRESS, DEPRESSION, AND COVID-19 VACCINE EFFICACY: RESULTS FROM THE BOOST STUDY

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Because vaccines are our main resource to protect against infection but exhibit high variability in efficacy (e.g., among older adults), there is growing interest in identifying psychosocial factors that may modulate vaccine responses. This study examined whether short-term stress (i.e., daily perceived stress or daily stressor exposure) enhanced immune function and whether chronic stress (i.e., consistently elevated perceived stress, depressive symptoms, or anxiety symptoms across seven months) impaired immunity to the COVID-19 vaccination series. Participants reported daily perceived stress and stressor exposure beginning on the day of their vaccination and continued for five days after. Levels of base 10 log-transformed neutralizing antibodies (nAB) were the outcome variable across all mixed-effect models measured 1- and 6-months after the final immunization. Interactions were tested with vaccine type (Moderna vs. Pfizer) and time point (1- or 6-months). Analyses revealed a significant three-way interaction between depressive symptom severity, vaccine type, and time point ($F_{1,419.4}$ = 6.43, *p* = 0.01), indicating that chronically elevated depressive symptoms were associated with lower nAB at 6-months for those who received a Pfizer vaccine (partial r = -0.10, CI -0.17 to -0.02; slope = -0.069, CI -0.12 to -0.014; *p* = 0.01). There were no other significant results across the non-diary analyses. In diary analyses, we found some evidence that higher perceived stress on the day

of, and the day after the second vaccination dose was associated with higher nAB at the 1- and 6-month follow-ups (*p*s: .003-.02). There was no evidence that stressor exposure was associated with nAB. In sum, we found that those who experienced chronically elevated depressive symptoms averaged across the course of the study, showed lower nAB 6-months after completing their full vaccination series, but only if they received a Pfizer vaccine. We also found preliminary evidence that higher perceived stress on the day of, and the day after, second vaccination dose may promote a more robust nAB response. These findings add to our understanding of stress, depression, and vaccine efficacy related to COVID-19.

34) Abstract 1432

THE LINK BETWEEN CHANGES IN INTEROCEPTIVE AWARENESS AND CHANGES IN EMOTIONAL WELLBEING FOLLOWING A YOGA INTERVENTION

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Background: Emotional well-being (EWB) encompasses how positive one feels generally and about life overall. It is linked to physical and mental health, and, as a measure of human flourishing, is important in its own right. As evidence demonstrating yoga's impact on EWB accumulates, it is critical to identify *how* yoga practice facilitates such improvements. One way yoga may improve EWB is by catalyzing changes in interoceptive awareness (IA; the perception of and relation to internal bodily sensations). The present study examines whether changes in IA pre-to post yoga intervention are associated with changes in two understudied domains of EWB: meaning in life and ability to pursue goals.
Methods: Participants (*N* = 84) are from a 12-week Kripalu yoga clinical trial conducted with a sample of highly stressed adults (ages 23-67). IA was assessed with four subscales (Emotional Awareness, Attention Regulation, Trusting, Body Listening) of the Multidimensional Assessment of Interoceptive Awareness. The Brief Self-Control Scale assessed ability to pursue goals. Meaning in life was measured with a subscale of the Functional Assessment of Chronic Illness Therapy–Spiritual Well-Being Scale non-illness version. All measures were administered at baseline and post-treatment. For each IA subscale and domain of EWB, standardized residuals were obtained by regressing scores from the post-treatment time point on scores from the baseline time point.
Pearson's *r* correlations were then conducted between standardized residuals of IA subscales and EWB domains, with 1,000 bootstrap samples.
Results: Change in Attention Regulation was positively associated with changes in meaning (*r* = .43, *p* = .008) and ability to pursue goals (*r* = .35, *p* = .035). Changes in Trusting were also positively associated with changes in meaning (*r* = .43, *p* = .007), but not with changes in ability to pursue goals (*r* = .10, *p* = .55). Neither changes in Emotional Awareness nor

Body Listening were associated with changes in either EWB outcome (all *p*s > .05).
Discussion: Changes to the Attention Regulation and Trusting domains of IA are associated with changes in meaning in life and ability to pursue goals in a yoga intervention. Results suggest designing yoga interventions with an emphasis on attention regulation and trusting may optimize the influence of yoga intervention on EWB.

35) Abstract 1312

THE EFFECTS OF A DIGITAL HEALTH INTERVENTION WITH COACHING IN MIGRAINE PATIENTS DURING THE COVID-19 (SARS-COV-2) PANDEMIC.

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Background: With over one billion sufferers worldwide, the migraine headache epidemic is one of the most pervasive and least understood health crises. **Methods:** The is a study of 18 episodic, chronic, and intractable migraine patients who participated in a pilot of the Migraine Elimination through Neuroindividual Treatments (MENT) Protocol from April 2020 – December 2021, during the Covid-19 epidemic. As a result of drastic changes, the MENT program was customized. All participants received a minimum of nine, 50-minute bi-weekly coaching sessions from a health coach with supporting web-based modules over an 18-week period. Participants were evaluated through a qualitative content analysis with an iterative coding process for the coaching notes and mediation regression analyses to examine 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 18 individuals who enrolled, 17 (94%) completed the 18-week pilot program; all 17 completed 6-month follow-up. 58% of participants were employed, 29% were on disability, and 11% were unemployed and not actively seeking. Most common headache types are tension (82%) and chronic migraine (70%). 88% reported one or more comorbidities. Participants' most reported mental health comorbidities were anxiety (88%) and depression (52%). As a result of the COVID-19 pandemic, the MENT program was adapted. Common self-care practices and medical appointments were not feasible, so adaptations were required (e.g., home stretches instead of chiropractor visits, altered diet instead of vitamins. The most used content included cognitive behavioral therapy (94%), food triggers and nutrition (82%), and breathwork (70%). At program completion, 94% of participants reported a reduction in migraine frequency, duration, or pain; 82% reported a sustained reduction at 6-month follow-up. **Conclusions:** With unpredictable changes due to climate change and pandemics, migraine interventions must be adapted, including diet, exercise, and stress-management. In this study, participants saw similar improvements with migraine intervention adaptations.

36) Abstract 879

CHANGES IN RESPIRATORY SINUS ARRHYTHMIA (RSA) IN ANTICIPATION OF AND DURING DYADIC INTERACTIONS

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Multiple theoretical perspectives describe connections between vagally mediated heart rate variability (HRV), or respiratory

sinus arrythmia (RSA), and self-regulatory and interpersonal processes. Together they suggest that self-regulatory effort and positive social experiences may lead to short-term increases in RSA, which in turn, is broadly related to adaptive emotional, social, and physical functioning. However, the extant literature on social interactions among adults is limited and provides inconclusive support for this premise. For example, one meta-analysis found that negative social interactions were linked to decreased HRV, but positive social interactions were unrelated to HRV. To test the connections between social interactions and short-term changes in RSA, the current research examined 356 dyads (712 adults ages 18-36; 50% men, 50% women) across 3 studies in which participants engaged in face-to-face social interactions in a laboratory setting. Relationship type and conversation context varied across studies (see Table 1). HRV data were acquired from electrocardiography, and high-frequency power was used to estimate vagally mediated HRV, or RSA. RSA reactivity was calculated by subtracting task values from resting baseline values across anticipatory periods and conversation tasks. Dyadic regression models were used to account for dependence across partners and associations were examined with and without covariate adjustment (e.g., sex, age, respiration rate, speaking role). As shown in Table 1, anticipation of and engagement in dyadic social interactions were associated with an increase in RSA from a resting baseline. The mean anticipatory effect size was $r = .50$ and the mean conversation effect size was $r = .34$. Of note, associations between social interactions and increased RSA were robust across relationship types, including strangers and romantic couples, and conversation context, including valence (e.g., discussions of partner annoyances [negative] or partner support [positive]) and whether the conversation was relevant to the dyad or not (e.g., partner dependence, emotional videos). Associations were stable across speaking and listening roles, and consistent across models with and without covariate adjustment. The current research provides reliable evidence for increased RSA in anticipation of and during social engagement among adults.

Table 1. Effects of RSA Reactivity Across Studies 1-3.

	Conversation Topic	Valence	B	SE	95% CI Low, High	t	r
Study 1 - Strangers	Video: Emotional video	Negative					
Anticipatory period			.41	.06	.29, .54	6.43**	.58
Conversation			.31	.09	.14, .50	3.48**	.36
Study 2 - Relationships	Video: Emotional video	Negative					
Anticipatory period			.33	.06	.19, .56	4.83**	.50
Conversation			.23	.08	.05, .42	2.50*	.29
Study 3 - Relationships							
Conversation 1	Events of the week	Neutral					
Anticipatory period			.26	.05	.17, .36	5.33**	.39
Conversation							
Only one person talking			.21	.06	.09, .32	3.47**	.27
Both permitted to talk			.28	.06	.17, .39	5.12**	.37
Conversation 2	Pet-peeves/dependence	Negative/positive					
Anticipatory period			.16	.05	.05, .26	3.11*	.24
Conversation							
Only one person talking			.25	.06	.13, .36	4.15**	.31
Both permitted to talk			.36	.06	.24, .47	5.96**	.42

Note. *p < .05. **p < .01. Effect sizes (r) were approximated using Rosenthal and Rosnow (2007) formula: $r = \sqrt{(t^2 / [t^2 + f])}$.

37) Abstract 1030

A QUALITATIVE STUDY EXPLORING THE EXPERIENCES OF SOCIAL STRESS DURING THE TRANSITION TO PARENTHOOD AMONG CANADIAN-BORN AND IMMIGRANT PARENTS IN QUEBEC, CANADA

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Perinatal psychological distress adversely impacts the well-being and social adjustment of parents and their children. Limited studies have examined the perceived determinants of perinatal distress in immigrant parents, particularly men. This study explored Canadian-born and immigrant parents lived experiences of social stress during the perinatal period and perceptions between these stressors and psychological distress. Semi-structured interviews were conducted with Canadian-born and 1st generation immigrant women (N=21, age=34.1±3.6 yrs) and men (N=13, age=34.9±5.0 yrs) at 7.4±0.81 months postpartum in Quebec, Canada. Through thematic analysis, 6 themes were identified: *parental adjustment (*pregnancy intention, priority changes, parenting difficulties and enjoyments, shock of transition, mental health*), couple adjustment (*partner's mental health, conjugal conflicts, lack of involvement, work-life imbalance*), social support (*partner, friend, family, social media, support groups, employer*), health care support (*access to care, mental health care, shared decision making*), cultural pressure (*Canadian and heritage culture, e.g. parental leave, gender role division of labor, parenting style, openness to mental health care, health and baby practices*), and discrimination (*maternity-related, physical, gender, ethnicity*). Among men, barriers include difficulties establishing their role within the family and not receiving consideration by health care, and immigrant men reported gender inequality in parenting issues. Perinatal father engagement was beneficial for adjustment in men. Women reported health care delivery issues and partner's return to work as barriers. Immigrant parents reported more social (family absence, difficulties making friends, professional difficulties), cultural (clash of cultures, gender role attitudes), discrimination (ethnic), and health care concerns related to their distress. Our results highlight different social determinants of perinatal well-being perceived by men and women from various ethnic and immigration backgrounds during the perinatal period. Understanding what parents perceive to facilitate or hinder their psychological well-being can help inform the development of tailored evidence-based programs and policies to better meet the mental health needs of Canadians and reduce gender disparities in the treatment of perinatal distress.

38) Abstract 759

YOUTH EMPATHY MODERATES THE ASSOCIATION BETWEEN PERCEIVED INTERPARENTAL CONFLICT AND YOUTH HEALTH

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Background
Interparental conflict is known to negatively impact child well-being, including behavioral and physiological well-being. Children's empathy —that is, vicariously experiencing others' emotions —may increase children's sensitivity to and the biological repercussions of interparental conflict. To date, however, very little is known about the extent to which children's empathy may impact their physical health.
Methods
Children and their parents (n = 175 families) participating in the long-term evaluation of the Family Foundations program, a

randomized trial of a perinatal preventative intervention, provided data approximately eight years following enrollment into the program during home visits. Youth were between the ages of seven to nine years old, 53% male, and 89% White. Youth self-reported on affective empathy and perceived interparental conflict. One parent, selected at random, rated the child's overall health. Dried blood spot samples were collected from youth for the measurement of C-reactive protein (CRP) and interleukin-6 (IL-6). Analyses adjusted for child age, sex, race, ethnicity, family income, intervention group, and waist-to-hip ratio when predicting inflammatory outcomes as obesity is known to impact inflammation. Linear regression analyses were conducted using SPSS (version 28) and moderation analyses using PROCESS (version 4.2) for SPSS (Hayes, 2022).

Results

There were significant positive main effects of child empathy on both CRP (B = .26, SE = .11, p = .026) and IL-6 (B = .20, SE = .10, p = .045) levels but not overall child health (p > .40). There were no main effects of interparental conflict on any outcomes (ps > .05). Further, child affective empathy moderated the associations between perceived interparental conflict and both CRP (B = .39, SE = .19, p = .050) and overall child health (B = .30, SE = .13, p = .021), such that greater empathy strengthened the negative associations between interparental conflict and child health. There was no evidence of moderation by affective empathy when predicting IL-6 (p > .60).

Conclusion

Findings suggest that there may be a biological cost to being more empathic in environments marked by greater conflict and highlight the need for tools to help more empathic children appropriately manage vicarious emotions.

39) Abstract 791

ATTENUATED BLOOD PRESSURE AND HEART RATE REACTIVITY TO REPEATED STRESSORS FOLLOWING 2-WEEKS EXERCISE WITHDRAWAL

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Background

Physiological reactivity to psychological and physical stressors has been linked to adverse cardiovascular health outcomes. Habituation to a repeated psychological stressor is considered adaptive so that unnecessary physiological arousal is not repeated. One factor that can buffer stress reactivity is regular engagement in exercise. Previous research is limited by cross-sectional designs. The current investigation experimentally manipulated the withdrawal of exercise to examine attenuation.

Methods

Regular exercisers (age: 31±8; 55% female) were randomly assigned to either withdraw (n=20) or to continue (n=20) their usual physical activity for two weeks. Participants wore activity monitors to evaluate protocol adherence and visited the laboratory on three occasions: baseline, week 1, and week 2. At these visits, participants participated in a mental stress task (Stroop color word test: ST) and a physical stress task (cold-pressor: CP). The ST was performed on a computer that automatically increased the difficulty of the task (speed). The CP task involved hand submersion in a bucket of ice water for a maximum of three minutes. Systolic blood pressure (SBP), diastolic blood pressure (DBP), and heart rate (HR) responses to ST and CP were measured at each visit. A linear mixed effects model was used to estimate the difference in attenuation between the exercise withdrawn and control groups.

Results

The magnitude of attenuation was larger in the control group than in the exercise withdrawn group across all outcomes and timepoints in response to the ST. There were statistically significant attenuations in SBP (-8.46; CI:-14.5,-2.5), DBP (-5.3; CI:-9.5,-1.2), and HR (-9.1; CI: -15.36,-2.92) for the control group in reaction to the ST task from the baseline visit to the reactions at week 2. For the exercise withdrawn group, there was only a statistically significant attenuation in SBP (-6.9; CI: -12.9,-0.9) at week 2. In response to the CP, there were no statistically significant attenuations, in either group.

Conclusion

This investigation provides experimental evidence of the effect of exercise withdrawal on reducing attenuation to repeated mental stressors. Naturally occurring events can cause a withdrawal of exercise (e.g., injury, illness, confinement) and it is imperative to understand the potential consequences on biobehavioral processes.

40) Abstract 1296

A SYSTEMATIC REVIEW OF MINDFULNESS-BASED INTERVENTIONS FOR REDUCING STRESS AMONG HISPANIC AND LATINO/A/X COLLEGE STUDENTS

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Background: Mindfulness-based interventions (MBIs) are evidence-based, secular therapy treatments that utilize meditation, yoga, and other mindfulness-oriented activities to promote stress reduction and management, emotion regulation, self-care behaviors, and relief from college and life-based stressors. Although these interventions are provided in numerous formats and backed by decades of scientific testing, the vast majority of these interventions have predominantly targeted non-Hispanic, White, female, middle-to upper-class participants. Given the low representation of Hispanic and Latino/a/x college students in previous MBI study samples, less is known about the efficacy of MBIs in reducing stress among this population. **Methods:** A systematic review of the literature was conducted to evaluate the efficacy of Mindfulness-Based Stress Reduction (MBSR) and mindful based interventions (MBIs) to reduce stress among samples that contain Hispanic and/or Latino/a/x college student participants. Inclusion criteria required one or more Hispanic or Latino/a/x college student participants, an intervention conducted in the U.S., and an outcome measure assessed at both pre- and post-intervention evaluating participants' stress levels. The review was conducted using PRISMA guidelines and by searching the following databases: Pubmed, PsychINFO, EBSCO, Google Scholar, CINAHL, and Proquest. **Results:** This process identified 1061 human studies. Upon examination, 1046 inappropriate articles were excluded, yielding 15 potentially eligible studies. Sample sizes ranged from 19 to 240 participants. Hispanic and/or Latino/a/x college student representation among the studies ranged from less than 10% to over 50%. The results indicate that the majority of the mindfulness-based interventions significantly reduced stress and anxiety, and improved mindfulness, self-compassion and other outcomes, among college students. Limitations of some of the studies include high attrition rates, small sample sizes, and short follow-ups. **Conclusions:** This review highlights innovative opportunities for implementing

MBIs for stress reduction among Hispanic and Latino/a/x, as well as other diverse college student populations.

41) Abstract 1086

THE ROLE OF RACE AND DISCRIMINATION IN CARDIOVASCULAR HEALTH: REPLICATING AND EXTENDING THE CARDIOVASCULAR CONUNDRUM
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Prior research demonstrates that African Americans display a unique physiological pattern of heighted parasympathetic autonomic activity and cardiovascular resistance known as the Cardiovascular Conundrum. This is paradoxical given that increased parasympathetic activity should be associated with decreased vascular resistance. The purpose of this study was to replicate these findings and determine the role of discrimination in this pattern.
Data from the Midlife in the United States study were utilized for this analysis. Participants (N=1450: Black=290; White=1160) had physiological measures collected during a 10-minute resting baseline. Parasympathetic activity was measured by two indicators of heart rate variability (HRV): root mean of successive squared differences (RMSSD) and high-frequency HRV (HF-HRV). Baroreflex sensitivity was used as a measure of blood pressure regulation. Cardiovascular resistance was measured by blood pressure (diastolic and systolic). Lifetime discrimination was measured by participant self-reports of the number of times they had experienced discriminatory events.
Results from this analysis showed that RMSSD, HF-HRV, baroreflex sensitivity, and blood pressure were significantly higher for African American than European Americans. Linear regression analysis revealed that lifetime discrimination scores significantly predicted RMSSD ($b = 0.066$, $p = 0.013$) and HF-HRV ($b = 0.068$, $p = 0.010$). This relationship remained significant after covariates (gender, BMI, and smoking) were added. Lifetime discrimination also moderated the relationship between baroreflex sensitivity and race such that higher discrimination scores lowered baroreflex for African Americans, but strengthened the reflex among European Americans ($b = 0.17$, $SE = 0.07$, $p = 0.016$).
Taken together, results indicate that discriminatory experiences and race play a significant role in autonomic control of cardiovascular function. These findings have important implications for health given the disproportionate rate of cardiovascular disease seen amongst African Americans. It has been previously hypothesized that the pattern of higher HRV and blood pressure seen in African Americans is due to dysfunction at the baroreflex level, making the moderating effect of lifetime discrimination on race and baroreflex sensitivity particularly intriguing.

42) Abstract 1421

BIOPSYCHOSOCIAL CONTEXTUAL FACTORS ASSAOCIATED WITH CANNABINOID HYPEREMESIS SYNDROME
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Rates of daily cannabis use in the US almost doubled between 2007 and 2015, and these rates have remained high. In addition, innovative production techniques have led to higher tetrahydrocannabinol (THC) content within cannabis products. The combination of daily use and higher THC content has led to an increase prevalence of Cannabinoid Hyperemesis Syndrome (CHS). CHS develops after prolonged cannabis use and involves severe nausea and constant vomiting. Currently the only treatment is complete abstinence.
Little is known about the biopsychosocial context surrounding the development, diagnosis, and treatment of CHS. The current study presents exploratory data that was collected via surveys (n = 200) and in-depth interviews (n = 20) with current cannabis users. In addition to questions regarding cannabis use and CHS symptoms, the survey included measures of depression (PHQ-9), anxiety (STAI), life satisfaction (SWLS), and personality (TIPI).
Survey participants had a mean age of 29.50 years (SD = 10.73, range =18-68), with 45% identifying as female, 49% as male, and 6% reporting as other. The majority of participants were white (74%), though 7% identified as Black, 5% American Indian, 2% Asian and 12% other. Most participants were employed (82%) and over 90% had a high school degree or higher. All participants used cannabis, with 51% reporting that they use it multiple times a day. A large percentage (45%) also reported using cannabis everyday over the past week.
Fifty participants (25%) reported that they had been diagnosed with CHS by a health professional, and 20% suspected they may have it. Those with diagnosed or suspected CHS showed significantly higher depression and anxiety scores, were more likely to be non-white, and reported less connections with the cannabis community than their non-CHS counterparts. Participants with CHS were more likely to endorse trying to abstain from cannabis use, and most reported trying to go "cold turkey". Participants reported multiple quitting attempts.
Additional results from the survey, along with results from the content analysis of the one-on-one interviews, will be used to further explore why quitting may be difficult for patients, despite the significant physical distress associated with CHS. Evidence-based recommendations for both future research and interventions will be discussed.

43) Abstract 1389

PSYCHOLOGICAL, BEHAVIORAL, AND COMPUTATIONAL CHARACTERISTICS OF IRRITABLE BOWEL SYNDROME 2: DECISION-MAKING PROCESSES AND ITS RELATION TO COGNITIVE FUNCTIONS IN IBS
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Disturbances in brain-gut interactions characterize the digestive symptoms associated with Irritable Bowel Syndrome (IBS). Pathological sensitization and associative learning deficits in the processing of signals transmitted from the gastrointestinal tract to the central nervous system are thought to contribute to the visceral hypersensitivity observed in IBS patients. These alterations in brain functions are considered

significant factors contributing to the high prevalence of psychological abnormalities in IBS patients.

The aim of this study was to elucidate characteristics of reward-based decision-making processing and its relationship to cognitive functions in IBS patients.

We used a computational approach which has the potential to reveal the decision-making processing. Participants (IBS = 50, healthy control = 66) conducted a variation of the Information Bias Task which includes two blocks that differed in the volatility of win and loss outcomes. A reinforcement learning model was applied to the data from this task and characteristics in the decision-making process were estimated. They also completed self-report questionnaires regarding anxiety, alongside several cognitive tasks: Tower of London, the Reverse digit span, and the emotional Stroop task.

The IBS group exhibited higher sensitivity to outcomes. The inverse temperature (β), which represents sensitivity to values, was higher in the IBS group compared to the healthy controls in the win-informative block (Figure 1). The higher the β in the IBS group, the better inhibitory control showing shorter reaction time in the emotional Stroop task. The IBS group with higher perseverance (φ) had higher planning scores and shorter time until the first move as measured by the Tower of London task. This may represent a tendency to stick to a specific strategy. Additionally, a structural analysis of covariance in IBS showed that the dullness of interoception and anxiety negatively affected these parameters, but not in the control group. Taken together, the IBS group shows stronger value sensitivity, but among them, those with high anxiety tend to be less sensitive to the values and less likely to choose a particular strategy. Anxiety can lead to over-attention to emotional stimuli in IBS patients. Thus, this study revealed specific traits in decision-making and cognitive functions in IBS patients.
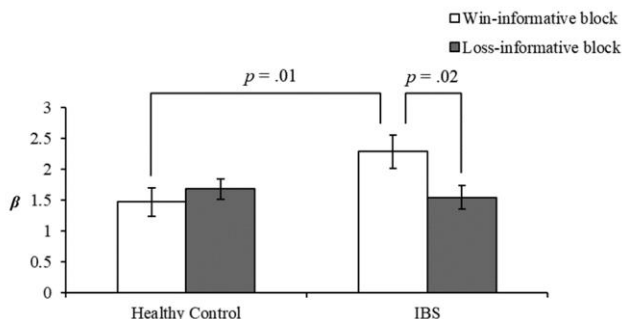

Figure 1. Results of ANOVA for the inverse temperature (β)

44) Abstract 1352

EXPLORING THE INFLUENCE OF PSYCHOLOGICAL DISTRESS AND TRAIT MINDFULNESS ON CARDIOVASCULAR REACTIVITY TO STRESS

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Exploring the Influence of Psychological Distress and Trait Mindfulness on Cardiovascular Reactivity to Stress
Background: The Cardiovascular reactivity hypothesis is a rigorous paradigm used to explain the influence of psychological stressors such as loneliness, depression and anxiety on cardiovascular outputs, resulting in negative consequences for cardiovascular health. Mindfulness, recognized for its stress management benefits, remains an underexplored aspect in understanding cardiovascular health.

The present study aimed to investigate associations between psychological distress, trait mindfulness and cardiovascular reactivity (CVR) to an acute stressor. Further, it tested whether trait mindfulness had a buffering effect against stress via moderation of distress-cardiovascular reactivity association.
Methods: A within-subjects observational study design adopted. 100 healthy young adults participated in a standardized stress testing protocol while monitoring cardiovascular responses (blood pressure, heart rate). Psychological distress and trait mindfulness were assessed.
Results: Hierarchical linear regression models show psychological distress correlated significantly with CVR (SBP: b= -.285, p = .005; DBP: b= -.251, p = .014; HR: b= -.260, p = .014). However, trait mindfulness showed no direct effect on CVR and did not moderate the distress-CVR link.
Conclusions: Extending on previous work, our findings highlight psychological stressors strongly influence cardiovascular reactivity, while suggesting trait mindfulness may have less of an effect on those experiencing distress while they cope with day-to-day stressors. Implications exist for therapeutic mindfulness exercises in stress management..
Keywords: Cardiovascular reactivity, psychological distress, trait mindfulness, stress modulation.

45) Abstract 995

EXPERIENCES AND NEEDS REGARDING HEALTH AND WELL-BEING AMONG MULTIGENERATIONAL NATIVE HAWAIIAN AND PACIFIC ISLANDER FAMILIES

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Native Hawaiians and Pacific Islanders (NHPIs) are peoples diverse in culture and history who are too often represented as a monolithic entity, a tendency that undermines efforts to ameliorate health inequities. The current study represents a partnership between academic researchers and a community organization serving NHPIs, in which space was held for five multigenerational NHPI families (N = 15 family members) to share their experiences with educational and healthcare systems, including issues of discrimination and barriers to accessing services. Qualitative analysis of the interviews identified four themes: Cultural Values and Strengths, Mental Health – Past, Present, and Future Directions, Systemic Racism and Discrimination, and Need for Culturally Informed and Linguistically Accessible Healthcare. These results, including the importance of family systems within NHPI cultures, positive intergenerational shifts in mental health, and the pervasive impacts of colonization on health, are discussed in terms of implications for the health of NHPI communities.

46) Abstract 1008

DOES STRESS STAND A CHANCE DURING SITTING? INVESTIGATING THE CORTISOL AND SUBJECTIVE STRESS RESPONSE TO THE (F-)TSST BETWEEN SITTING AND STANDING BODY POSITION

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Objective: The Trier Social Stress Test (TSST) is one of the most widely used stress protocols. Thus far, the TSST and its control protocol (friendly TSST, f-TSST) have been conducted with subjects in a standing position. However, there are situations where a seated position may be advantageous to meet research goals. Therefore, the aim of this study was to investigate the influence of body position (standing versus sitting) on stress responses to the (f-)TSST.

Methods: Forty-four subjects (22.59 ± 2.86 years old, 54% female) were exposed to the TSST and the f-TSST on two consecutive days in randomized order. Half (n=22) of the subjects performed the TSST sitting, while the other half were standing in line with the original protocol. Salivary cortisol and subjective stress (Positive Affect Negative Affect Schedule; PANAS) were assessed before and after the (f-)TSST. The Primary Appraisal Secondary Appraisal questionnaire (PASA) was completed during the anticipation phase of the (f-)TSST to assess perceived challenge and threat.

Results: Maximum cortisol increase exhibited no significant differences between subjects in the sitting and standing conditions (F=0.63, p=0.43), while distinguishing between the stressful and non-stressful conditions (F=11.54, p=0.002). PANAS scores were significantly different between TSST and f-TSST (F=4.65, p=0.04), but did not reveal any differences between sitting and standing (F=0.01, p=0.89). PASA scores showed significant differences between TSST and f-TSST (Threat: F=32.78, p<0.001; Challenge: F=28.29, p<0.001). In addition, threat perception during the anticipation period of the (f-)TSST was significantly higher for the standing subjects (F=4.60, p=0.04), while the challenge subscale showed no significant differences (F=2.46, p=0.13).

Discussion: Our results suggest that salivary cortisol and subjective rating collected after the stressor do not differ between a sitting and standing body position. However, self-reports collected during the anticipation phase might be affected by a sitting position. Depending on the specific research question and collected measures, adopting the (f-)TSST to a seated position may be advantageous if it aligns better with the study protocol. Further research is required on this topic, including incorporating continuous measures of the autonomic response, such as heart rate (variability).

47) Abstract 1140

MONITORING THE MANIFESTATION OF STRESS IN DETECTIVES NEWLY ASSIGNED TO A UNIT HANDLING CHILD PORNOGRAPHY CASES: A LONGITUDINAL STUDY
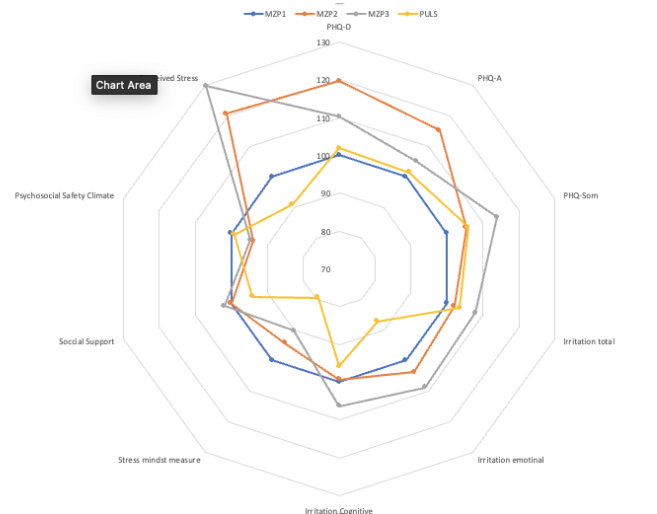
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In a recently concluded study, police officers were asked to identify the most stressful situations from a list of 58 duties. The top two stress-inducing situations were found to be related to investigating child pornography (CP) and interacting with victimized children. In response to a european wide initiative, the Interior Minister of Baden-Württemberg and deputy chiefs made the decision to significantly reinforce CP investigation unit (CPIU) the task force within the 13 police headquarters, including primarily detectives who had not previously been exposed to such crimes and materials. Notably, this field of investigation suffers from high staff turnover rates. The primary objective of this study is to monitor the mental health progression during their first 6month of service in their new role.

Method: Police officers joined the CPIU within Major Crimes Department between April22 6 April23, in 2 police headquarters in Baden-Württemberg. Online mental health questionnaires, including the PHQ-9, GAD-7, PHQ-15, Irritation, and PSQI, were administered every 3-5months. Baseline questionnaire profiles were set at 100%. Additionally, 24-hour heart rate monitoring and activity protocols were recorded using First Beat monitors and the Autonom Health app to calcluate heart rate variability measures (HRV).

Results: At baseline, a total of 41 officers (56% female) with an average age of 35 years(SD9) were enrolled. As of the latest update, 27 officers have completed all 3 (study ongoing). The spider chart displays relative changes in mental health at T2 and T3. To provide context, data from the original PULS study (involving officers not assigned to major crime unit) are included. Notably, officers who dropped out early of the CPIU (N=11) exhibited highly decreased mental health and sleep quality as well as decreased HRV measures (e.g. RMSSD down to 73%) compared to their initial measurement (e.g. down to 68% for depressive symptoms).

Discussion: This pioneering monitoring study highlights a growing mental health burden among police officers entering an investigative unit tasked with highly sensitive content. Occupational health management systems must address these increasing burdens, especially during the initial months of assignment and particularly follow up their officers leaving the CPIU. Measures of HRV as additional monitoring system will be discussed.

48) Abstract 1026

SOCIOCULTURAL CONTEXT MATTERS: THE INFLUENCE OF SOCIAL SUPPORT AND NATIVITY ON THE ASSOCIATION OF HEART RATE VARIABILITY WITH COGNITIVE REAPPRAISAL

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Resting heart rate variability (HRV) is a psychophysiological index of self-regulation, with higher HRV indicating better functioning and health. Cognitive reappraisal, or the reframing of one's thoughts about emotion-eliciting situations is linked with better health and higher HRV. Specifically, the work on this topic suggests that higher HRV is associated with higher reappraisal during emotion-eliciting tasks, but more work is needed on how HRV is associated with *trait* (i.e., self-reported) reappraisal. Moreover, there is variation in how people self-regulate across socio-cultural contexts, which may influence observed differences in health outcomes among ethnically diverse samples. Two socio-cultural factors that may influence the link between HRV and cognitive reappraisal are perceived social support (i.e., support availability) and nativity, a proxy of acculturation to the United States (US). Thus, the current ongoing study examined the association of HRV with cognitive reappraisal, and whether social support and nativity moderated this association in an ethnically diverse sample of young adults. Resting HRV was assessed during a 5-minute baseline period, and participants (N = 89; M_{age}= 21.47) completed self-report measures of cognitive reappraisal, perceived social support, and nativity (US-born, non-US born). Adjusting for relevant covariates, a marginally significant three-way interaction (R^2 = .18, b = -0.33, SE = .18, p = .07) suggested that higher HRV was associated with higher reappraisal but only for those not born in the US and who reported higher perceived social support (b = 0.45, SE = .19, p = .02). These findings suggest that in our ethnically diverse sample of younger adults, those not born in the US (i.e., those less acculturated) who also perceived greater support availability showed the expected association between higher HRV and higher reappraisal. These results contribute to a nuanced understanding of how resting HRV, an important health indicator of psychophysiological self-regulatory abilities, might be differentially linked to emotion regulation processes among diverse samples. We propose that socio-cultural context matters in the association of HRV and reappraisal, which can have profound implications for overall well-being. Additional analyses and future directions will be discussed.

49) Abstract 1231

THE MODERATING ROLE OF AVOIDANT COPING ON THE ASSOCIATION BETWEEN SLEEP QUALITY AND POSTPARTUM DEPRESSION

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Postpartum depression is implicated in several harmful outcomes, such as impaired functioning or self-harm, and low-income women experience symptoms of postpartum depression three-fold. It has been shown that women also experience significant decreases in both sleep quality and duration during postpartum, especially if they are low-income. Postpartum decreases in sleep quality are linked to increased symptoms of postpartum depression. Certain coping strategies that do not involve avoiding problems combat depression more effectively than others. Concerningly, low-income women that resort to avoidant coping strategies, such as denial or self-blame, show increased likelihood of depressive symptoms. Despite these findings, little research has delved into the combined influence of poor sleep quality and avoidant coping on the risk of postpartum depression, especially among low-income women. The current study investigated whether women with poor sleep quality had higher levels of depression and whether this was influenced by more use of avoidant coping. Our sample consisted of 84 low-income women (70% Latina, 18% African American, 4% Asian Pacific Islander, 4% Caucasian, 3% Mixed-race; 76% with less than $20K combined family income/year). All measures from the participants were collected at three months postpartum: sleep quality (PSQI), avoidant coping (Brief COPE) and depressive symptoms (EPDS). Results showed a significant moderating effect of avoidant coping such that women who had poor sleep quality and used more avoidant coping strategies reported more postpartum depressive symptoms (b=0.14, p= 0.005, 95% CI [0.04,0.24]). Future studies should examine the factors leading to reduced sleep quality and the use of avoidant coping mechanisms among women postpartum. It's essential to investigate ways to mitigate harmful stress responses, aiming to protect at-risk women from increased likelihood of experiencing postpartum depression symptoms.

50) Abstract 1215

THE EFFECTS OF CARDIAC HEALTH BEHAVIOR INTERVENTION ON HEART RATE VARIABILITY-BASED INDICES OF AUTONOMIC NERVOUS SYSTEM ACTIVITY

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Background: The incidence of cardiovascular disease (CVD) has increased over the past decades, partly because of behavioral factors including reduced physical activity levels, poor dietary habits, and a continued high prevalence of smoking. These health behaviors are thought to be directly related to CVD pathophysiology through adverse effects on the autonomic nervous system (ANS). There is a potential synergy between adverse cardiovascular health behaviors and ANS dysregulation.
Objective: To establish the effect of a behavioral intervention program on heart rate variability-based indices of ANS activity
Methods: Data for this study were collected as part of the multicenter randomized controlled trial Do CHANGE-2, a behavior change intervention focused on behavioral flexibility. The intervention was given for 3 months and follow-up assessments were at 6 months. Multiple electrocardiograms (40-second recordings each day, for 6 months) were obtained at home. A total of 15 ECGs per participant were used (5 at each time point) and data were preprocessed and analyzed using Acqknowledge. The root mean square of successive differences (RMSSD) was used as the primary index of ANS, reflecting parasympathetic activity. General linear models (GLM) and paired t-tests were used to evaluate a change in RMSSD over time.
Results: A total of 52 patients with CVD were included. The mean age was 58.9 ± 12.7 years and 20.7% was female. Mean RMSSD values at baseline, three months, and six months were 22.86 (± 13.14), 23.99 (± 13.69), and 21.21 (± 13.25) ms respectively. The GLM did not show a statistically significant change in RMSSD across the three time points (F(2,102) = 1,479, p = .233. There was some evidence of a decrease in RMSSD from 3 to 6 months (s∆ = 2.79, SD = 10.88 ms) but this difference was not statistically significant (t = 1.851, p = .070).
Conclusion: The current study shows no effects of a health behavior intervention program on RMSSD. Future analyses will employ hierarchical linear models and investigate psychological and demographic variables to further explore subgroups that might benefit from health behavior interventions on HRV-based indices of autonomic nervous system activity.

51) Abstract 1019

DAILY CHANGES IN AFFECT AND EXPOSURE TO EARLY LIFE ADVERSITY: AN IDIOGRAPHIC NETWORK ANALYSIS

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Background. Evidence links early life adversity (ELA) with downstream adverse health outcomes, like the metabolic syndrome and all-cause mortality. Affective instability is a putative mechanism underlying the link between ELA and adverse health outcomes. Changes in affect and the maladaptive management of affective states may be a mechanism underlying the persistent impact of ELA on mood and physical well-being. However, there is little work examining affective instability in individuals with ELA at the idiographic level. Novel analytic approaches – *like idiographic network analysis* – may shed light into daily dynamic changes in affect among individuals with ELA. Thus, we aim to use ecological momentary assessment (EMA) and idiographic network analysis to model person-specific changes in daily affect among individuals with and without ELA.
Method. Ecological momentary assessments of daily affect will be collected from 40 young adults over a period of 15 days at 8 instances per day. The Childhood Trauma Questionnaire will be used to screen individuals with (N=20) and without ELA (N=20). Daily diaries will assess daily affect to capture both high and low valence affective states as well as high and low arousal affective states. We intend to analyze daily data using group iterative multiple model estimation (GIMME), given its utility in *both* person-and-group-specific network estimation. Lagged and contemporaneous person-specific 4-node networks modeling daily affective states will be estimated. Each node will represent each affective state (i.e., negative-valence low arousal states, negative-valence high arousal states, positive-valence low arousal states, and positive-valence high arousal states). Resulting networks will be assessed for fit using conventionally used indices (e.g., RMSEA and CFI). Affective instability will be operationalized as increased lagged associations between *distinct* affective states, indicating increased changes in affect across time (e.g., a tranquil state predicting a depressed state at a later time point).
Contribution to Understanding. This study may elucidate daily affective processes that underlie person-level heterogeneity in affective instability in individuals with exposure to ELA. Such knowledge may inform tailored treatment approaches for individuals who present with affective instability – regardless of their diagnosis.

52) Abstract 1275

PRELIMINARY ASSOCIATIONS OF SEVERE WORRY, CORTICAL AMYLOID BURDEN, AND STRESSOR-EVOKED BRAIN AND CARDIOVASCULAR REACTIVITY IN OLDER ADULTS

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Objectives: Worry is a transdiagnostic symptom common to many neurocognitive disorders of aging, including early stages of Alzheimer's disease and related dementias (ADRD). Severe worry is associated with amyloid burden in cognitively intact older adults, yet the mechanisms underlying this association are not well understood. We hypothesize that this relationship involves aberrant brain and cardiovascular reactivity to acute stressors, a brain-body phenotype that also increases risk for vascular disease. **Methods:** Twenty cognitively normal older adults (age 60 to 80) with varying levels of worry severity underwent positron emission tomography using Pittsburgh Compound-B and functional magnetic resonance imaging. We examined associations of worry severity and amyloid burden with cardiovascular reactivity, brain activation, and brain connectivity using a cognitive stressor task. **Results:** Worry severity was positively associated with amyloid burden and resting levels of cardiovascular physiology. Worry severity also was associated with aberrant stressor-evoked activation and effective connectivity in brain circuits implicated in stress processing, emotion perception, and physiological regulation. These associations showed small to medium effect sizes. **Conclusion:** These preliminary findings introduce key components of a model that may link severe worry to ADRD risk via stressor-evoked brain-body interactions.

53) Abstract 1133

FASTING INSULIN IS ASSOCIATED WITH SERUM CORTISOL, BUT NOT PERCEIVED STRESS IN LATINO ADOLESCENTS

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Background: Mind/body practices (MBP) improve glycemic control and serum cortisol in people with type 2 diabetes (T2D). Though mechanism is not fully understood, it is hypothesized MBP improve insulin resistance (IR) through stress pathway, which could reduce risk of T2D in high-risk populations. Research on relationship between stress and IR is inconsistent in adults and limited in adolescents.
Purpose: Determine associations between IR and stress in predominantly Latino adolescents.
Methods: We used 229 adolescents (mean age=15.8 yrs, 76 males) from Imagine HEALTH study. We used baseline and 12-week follow up measures of Homeostatic Model Assessment of Insulin Resistance (HOMA-IR) and fasting insulin as indices of IR; BMI and Bioelectrical impedance analysis (BIA) used as distant proxies of IR. We measured stress with 14-item PSS questionnaire, serum cortisol, salivary Cortisol Awakening Response (CAR: 30-minute post-awakening - awakening), Diurnal Cortisol Slope (DCS: evening-awakening). We used multivariable linear regressions for baseline associations, GLS-random effect regressions for 12-week longitudinal associations. We examined baseline associations between HOMA-IR and PSS and cortisol biomarkers. We assessed baseline and longitudinal associations between fasting insulin, BMI, BIA, with perceived stress and cortisol biomarkers. Analyses were adjusted for age, sex, and BMI.
Results: There were no significant associations between HOMA-IR and PSS or cortisol biomarkers (all ps >0.11). Fasting insulin showed no significant baseline associations with PSS (p=0.22) or cortisol biomarkers (all ps>0.29), but a significant association over 12 weeks between change in fasting insulin and serum cortisol (p = 0.004). Log mean fasting insulin increased 4.9×10^{-4} pg/ml $\pm 1.7 \times 10^{-4}$ for every nmol/l increase in serum cortisol over 12-week period. There were no

significant associations between BMI or BIA with PSS,or cortisol biomarkers at baseline or over time (all ps >0.10).
Conclusion: In predominantly Latino adolescents, change in serum cortisol is associated with change in fasting insulin, suggesting lifestyle interventions, such as mind/body practices, that lower serum cortisol may improve insulin resistance.

Associations with Fasting Insulin

	Baseline Association Adjusted for age, sex, and BMI			Longitudinal Association Adjusted for age, sex, BMI, and study group		
	Beta	SE	p-value	Beta	SE	p-value
PSS	0.0067	0.0054	0.22	-0.0017	0.0040	0.40
CAR	-0.0042	0.0069	0.55	-0.000044	0.0049	0.99
DCS	-0.0066	0.0074	0.37	-0.0023	0.0052	0.66
sCOR	0.00025	0.00023	0.29	0.00048	0.00017	0.004

Beta=log (fasting insulin). sCOR= serum cortisol (nmol/l). Fasting insulin (pg/ml)

54) Abstract 1167

DEPRESSIVE SYMPTOMS PREDICT TRENDS IN PSYCHOSOCIAL AND CARDIOMETABOLIC OUTCOMES AT AN ACADEMIC INSTITUTION: A ONE-YEAR FOLLOW-UP
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Since 2015, rates of depression in the US have increased from 10.5% to 17.8% (Witters, 2023). 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). A previous pilot study from our lab indicated that 24.3% (n = 9) of participants met the conditions for probable depression, and that there was a discrepancy between self-reported and physiological health (Calfee et al., 2022). The current study followed pilot participants to examine if baseline depression impacts one-year job retention, as well as physical and mental health. Participants (N = 37, M_{age} = 47.53, SD = 10.20) were from a small liberal arts university in the southern US, primarily female (n = 20) and faculty (n = 20). Questionnaires on depression, anxiety, stress, and QoL, as well as, biological indicators were taken at baseline and one year later. At baseline, females trended towards worse mental health outcomes but scored better on indicators of heart health; hence, sex was used as a covariate. Follow-up data revealed that 21.6% (n = 8) of participants left the institution. Logistic regressions showed a one unit change in depression increased the probability of remaining at the institution by 1.25 times and one unit change in anxiety decreased the probability by 0.82. These predictors accounted for 19% of the variance. To examine group differences over time, MANCOVAs and bootstrapping statistical procedures (1,000 samples) were used. Results revealed that there was a significant effect of depression on biological markers of health, Mult. $F(5, 7)$ = 5.194, p = .026, partial η^2 = .788, such that depressed individuals had lower LDL and total cholesterol levels compared to individuals without. Results also suggested that depressed participants trended towards higher perceived stress and anxiety one-year later compared to individuals without. Indicators of QoL were not significant. Overall, these findings suggest increased rates of depression in academia are associated with worse self-reported health outcomes, but not QoL or biological markers of health.

55) Abstract 1291

THE ETHNOCULTURAL CONTEXT OF EMOTION PROCESSING AND CHOLINERGIC ANTI-INFLAMMATORY PROCESSES IN SYMPTOM REDUCTION OF BREAST CANCER SURVIVORS: CAN NON-VERBAL PROCESSING HELP?
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Background: Emotion approach coping is related to lower depression and improved health outcomes in breast cancer survivors. High levels of resting heart rate variability have systemic anti-inflammatory effects and are associated with lower depression, pain, and fatigue. Interventions, like art therapy, have been shown to improve emotion processing and alleviate psychological and physical symptoms. However, contextual factors can influence the effectiveness of interventions with individuals who hold different values. Art Therapy provides the opportunity for indirect expression and thus may be particularly potent with individuals from collectivist ethno-cultures, reluctant to express emotions that conflict with societal norms. The purpose of the REPAT study was to examine two mechanistic changes through which Art Therapy may reduce depression, pain, and fatigue. **Methods:** To examine these mechanisms, 241 breast cancer survivors (62 Arab) were randomized to an 8-week group: of Art Therapy or Mandala coloring. **Results:** At baseline, Arab women were more collectivist and had higher levels of depression, pain, and fatigue, compared to Jewish women. Additionally, avoidance coping was positively related to collectivism (but not fatigue) in Arab participants, whereas avoidance had no relationship to collectivism in Jewish participants but was positively associated with fatigue. Similarly, approach coping was not associated with depression in Arab participants, but like previous studies in the Western world, had a negative relationship in Jewish women. We found that both interventions increased emotional awareness, but only Art Therapy increased acceptance and expression of emotion. Furthermore, both interventions reduced fatigue and pain, but only Art Therapy reduced depressive symptoms. Inflammatory cytokines decreased in both intervention groups. We found a three-way interaction through which HRV had different patterns of change in Jewish and Arab women, based on the intervention to which they were assigned. **Conclusions:** Targeting emotion processing in interventions may help break the cycle between inflammation and cancer-related symptoms. However, these relationships are unique in individuals from collectivist cultures. Further studies are needed to tailor interventions and question Western thought around mind and body.

56) Abstract 1415

THE RELEVANCE OF JOINT INSTABILITY TO THE HYPERMOBILE EHLERS DANLOS SYNDROME PHENOTYPE AND EVALUATING METHODS OF DIAGNOSIS
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Introduction

Hypermobile Ehlers Danlos Syndrome (hEDS) is a connective tissue disorder causing joint hypermobility, skin issues and chronic pain, with considerable biopsychosocial impact. hEDS often affects multiple systems, averaging 10.45 co-diagnoses. The diagnosis of hEDS relies on the Beighton score, a measure of hypermobility. Joint instability may be a valuable diagnostic and prognostic tool for the hEDS phenotype.

Aim
To explore the relationship between the extended hEDS phenotype and joint instability.

Method
A secondary date analysis of data collected for ISRCTN78820481. 87 participants recruited on the basis of fibromyalgia, and fatigue, matched to comparison participants. Hypothesis tests considered statistically significant for $p < 0.05$ Analyses used SPSS v29 for Mac.

Results
Participants with joint instability were more likely to meet the Brighton Criteria ($X^2(1) = 3.860$, $p = 0.049$) and have a higher Beighton Score, both current ($t_{84} = -2.359$, $p = 0.021$) and historical ($t_{83} = -4.021$, $p < 0.001$).
Joint instability was significantly associated with:

PAIN
number of chronic pain sites (M=8.41, SD=4.48 vs M_C=5.33, SD_C=5.04) ($t_{40.66} = -2.694$, p=0.010), **total McGill pain score** (M=14.9, SD=10.3 vs M_C=9.19, SD_C=9.69) ($t_{70} = -2.147$, p= 0.035) and **visual analogue score** (M=7.3, SD=21.1 vs M_C=40.2, SD_C=23.7) ($t_{41.79} = -2.031$, p= 0.049).

FATIGUE
meeting the **Fukada criteria** ($X^2(1) = 4.819$, $p = 0.028$) and **Canadian criteria** ($X^2(1) = 5.829$, $p = 0.016$), **fatigue severity** (M=52.9, SD=12.3 vs M_C=43.2, SD_C=20.5) ($t_{57.91} = -2.616$, p =0.011), **fatigue impact quotient** (M=58.46, SD=21.09 vs M_C=40.17, SD_C=23.71) ($t_{22.24} = -2.652$, p= 0.014) and **total modified impact scale score** (M=60.38, SD=20.35 vs M_C=41.14, SD_C=28.81) ($t_{28.01} = -2.690$, p= 0.012)

FIBROMYALGIA
meeting the **ACR criteria** ($X^2(1) = 4.880$, $p = 0.027$), and severity of subsections

BRAIN FOG
mental clutter scale (M=34.79, SD=18.20 vs M_C=20.60, SD_C=19.78) ($t_{24.077} = -2.471$, p= 0.021)

ORTHOSTATIC INTOLERANCE
Total **ASQOLS** (M=119.7, SD=58.1 vs M_C=60.7, SD_C=50.6) ($t_{19.26} = -3.434$, p= 0.003), **ASQOLS impact**(M=48.9, SD=31.1 vs M_C=23.4, SD_C=28.9) ($t_{59} = -2.855$, p= 0.006)

Conclusion
Refined diagnostic criteria, involving joint instability, may improve patient time to diagnosis and quality of life. This may help predict hEDS phenotype and guide personalised biopsychosocial treatment apprpaches.

57) Abstract 1124

THE RELATIONSHIP BETWEEN ELA AND PTSD RELATED SYMPTOMS: EXAMINING THE MEDIATING ROLE OF LONELINESS AND THE MODERATING ROLE OF SEX.
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Aims: The aims for the current study were to examine the direct and indirect influence of early life adversities (ELA) on posttraumatic stress disorder (PTSD) related symptoms among trauma exposed individuals via loneliness, and whether these effects would be moderated by sex.

Methods: We used data from the Strengthening Psychosocial Assessment and Resilience during the COVID-19 pandemic (SPARC) surveys conducted between September 2020 to May 2022 among consented US adults aged 18 years or older. N=564 trauma-exposed participants were included in the present analysis. Simple and moderated mediation analyses were performed using the PROCESS macro for SPSS, with the number of ELA (assessed by the 10-item Adverse Childhood Experiences Questionnaire, ACE) as an independent variable, PTSD related symptoms (assessed by The Primary Care PTSD Screen, PC-PTSD-5) as a dependent variable, loneliness (assessed by the Three-Item Loneliness Scale, T-ILS) as a mediator, and sex (female vs male) as a second stage moderator.

Results: We found that people who reported greater ELA were at higher risk of having PTSD symptoms later in life. Loneliness mediated partially the relationship between ELA and PTSD related symptoms in women but not in men, after controlling for the other sociodemographic variables (age, ethnicity, income, education, and marital status). Having greater ELA was associated with greater loneliness, which, in turn, increased PTSD related symptoms among females.

Conclusion: Our findings highlight the mediating role of loneliness in the relationship between ELA and PTSD related symptoms and emphasize the increased vulnerability among women. This points to a potential route for preventing PTSD symptoms among women, through alleviating social isolation and loneliness.

58) Abstract 1152

HEALTHCARE PROFESSIONALS' PERCEPTIONS OF THE BARRIERS AND FACILITATORS TO IMPLEMENTING ROUTINE MENTAL HEALTH SCREENING AND DIGITAL THERAPY FOR PATIENTS LIVING WITH INFLAMMATORY BOWEL DISEASE.
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Background
Increasing evidence has pointed towards the mind-body link in inflammatory bowel disease (IBD). Evidence suggests that treating comorbid psychological distress (anxiety and depression) improves both mental and physical health outcomes in IBD. There is a need to identify sustainable ways to integrate mental health care in the treatment of IBD as few patients receive such therapy. As part of a larger study assessing the implementation of mental health screening and the delivery of digital CBT-based therapy as part of routine IBD care, we aimed to qualitatively explore healthcare professionals' (HCP) perceptions of barriers and facilitators in implementing these tools into routine IBD care.

Methods
Semi-structured interviews were conducted with eight HCPs, including two pharmacists, one senior clinical psychologist, one consultant, one trainee gastroenterologist, and three trainee clinical psychologists, working in an outpatient gastroenterology service in London. An inductive reflexive thematic analysis was employed to analyse transcripts and identify key themes. Themes were further explored and mapped onto constructs of the Normalization Process Theory (NPT).

Findings
Four overarching and interconnected themes were inductively identified. The themes included: 1) Perceptions and attitudes,

2) Programme efficacy, 3) Organizational factors and 4) A need for streamlined and integrated treatment pathways. Overall, HCPs acknowledged the importance of integrating mental health support into their care, but a change in understanding of roles, need for system processes changes, and increased feasibility for delivery were all cited as barriers. These themes mapped onto the NPT constructs of Cognitive Participation, Collective Action and Reflexive Monitoring.
Conclusion
HCPs in this study identified factors important to consider in the implementation of digital tools that can support the identification and support of psychological distress in IBD patients. Specific training in mental health across HCPs, identifying key stakeholder champions, and a greater streamlining of digital healthcare platforms and systems can increase the likelihood of successful implementation of digital screening and therapies.

60) Abstract 1424

A COMPARISON OF THE TEST-RETEST RELIABILITY OF NONINVASIVE ENDOTHELIAL FUNCTION MEASURES

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Endothelial dysfunction corresponds to one of the earliest stages of atherosclerotic cardiovascular disease (CVD), and measures of endothelial function are useful in predicting future CVD outcomes. The aim of the current study was to examine and compare the test-retest reliability of 3 non-invasive measures of endothelial function over one week, including those derived from forearm impedance cardiography (ICG), digital thermal monitoring (DTM), and venous occlusion plethysmography (VOP). Healthy participants (n = 13, age = 24.8 ± 8.6 years) completed repeated measurements of endothelial function after a 5-minute occlusion of the brachial artery to induce reactive hyperemia. Forearm ICG and DTM were measured simultaneously, and VOP was measured next after 15 minutes of rest. Across the 2 study visits, forearm ICG (r = 0.22) and VOP (r = 0.36) exhibited small-to-moderate positive correlations over time, whereas DTM was moderately negatively correlated (r = -0.417). Considering the negative correlation of DTM across visits and its potential unreliability, the utilization of temperature-based measures may require further consideration with respect to the lab environment and the conditions in which the measure is collected (e.g., seasonal or weather-related effects). Despite the constraints imposed by a limited sample size, the lack of high stability over time among all endothelial function measures should be considered with respect to their possibly limited reproducibility in individual difference studies, as well as intervention and longitudinal studies of CVD risk.

61) Abstract 1207

NEURAL CORRELATES OF HEART RATE VARIABILITY IN PEOPLE WITH PARKINSON'S DISEASE AND RELATIONSHIP WITH NEUROPSYCHIATRIC SYMPTOMS

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Background
Neuropsychiatric symptoms are common in people with Parkinson's disease (PD), however there is a lack of valid biomarkers and effective treatments.
Objectives
We aimed to investigate cardiovascular (Heart rate variability-HRV) and neural (local field potential - LFP) physio-markers of anxiety, depression and apathy in PD.
Methods
We recorded resting subthalamic nucleus (STN) LFPs and HRV in 12 PD patients undergoing deep brain stimulation implantation. Presence and severity of anxiety, depression, apathy were evaluated with clinical scales and questionnaires. Recordings were obtained during both the ON and the OFF dopaminergic states and the power spectrum of the subthalamic activity was analyzed using Fourier transform-based techniques. HRV time and frequency domains parameters were calculated.
Results
OFF medication, there was a significant negative correlation between theta power in the right hemisphere and rMSSD (-0.96, p=<0.001) and a positive correlation between theta in the right hemisphere and LF/HF (0.80, p=0.03).
There was also a significant positive correlation between theta power and anxiety when OFF medication (rho=0.85, p=0.01) and a trend toward significance between theta OFF and depression (rho=0.76, p=0.05).
Finally, there were significant correlations between apathy and alpha in the right hemisphere both OFF medication (rho = 0.80, p=0.03) and ON medication (rho = 0.70, p = 0.04).
Conclusions
Our data confirm a link between α/theta power and neuropsychiatric symptoms in PD, and between vagal measures of HRV and theta power. We postulate that reduced parasympathetic tone may lead to hyperarousal symptoms, which characterize a higher level of anxiety and greater theta band activation in the right STN.

62) Abstract 910

CHILDHOOD SEXUAL ABUSE AND THE RISK OF CHRONIC MULTIMORBIDITY IN ADULTHOOD: A SYSTEMATIC REVIEW

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Background: Multimorbidity, which affects approximately 37% of people globally, is the simultaneous co-occurrence of two or more chronic mental or physical health conditions.   Multimorbidity has been associated with various psychosocial, environmental, and other types of predictors in adults including adverse childhood experiences. Specifically, childhood sexual abuse (CSA) has been found to increase the risk of multimorbidity in adulthood. However, research on CSA

as a risk factor for multimorbidity has not yet been systematically reviewed and synthesised.

Objective: The goal of the study is to systematically review the evidence of the association between CSA (up to the age of 18) and the risk of developing multimorbidity later in life.
Methods: Searches were conducted using six electronic databases (PubMed, APA, PsycInfo, Academic Search Complete, Cinahl Plus, Embase, and Violence & Abuse Abstracts) for quantitative studies examining CSA among those aged 18 years or younger and the risk of developing multimorbidity in adulthood, published until 20th February 2023. The systematic review protocol was registered with PROSPERO (registration number CRD42023396560). Titles and abstracts were screened by two independent reviewers based on predefined inclusion criteria and data were extracted from eligible studies. Quality appraisal was conducted using the Joanna Briggs Institute (JBI) checklist for analytical cross-sectional studies.
Results: Eight studies were included in the final review, with samples from Canada, UK, USA, Brazil, Chile, and Turkey. Included studies were highly heterogenous in terms of measures, conditions examined, and types of effect sizes available and therefore were not suitable for meta-analysis. All included studies had cross-sectional designs. An effect direction plot was used to synthesize study findings. Seven out of eight of studies reported an association between CSA and the risk of developing multimorbidity in adulthood.
Conclusions: Findings pooled across independent studies suggest that CSA is associated with an increased risk of developing multiple chronic physical and mental health conditions in later life. Trauma-informed care and prevention approaches are needed.

63) Abstract 940

DISTINCTIVE PSYCHOPHYSIOLOGICAL ASSOCIATIONS OF AUTONOMIC NERVE ACTIVITY WITH COGNITIVE AND AFFECTIVE EMPATHY

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Background:
Empathy plays a critical role in social functioning and social behavior to maintain social relationships and enhance psychological well-being. Evidence showed that the multidimensional approach to individual differences in empathy composed of two components, including cognitive (recognizing others' emotions, e.g., perspective taking and fantasy) and affective (sharing others' feelings, e.g., empathic concern and personal distress) empathy. Furthermore, the psychophysiological response, especially autonomic nerve activity, has contributed to understanding empathy to exhibit a unique perspective on its processes. Therefore, the primary purpose of this study was to investigate the relationship between the multidimensional components of empathy and psychophysiological response in young adulthood.
Methods:
This cross-sectional study recruited 150 healthy young adults in Taiwan. The pre-ejection period (PEP) and the natural logarithm of high-frequency ratio (lnHF) reflect parasympathetic and sympathetic activity in the rest, respectively. Cognitive and affective components and their subscales of empathy were measured using the Interpersonal Reactivity Index. Other covariates included age, sex, having a couple, BMI, heart rate, and psychological distresses.

Results:
Multiple linear regression revealed the following: (1) PEP but not lnHF was significantly associated with empathic tendencies (β = 0.264, p = 0.022); (2) both PEP and lnHF were not significantly associated with cognitive empathy components, but PEP was significantly associated with perspective taking (β = 0.082, p = 0.023) rather than fantasy; (3) PEP but not lnHF was significantly associated with affective empathy components (β = 0.147, p = 0.038), and PEP was significantly associated with empathic concern (β = 0.101, p = 0.016) rather than personal distress, after controlling for possible covariates.

Conclusions:
Lower sympathetic activity was independently associated with higher empathic tendencies, especially affective empathy components. Also, sympathetic activity could negatively predict perspective taking and empathic concern, which are concerned with the role of the other-oriented focus in being supportive of others.

Predictive influence of resting PEP and lnHF on cognitive and affective empathy among young adulthood			
	β	p	Model fits
Empathy			
lnHF	1.375	0.122	R^2 = 0.175, ΔR^2=0.039*,
PEP	0.264	0.022	ΔF (2, 140) = 3.303***
Cognitive empathy components			
Cognitive empathy			
lnHF	0.745	0.144	R^2 = 0.096, ΔR^2=0.029, ΔF (2, 140) =
PEP	0.117	0.076	1.661
Perspective taking			
lnHF	0.323	0.241	R^2 = 0.099, ΔR^2=0.038*, ΔF (2, 140)
PEP	0.082	0.023	=1.714*
Fantasy			
lnHF	0.422	0.281	R^2=0.100, ΔR^2=0.009, ΔF (2, 140) =
PEP	0.036	0.483	1.736
Affective empathy components			
Affective empathy			
lnHF	0.630	0.246	R^2=0.175, ΔR^2=0.030*, ΔF (2, 140)
PEP	0.147	0.038	= 3.310***
Empathic concern			
lnHF	0.372	0.247	R^2=0.155, ΔR^2=0.039*, ΔF (2, 140)
PEP	0.101	0.016	=2.852**
Personal distress			
lnHF	0.258	0.433	R^2=0.154, ΔR^2=0.009, ΔF (2, 140) =
PEP	0.046	0.284	2.822**

Adjusted for age, sex, having a couple, BMI, heart rate, depression, and anxiety

64) Abstract 931

PSYCHOLOGICAL FACTORS AND FAILING TO PROCEED WITH BARIATRIC SURGERY WHEN INSURANCE IS NOT A BARRIER

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Background: Rates of obesity continue to rise and bariatric surgery is the most costeffective weight loss intervention. Despite effectiveness, bariatric surgery utilization rates have only increased marginally over the last two decades. Even candidates who have been approved for bariatric surgery sometimes fail to proceed with surgery. The Minnesota Multiphasic Personality Inventory-2 Restructured Form (MMPI-2-RF) has previously been used to determine utility of psychological measures in identification of those who may fail to undergo surgery after approval.
Objectives: Determine if MMPI-RF scales are associated with failure to proceed with bariatric surgery in patients cleared to proceed with the procedure at a large military hospital.
Methods: This study used archival data for 279 patients psychologically screened, the MMPI-2-RF, for eligibility for

bariatric surgery. All assessments took place between January 2017 and December 2019. T-tests and Chi-square tests, were used to compare groups of patients who did and did not proceed with surgery on relevant medical and demographic variables. Profile analyses of patient MMPI-2-RF scores were conducted to examine scale associations with proceeding with surgery.

Results: A total of 86 bariatric surgery candidates (30.8%) failed to proceed with surgery. Results showed that sex, age, employment status, and arthritis were different between groups. Additionally, numerous MMPI-2-RF scales were different between groups.

Conclusions: MMPI-2-RF scales are associated with failing to proceed with surgery, although not all scales exceeded clinical cut-offs. Findings indicate psychological differences may play a role in who fails to proceed with bariatric surgery.

65) Abstract 1414

GRIT AND SUBJECTIVE COGNITIVE DECLINE IN BLACK MEN

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Background. Studies show that grit, which is a non-cognitive trait, is associated with positive health and wellbeing outcomes including cognitive functioning. This is important because grit may be a protective factor against cognitive decline. However, there is a dearth of research on the association between grit and cognitive functioning in older adults, especially among Black older adults. This study's focus is on subjective cognitive decline (SCD) in aging Black men because SCD may indicate an onset of Alzheimer's disease and related dementia and/or other brain health issues.

Methods. Participants (N=105, age range = 40 – 71 years, Mage = 48.45) who identified as Black men living in urban areas responded to an online survey measuring sociodemographic factors, grit, resilience, active coping, and subjective cognitive decline. We used multilinear regression in the analysis to examine the association between grit and subjective cognitive decline, controlling for key covariates.

Results. From the analysis, grit was positively associated with subjective cognitive decline (b = 0.668, p<.001). Active coping was negatively associated with subjective cognitive decline (b = -0.193, p<0.05), and Black men who are married had a higher likelihood of reporting cognitive decline compared to those who are not married (b = 1.869, p <0.05).

Conclusion. These preliminary results are important for informing crucial questions on studies to understand the effect of non-cognitive traits such as grit on aging Black men's subjective cognitive health. It can also inform brain health interventions for aging adult and older Black men in the U.S.

66) Abstract 1416

ANXIETY, DEPRESSION, AND INSOMNIA (ADI) DOES NOT ASSOCIATE WITH WORSENING DEPRESSIVE SYMPTOMS POST-COVID

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Introduction: Symptoms of anxiety, depression, and insomnia (ADI) are frequently developed sequelae of COVID-19. It is not clear if the existence of these symptoms put individuals at risk for severity, persistence or development of ADI. Thus, the objective of this study was to evaluate differences in symptoms in patients with post-acute sequelae of COVID-19 over 6 months comparing those with ADI to those without, and to evaluate differences in score changes over time.

Methods: 309 patients with a history of COVID-19 were followed for 6 months. Patients were grouped into an ADI and a comparison group. The ADI group included subjects with a score of 10 or above on the Patient Health Questionnaire-9 (PHQ-9) and/or the Generalized Anxiety Disorder-7 (GAD-7), or those who listed a previous diagnosis of ADI in their medical history. The comparison group consisted of patients without these. Patient reported outcomes (PRO), such as FACIT-F (fatigue), EQ-5D (quality of life), Edmonton Symptom Assessment Scale (ESAS-symptoms), PHQ-9 (depression), and GAD-7 (anxiety), were administered at baseline and at 6 months. Spearman's correlations were conducted to assess relationship between baseline PRO and PHQ-9. Mann-Whitney U tests were used to identify significant differences in PRO scores between diagnosis groups at baseline and 6 months. The change in PHQ-9 scores between baseline and 6 months was calculated for each group and then compared with the Mann-Whitney U test.

Results: There were 73 participants in the ADI group and 236 participants in the comparison group. GAD-7 and EQ-5D were weakly correlated with the PHQ-9 (rho=-.270, -.388). ESAS and GAD-7 were moderately correlated with the PHQ-9 (rho .461,.481). Significant differences were found between the ADI and comparison group for the FACIT-F, ESAS, GAD-7, and PHQ-9 at baseline and 6 months (p≤.001-.047). The change in PHQ-9 scores between baseline and 6 months for the ADI and the comparison group was not statistically significant (p=0.378).

Discussion: In our study, the patients suffering from ADI at baseline did not demonstrate worsening depressive symptoms at the 6-month follow up. The same was true for patients without significant baseline ADI. We did find correlations between measures of depression, and anxiety, fatigue, and quality of life.

67) Abstract 1034

CARDIAC-DISEASE-INDUCED POSTTRAUMATIC STRESS SYMPTOMS (CDI-PTSS) AMONG CARDIAC PATIENTS AND THEIR PARTNERS: A CROSS-SECTIONAL STUDY

Kyla Pennington, PhD , University of Lincoln , Laura Langdon, BSc, University of Lincoln

An acute cardiac event, such as a heart attack is typically sudden in onset and causes significant acute discomfort to the sufferer. Recovery post cardiac event includes physical and lifestyle modifications, as well as psychological interventions to manage emotional responses common in trauma related events. Post Traumatic Stress Symptoms (PTSS), illness perception and environmental characteristics, such as social support is well documented in cardiac patients' recovery within cardiac rehabilitation services. Research so far suggests partners of patients are also meeting the diagnostic criteria for Cardiac Disease Induced (CDI) post-traumatic stress disorder (PTSD) as a direct consequence of being a witness of the event, as well as the succeeding emotional distress, fear of progression and their role in providing support after the event but the interaction between the symptoms of a patient and their partner has not been extensively explored. This crosssectional study recruited patients who had previously suffered an acute coronary event and their partners. Dyadic analysis was performed to understand how the prevalence and severity of patients CDI-PTSS, and other characteristics including the role of perceived support in coping with the emotional

consequences, affected the partner's CDI-PTSS. Findings suggest that partners and patients have similar severity of CDI-PTSS and within dyads the severity of patient's CDI-PTSS was found to be a predictor of their partner's symptoms. Emotional support was seen by both patients and partners as being more helpful than practical or information based support. However, the amount of emotional support received by a patient was a predictor of the severity of PTSS in their partner. These findings have important implications for the type and amount of support currently received by partners of patients experiencing an acute coronary event and it is suggested that targeted support should be provided for partners and carers as well as patients.

68) Abstract 1048

PSYCHOLOGICAL AND PHYSIOLOGICAL RESPONSES TO ACUTE AND CHRONIC STRESS IN HIGH AND LOW SCHIZOTYPY

Kyla Pennington, PhD , University of Lincoln , Ksenia Trischel, PhD, University of Lincoln, Simon Durrant, PhD, University of Lincoln, Arwel Jones, PhD, Monash University , Andrew Gill, PhD, University of Lincoln

High levels of schizotypy, a collection of traits such as unusual perceptual experiences, cognitive disorganisation, and social anhedonia, constitute as a risk factor for the development of schizophrenia, with substantial prevalence of high schizotypy observed in non-clinical populations. Lowered thresholds for stress perception and response may underlie some of the vulnerability conferred by high schizotypy however, limited experimental research has been conducted in this area.
In the current study 34 healthy young adults pre-screened for high and low schizotypy were assessed for physiological and psychological stress response in an acute stress situation (Trier Social Stress Test). Associations between chronic stress (over the last three months), childhood adversity, resilience and coping strategies were also investigated. Acute salivary cortisol, chronic hair steroid levels and electrodermal activity were measured in all participants.
High schizotypy levels were associated with higher stress sensitivity and poorer stress management than low schizotypy levels. This was characterised by attenuated salivary and hair cortisol and increased psychological and electrodermal response to acute and chronic stressors. A lower perceived resilience, higher vulnerability, and higher use of maladaptive coping strategies was also found in individuals with high schizotypy.
Based on these findings, we propose an extended vulnerability-stress model of stress response in schizotypy. Future research should aim to focus on the future development of individualised and targeted strategies to improve stress management in high schizotypy which could lead to reduced numbers of individuals transitioning to psychosis.

69) Abstract 1147

PATIENTS WITH POST-COVID-19 SYNDROME BENEFIT FROM OPEN-LABEL PLACEBOS AND VAGUS-STIMULATING BREATHING

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Background: Up to 80% of patients suffering from persistent symptoms more than six months after a COVID-19 infection complain about a variety of psychosomatic symptoms with no organ cause. Most patients suffer from chronic fatigue, pain, depression or difficulty concentrating. Experimental studies showed that these symptoms could be significantly improved after an open administration of placebos ("open-label placebo") or with heart rate variability (HRV) biofeedback such as paced breathing. However, we insufficiently understand which patients benefit from which treatment.
Methods: 80 Patients with post-COVID-19 syndrome are randomised to four groups: an open-label placebo intervention (OLP), a paced breathing training (PBT), both (OLP+PBT), or no additional treatment (TAU). The OLP groups take two placebos/day and receive the information that placebos can significantly improve symptoms, e.g. via the activation of "self-healing powers". The PBT groups receive a standardized training to breath at 6 breaths/min two times per day for 6 min. At inclusion (T0) and after four weeks (T1) post-COVID-19 and somatic symptoms (PHQ-15), depressiveness (PHQ-9), anxiety (GAD-7), and fatigue (FSMC) as well as cognitive performance using Corsi Span and Colour Stroop tests, will be assessed by questionnaires and tests, and an ECG will be recorded.
Results: ANOVAs (2 times x 4 groups) with data of 60 included patients to date, between 20 and 66 years (60% female, 48 ± 13 years), show significant reduction of post-COVID-19 symptoms (p<0.001), PHQ-15 (p=0.004), PHQ-9 (p=0.026), GAD-7 (p=0.019), and PHQ-S (p=0.001), but not for fatigue (p=0.886) and no differences between groups. Paired t-tests for each group reveal a significant reduction of post-COVID-19 symptoms (p=0.018) in the PBT group, and of psychosocial stress (p=0.007) in the OLP group. Marginally significant reductions of post-COVID-19 symptoms (p=0.079), PHQ-15 (p=0.051), GAD-7 (p=0.063), psychosocial stress (p=0.97) are shown in the OLP+PBT group. The waiting list control group shows a significant reduction of PHQ-15 (p=0.019).
Conclusion: Patients with post-COVID syndromes can benefit from psychosomatic interventions aiming to improve treatment expectations. Cognitive performance and HRV data will be analysed at the end of the study, and full data will be presented at the conference.

70) Abstract 1237

SLOW-PACED BREATHING AS A JUST-IN-TIME ADAPTIVE INTERVENTION TO REDUCE ANXIETY AND PERSEVERATIVE COGNITION: A FEASIBILITY STUDY

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Slow-paced breathing (SPB) is a simple biobehavioral intervention that can stimulate parasympathetic activation via an increase in vagally mediated Heart Rate Variability (HRV). The beneficial effect of SPB on anxiety and emotion regulation has been substantiated by numerous studies. Given the established effectiveness and high accessibility of mobile breathing pacers, SPB is a promising candidate for a just-in-

time adaptive intervention (JITAI). However, the feasibility of SPB in the form of a JITAI has never been examined. This study aims to 1) assess the feasibility of SPB in reducing anxiety and perseverative cognition and increasing HRV; and further to 2) examine the contextual factors determining potential effectiveness of this intervention. A total of 80 individuals with subclinical anxiety were randomized into an experimental or passive control group. Trait anxiety and perseverative cognition were assessed twice - at baseline and approximately 15 days later. Following the baseline assessment, participants started a 6-day ambulatory period, during which they reported momentary anxiety, perseverative cognition, and contextual factors ten times a day in a mobile application. Parallelly, participants wore a portable electrocardiogram continuously measuring their HRV for 6 days. Subsequently, the experimental group was trained in SPB. Afterward, both groups started the second 6-day ambulatory period, identical to the first one, with one exception. The experimental group received a photoplethysmography sensor connected to a mobile application, allowing for initiating a 2-minute SPB exercise at the rate of 6 breaths per minute, and recording the exact time of the exercise. The SPB exercises were triggered when participants reported increased anxiety or perseverative cognition. After completing each exercise, participants again reported anxiety and perseverative cognition levels. This research will examine the effects of SPB on momentary- and week-levels of anxiety, perseverative cognition, and HRV using mixed-effects models to account for the multilevel data structure. This study represents an initial step toward evaluating the feasibility of SPB as a JITAI. The findings and implications will be discussed.

71) Abstract 843

A MIXED-METHOD APPROACH FOR PREDICTING STROKE-INDUCED PTSD SYMPTOMS
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Strokes and transient ischemic attacks (TIAs) are sudden, life-threatening medical events that can result in physical, cognitive, and psychological impairment—including triggering symptoms of posttraumatic stress disorder (PTSD). However, comprehensive screening and prevention models are lacking, and better understanding of risk factors that can be assessed in-hospital could inform screening procedures. This mixed-method study examined two potential in-hospital predictors of subsequent stroke-induced PTSD—a qualitative measure of trauma-related distress and an objective measure of skin conductance reactivity (SCR) to recalling the trauma—alone and in interaction.
Participants (N=98) were hospitalized after presenting with stroke/TIA and completed an in-hospital trauma interview regarding their stroke/TIA event. Mobile measurement of SCR to recalling the stroke/TIA trauma was conducted, and interview responses were recorded. Raters completed a qualitative analysis of interview responses, and a composite distress score for five related codes was computed based on these ratings. Stroke-induced PTSD symptoms were assessed via phone at a 1-month follow-up. We examined unadjusted associations of the coded distress score and SCR with 1-month PTSD symptom severity (total symptoms and dimensions of fear and dysphoria). Multivariable linear regression was also used to test main effects of coded distress and SC reactivity, as well as their interaction, on PTSD symptoms.
Coded distress score was positively correlated with total PTSD symptoms (r=.30, p=.01) and fear symptoms (r=.31, p=.01); a weaker correlation was observed with dysphoria symptoms

(r=.23, p=.05). SCR was positively correlated with fear symptoms (r=.32, p=.01); no significant associations were observed for total symptoms or dysphoria. When adjusting for demographic, psychological, and medical covariates, SCR (and not coded distress) was a significant predictor of fear symptoms (β=.38, p<.01), a smaller effect size was observed for SCR and total PTSD symptoms (β=.27, p=.05). There were no significant interactions between SCR and distress for any PTSD outcomes.
Findings suggest the value of objective SCR measures for early detection of stroke-induced fear-related symptoms of PTSD. Additional research is needed to examine prediction of long-term psychological outcomes.

72) Abstract 1224

PERSONALITY TRAITS AND MORTALITY RISK: A SYSTEMATIC AND META-ANALYTIC REVIEW
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Objective: Personality traits have long been linked with mortality risk. However, the true extent of these associations and possible moderating factors are unclear. In this preregistered and protocol registered review, we sought to systematically and meta-analytically review the entire literature of the relation between traits from the Five Factor Model of Personality and mortality risk. In doing so, we examine potential drivers for differences across studies, which include age, sex, and geographical location.
Methods: This systematic review was conducted and reported in accordance with the Preferred Reporting Items for Systematic Reviews (PRISMA) and Meta-Analytic Reporting Standards (MARS) along with risk of bias assessments of the literature to ensure methodological rigour and replicability.
Six electronic databases were searched [CINAHL; Embase; Medline via Ovid; PsycINFO; PubMed; and Web of Science] covering all years up to the search date (July 2022) [updated search will be conducted prior to publication]. Meta-analyses and meta-regressions will be conducted to synthesise effects and evaluate variations in study level factors.
Results: Searches of all databases resulted in the screening of 10,778 titles and abstracts. This resulted in 242 publications meeting the criteria for full text screening. Following data extraction, 58 articles met inclusion criteria for the review. A series of meta-analyses and meta-regressions will be conducted prior to the conference date.
Conclusion: This review will synthesize decades of research and provide a foundation for research in this area.

73) Abstract 938

IMPLICIT RUMINATION AND PHYSIOLOGICAL RECOVERY
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Prior work has linked physiological indices with implicit or non-conscious emotion regulatory strategies in the laboratory. However, many studies that look at implicit emotion regulatory strategies fail to utilize tasks that significantly increase negative emotion or activate the hypothalamic-pituitary-adrenal (HPA) axis, a central arm of the stress response. Rumination, or repetitive negative thought, is linked to less physiological recovery in the laboratory and negative health outcomes.

However, the vast majority of cognition occurs non-consciously, thus investigating implicit rumination is crucial when examining physiological or health outcomes. Further, extant limitations of self-report can be circumvented through implicit measures, thus providing indirect information on an individual's emotion regulatory strategies. This study examined implicit rumination and its links to cortisol and heart rate variability (HRV) recovery to a standardized psychosocial stressor that consistently activates the HPA axis and negative emotion. Methods: Healthy adult participants (n=78; mean age = 19.8; 41 men, 37 women) completed various cognitive and physiological measures prior to and following a speech and arithmetic laboratory stressor, including the lexical decision task to assess post-speech implicit rumination. Response latencies for task relevant negative words were subtracted from task relevant neutral words to capture implicit rumination. HRV was quantified by the root mean of successive difference (RMSSD). After data cleaning, only n=36 participants remained for analyses. Results: A multiple linear regression analysis controlling for baseline levels revealed no significant effects of implicit rumination on cortisol (p=.523) nor HRV (p=.312) recovery levels. However, an exploratory robustness analysis testing these effects adjusting for explicit rumination suggest a trend toward higher implicit rumination being linked to decreased HRV following a speech task (ΔR^2=.013, p=.18). Cognitive tasks were completed after the stressor task and may have attenuated the effects of implicit rumination on HRV. Further, cortisol recovery captured levels over a long lab session, rather than just the speech task. Future work should investigate implicit ruminative processes on physiological recovery to a discrete stressor over and above explicit rumination in a larger sample.

74) Abstract 986

THE INTRODUCTION OF A NOVEL SIMPLIFIED WHOLE-BODY ISOMETRIC RESISTANCE TRAINING FOR OLDER ADULTS

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Purposes: This study aims to introduce a novel progressive whole-body isometric resistance training program and its physiological benefits for older adults.
Methods: A comprehensive review and comparison of resistance training recommendations for older populations provided by The American College of Sports Medicine, the National Strength and Conditioning Association, and Best-Martin and Jones-DiGenova (2014/2016) with the simplified whole-body isometric resistance training program was adopted to highlight its suitability, as welll as its physiological benefits, especially for the elderly and fragile.
Results: Compared to conventional resistance training recommendations for older adults, the simplified whole-body isometric resistance training demonstrates lower difficulty, fewer sets and repetitions, higher intensity, and lower frequency. Furthermore, this training program provides comprehensive training protection and assistance. Empirical findings indicate that this program can enhance muscular strength, vascular dilation, brain-derived neurotrophic factor levels, cortisol levels, and testosterone levels in elderly participants.
Conclusions: The distinctive features of the simplified whole-body isometric resistance training program include a lower entry difficulty and sufficient stimulations and protections, and are suitable especially for the elderly and fragile to fulfill the

positive physiological effects needed. This training program is an option for older individuals or those with physiological limitations who may not be able to engage in conventional resistance training.

75) Abstract 1064

CHANGES IN THE SLEEPING HABITS OF JAPANESE MEDICAL UNIVERSITY STUDENTS DURING THE COVID-19 PANDEMIC: A 5-YEAR FOLLOW-UP STUDY

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The coronavirus 2019 (COVID-19) pandemic has greatly changed our daily life. Owing to the imposed restrictions, many educational facilities have introduced remote teaching. This study aims to clarify the association between remote teaching and Japanese university students' sleeping habits.
The participants were medical students at Aichi Medical University. We used data from an ongoing longitudinal sleeping habits survey. For the participants who enrolled in the university during 2018–2022, multilevel analyses of sleep duration during weekdays and weekends across 5 years were conducted, adjusting for sex, grade, place of stay, sleep problems and lifestyle habits.
Among the students enrolled in the university, the data of 677 in 2018, 657 in 2019, 398 in 2020, 384 in 2021, and 284 in 2022 was available for analysis. The mean sleep duration during weekdays (in minutes) was 407.6 ± 60.3 in 2018, 406.9 ± 63.0 in 2019, 417.3 ± 80.9 in 2020, 421.7 68.0 in 2021, and 393.4 78.2 in 2022. The mean sleep duration during weekends (in minutes) was 494.5 ± 82.5 in 2018, 488.3 ± 87.9 in 2019, 462.3 ± 96.4 in 2020, 477.4 73.1 in 2021, and 457.0 78.2 in 2022. Multilevel analysis conducted for the participants who enrolled during 2018-2022 showed that sleep duration during weekdays was associated with the place of stay, grade and survey year. Moreover, students reported significantly shorter sleep duration during weekdays in 2018 and 2019 0 than in 2020. The other multilevel analysis found sleep duration during weekends to be associated with the survey year, sex, drinking habit and always doing something before going to bed. Sleep duration during weekends was longer in 2018 and 2019 than in 2020, for female students, the students who always do something before going to bed, and the students with drinking habit.
Students' sleep duration increased during weekdays and decreased during weekends in 2020 and this trend has continued for 3 years. This difference could be explained by the COVID-19 pandemic and the introduction of remote teaching.

76) Abstract 1069

AGE-RELATED INCREASE OF DEMORALIZATION SYNDROME WITHIN THE GERMAN GENERAL POPULATION

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The clinical phenomenon of demoralization describes a burdensome syndrome affecting a relevant proportion of patients with cancer and other progressive diseases. It comprises a serious mental health state in which subjects suffer from feelings of hopelessness, helplessness, and a loss of meaning and purpose in life, which is related to an increased risk for suicide. The demoralization scale II (DS-II) has been recently developed as a psychometrically improved screening tool for research and use in clinical contexts. However, so far, normative values of the DS-II do not exist, so that interpretation of DS-II scores is limited. Main aim of the current study was to provide normative data of the German translation named "DS-II Münster". The DS-II Münster is a 16-item self-report measure with ratings on a three-point Likert scale (0 = never, 1 = sometimes, 2 = often) and two subscales: the "Meaning and Purpose subscale" and the "Distress and Coping Ability subscale". DS-II total scores range from 0-32. The DS-II was applied in a household survey of the German general population. The impact of age and gender on DS-II on DS-II scores were explored. The representative sample comprised N = 2471 participants (mean age: 49.8 years and 49.8% women, 50.01% men). Mean total DS-II score was M = 3.76 (SD = 5.56). DS-II scores were significantly increased in women compared to men (M_{diff} = 1.06; 95% CI 0.63, 1.48, p < 0.001). Moreover, age had a significant impact on DS-II scores ($F_{(5,2455)}$ = 3.52; p = 0.004). Subjects >70 years reported highest demoralization scores. Particularly for the Meaning and Purpose subscale, we found lowest scores in the younger ages (18-49 years) that began to increase at the age of 50 years and reached a peak in subjects > 70 years. The current study provides normative data for the DS-II Münster and describes an age-related demoralization increase that helps to put into context the findings of previous clinical studies. Our data further support the idea that young cancer patients suffer from significant symptom burden.

77) Abstract 1165

MEDICAL, BUT NOT GOVERNMENT, MISTRUST PREDICTED COVID-19 VACCINATION INTENTIONS AMONG AN APPALACHIAN SAMPLE

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The Appalachian region (AR), which spans 13 states, is made up of over 26 million residents (ARC, 2023). Historically, research has shown that this is a vulnerable subregion of the United States; with health care shortages, lower rates of education, and higher rates of poverty (Marshall et al., 2017; Pollard & Jacobsen, 2020). This was recently highlighted by a report that indicated that the diseases of despair mortality rate were 37% higher in the AR than throughout the rest of the U.S. (NORC & ETSU, 2022). This was seen in 2020, as COVID-19 infection rates increased throughout the country, but within Appalachia specifically, rates were higher and increased more rapidly in comparison to other areas (Moore, 2021). Due to an aging population, multiple co-morbidities, and health-related behaviors, residents of the AR are especially vulnerable to poor outcomes associated with COVID infections (Bhopalwala et al., 2022; Miller et al., 2020). Additionally, previous studies have revealed that Appalachians tend to distrust outside individuals and organizations, including the healthcare

community and providers (Katz et al., 2009; McAlearney et al., 2012; Morrone et al., 2021). Nevertheless, there is a dearth of information that explains whether of not distrust impacts vaccination intentions among this population. It was hypothesized that participants who had not received an early dose of the vaccination and with low levels of both medical and government mistrust would report intentions to receive the COVID-19 vaccination. A total of 342 Appalachian participants completed the Medical Mistrust Index, Trust in Government Index, and demographic questions; 148 (43.3%) participants had received an early dose of the vaccine. Of the 194 participants (56.7%) who had yet to be vaccinated, logistic regressions showed a one unit change in medical mistrust decreased intentions to get the COVID vaccination by 0.91 times. Government distrust did not significantly predict vaccination intentions. Collectively, these predictors accounted for 17.7% of the variance. These findings suggest that medical mistrust predicts vaccination intentions. Future research is warranted to determine specific reasons for medical mistrust with the hope to combat future vaccine hesitancy in the AR.

78) Abstract 1143

SEX DIFFERENCES IN INTERPERSONAL LIFE STRESSOR CONTRIBUTIONS TO AUTISTIC SUICIDALITY

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Autistic people are a minority group with higher morbidity and reduced mortality. Their lower life expectancy is in part due to elevated suicide risk. Approaches to this issue have mainly considered intraindividual psychopathological states. While autistic people have a high burden of interpersonal stressor exposure and stress-related mental and physical illness, the contribution of specific lifetime stressors to suicidality are unknown. Yet certain stressors are linked to suicidality in the general population. Since psychopathology and suicide rates differ between autistic men and women, we explored sex differences in exposure to and perceived severity of life stressors, and whether these were differentially predictive of suicidality. We analysed datasets from two studies wherein autistic participants (*n*=226, 67% female) completed the Stress and Adversity Inventory for Adults, along with a measure of psychological distress and the Suicide Behaviours Questionnaire-Revised. After comparing autistic men and women in their exposure to and perceived severity of different types of stressors, we examined relationships between stressor exposure and/or perception and suicidality, over and above psychological distress. Sex differences emerged in stressor exposure (autistic men more exposed to legal/crime-related stressors; women more exposed to friend/family relationship stressors and those related to chronic humiliation, which they also perceived as more severe). While treatment and health-related stressors were associated with suicidality in both groups, stressors of particular relevance to suicidality for men were exposure to chronic interpersonal loss, and perceived severity of treatment and health-related stressors. In women, exposure and perceived severity of acute dangerous events were associated with suicidality, as was lower exposure to chronic entrapment stressors. Financial and friend/family relationship stressors were also associated with suicidality in autistic women, but only through psychological distress. While corroborating high stressor burden in autistic people, our findings suggest that certain stressors may be differentially relevant to suicidality in men and women. The significance of

chronic interpersonal loss for men and lower entrapment for women are supportive of theories which emphasise the protective importance of social connectedness.

79) Abstract 1236

LATENT PROFILES OF WORK AND PSYCHOLOGICAL RESOURCES ARE ASSOCIATED WITH MENTAL AND PHYSICAL EMPLOYEE HEALTH

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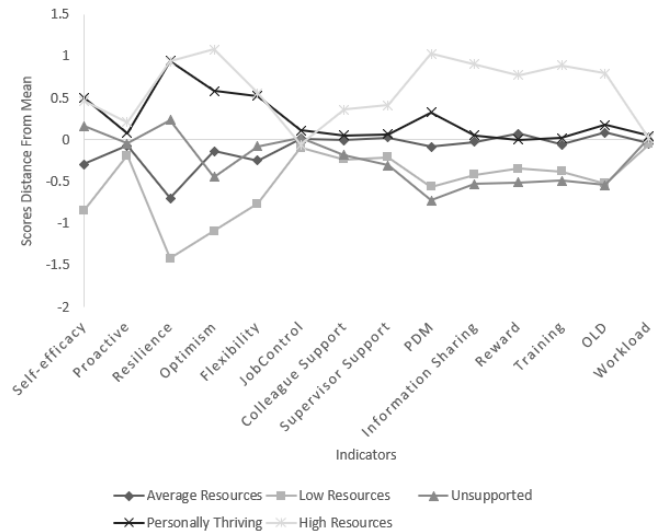
Background: Psychosocial stressors at work are linked to psychological symptoms and cardiovascular disease. Traditional approaches tend to assess these risk factors independently, overlooking their complex interrelations and common underlying factors. To address this, we employ a person-centred approach to explore latent multidimensional risk profiles of psychological and work factors and their associations with health outcomes.

Methods: 2023 employees (age = 44.9±11.4; 47% female) completed questionnaires focused on demographics, psychological resources (self-efficacy, proactivity, resilience, optimism, flexibility), work resources (HR practices, support, autonomy), and behavioural/psychological health. We also collected physiological data (cholesterol and blood pressure) and calculated a sex-specific Framingham Cardiovascular risk score in 262 participants.

Results: A 3-step latent profile analysis identified five profiles: *Average Resources* (42%), *Low Resources* (19%), *Unsupported* (17%), *Personally Thriving* (16%), and *High Resources* (6%). The distal outcome analysis demonstrated that the *High Resources* profile was associated with better psychological health (high vitality (OR = 2.1, 95% CI = 1.5-2.9) and work-life balance (OR = 1.5, 95%CI = 1.3-1.8)), behavioural health (high vegetable intake (OR = 1.2, 95%CI = 1.0-1.4), and high sleep quality OR=0.7, 95%CI = 0.6-0.9). In contrast, men in the *Low Resources* profile had an increased Framingham cardiovascular risk score (OR = 1.1, 95%CI = 1.0-1.1) and showed the poorest behavioural health (low physical activity (OR = 0.8, 95%CI = 0.8-0.9), and poor sleep quality (OR = 1.4, 95%CI = 1.2-1.5)), and psychological health (high emotional exhaustion (OR = 1.3, 95%CI = 1.2-1.3) and low vitality (OR = 0.5, 95% CI = 0.4-0.6)).

Discussion: The findings suggest that individuals with high work and psychological resources present better health outcomes than those with low resources. Interestingly, we did not find a profile with high psychological but low work resources, suggesting that psychological resources influence how individuals perceive and shape their work environment. It is worth noting that these associations are already clear in a sample with relatively uture research should explore the longitudinal effects of these relationships, especially in older workers.

Figure 1.
Latent Profiles of Work and Psychological Resources

Note. PDM = Participation in Decision Making, OLD = Opportunities for Learning and Development

80) Abstract 1440

REVISITING FEAR OF COVID-19 IN ADULTS WITH ASTHMA: DID CONTRIBUTING FACTORS CHANGE OVER THE COURSE OF THE PANDEMIC?

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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 higher levels of fear related to COVID-19 within this population. To understand factors contributing to COVID-19 fear in asthma, we aimed to compare data collected in Spring 2022 (post-vaccine release) to results of a Fall 2020 study to understand changes in the contribution of various factors to COVID-19 fear over the course of the pandemic.

Methods
This study used data from a cross-sectional survey of 307 adults (130 with asthma, 177 without) to investigate differences in COVID-19 fear between individuals with and without asthma, as well as contributing factors to this fear. Data was collected using the Fear of COVID-19 Scale (FCV-19S), a validated seven-item self-report questionnaire, along with surveys of demographic information and various aspects of physical and mental health. Between-group results were derived from multiple regression (MR) controlling for age, gender, race, and years of education. Mediation analyses were conducted using R*Mediation.

Results
Controlling for demographics and PSES, MR analysis revealed that a diagnosis of asthma resulted in a significant 1.61 unit increase in FCV-19S scores (e.g., "I am afraid of losing my life because of coronavirus-19") (b=1.61, $t(292)$= 2.34, p=.019). PSES did not significantly predict FCV-19S scores (b= -0.46, $t(292)$= -1.33, p=.18). Primary contributors to FCV-19S scores included losing a friend or family member to COVID-19 (b=4.53, $t(126)$= 3.19, p=.001) in the whole sample, and

asthma control test (ACT) scores (b=-0.26, *t(126)*= -1.97, *p*=.049) in the asthma group.

Conclusion

Compared to non-asthmatic controls, results suggest that individuals with asthma experienced higher levels of COVID-19 related fear after vaccines had been made available. Contributing factors to this fear changed over the course of the pandemic, with PSES becoming less significant and experience of COVID-19-related death becoming more significant compared to an earlier survey conducted in Fall 2020. ACT scores remained a significant predictor of COVID-19 fear at both time points, highlighting the importance of asthma symptom control in patients' perception of illness-related threat.

POSTER SESSION 2

1) Abstract 1290

THE ROLE OF ASTHMA TRIGGER PERCEPTIONS IN FEAR OF COVID-19

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Background. Individuals with asthma have been shown to experience the COVID-19 pandemic differently, with greater fear of getting sick, more anxiety and depression, and more hospital admissions for severe COVID-19. Patients' perceptions of specific asthma triggers, in particular psychological triggers, have been shown to account for asthma control, disease exacerbations, and quality of life. Thus, we examined the relationship between perceived triggers of asthma and COVID-19 fears in the early phase of the pandemic.

Methods. In 2020, community adults with asthma (N=111) completed an electronic survey assessing general and mental health, asthma-related variables, and changes in living conditions and behaviors in response to the pandemic, including the Fear of COVID-19 Scale, Asthma Trigger Inventory Short Form, Asthma Control Test, and Patient Health Questionnaire (PHQ-4). Hierarchical multiple regression models analyzed the relationship between asthma trigger subscales (allergens, infections, air pollution, exercise, and psychological trigger) and COVID-19 fears, with age, sex, race, ethnicity, PHQ4 Anxiety, and asthma control as covariates.

Results. Results showed that only the psychological trigger subscale and asthma control significantly predicted COVID-19 fear. Including PHQ-4 anxiety as a covariate to control for general levels of anxiety, it also predicted COVID-19 fear and reduced the variance explained by the psychological trigger subscale. Exploring items of the infection trigger subscale separately showed that only two significantly predicted COVID-19 fear, "having a cold" and "viruses" while the third item, "sinus problems", and the overall subscale score, remained non-significant. Interestingly, perceived infection triggers predicted COVID-19 fear in opposite directions – "having a cold" showed an association with lower COVID-19 fears, whereas "viruses" were associated with elevated fear.

Conclusions. Thus, patients' perceived susceptibility for psychological triggers of asthma show substantial associations with COVID-19-related fears. Addressing general anxiety and psychological trigger perceptions is indicated to improve adjustment of patients to stressful life episodes such as a viral pandemic. The differential role of specific infection trigger perceptions in mitigating or exacerbating fears during these times requires further research.

2) Abstract 1388

DOES NEIGHBORHOOD DISADVANTAGE IMPACT LINKS BETWEEN PERCEIVED COGNITIVE IMPAIRMENTS AND QUALITY OF LIFE IN OLDER WOMEN WITH BREAST CANCER?

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Background: Older women with breast cancer (BC) commonly report changes in cognition that negatively affect quality of life (QoL). Less is known about the role of environmental factors that may exacerbate cognitive impairments and decreases in QoL in this population. We sought to examine if area deprivation index (ADI), a measure of neighborhood disadvantage, differentially impacts how perceived cognitive impairments relate to QoL in older women initiating BC treatment.

Methods: Older women (N=89; aged ≥50 years) with newly diagnosed BC (Stage 0-III) were enrolled in a stress management trial following BC surgery and before adjuvant therapies. Participants completed baseline measures on perceived cognitive impairments (Functional Assessment of Cancer Therapy-Cognitive Function Perceived Cognitive Impairments subscale; FACT-Cog) and quality of life (Functional Assessment of Cancer Therapy-Breast; FACT-B). Higher scores on these measures indicated better cognition and QoL. ADI was determined based on participant zip code, with ADI 1-3 representing lower disadvantage (Low ADI) and ADI 4-10 representing higher disadvantage (High ADI) neighborhoods. Linear regression assessed the relationship between perceived cognitive impairments and domains of QoL (Overall, Physical, Emotional, and Functional) living in High vs Low ADI regions, controlling for age, BC stage, and days since surgery.

Results: The majority of women were White (81.82%), non-Hispanic (60.98%), and on average 61 years old (SD = 7.69). Among Low ADI participants (N = 59), perceived cognitive impairments were significantly associated with Overall (β = 0.43, *p* = .02) and Physical QoL (β = 0.15, *p* < .001), but not Emotional (β = 0.05, *p* = .17) or Functional QoL (β = 0.08, *p* = .14). In contrast, among High ADI participants (N = 30), perceived cognitive impairments were significantly associated with QoL in all four assessed QoL domains and to a greater magnitude (Overall: β = 0.79, *p* = .001; Physical: β = 0.22, *p* < .001; Emotional: β = 0.13, *p* = .02; Functional: β = 0.18, *p* = .03).

Conclusions: Findings demonstrate that higher perceived cognitive impairments relate to lower QoL in more domains and to a stronger degree among participants with High ADI. To address these differences, BC psychosocial interventions must be tailored to account for environmental differences.

3) Abstract 1345

STANDARDIZED ACUPUNCTURE TREATMENT AMELIORATES CHRONIC PAIN, DEPRESSION AND QUALITY OF LIFE IN A GROUP OF PATIENTS WITH SYSTEMIC AUTOIMMUNE DISEASE

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Policlinico, Camilla Aronica, MD, Università degli Studi di Milano, Eleonora Tobaldini, MD, Department of Internal Medicine, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Nicola Montano, MD, Department of Internal Medicine, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico

Autoimmune diseases have a significant impact on patients' quality of life, both physically and psychologically. Chronic pain is a prevalent symptom among patients with systemic autoimmune disease, often reported as the most disabling. Indeed, among these patients, chronic pain has been related to poor work ability, sleep quality, and limited physical functioning. However, current therapies show low efficacy, thus there is a dire need to find new treatments. Acupuncture seems to be a promising strategy. 24 patients (15 with systemic sclerosis, 7 with rheumatoid arthritis, and 2 with lupus erythematosus) have been enrolled at the Immunology Clinic, Policlinico Hospital (Milan). Patients were treated with 12 acupuncture sessions, during a period of 7 months. Chronic pain was evaluated through the Numerical Rating Scale for Pain (NRS). Depressive symptoms were assessed with the Patient-Health Questionnaire-9 items (PHQ-9), and quality of life was evaluated with the Short Form Health Survey-36 items (SF-36). Patients were evaluated at T0 (baseline), T1 (after 1 month, 4 acupuncture sessions), and T2 (after 7 months, end of the protocol). Repeated-measures ANOVA has been used to assess differences between time-points. Patients reported decreased perceived pain at the end of the protocol (p<0.001). One month after the beginning of the treatment there was an improvement in the PSQI scores (p=0.02) which, however, did not endure at T2. There was an improvement in PHQ-9 scores after 1 month of treatment (p<0.001), which persisted until the end (p=0.017). Moreover, there was a general improvement in SF-36 sub-scores. Patients reported less interference of pain (p=0.01), physical state (p=0.01), and emotional state (p<0.05) on daily activities and social functioning at T1. The same improvement has been reported at T2 (p=0.01 for pain and physical functioning, and p<0.05 for emotional state interference, respectively). Acupuncture resulted to be a valid non-pharmacological treatment for patients with autoimmune diseases, improving chronic pain perception and depressive symptoms, and lowering emotional, physical, and pain interference on daily life and social activities. Also considering the high doses of drugs that patients must take for disease management, acupuncture could be a safe and effective strategy without side-effects and interactions with other drugs.

4) Abstract 1347

ELEVATED STRESS SEVERITY AND DAILY STRESS ARE ASSOCIATED WITH ATTENUATION OF SALIVA-DERIVED CELL-FREE MITOCHONDRIAL DNA (CF-MTDNA)

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Background There is emerging evidence of a dynamic interplay between psychosocial stress and saliva-derived cell-free mitochondrial DNA (cf-mtDNA). Blood and saliva cf-mtDNA increase in response to acute laboratory stressors and are elevated in certain psychopathologies like depression. This pilot study examines the connection between daily stress processes and saliva cf-mtDNA, offering a nuanced exploration of this biomarker in both healthy controls (HC) and adults diagnosed with major depressive disorder (MDD).

Methods A group of 8 HC adults (6 female; 23.13±5.09 years) and 7 adults with MDD (4 female; 23.14±2.53 years) completed daily diary interviews capturing stress and affect across eight consecutive days. Saliva samples were collected four times daily (i.e., upon awakening, 30 minutes, afternoon, and bedtime) on days 2-5 (n=13-16 samples per participant). Daily saliva cf-mtDNA levels were calculated using the area under the curve with respect to ground (AUCg). Stress was operationalized as the number of daily stress exposures and average perceived stress severity. We tested whether saliva cf-mtDNA levels differed on days when stressors were present and whether those with higher stress severity had higher cf-mtDNA.

Results Individuals with higher than average stress severity had lower saliva cf-mtDNA AUCg (r = -.72, p = .004). Cf-mtDNA AUCg was significantly lower on stressor days (n = 24 days) compared to non-stressor days (n = 23 days; t = 2.17, p = .04). The difference between stressor days and non-stressor days remained statistically significant (t = 2.63, p = .01) after removing a single non-stressor day outlier.

Discussion In contrast to prior work showing increased cf-mtDNA in response to acute stressors, day-level stress and self-reported stress severity were associated with lower saliva cf-mtDNA AUCg levels. The suppression of saliva cf-mtDNA in response to day-level stress may represent a similar mechanism to that of the attenuation of diurnal cortisol in individuals experiencing chronic stress. Due to the small sample size, the effect of depression on cf-mtDNA could not be determined. These findings call for further research linking one's daily processing and perception of stress in relation to mitochondrial signaling.

5) Abstract 1342

THE IMPACT OF COMPASSION FOCUSED THERAPY ON POSITIVE AND NEGATIVE MENTAL HEALTH OUTCOMES: RESULTS OF A SERIES OF META-ANALYSES

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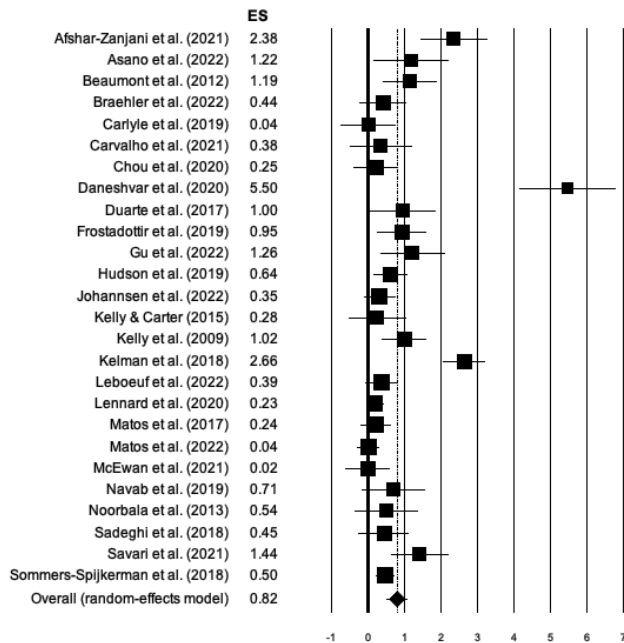
Objectives. Compassion focused therapy (CFT) is an integrative, evolution-informed approach to mental health difficulties that has been growing rapidly in the last 20 years. This series of meta-analyses examined the overall efficacy of CFT on positive and negative mental health outcomes, in both clinical and non-clinical populations, compared to active and passive control conditions.

Methods. A systematic search of six databases was conducted, focusing on randomized controlled trials and controlled pilot/feasibility studies of CFT only. All non-English papers, and studies focusing on other compassion-based approaches were excluded. Forty-seven controlled trials from the last 14 years were included, with data from 7875 participants from 17 countries.

Results. Even after the exclusion of extreme outliers, CFT was effective in reducing overall negative mental health outcomes ($k = 32$, $g = .72$, $p < .0001$), depression ($k = 23$, $g = 0.49$, $p < .0001$), self-criticism ($k = 17$, $g = 0.40$, $p < .0001$) and in improving compassion for self and others ($k = 24$, $g = 0.51$, $p < .0001$). Heterogeneity was high and only partially reduced by moderation analysis, which highlighted larger effects in specific

subgroups. Publication bias was present in the meta-analyses conducted on negative outcomes and depressive symptoms. **Discussion.** Although the long-term effects of CFT are yet to be established, and larger-scale higher quality RCTs are needed, the current state of evidence highlights the benefits of CFT on a range of outcomes in both clinical and non-clinical samples.

6) Abstract 1399

PTSD SYMPTOM SEVERITY PREDICTING SUBSTANCE USE: HEART RATE VARIABILITY MODERATES THE MEDIATING EFFECTS OF SHAME AND GUILT.
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Introduction. Shame and guilt are key emotions involved in socio-behavioral regulation of trauma symptom severity and concomitant substance use (SU) as a means to cope with or down-regulate negative emotional experience. The self-referential processes underlying shame and guilt are shown to be supported by the medial prefrontal cortex, a region that is also associated with increased parasympathetic regulation indexed by heart rate variability (HRV). Conversely, the lack of presumed prefrontal inhibition leads to undifferentiated threat response and difficulties in emotion regulation. Given lower resting HRV has been associated both with SU and post-traumatic stress, it is likely that rsHRV may influence the relationships between shame, guilt, and SU in PTSD populations. **Aims**. This study examined the link between PTSD symptoms and SU, exploring whether shame and guilt proneness play mediating roles in this association, and whether rsHRV moderated these mediation effects among individuals with elevated PTSD symptoms. **Methods.** Self-report questionnaires measuring shame and guilt-proneness, PTSD and SUD symptoms were completed by a community sample of 78 women (mean age = 47.1, SD = 16.3). High frequency HRV (HF-HRV), was derived from photoplethysmograph signal. Hierarchical regression models were specified to test mediating and moderating effects. **Results.** The indirect effect of PTSD symptoms on SU

was mediated through shame (path a: b = .02, p = .0001; path b: b = 7.46, p = .009) and guilt-proneness (path a: b = .02, p = .0001; path b: b = 14.44, p = .0002). Lower levels of HF-HRV amplified these mediating effects (shame: b = 6.93, p = .008; guilt: b = 13.32, p = .0002), whereas higher HF-HRV buffered only the mediating effect of guilt (b = -11.9, p = .01). **Conclusions:** Findings showed that poor socio-behavioral regulation in women mediates the effects of trauma symptom severity on substance use, however, increased vagal tone buffers this effect.

7) Abstract 1375

CANCER CONCERNS, QUALITY OF LIFE, AND THE MODERATING ROLE OF COPING STRATEGIES AMONG OLDER BREAST CANCER PATIENTS UNDERGOING TREATMENT
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Introduction: A series of concerns follow a breast cancer (BC) diagnosis, which may present particular challenges for older patients during active treatment. The links between illness uncertainty and quality of life (QoL) have been well studied across diverse populations. However, less is known regarding specific BC-related uncertainty and QoL among older patients and whether this is moderated by certain coping strategies. In this study, we explored the relationship among BC-related concerns, QoL, and coping strategies in older women undergoing treatment for BC.
Methods: Older women (> 50yrs) recently diagnosed with Stage 0-III BC who enrolled in a virtual stress management trial completed a baseline assessment after surgery but before beginning adjuvant therapy. We measured concerns about BC (Profile of Concerns about Breast Cancer, PCBC), QoL (Functional Assessment of Cancer Therapy-Breast Cancer, FACT-B), and coping strategies (Brief COPE). We used general linear modeling and moderation analyses, adjusting for days since surgery, age, and BC stage, to assess whether concerns about BC are related to worse QoL and if coping style moderated this relationship.
Results: The majority of women (N=82) were White (82.93%), non-Hispanic (53.66%), and on average 60.75 years old (SD=7.34). Greater concerns about BC were associated with poorer QoL (B=-0.41, SE= 0.12, *p*<.001). Furthermore, the effect of BC concerns on QoL was moderated by both problem-focused coping (B=0.05, SE= 0.02, *p*=0.02) and emotion-focused coping (B=0.06, SE= 0.02, *p*=0.01), such that these coping styles blunted the effect of BC concerns on QoL. Avoidant coping did not show a significant moderation effect on the relationship of BC concerns on QoL (B=0.05, SE= 0.04, *p*=0.20).
Conclusions: These findings suggest that utilization of both problem- and emotion-focused coping strategies may mitigate the impact of BC concerns on QoL. Furthermore, these results indicate that avoidant coping may not neither alleviate nor exacerbate the consequences of BC concerns on QoL in this context. Interventions that teach older BC patients the flexible use of problem- focused and emotion-focused coping strategies, possibly in a situation-dependent manner (i.e., coping effectiveness training) may help optimize quality of life during treatment.

) Abstract 838

NEIGHBORHOOD DISORDER AND SOCIAL COHESION:

LINKS TO MATERNAL CARDIOMETABOLIC RISK ONE YEAR POSTPARTUM

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Women's cardiometabolic health during the perinatal period can influence their lifetime cardiovascular disease (CVD) risk. Recent calls emphasize examining multiple levels of influence, including both risk and protective factors, when considering women's CVD risk, with neighborhood environments emerging as key contextual factors.

Using longitudinal data from the Child Community Health Network (n=987), we evaluated 1) associations of perceived neighborhood disorder and social cohesion with maternal cardiometabolic risk one year postpartum and 2) whether mechanisms of psychological distress and physical activity mediated these associations. Black, Latina, and White women participated in evaluations 1 (T1), 6 (T2), and 12 (T3) months after birth. At T1, women reported on neighborhood characteristics. At T2, women reported depression, anxiety, and PTSD symptoms and physical activity. Biometrics and biological samples were collected at T2 and T3, including blood pressure, height, weight, and dried blood spots for cardiometabolic biomarkers, including C-reactive protein and glycosylated hemoglobin. Using structural equation modeling, we estimated latent variables for neighborhood disorder, neighborhood social cohesion, psychological distress, physical activity, and cardiometabolic risk and conducted multiple parallel mediation to test associations between latent neighborhood factors at T1, distress and physical activity at T2, and cardiometabolic risk at T3, adjusting for T2 cardiometabolic risk.

Over half of our sample were Black women (53%), and 43% had an adjusted household income below the Federal Poverty Line. No significant total or direct effects of neighborhood disorder or social cohesion on cardiometabolic risk emerged; T2 cardiometabolic risk was the strongest predictor ($ß=0.98$, $p<.001$). However, neighborhood social cohesion, and not disorder, related significantly to mechanisms of psychological distress ($ß=-0.11$, $p=.005$) and physical activity ($ß=0.13$, $p=.018$).

Although we did not find robust support for associations of neighborhood characteristics with postpartum cardiometabolic risk in this diverse sample of women, neighborhood social cohesion emerged as more pertinent than disorder for CVD-relevant mechanisms.

9) Abstract 894

INVESTIGATING THE INTERPLAY BETWEEN ANTICIPATORY RACISM STRESS AND RACIAL DISCRIMINATION IN RELATION TO MENTAL HEALTH AMONG AFRICAN AMERICAN WOMEN

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The majority of studies examining the stress-health association focus on either the activation of or recovery from a stress experience. Perseverative cognition (PC)–repeated or chronic activation of a psychological stressor absent of an active stimulus–has been proposed as a core cognitive-emotional process linking psychological states to health. PC is central to cognitive-emotional states such as worry (about future stressors) and rumination (about past stressors), suggesting that prolonged psycho-physiologic stress activation may be a primary mechanism underlying the stress-health relationship.

Whereas numerous studies have investigated the stress-health links involving rumination, few have investigated the stress-health dynamics of anticipatory stress. We examined the interaction of each of five Anticipatory Racism Threat subscales (awareness/expectation, racism-related worry, race consciousness, stereotype awareness, confirmation concern/avoidance, α=.71-.93) with self-reported lifetime racial discrimination on three mental health outcomes : psychological distress (Kessler-6 (K6)), perceived stress (Cohen's perceived stress scale (PSS)), and anxiety (Hospital anxiety subscale (HADS)). Data are from a nationally representative panel of 615 African American women ages 25-64 in the US. We performed adjusted weighted multivariable regression and found significant interactions for 3 of 5 subscales. Across all outcomes, when racial discrimination is high, confirmation concern/avoidance is protective of mental health, but it is harmful when racial discrimination is low ($p < 0.05$). On the other hand, when racial discrimination is low, racism-related worry and race consciousness are protective ($p < 0.05$). Our findings highlight anticipatory racism threat as an important component of the stress process for future investigation into the stress-health association among African American women.

10) Abstract 1057

CHILDHOOD CHRONIC ILLNESS AND DEPRESSION TRAJECTORIES IN OLDER ADULTHOOD: THE MODERATING ROLE OF SOCIAL NETWORK AND PARTICIPATION IN A PROSPECTIVE COHORT STUDY

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Background: Little research has examined the long-term impact of childhood illness on older adult mental health. This study, using Survey of Health Ageing and Retirement in Europe (SHARE) data, investigated the impact of childhood illness on older adulthood depression trajectories and the potential protective effects of social factors. **Methods**: Participants were 5,462 older adults (>50) from SHARE with complete data on childhood illness (wave 3, 2009), social participation, social network size, and social network satisfaction (wave 4, 2011), and at least three depression (EURO-D) responses (waves 5-8, 2013-20). Depression trajectories were determined using group-based trajectory modeling (GBTM), and predictors and moderators of depression group membership were examined using multinomial logistic regression and moderation analysis. **Results**: GBTM indicated that a 4-group model best fit the data, with consistently low, low rising, mid rising, and consistently high depression trajectory groups. Logistic regression revealed significant associations: compared to the consistently low group, being older and female were linked to higher odds of belonging to low rising, mid rising, and consistently high depression groups ($p<.001$) and more childhood illnesses were associated with increased odds of low rising ($\beta=.08$, $p=.041$) and mid rising ($\beta=.22$, $p<.001$) depression group membership. In moderation analysis, significant positive main effects of childhood illness and significant negative main effects of social participation, network size, and network satisfaction (all $p<.05$) on depression trajectory group membership were found. Results revealed a significant positive moderating effect of social participation on the relationship between childhood illness and depression group membership ($b= .02$, $p=.015$), where the effect was not significant at very low social participation levels, and thereafter, the strength of the moderating effect increased as social participation levels increased. **Conclusions:** Childhood illness

was associated with increased likelihood of membership in suboptimal depression trajectory groups. Moderation by social factors was not in the hypothesized direction, highlighting the complex relationship between childhood factors and future social experiences and reinforcing the importance of a comprehensive approach to studying the nuances of their interaction.

11) Abstract 1102

SOCIAL INHIBITION IS ASSOCIATED WITH GREATER CARDIOVASCULAR REACTIVITY TO ACUTE PSYCHOLOGICAL STRESS AMONGST MEN

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Background: Type D personality, characterized by increased levels of negative affect (NA) and social inhibition (SI), has been associated with adverse cardiovascular health outcomes. While cardiovascular reactivity to acute psychological stress has been suggested as a potential mechanism facilitating this association, effects have been found to vary by gender. The current study aimed to examine if Type D personality (and subcomponents) are associated with (1) cardiovascular reactions to acute psychological stress and (2) self-reported mood and perceived stress following the stressor. Finally, we also aimed to examine whether these associations vary by gender.
Methods: Young adults (N = 298, 51.9% women, 19% Hispanic, 66.1% white) completed a standard cardiovascular reactivity protocol consisting of a 10-minute baseline period followed by a stress task (i.e., speech task). Systolic blood pressure (SBP), diastolic blood pressure (DBP), mean arterial pressure (MAP), and heart rate (HR) were measured throughout the protocol. NA, SI, and Type D were assessed using the DS14 scale. Mood was assessed using the Positive and Negative Affect Schedule. Participants self -reported their stress following completing the stressor. Cardiovascular reactivity was computed as: stress average – baseline average for each cardiovascular variable.
Results: Type D personality, SI, and NA were associated with greater negative mood, lower positive mood, and greater self-reported stress following the stressor. Social inhibition was associated with greater SBP, MAP, and HR reactivity to the acute psychological stress. No significant effects were observed for NA. Additionally, Type D personality did not predict cardiovascular reactivity in models controlling for the main effects of NA and SI. Follow-up analyses indicated that SI was associated with greater SBP, MAP, and HR reactions amongst men, but not women. While Type D, NA, and SI were associated with poor mood and increased-self reported stress in men, only Type D and NA were associated with these self-reported measures in females.
Discussion: SI is associated with increased psychological and cardiovascular reactivity to acute psychological stress amongst men, but not women. These findings suggest a potential mechanism facilitating the association between SI and adverse cardiovascular health outcomes.

12) Abstract 988

FINANCIAL HARDSHIP AND BIOLOGICAL AGING INDICATORS: A SYSTEMATIC REVIEW

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Financial hardship – also known as financial strain, financial distress, financial difficulties, financial challenges, and financial toxicity – is a construct that captures insufficient household economic resources. More recently, a three-domain (i.e., material, psychological, and behavioral) conceptual model of financial hardship was developed to help sort the many terms used to capture financial hardship. Financial hardship can complement traditionally used indicators of SES (i.e., education and income) to illuminate how the inadequacy of socioeconomic resources is lived and impacts health. There is growing interest in documenting how financial hardship impacts accelerated aging, including dysregulation of inflammation responses and accelerated cellular aging. This systematic review aimed to synthesize empirical evidence on the association between financial hardship and three indicators of biological aging: inflammation, epigenetic-based age acceleration, and telomere length. We conducted a systematic review by searching Medline/PubMed (National Library of Medicine, NCBI), PsycINFO (APA, Ebsco), and Web of Science Core Collection (Clarivate). Thirty-four articles met the criteria, 25 examined the association between financial hardship and inflammation, six epigenetic-based age acceleration, and three telomere length. Most articles (62%) were published in the past five years (2019-2023). Around three-fourths included adult samples (76.5%), more than half were longitudinal studies, and 13 were conducted outside the US. Among studies from the US (21 studies), four included all Black participants, and two included all Mexican immigrants. Measures associated with the psychological domain (e.g., perceived difficulty level paying bills and availability of money to meet needs) were the most used items (found in 22 articles), followed by the material domain (e.g., income-to-poverty ratio; found in 15 articles). Only one article utilized measures associated with the behavioral domain (e.g., changed eating habits to save money, changed residences to save money). Among all the articles, 82% reported a significant association between financial hardship and biological aging indicators. Growing evidence shows that financial hardship is a sensitive socioeconomic predictor of biological aging indicators.

Figures and Tables

Submission ID: 988
Submission Title: Financial Hardship and Biological Aging Indicators: A Systematic Review

Figure 1. The three-domain conceptual model of financial hardship. The material domain captures the lack of or insufficient access to material resources. The psychological domain focuses on the psychological responses due to the lack of material resources, including financial worries, stress, and the lack of financial satisfaction and control. Finally, the behavioral domain considers coping behaviors to deal with insufficient material resources and their psychological responses.

Search Terms for Systematic Review

PubMed
("financial stress"[MeSH Terms] OR "poverty"[MeSH Terms] OR "low socioeconomic status"[MeSH Terms] OR "financial stresses"[tiab] OR "financial stress"[tiab] OR "financial pressures"[tiab] OR "financial pressure"[tiab] OR "financial toxicity"[tiab] OR "financial toxicities"[tiab] OR "financial challenges"[tiab] OR "financial challenge"[tiab] OR "financial burden"[tiab] OR "financial burdens"[tiab] OR "financial hardship"[tiab] OR "financial hardships"[tiab] OR "economic hardship"[tiab] OR "financial strains"[tiab] OR "financial strain"[tiab] OR "economic hardships"[tiab] OR "material hardship"[tiab] OR "material hardships"[tiab] OR "financial difficulties"[tiab] OR "financial difficulty"[tiab] OR "paying bills"[tiab] OR "financial well-being"[tiab] OR "financial situation"[tiab] OR "financial control"[tiab] OR "financial coping"[tiab]) AND (("c-reactive protein"[MeSH Terms] OR "fibrinogen"[MeSH Terms] OR "interleukin-6"[MeSH Terms] OR "tumor necrosis factor-alpha"[MeSH Terms] OR "intercellular adhesion molecule-1"[MeSH Terms] OR "acute-phase proteins"[MeSH Terms] OR "inflammation"[MeSH Terms] OR "Immunosenescence"[MeSH Terms]) OR ("telomere shortening"[MeSH Terms] OR "telomere attrition"[All Fields] OR "buccal cell telomere"[All Fields]) OR ("epigenetic clock"[All Fields] OR "epigenetic aging" OR "DNA methylation age acceleration"[All Fields] OR "Horvath clock"[All Fields] OR "Hannum clock"[All Fields] OR "GrimAge"[All Fields] OR "PhenoAge"[All Fields] OR "skin and blood"[All Fields] OR "Zhang clock"[All Fields] OR "PedB"[All Fields] OR "DunedinPoAM"[All Fields] OR "DunedinPACE"[All Fields]))

PsycInfo

(MA "financial stress" OR MA "poverty" OR MA "low socioeconomic status" OR DE "financial stresses" OR DE "financial stress" OR DE "financial pressures" OR DE "financial pressure" OR DE "financial toxicity" OR DE "financial toxicities" OR DE "financial challenges" OR DE "financial challenge" OR DE "financial burden" OR DE "financial burdens" OR DE "financial hardship" OR DE "financial hardships" OR DE "economic hardship" OR DE "financial strains" OR DE "financial strain" OR DE "economic hardships" OR DE "material hardship" OR DE "material hardships" OR DE "financial difficulties" OR DE "financial difficulty" OR DE "paying bills" OR DE "financial well-being" OR DE "financial situation" OR DE "financial control" OR DE "financial coping") AND ((MA "c-reactive protein" OR MA "fibrinogen" OR MA "interleukin-6" OR MA "tumor necrosis factor-alpha" OR MA "intercellular adhesion molecule-1" OR MA "acute-phase proteins" OR MA "inflammation" OR MA "Immunosenescence") OR (MA "telomere shortening" OR TX "telomere attrition" OR TX "buccal cell telomere") OR (TX "epigenetic clock" OR TX "epigenetic aging" OR TX "DNA methylation age acceleration" OR TX "Horvath clock" OR TX "Hannum clock" OR TX "GrimAge" OR TX "PhenoAge" OR TX "skin and blood" OR TX "Zhang clock" OR TX "PedB" OR TX "DunedinPoAM" OR TX "DunedinPACE"))

Web of Science
(AB=("financial stress") OR AB=("socioeconomic factors") OR AB=("low socioeconomic status") OR AB=("financial stresses") OR AB= ("financial stress") OR AB=("financial pressures") OR AB=("financial pressure") OR AB= ("financial toxicity") OR AB= ("financial toxicities") OR AB=("financial challenges") OR AB=("financial challenge") OR AB=("financial burden") OR AB=("financial burdens") OR AB=("financial hardship") OR AB=("financial hardships") OR AB=("economic hardship") OR AB=("financial strains") OR AB=("financial strain") OR AB=("economic hardships") OR AB=("material hardship") OR AB=("material hardships") OR AB=("financial difficulties") OR AB=("financial difficulty") OR AB=("paying bills") OR AB=("financial well-being") OR AB=("financial situation") OR AB=("financial control") OR AB=("financial coping")) AND ((AB=("c-reactive protein") OR AB=("fibrinogen") OR AB=("interleukin-6") OR AK=("tumor necrosis factor-alpha") OR AK=("intercellular adhesion molecule-1") OR AK=("acute-phase proteins") OR AK=("inflammation") OR AK= ("Immunosenescence")) OR (ALL=("telomere shortening") OR ALL= ("telomere attrition") OR ALL=("buccal cell telomere")) OR (AB=("epigenetic clock") OR AB=("epigenetic aging") OR AB=("DNA methylation age acceleration") OR ALL=("Horvath") OR ALL=("GrimAge") OR ALL=("PhenoAge") OR ALL=("skin and blood clock") OR ALL=("Zhang clock") OR ALL=("PedB") OR ALL=("DunedinPoAM") OR ALL=("DunedinPACE")))

Figure 2. Identification and screening process of the articles to be included in the systematic review.

No	First author (Year)	Title	Sample Size	Age Group	Study Design	Financial Hardship Measure	Biological Aging Indicator	Finding
1	Ablow Measelle et al. (2019)	Climbing the ladder of decline: Income and acculturation associated with chronic inflammation among Mexican immigrants	128	Adults	Cross-sectional	income-to-poverty ratio [material]	Inflammation	+
2	Alley et al. (2006)	Socioeconomic status and C-reactive protein levels in the US population: NHANES IV	7634	Adults	Cross-sectional	income-to-poverty ratio [material]	Inflammation	+
3	Austin et al. (2021)	The Relationship Between Disproportionate Social Support and Metabolic and Inflammatory Markers: Moderating Role of Socioeconomic Context	307	Adults	Cross-sectional	Financial stress from the UCLA Life Stress interview [psychological]	Inflammation	+
4	Boen (2019)	Death by a Thousand Cuts: Stress Exposure and Black-White Disparities in Physiological Functioning in Late Life	7280	Adults	Longitudinal	how satisfied with present financial situation and how difficult meet monthly bills [psychological]	Inflammation	+
5	Chen et al. (2016)	The Great Recession and health risks in African American youth	379	Children	Longitudinal	Family income-to-poverty ratio, unemployment of primary caregivers, and receipt of Temporary Assistance for Needy Families [material]; adequacy of income, unmet material needs, and inability to make ends meet [psychological]	Epigenetic-based age acceleration	+
6	Cutrona et al. (2015)	Financial strain,inflammatory factors,and haemoglobin A1c levels in African American women	342	Adults	Longitudinal	Financial Strain Scale (Conger et al., 1994) [behavioral]	Inflammation	+
7	Dirajlal-Fargo et al. (2020)	Relationship between economic insecurity, inflammation, monocyte activation and intestinal integrity in children living with HIV in Uganda	57	Children	Cross-sectional	Living in extreme poverty, no electricity access, hungry, and unprotected water source [material]	Inflammation	+
8	Foverskov et al. (2020)	Economic hardship over twenty-two consecutive years of adult life and markers of early ageing: physical capability, cognitive function and inflammation	5,575	Adults	Longitudinal	Income-to-poverty ratio [material]	Inflammation	+
9	Gomaa et al. (2020)	Stressed-Out Oral Immunity: A Gateway From Socioeconomic Adversity to Periodontal Disease	102	Adults	Cross-sectional	Financial Stress Scale (Pearlin et al., 1981) [psychological]	Inflammation	+
10	Guardino et al. (2017)	Chronic Stress and C-Reactive Protein in Mothers During the First Postpartum Year	1206	Adults	Longitudinal	Financial worries, difficult paying bills, serious money problem, not enough money to meet needs [psychological]	Inflammation	+
11	Hladek et al. (2022)	High Social Coping Self-Efficacy Associated With Lower Sweat Interleukin-6 in Older Adults With Chronic Illness	159	Adults	Cross-sectional	Difficult paying bills, buying food, and afford medication care [psychological]	Inflammation	+
12	Izano et al. (2020)	Relationship of maternal psychosocial stress with newborn telomere length	355	Adults	Longitudinal	Income-to-poverty ratio [material]	Telomere length	+
13	Kershaw et al. (2010)	Socioeconomic position, health behaviors, and C-reactive protein: a moderated-mediation analysis	6313	Adults	Cross-sectional	Income-to-poverty ratio [material]	Inflammation	+
14	Kokosi et al. (2021)	The role of inflammation in the association between poverty and working memory in childhood	4525	Children	Longitudinal	Difficult paying for food, clothing, heating, rent, and baby needs [psychological]	Inflammation	+
15	Kokosi et al. (2020)	Do upsetting life events explain the relationship between low socioeconomic status and systemic inflammation in childhood? Results from a longitudinal study	4525	Children	Longitudinal	Difficult paying for food, clothing, heating, rent, and baby needs [psychological]	Inflammation	+
16	Lei et al. (2022)	Relationship intervention indirectly buffers financial	348	Adults	Longitudinal	Financial Strain Scale (Conger et al. 1992) [Psychological]	Epigenetic-based age acceleration	+

		strain's effect on biological aging among Black adults						
17	Li et al. (2015)	Early life adversity and C-reactive protein in diverse populations of older adults: a cross-sectional analysis from the International Mobility in Aging Study (IMIAS)	1340	Adults	Cross-sectional	Childhood economic adversity based on count of poor economic status, hunger, and parental unemployment [material]	Inflammation	Null
18	Marini et al. (2020)	Adversity exposure during sensitive periods predicts accelerated epigenetic aging in children	973	Children	Longitudinal	Difficulty level affording basic needs [psychological]	Epigenetic-based age acceleration	+
19	Miller et al. (2021)	Association of Inflammatory Activity With Larger Neural Responses to Threat and Reward Among Children Living in Poverty	207	Children	Cross-sectional	Income-to-poverty ratio [material]	Inflammation	+
20	Niedzwiedz et al. (2017)	Economic insecurity during the Great Recession and metabolic, inflammatory and liver function biomarkers: analysis of the UK Household Longitudinal Study	6520	Adults	Longitudinal	Comfort level managing finance and difficulty level paying bills [psychological]	Inflammation	+
21	Nikulina & Widom (2014)	Do race, neglect, and childhood poverty predict physical health in adulthood? A multilevel prospective analysis	528	Adults	Longitudinal	Childhood poverty status [material]	Inflammation	Null
22	Petrovic et al. (2023)	Life-course socioeconomic factors are associated with markers of epigenetic aging in a population-based study	684	Adults	Longitudinal	Childhood and adulthood financial difficulties [psychological]; forgoing healthcare due to economic reasons [material]	Epigenetic-based age acceleration	+
23	Qintar et al. (2017)	Prevalence and predictors of elevated high-sensitivity C-reactive protein in post-myocardial infarction patients: Insights from the VIRGO and TRIUMPH registries	3410	Adults	Longitudinal	Not enough money to meet needs [psychological]	Inflammation	+

24	Reid et al. (2020)	Pathways to inflammation in adolescence through early adversity, childhood depressive symptoms, and body mass index: A prospective longitudinal study of Chilean infants	600	Children	Longitudinal	Serious financial stress, adapted from the Social Readjustment Rating Scale (Holmes & Rahe, 1967) [material] [psychological]	Inflammation	Null
25	Revesz et al. (2016)	Baseline biopsychosocial determinates of telomere length and 6-year attrition rate	2936	Adults	Longitudinal	Financial difficulties [psychological]	Telomere length	Null
26	Samuel et al (2022)	Propensity score weighted associations between financial strain and subsequent inflammatory biomarkers of aging among a representative sample of U.S. older adults	4335	Adults	Longitudinal	Not enough money to meet needs [psychological]	Inflammation	+
27	Samuel et al. (2020)	Leveraging naturally occurring variation in financial stress to examine associations with inflammatory burden among older adults	2155	Adults	Longitudinal	Difficulty level paying bills and availability of money to meet needs [psychological]	Inflammation	+
28	Shen et al. (2023)	Association of Race and Poverty Status With DNA Methylation-Based Age	470	Adults	Longitudinal	Income-to-poverty ratio [material]	Epigenetic-based age acceleration	+
29	Simons et al (2022)	Unstable Childhood, Adult Adversity, and Smoking Accelerate Biological Aging Among Middle-Age African Americans: Similar Findings for GrimAge and PoAm	477	Adults	Cross-sectional	Income-to-poverty ratio [material]; difficulty level paying bills and availability of money to meet needs [psychological]	Epigenetic-based age acceleration	+
30	Steffen et al (2016)	The Effects of Job Instability and Financial Strain on C-Reactive Protein in a Sample of Mexican Immigrants	310	Adults	Cross-sectional	Financial strain [psychological]	Inflammation	+
31	Steptoe et al. (2020)	Associations Between Financial Strain and Emotional Well-Being With Physiological Responses to Acute Mental Stress	542	Adults	Cross-sectional	Financial Strain Scale (Pearlin et al., 1981) [psychological]	Inflammation	Null

32	Sturgeon et al. (2016)	The Psychosocial Context of Financial Stress: Implications for Inflammation and Psychological Health	680	Adults	Cross-sectional	Financial stress subscale of the Psychiatric Epidemiology Research Interview (PERI) Life Events Scale [psychological]	Inflammation	−
33	Tung et al. (2022)	Family Financial Pressure in Childhood and Telomere Length in Early Adolescence: A Prospective Study	92	Children	Longitudinal	Family financial condition [psychological]	Telomere length	-
34	Waldstein et al. (2016)	Cross-sectional relations of race and economic status to cardiovascular risk factors in the Healthy Aging in Neighborhoods of Diversity across the Lifespan (HANDLS) study	2270	Adults	Cross-sectional	Income-to-poverty ratio [material]	Inflammation	Null

Note: + mean significant positive association between financial hardship and biological aging indicator (e.g., more financial hardship → more elevated inflammation); - means negative association between financial hardship and biological aging indicator (e.g., more financial hardship → shorter telomere length); Null means non-significant association.

13) Abstract 924

INVESTIGATING INEQUITIES IN CANCER CLINICAL TRIAL PARTICIPATION: UNDERSTANDING DEMOGRAPHIC AND SOCIOECONOMIC DETERMINANTS OF BEHAVIORAL CANCER RESEARCH PARTICIPATION

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Background: Older adults and people of color are underrepresented in cancer clinical trials (CCTs); emerging evidence also suggests similar inequities observed across socioeconomic status (SES) indicators and within behavioral CCTs (bCCTs). This meta-analysis characterizes representation of older adults and people of color in bCCTs conducted at the University of Florida Cancer Center (UFHCC), an NCI-Designated Cancer Center, relative to its catchment area (CA) in context of county SES.

Methods: Demographic and county-level SES indicators were collected from IRB-closed, UFHCC bCCTs conducted between 2017 and 2021 (N=4 studies). Corresponding data for the UFHCC CA cancer population were collected from the Florida Cancer Data System. Participant-level meta-analysis was utilized to 1) compare participants in each study to the CA across demographic and socioeconomic characteristics and 2) weight study effect sizes to determine presence and magnitude of cumulative differences across these indicators.

Results: Relative to the CA, bCCT participants a) comprised a significantly smaller proportion of older adults (p=.004) and b) originated from counties with higher educational attainment (p=.009). However, a trend was observed such that bCCT participants originated from lower income counties (p=.091). Stratifying for age and minority status, these socioeconomic inequities were not observed among non-Hispanic White patients. Among older individuals of color, bCCT participants a) originated from counties with higher educational attainment (p=.029) and b) were less likely to live in rural counties (p=.006). Similar education outcomes were observed among younger individuals of color. Further, a trend was observed such that older participants of color originated from counties with higher median incomes (p=.078).

Discussion: These results corroborate underrepresentation of older adults and individuals living in areas with lower educational attainment in bCCTs. Despite some success in minimizing underrepresentation among people of color, these results suggest that county SES may serve a critical role in predicting bCCT participation among this underserved population, especially among older adults. Further study using a larger number of sites and trials that explore underlying mechanisms of these inequities is needed to eradicate barriers to equitable bCCT participation.

14) Abstract 1305

PHYSIOLOGICAL STRESS RESPONSES TO DIGITAL SINGLE- AND MULTITASKING DEMANDS IN YOUNGER AND OLDER ADULTS

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Modern information and communication technologies are ubiquitous in the everyday life of both younger and older adults, which is often associated with an increase in multitasking (MT) requirements, which is often accompanied by the feeling of being stressed, especially in the older. We investigated physiological responses of the Sympathetic Nervous System (SNS), the Parasympathetic Nervous System (PNS), and the hypothalamic-pituitary-adrenal (HPA) axis to MT. N = 69 younger (21.7 ± 4.4 years, 18 male) and N = 80 older (70.7 ± 5.1 years, 22 male) people participated in our pre-registered study and were randomly assigned to either a single-tasking (ST) or a MT condition. The primary task was a digital reading comprehension task, which was interrupted by the secondary task (push-up notifications, which had to be memorized) in the MT condition. Saliva samples were taken before, immediately after, +10, +20, and +35 minutes after the task and the electrocardiogram was recorded continuously. ANOVAs for repeated measurements were calculated with the factors time, age group, and condition. Performance in the primary and in the secondary task was higher in the ST than in the MT condition, and the expected age effects were found. Both, sAA and HR decreased throughout the session in the

younger participants but increased during and decreased afterwards in the older. Moreover, SNS activity was higher in the MT than in the ST condition in both age groups. HRV was significantly higher in the younger than in the older but did not significantly change and did not differ between the ST and MT condition. Cortisol levels decreased throughout the session in both conditions and in both age groups with the exception that a cortisol increase between +20 and +35 minutes was found for the older participants in the MT condition. Our study confirms that physiological stress responses to MT differ between older and younger people. Only the older showed responses of both, the SNS and the HPA axis in the MT condition, indicating that solely this age group was physiologically stressed. This has important implications for the design of (digitalized) living environments for the older, because an SNS- or HPA axis overactivation can have severe health consequences in the long-term. Programs that teach this target group how to cope with MT demands and, thus, help to reduce stress are needed.

15) Abstract 1084

PERCEIVED HEART RATE IS ASSOCIATED WITH HIGHER LEVELS OF ANXIETY DURING AN ACUTE PSYCHOLOGICAL STRESSOR, WHICH PREDICTS HIGHER LEVELS OF TRAIT ANXIETY.

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Background: Acute psychological stress increases anxiety and perturbs the cardiovascular system. Prior research has demonstrated that a discrepancy exists between perceived heart rate (HR) change, HR reactivity (i.e., actual heart responses to the stressor), and anxiety in response to an acute stressor. Perceived HR, not HR reactivity, has been more closely associated with anxiety intensity experienced during a stressor. However, previous work has focused on anxiety solely in response to the stressor and did not examine trait anxiety. **Aim:** The current study sought to extend prior research by examining whether HR reactivity and perceived HR related to state anxiety intensity in response to the stressor, and whether this in turn was related to trait levels of anxiety. **Methods:** During a single laboratory visit, participants (N = 446, 61.7% female, Mage = 19.49, 66.8% White, 17.5% Hispanic or Latino) completed a resting baseline period followed by an acute psychological stressor (i.e., mental arithmetic); HR was recorded throughout. HR reactivity was calculated as: stress average – baseline average. Following the stressor, participants rated their anxiety intensity levels and perceived heart rate during the stressor. Participants also completed the Hospital Anxiety and Depression Scale (HADS) to assess trait anxiety. **Results:** The *a priori* hypothesized structural equation model demonstrated a good fit to the data (65) = 112.504, p < .001; CFI = .971; TLI = .953; SRMR = .0347; RMSEA = .041 (90% CI = .028 - .053). After controlling for covariates (e.g., gender, task engagement), perceived HR was positively related to cognitive anxiety (β = .465) and somatic anxiety (β = .644). In turn, cognitive and somatic anxiety were positively associated with trait anxiety (cognitive: β = .161; somatic: β = .165). HR reactivity was not statistically significantly associated to either cognitive (β = -.001) or somatic (β = .010) anxiety. **Conclusions:** Higher levels of perceived HR in response to a stressor are associated with higher levels of cognitive and somatic anxiety in response to the same stressor and these in turn are associated with higher levels of trait anxiety. Perceived physiological arousal appears to be a stronger component in the stress anxiety pathway than

actual physiological arousal, which may have clinical implications for managing and treating anxiety.

16) Abstract 1385

PERSEVERATIVE COGNITION REDUCES BEHAVIORAL AND ELECTROPHYSIOLOGICAL MARKERS OF REWARD RESPONSIVENESS IN WOMEN WITH DEPRESSIVE SYMPTOMS

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The impact of perseverative cognition in the development and maintenance of psychiatric disorders has been mainly investigated in the context of individuals' responses to aversive situations. Limited and contrasting evidence has emerged about the role of perseverative cognition in the positive valence systems domain. The present study combined laboratory-based assessment of reward responsiveness and electrophysiology to examine the effects of worrisome and ruminative thoughts on reward functioning. Before and after the induction of perseverative cognition or a neutral procedure, 30 women with different severity of depressive symptoms performed the Probabilistic Reward Task (PRT), yielding an objective measure of participants' ability to modulate behaviour as a function of reward. In order to assess manipulation effects on self-reported momentary mood and levels of state perseverative cognition, visual-analog scales were administered before and after each experimental session. Electroencephalography was recorded continuously throughout the protocol using an active electrode 64-channel actiCHamp system to derive event-related potentials following reward feedback. Compared to the neutral procedure, the induction of perseverative cognition led to a decreased reward responsiveness as evidenced by reduced response bias in the PRT. A slower responsiveness to reward after the induction of perseverative cognition was also supported by an increased latency of the feedback-related negativity (FRN) to positive feedback to the most frequently rewarded stimulus. A significant correlation emerged between the change of response bias and FRN latency, whereby a blunted response bias was associated with an increased FRN latency following induction. Moreover, individuals with higher dispositional levels of depressive rumination showed a greater reduction in response bias following induction. Current preliminary findings suggest that engendering state levels of perseverative cognition reduces reward responsiveness in women with depressive symptoms. Since perseverative cognition is considered a transdiagnostic risk factor for mood disorders, a better understanding of its influence on reward functioning could have important implications for precise treatment endeavors.

17) Abstract 1195

ANXIETY SENSITIVITY AND DYSPNEA REPORTS IN HEART FAILURE WITH PRESERVED EJECTION FRACTION: ASSOCIATION WITH QUESTIONNAIRE MEASURES, EXERCISE CONDITIONS, AND VENTILATION

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Background: Anxiety sensitivity, the fear of anxiety symptoms, has been linked to elevated symptom reports in health and illness. Reports of dyspnea in patients with heart failure with preserved ejection fraction (HFpEF) could be affected by aniety sensitivity when dyspnea is explored as a global, enduring characteristic of the patient, rather than as a momentary response to a dyspnea challenge such as exercise testing (measured by ratings of perceived breathlessness [RPB] and its unpleasantness [RPU]). However, situational cues, such as substance administration eliciting unusual physical sensations, could elevate symptom report in patients with higher anxiety sensitivity. Method: Fifty-seven HFpEF patients (37 women, mean age 71.4 years) completed the Anxiety Sensitivity Index (ASI), Dyspnea-12 questionnaire, and mMRC Dyspnea scale, and assessments of body composition and pulmonary. All patients performed a six-minute constant-load cycling test at 20W and an incremental cycling test to exhaustion with placebo or sublingual nitroglycerin in a single-blind, cross-over design. RPB and RPU were measured using the modified Borg 0-10 scale at rest, together with ventilation and blood gases, during the final minute of constant-load cycling, and immediately after the incremental cycling test. Results: Controlling for sex, age, % regional body fat, and forced vital capacity, ASI scores significantly predicted Dyspnea-12 but not mMRC Dyspnea scores. Across pre-exercise and exercise, $PaCO_2$ was lower, and minute ventilation and breathlessness were higher, with nitroglycerine. Under this condition, those with higher ASI scores also reported more breathlessness across the exercise protocol, and lower $PaCO_2$ during baseline, which was significantly different from the associations under placebo condition. Thus, patients with HFpEF who are high in anxiety sensitivity report exaggerated levels of dyspnea on some global ratings. This association is also seen to a smaller extent in momentary assessments of dyspnea in response to exercise, but only when additional physical sensations and changes in ventilation were elicited (e.g., by substance administration). Conclusion: Overreporting of dyspnea and mild hyperventilation need to be considered when testing HFpEF patients that are high in anxiety sensitivity under conditions that elicit unexpected physical sensations.

18) Abstract 1393

SEX DIFFERENCES IN THE COURSE OF HEALTH-RELATED QUALITY OF LIFE AND PSYCHOLOGICAL DISTRESS AMONG COLORECTAL CANCER PATIENTS

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Background: Sex differences in the incidence and mortality of colorectal cancer (CRC) are well documented, while little is known about sex differences in patients' health-related quality of life (HRQoL) and psychological distress. Given the increasing emphasis on the importance of providing patient-tailored care, the aim of this study is to examine sex differences in HRQoL and psychological distress among CRC patients from diagnosis up until 2-year follow-up.
Material and Methods: Newly diagnosed CRC patients from four Dutch hospitals were eligible for participation. Patients (N=334) completed questions on HRQoL (EORTC QLQ-C30) and psychological distress (HADS) before initial treatment (baseline), four weeks after surgery, and one and two years after diagnosis. Also, HRQoL and psychological distress was assessed in a sex- and age-matched reference population.
Results: When directly comparing female (N=126, 38%) and male (N=208, 62%) CRC patients, results showed that female patients reported significantly worse HRQoL, such as more insomnia at baseline, worse physical and role functioning four weeks after surgery, more diarrhea at 1-year, and more pain and constipation at 2-year follow-up. However, comparison with a sex- and age-matched reference population revealed worse HRQoL and more psychological distress among male patients. For example, at 1- and 2-year follow-up, male patients reported significantly worse cognitive and social functioning, more insomnia, and more anxiety compared to healthy males.
Conclusions: Especially male CRC patients reported worse HRQoL and more psychological distress from diagnosis up until 2-year follow-up when compared with a reference population. As we seek to provide patient-tailored care, information provision and care should be sex-specific.

19) Abstract 1146

THE EFFECTS OF HABITUAL SEDENTARY TIME ON BASAL BLOOD MARKERS OF INFLAMMATION: A SYSTEMATIC REVIEW

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Background: Sedentary behaviour (SB) is a risk factor for many non-communicable diseases (NCD) and is independent of physical activity. SB refers to activities with a MET value of <1.5 in a sitting/reclining posture (excluding sleep). Associations between prolonged SB and NCD risk may be explained by chronic low-grade inflammation. Acute inflammation is an essential immune response which is vital for effective host defence, but chronic inflammation can be detrimental and lead to negative health consequences. Hence, this review aimed to explore the effects of habitually accrued SB on circulating markers of inflammation at rest.
Methods: Terms relating to SB and markers of inflammation were combined and searched in relevant databases (PubMed; Scopus; Cochrane library; Sports Discus; Embase; Web of Science). Inclusion criteria comprised: human adults (males and females, aged ≥18y); healthy or patients with cardiometabolic diseases; a validated, self-reported or device-based measure of SB; a measure of resting blood markers of inflammation.
Results: 1686 papers were screened, with 31 studies included. Inflammatory measures included C-Reactive Protein (CRP; 24/31 studies) and Interleukin-6 (IL-6; 11/31 studies). Of 24 studies measuring CRP (mean age = 54y), 15 reported significantly higher CRP levels with greater volumes of daily SB but this was no longer significant in 4 studies once relevant

covariates were added (e.g. Body Mass Index). Of the 11 studies measuring circulating IL-6 (mean participant age = 56y), 6 studies reported a significant (5/6 = positive; 1/6 = negative) relationship between SB and IL-6. In 2 of these studies, the relationship was attenuated with the addition of significant co-variates (e.g. waist circumference) into the models.

Conclusions: Our review suggests engaging in more daily SB may promote a heightened inflammatory profile in predominantly older adults. However, large heterogeneity in study design, definitions/measurement of SB, and inflammatory markers measured makes drawing firmer conclusions difficult. Future research needs to be more consistent to ascertain the effects of reducing SB (and the quantity required) on resting levels of inflammation in younger adults which may be useful to inform public health guidelines for reducing NCD risk.

21) Abstract 1373

PREDICTORS OF SELF-RATED HEALTH AMONG PREGNANT LATINAS

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Self-rated health (SRH) is an important predictor of maternal and infant health outcomes. However, predictors of SRH in pregnancy are not well understood, particularly among women of ethnic minority backgrounds. Using a biopsychosocial approach, this study examined how 1) sociocultural factors including discrimination and familism 2) physiological markers (i.e., hair cortisol, placental corticotrophin-releasing hormone [pCRH], and sleep quality) and 3) personality factors (i.e., positive trait emotion) relate to SRH among pregnant Latinas. Data were obtained from a larger study that investigated predictors of postpartum depressive symptoms. Pregnant Latinas (N = 50) in their second trimester (gestational age M = 20.71±4.95 weeks, M age = 26.46, SD = 5.86; 48% foreign-born, 90% Mexican origin) reported on their SRH (1= "*excellent*" to 5= "*poor*") and responded to questionnaires about experiences of discrimination, familism, sleep, and positive trait emotion. Participants also provided hair and blood samples.

Five ordinal logistic regressions were estimated to predict SRH. All models included nativity, socioeconomic status, and gestational age as covariates. The model using sociocultural factors as predictors revealed that everyday discrimination (OR = .84, SE = .05 p = .005) and familism (OR = .87, SE = .05 p = .021) predicted lower odds of poor SRH. Higher pCRH was associated with increased odds of poor SRH (OR = 3.63, SE = 2.34 p = .046). Finally, positive trait emotion was associated with decreased odds of poor SRH (OR =.92, SE = .25 p = .003). There were no other significant predictors of SRH. Elevated pCRH concentrations have been linked to adverse health effects but our study may be among the first to document its association with poor SRH. Consistent with previous research, we found health protective effects of familism and positive trait emotion. Our results show the complexity of the sociocultural environment in that for immigrant Latina women, experiencing higher discrimination could be a negative experience that accompanies positive changes (e.g., better wages) that result from migrating, which may be in turn associated with better SRH.

22) Abstract 1429

ASSOCIATIONS BETWEEN NEIGHBORHOOD SOCIOECONOMIC DEPRIVATION AND MARKERS OF CHRONIC STRESS, HEMATOPOIETIC, AND INFLAMMATORY ACTIVITY FROM FDG-PET/CT SCANS AMONG COMMUNITY-BASED WOMEN IN WASHINGTON, DC.

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Introduction: Neighborhood socioeconomic deprivation is a source of chronic stress and is associated with chronic inflammation. Prior studies have demonstrated relationships between measures of chronic stress, hematopoietic activity, and inflammation from FDG-PET/CT imaging and cardiovascular disease risk. However, the upstream stressors that may relate to these measures are not well understood. Therefore, we explored the relationship between neighborhood socioeconomic deprivation as a social determinant of health and source of chronic stress and amygdala, bone marrow, splenic, liver, and subcutaneous fat activity. **Methods**: Participants were recruited to the NIH Clinical Center and underwent FDG-PET/CT scans to assess amygdala activity as a marker of chronic stress and bone marrow, splenic, liver, and subcutaneous fat activity as markers of hematopoietic and inflammatory activity. Neighborhood socioeconomic deprivation (NSD) was measured using US Census data, with higher scores indicating more deprivation. Linear regression modeling was used to investigate relationships between NSD and imaging measures. Both unadjusted models and models adjusted for age, race, and BMI were examined. **Results**: Our analytic sample consisted of 76 female participants living in Washington, D.C. (mean age 50±18 years, 83% Black). NSD associated with amygdala (β=0.26, p=0.02), bone marrow (β=0.40, p<0.001), splenic (β=0.44, p<0.001), liver (β=0.46, p<0.001), and subcutaneous fat (β=0.32, p=0.006) activity in unadjusted models. When adjusting for age, race, and BMI, the relationship between NDI and amygdala (β=0.23, p=0.14), splenic (β=0.12, p=0.18), liver (β=0.14, p=0.08), and subcutaneous fat (β=0.04, 0.80) activity attenuated. NSD remained significantly associated with bone marrow activity (β=0.22, p=0.02) independent of these covariates. **Conclusions**: We highlight associations between neighborhood socioeconomic deprivation and amygdala, bone marrow, splenic, liver, and subcutaneous fat activity among women living in Washington D.C. Our findings suggest potential pathways by which neighborhood stress relates to neurobiological activity and the hematopoietic system. Future interdisciplinary work is needed to evaluate how additional social determinants of health may relate to imaging measures of chronic stress and inflammation that may predict disease risk.

23) Abstract 766

ASSOCIATION BETWEEN GLOBAL SLEEP QUALITY AND

CORONARY MICROVASCULAR FUNCTION IN MALE PHYSICIANS WITH OCCUPATIONAL BURNOUT

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Background: Occupational burnout has been associated with an increased risk of coronary heart disease, although the mechanisms involved are elusive. We investigated whether poor global sleep quality is associated with impaired coronary microvascular function in male physicians, a professional group at increased risk for burnout. **Methods:** Study participants were 30 male physicians with clinical burnout and 30 controls without burnout defined by the Maslach Burnout Inventory. Global sleep quality was measured with the Pittsburgh Sleep Quality Index (PSQI). Endothelium-dependent (cold pressor test) and endothelium-independent (adenosine challenge) coronary microvascular function were quantified with myocardial perfusion positron emission tomography. In multivariable analyses, the interaction between burnout and the PSQI global score was regressed on measures of coronary microvascular function, adjusting for age, body mass index, physical activity, alcohol consumption, and main effects of burnout and PSQI score. **Results:** The prevalence of poor sleepers (PSQI score >5) was 40% in the burnout group and 10% in the control group. Adjusting for covariates, burnout-by-global PSQI score interactions were observed for myocardial blood flow (MBF) at rest (r partial=-.30, p=.029), endothelium-dependent coronary flow reserve (r partial=.24, p=.079), MBF response (r partial=-.28, p=.039), and hyperemic MBF (r partial=-.33, p=-.016). The global PSQI score was inversely associated with these MBF measures in the burnout group relative to the control group. No significant interactions emerged for endothelium-independent MBF. **Conclusions:** In male physicians with occupational burnout, poor global sleep quality was associated with reduced endothelium-dependent coronary microvascular function, suggesting a mechanism by which burnout may affect cardiovascular health.

24) Abstract 976

HOW WELL DID YOU COPE WITH COVID?: EARLY LIFE ADVERSITY INFLUENCES COPING STRATEGIES DURING THE COVID-19 PANDEMIC

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Coping strategies used during the COVID-19 pandemic may be a result of adverse childhood experiences (ACEs) and trait responses to emotion (TREs). TREs are personality traits that develop from the consistent ways one copes with emotions over time and are characterized by three latent dimensions (approach to avoidance, control to dyscontrol, and emotion engagement to emotion disengagement). TRE development can be positively or negatively influenced by the presence of early life adversity. We hypothesized that those who experienced ACEs would be more likely to develop higher levels of avoidance, dyscontrol, and disengagement tendencies that would lead to more usage of avoidant coping strategies compared to those who did not experience ACEs. We also hypothesized that higher levels of approach, control, and engagement tendencies would be associated with more usage of problem-focused coping strategies, and higher levels of avoidance, dyscontrol, and disengagement tendencies

would be associated with more usage of avoidant coping strategies. Turkprime participants (N = 378) completed a web-based assessment of personality, ACE, TRE, and coping strategies. In mediation models, TRE approach and emotion engagement mediated the relationship between ACEs and coping strategies (e.g., positive reinterpretation for growth, mental disengagement, venting, instrumental social and emotion support, planning, and active coping). Further, in multiple regression models, after applying Benjamini-Hochberg corrections, 18/18 coping strategies had significant relationships with TREs. People with higher approach, control, and engagement with emotions used more emotion-based and social coping strategies during COVID-19, such as acceptance, social support, and cognitive reappraisal. People with higher control and engagement with emotions used more distraction and avoidant coping strategies during COVID-19, such as denial, substance use, and self-criticism. ACEs were positively associated with engagement with emotions which resulted in both adaptive and maladaptive coping strategies during COVID-19, demonstrating how ACEs and TREs can impact later life coping strategy use.

25) Abstract 775

POSTTRAUMATIC STRESS DISORDER, TRAUMA, AND ACCELERATED BIOLOGICAL AGING IN A DIVERSE COHORT OF POST-9/11 VETERANS

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People who experience trauma and develop posttraumatic stress disorder (PTSD) are at increased risk for poor health. Biological aging has been proposed as one physiological mechanism that might explain negative health consequences for people who experience trauma and develop PTSD, as accelerated aging is associated the accumulation of chronic diseases, disability, and premature mortality, making it a health-relevant physiological mechanism. Using data from 2,309 post-9/11 United States military veterans who participated in the VISN 6 MIRECC's Post-Deployment Mental Health Study, we tested whether PTSD and trauma exposure were associated with accelerated biological aging, assessed using a validated DNA methylation (DNAm) measure of epigenetic aging—DunedinPACE. We also examined whether these associations replicated across sex (male and female) and race/ethnicity (non-Hispanic Black and non-Hispanic White). Veterans with PTSD, as assessed by a gold-standard clinical interview, were aging faster than those who did not have current PTSD, $\beta = 0.11$ 95% CI [0.07, 0.15], p < .001. This effect represented an additional 0.4 months of biological aging each year. Veterans were also aging faster if they self-reported more PTSD symptoms, $\beta = 0.13$ 95% CI [0.09, 0.16], p < .001, or higher levels of trauma exposure, $\beta = 0.09$ 95% CI [0.05, 0.13], p < .001. In addition, veterans with PTSD in the past but did not meet current criteria were aging more slowly than those with current PTSD, $\beta = -0.07$ 95% CI [-0.13, -0.05], p = .002. Their aging was more similar to veterans who never had PTSD. These associations replicated when stratifying by sex and race/ethnicity—PTSD diagnostic status, PTSD symptoms, and trauma exposure were associated with faster aging for both male and female veterans, as well as for non-Hispanic Black and non-Hispanic White veterans. All results replicated when accounting for age, gender, ancestry, and education, and smoking. Our findings suggest accelerated

biological aging could help explain how PTSD contributes to poor health, including among different demographic groups of veterans deployed in the post-9/11 period. This work highlights the potential benefits of providing efficacious treatment to populations at increased risk of trauma and PTSD, with the potential to improve health as people age.

26) Abstract 1232

IMPACT OF ACES ON PERCEIVED EMOTIONAL AND MEASURED BIOLOGICAL STRESS IN RESPONSE TO AN EXPERIMENTAL ACUTE STRESSOR

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Background: Perceived stress is the subjective emotional appraisal of external stimuli. Adverse Childhood Experiences (ACEs) are linked to impaired emotional regulation. Previous literature suggests that disruptions in regulation may lead to chronic hyperactivity and failure to regulate post-stress. This study examines the role of ACEs on perceived emotional and biological indicators of stress (i.e., cortisol, and blood pressure) following an acute stressor. **Methods:** Females with excess adiposity (N=40; M=32.3±9.42) were recruited. ACEs were assessed during screening and categorized into low (0 ACEs), medium (1-4 ACEs), and high groups: (5+ ACES). Baseline emotional stress perception was assessed via Visual Analogue Scale (VAS); serum cortisol via peripheral intravenous catheter; and blood pressure (BP) via sphygmomanometer. Participants were exposed to an evaluated speech task stressor. Stress perception, cortisol, and BP were measured immediately post-stressor. Perceived stress and cortisol were also measured 30-, 60-, and 90- min post-stressor. BP was again taken 90 minutes post-stressor. Change scores for emotional stress were created by subtracting post-stress test perceived stress scores at each time point (immediately, 30 min, 60 min, and 90 min) from baseline perceived stress. Area under the curve increase (AUC) was calculated for change between baseline and follow up time points for cortisol and BP. **Results:** ANOVAs were used to test differences in ACE groups and perceived stress at each time point. Stress scores were different between ACE groups at 60-min post-stressor (f=3.51, p= 0.038). Pair-wise comparisons showed that the medium ACE group had decreased change in perceived stress than the high ACE group at 60-min (t=-2.49, p=0.018) and 90-min (t=-2.02, p=0.052). Meaning that participants with medium ACEs still had elevated stress perception at 60-90- minute time points compared to the high ACE group. No other differences were observed. AUC of cortisol and blood pressure measures were not different between the ACE groups and did not correlate with perceived stress. **Discussion:** Participants who reported a mid-range of ACEs had higher elevations of perceived stress to those with high ACEs at the 60- and 90-minute follow-up, which could be indicative of emotional resilience or blunting. These differences were not reflected in the biological markers.

27) Abstract 1063

THE INTERPLAY OF VARIOUS FORMS OF DISCRIMINATION ON STUDENTS OF COLORS' PSYCHOLOGICAL WELL-BEING

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Research has shown that college students of color are two to four times more likely to experience discrimination in comparison to their White peers. Subsequently, students of color experiencing discrimination report an increased risk of adverse health outcomes. However, few studies have examined the complex nature of discrimination through various forms and its collective impact on students of colors' health and well-being. The aim of the current study is to explore the relationship of various forms of discrimination (i.e. everyday, racial/ethnic microaggressions, and perceived). Participants consisted of 535 undergraduate students recruited from two large public universities. The majority of participants identified as Black (40.5%), Asian/Asian American (27.5%), Hispanic/Latino (22.0%), Native American (0.5%), and other groups (9.5%). Participants were 18 to 26 years old (M = 19.80 years, SD = 1.98), and completed an online survey asking questions about, but not limited to, demographics, discrimination, and psychological well-being. In separate models, results showed the experience of everyday and perceived discrimination independently predicted psychological well-being of students of color, but not racial/ethnic microaggressions. A multiple linear regression was run to test if discrimination collectively predicted psychological well-being while controlling for age and gender. Results showed that two types of discrimination predicted psychological wellbeing: everyday ($β$ = -.25, p < .001), microaggressions ($β$ = .12, p =.011); perceived ($β$ = -.06; ns). The collective model accounted for 7.3% of the variability in psychological well-being, F(5,535) = 9.39, p < .001. Contrary to expectations, an ad-hoc exploration revealed experiences with racial microaggressions, specifically assumptions of inferiority, were positively associated with well-being ($β$ = .16, p<.001). This subset of racial/ethnic microaggressions seem to be a motivating factor for students to better themselves. Overall, results revealed that students of color experience multiple forms of discrimination that influence their mental well-being. Research and professional practice should further consider how the interaction of multiple forms of discrimination can affect health and wellbeing in the long term.

28) Abstract 1258

VAGALLY MEDIATED HEART-RATE VARIABILITY AS A PHYSIO-MARKER OF ANXIETY IN PEOPLE WITH PARKINSON'S DISEASE

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Background Anxiety is a common neuropsychiatric symptom in people with Parkinson's (PwP), which causes poor quality of life.
Heart rate variability (HRV) is a measure of sympatho-vagal balance; decreased HRV has been linked with depression and anxiety.
Aim: to evaluate HRV in PwP with and without anxiety.

Methods Forty PwP (20 with and 20 without anxiety) completed questionnaires for anxiety, depression and quality of life. Heart rate was recorded using a sensor incorporated in a belt worn around the chest over six consecutive minutes at rest (sitting) and after orthostatic challenge. Patients were evaluated both OFF and ON levodopa. Time-domain analysis was used to determine vagally mediated HRV index (the root mean square of successive differences between consecutive heartbeats, RMSSD).

Results Factorial ANOVA with group as between groups factor (PD with anxiety, PD without anxiety) and orthostatic challenge (sitting, standing) and medication (OFF medication, ON medication) as within subjects factors showed a significant effect of position (F=17.4, p<0.001) and of the interaction between position*medication*group (F=4.2, p=0.04). Post hoc analysis showed that PD with anxiety had lower RMSSD standing OFF medication as compared to PD without anxiety (p=0.03).

Conclusion HRV is a promising physiological marker for identifying and tracking anxiety in people with PD.

29) Abstract 1055

STRESS MINDSET IS PROTECTIVE AGAINST LONGITUDINAL CHANGES IN PERCEIVED STRESS, DEPRESSION, AND SOMATIC SYMPTOMS OVER THE COVID-19 PANDEMIC FOR WHITE BUT NOT BLACK ADOLESCENTS.

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Stress mindset refers to viewing the broader nature of stress as enhancing (SIE) or debilitating. In laboratory and cross-sectional studies, SIE impacts stress responses and depressive symptoms, but stress mindset effects in longitudinal studies and diverse samples have been less studied. We address two questions: 1) Does a SIE mindset lead to lower levels of perceived stress and fewer depressive and somatic symptoms over the course of the pandemic? 2) Is a SIE mindset equally protective for Black Americans who face unique stress due to systemic racism and discrimination, stressors for which mindset may not be an effective coping strategy?

Participants were drawn from two time points of the Adolescent Health and Development in Context longitudinal study of environmental and social factors on the development of youths in Columbus, OH (Wave 4: N=176, 68% black, M_{age}=16.6; Wave 5: N=143, 71% black, M_{age} = 17.2) Measures: youth version of the Stress Mindset Measure (W4 only), Cohen's Perceived Stress Scale, Center for Epidemiological Studies Depression Scale, and Patient Health Questionnaire 15 for somatic symptoms.

Race significantly moderated the effect of stress mindset on the change in depressive symptoms (p= .004, B_{Black}= .02, B_{White}= -.42) and perceived stress (p=.03, B_{Black}= .14, B_{White}= -.34). Significant moderated mediation analyses show that stress mindset indirectly reduced future somatic symptoms through future depression for white youth (B= -4.25, 95% CI[-6.49,-2.52]) but not black youth (B= -.35, 95% CI[-1.57, .66]). Similarly, stress mindset indirectly reduces future somatic symptoms through future perceived stress for white youth (B= -2.34, 95% CI[-4.70,-.53]) but not black youth (B= .018, 95% CI[-.87,.93]). Wave 6 is currently in the field and will be completed by the time of the conference so that the relationship between stress mindset and changes in C-Reactive Protein, an inflammatory marker, as well as another

wave of psychological and somatic measures will be assessed.

Stress mindset may protect against longitudinal increases in perceived stress and stress outcomes due to a chronic, national stressor, but only for white participants. Thus, there may be boundary conditions on the nature of stressors that mindset can protect against, indicating that systemic factors should be considered when designing stress interventions.

30) Abstract 933

PERSEVERATIVE COGNITION IS ASSOCIATED WITH LOW HEART RATE VARIABILITY DURING RECOVERY FROM ANTICIPATED STRESS

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The perseverative cognition hypothesis suggests that persistent worry, rumination and anticipatory stress can lead to a prolonged stress response, even in the absence of the stressor itself, in turn leading to pathogenesis and disease. Further, high trait perseverative cognition is associated with chronic low heart rate variability, indicative of increased sympathetic arousal and reduced parasympathetic activity. However, less is known about the influence of trait perseverative cognition on heart rate variability to acute anticipated stress. In the current preregistered study, 47 individuals completed the Perseverative Thinking Questionnaire to measure trait perseverative cognition. In a subsequent laboratory visit, beat-to-beat cardiovascular functioning was measured during an anticipatory stress protocol in which participants were required to prepare to give a speech and perform a mental arithmetic task in front of a panel. In reality, no actual stressor followed this period of anticipatory stress, with all participants being told that they were in a control group and thus wouldn't undergo the stressor. Heart rate variability was reduced during the anticipation phase of the protocol and higher trait perseverative cognition was associated with lower heart rate variability in the recovery phase. This indicates that high trait perseverative cognition is associated with prolonged sympathetic arousal and delayed activation of the parasympathetic nervous system following acute anticipated stress. These findings suggest a further mechanism via which perseverative cognition can lead to a prolonged stress response and subsequent disease. Further, these findings provide evidence that anticipated stress is a valid means of eliciting a cardiovascular stress response in the laboratory.

31) Abstract 1439

NEGATIVE AFFECT AND CARDIAC-FEAR AUGMENT POOR PAIN OUTCOMES AMONG ADULTS WITH CONGENITAL HEART DISEASE (CONHD)

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Pain may signal a life-threatening heart problem, particularly for a person with living with congenital heart disease (CHD). Symptom perceptions related to the heart (i.e., recognizing, interpreting sensations indicative of the heart problem) can lead to uncertainty, worry, and anxiety for a person living with congenital heart disease. Anxiety is a natural, normal reaction. Excessive, unmanaged anxiety is associated with systemic inflammation and worse long-term outcomes for adults with both acquired and congenital heart disease (Carazo et al., 2020). Research is lacking on the intersection between pain

and the emotional substrates when bridging into care models. We present empirical data on symptom perception of pain and its distribution and to test a theoretical framework for symptom perception as it relates to outcomes, including the independent and combined impact of medical and psychological risk among 106 outpatients (46% female) with CHD. Our sample represented a wide-range of pain experiences, and included both tails of the distribution (i.e., quartiles), SF-36 Pain Scale IQR = 32.5, R 22.5–100. About one-third reported persistent, at least moderately intense pain interfering with daily life. Univariate tests showed poorer pain correlated with advanced age but not heart defect complexity. Findings from multivariable regression analyses showed advanced age, anxiety, depression, but not cardiac fear, accounted for independent variance, and the final equation accounted for 46.4% of variance in pain outcomes, $F(10, 77) = 5.70$, $p = .001$, $f2 = .85$. Cardiac fear augmented age–pain and anxiety–pain associations. For the anxiety–pain association, cardiac fear augmented pain when anxiety was at or below sample mean; at acute anxiety, pain did not vary across cardiac fear (i.e., identical). The final equation and its error and fit estimates met acceptable predictive performance standards when submitted to cross-validation using bootstrapping 95% CI for BCa R2 [0.2272, 0.5584]. Poorer pain outcomes were driven by advanced age and negative affect—and cardiac fear may underlie these associations. The specific impact of well-designed multi-component interventions leading to evidence-based outcomes remains uncertain for patients with congenital heart disease.

32) Abstract 849

PSYCHOLOGICAL AND CLINICAL CORRELATES OF FATIGUE, PAIN AND INCONTINENCE IN INFLAMMATORY BOWEL DISEASE: A LATENT PROFILE ANALYSIS.

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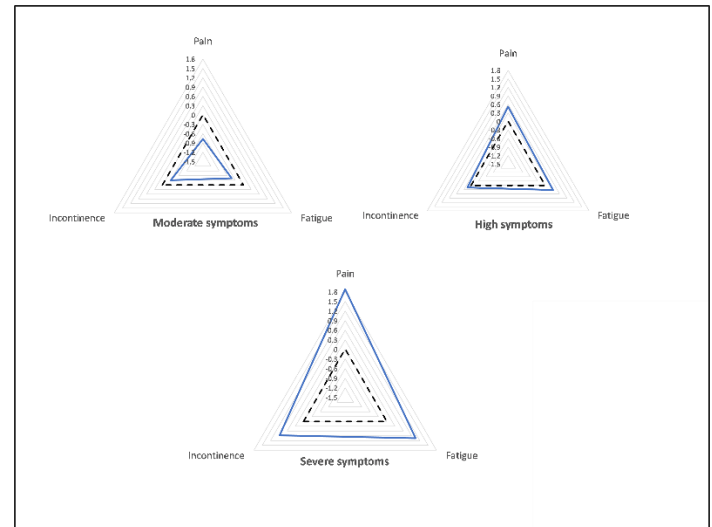
Background Inflammatory bowel disease (IBD) causes symptoms of fatigue, pain and incontinence which can persist in remission. Identifying symptom profile subgroups might enable more effective treatment pathways tailored for patients' needs. This study investigated how symptoms cluster in individuals with IBD and identified associated clinical, demographic, and psychological factors.
Methods This study was nested within a larger randomised controlled trial of a digital symptom self-management intervention for people with IBD (n=780). Latent profile analysis (LPA) was conducted on pre-randomisation baseline measures of fatigue (IBD-F), pain (NRS) and incontinence (Vaizey). Participants with a stoma (n=48) were excluded from analysis. To determine the best-fitting symptom profile, model fit statistics were evaluated alongside the clinical interpretability of the model and sample size of each profile. Multinominal logistic regression, adjusted for inverse probability sample weights, examined associations between profile membership and clinical including inflammatory (faecal calprotectin), demographic and psychological factors also collected at baseline. Analyses was conducted in Stata v17 and Mplus v8.
Results LPA determined a three-profile model (Fig 1) as the most appropriate; Moderate symptoms profile (n=366, 50%), High symptoms profile (n=296, 40.4%) and Severe symptoms profile (n=70, 9.6%). Diagnosis (ulcerative colitis or Crohn's) and faecal calprotectin were not associated with profile membership, but female gender, comorbidity, time since

diagnosis and IBS Rome criteria were associated with High and Severe symptoms profiles. Compared to the Moderate symptoms profile, depression, anxiety, negative illness perceptions, all-or-nothing behaviours, and avoidance all significantly increased the relative risk of being in the High and Severe symptoms profiles. Self-efficacy was associated with a reduction in risk.
Discussion 50% of trial participants experienced High or Severe symptom burden across all three symptoms of fatigue, pain, and incontinence. After controlling for clinical, inflammatory, and demographic factors, the relative risk of High or Severe symptom profile membership was associated with modifiable psychosocial factors, suggesting behavioural methods may be appropriate to lessen the severity of symptom burden experienced in this group.

33) Abstract 972

INFLAMMATION IN SOCIAL CONTEXT: THE DIFFERENTIAL INFLUENCE OF INFLAMMATION ON SOCIAL CONNECTION EXPERIENCES WITH CLOSE VS. LESS FAMILIAR OTHERS

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Contrary to the prevailing view that inflammation leads to social withdrawal, emerging evidence suggests inflammation, under certain contexts, may enhance social affiliative behaviors in humans as well as non-human animals. Minor increases in inflammation may signal the need to bolster social resources for care or protection in preparation for potential illness. Consequently, the desire for and experience of social connection may be enhanced with close others when inflammation is heightened. Yet, the little (and mixed) research on social connection and inflammation generally does not discriminate between social target types (e.g., close others vs. strangers) and lacks interaction-level, theory driven measurement of social connection. To address these limitations, we assessed connection by measuring the emotional quality of specific social interactions, and assessed observed and self-reported approach and avoidance motivation as pre-cursors to quality connection. 55 participants completed 8 ecological momentary assessments over three days, and completed lab writing tasks that were independently

coded, and provided blood samples on days 2 and 3, consecutively. When anticipating a future social interaction with a close other in an in-lab writing task, greater IL-6 levels were associated with less observed avoidance motivation and less self-reported avoidance of interaction. Unexpectedly, when anticipating a future social interaction with an unknown other in the community, greater IL-6 levels were associated with expecting significantly greater emotional-quality connection. However, in EMA reports of actual interactions with strangers and acquaintances, greater IL-6 levels were associated with lower emotional quality. This pattern of findings for less familiar others might suggest inflammation may enhance a desire, or signal a need, to connect with others, but that the experience of connection may fall short during such interactions. The pattern of findings for close others supports growing research suggesting inflammation is not associated with uniform social withdrawal. Broadly, these findings have implications for understanding the role of inflammation in social connection, a pressing public health issue, and underscores the need for more specific and nuanced measurement of social affiliative experience within PNI research.

34) Abstract 1392

LONGITUDINAL ASSOCIATIONS BETWEEN SENESCENCE-ASSOCIATED BIOMARKERS AND PERIPHERAL NEUROPATHY SYMPTOMS AMONG COLORECTAL CANCER PATIENTS.
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Background: Peripheral neuropathy (PN) is frequently reported by colorectal cancer (CRC) survivors. Although chemotherapy is a major inducer, underlying mechanisms remain largely unclear. Recent in vitro and mice studies have demonstrated the novel relationships between cellular senescence and PN. The present longitudinal study is the first to examine whether PN is associated with markers of cellular senescence among CRC patients.
Methods: CRC patients with the highest (HPN, n=38) and lowest PN scores (LPN, n=38) from the PROCORE study were selected. PN was assessed with the EORTC QLQ-CIPN20 at baseline (after CRC diagnosis, yet prior to treatment) and at two-year follow-up. Senescence-associated secretory phenotype (SASP) factor (IL-1α, IL-1β, IL-6, IL-8, TGF-α, growth/differentiation factor-15 (GDF-15) and serpin E1 (plasminogen activator inhibitor-1); plasma NAD$^+$ levels; leukocyte telomere length (LTL); leukocyte CD38; and sirtuin activity will be measured in plasma collected at baseline and 2-year follow-up.
Results: Assessment of the plasma-measured biomarkers of senescence will be finalized in January. Associations between changes in markers of senescence and changes in PN will then be analyzed by longitudinal multivariate regression analyses and adjusted for sex- and age. Analyses will be run for total PN, sensory, motor, and autonomic PN separately. To examine whether chemotherapy mediates these associations, stratified analyses will be performed by chemotherapy (yes/no).
Conclusions and Implications: Although our study is small, this is the first study to examine various markers of cellular senescence with PN.

35) Abstract 1040

SOCIABLE PHYSICAL ACTIVITY USING ONLINE RESOURCES CAN BENEFIT SOCIAL, MENTAL, AND PHYSICAL HEALTH IN OLDER ADULTS IN RESIDENTIAL CARE: EVALUATING THE DANCESING CARE PROGRAMME.
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Background: Social physical activity can benefit mental and physical wellbeing among older adults, but most studies are conducted in relatively independent community-based older people. Low physical activity in care home residents is related to about negative mental health outcomes, such as depression and loneliness. This study was designed to increase physical activity through a group-based online physical activity (music and movement) resource and to examine its effectiveness on social, mental, and physical health outcomes among older adults in residential care homes. **Methods:** Participants were 34 older adults (aged 65 years+) recruited from four care homes in Scotland. Psychometric questionnaires were administered at baseline and post-intervention comprising fear of falling, depression and anxiety, loneliness, sleep satisfaction and health-related quality of life. A battery of physical function tests and saliva sampling for cortisol and dehydroepiandrosterone hormone analysis was also conducted. The intervention comprised 12 weeks of three prescribed digitally delivered music and movement (n=2) and music-only (n=1) sessions per week. Local activity coordinators delivered the online resource in the care home. Post-intervention semi-structured interviews with a sub-sample of staff and participants were conducted to gain qualitative data on the acceptability of the intervention. **Results:** Average session delivery rate was 88% (range 58-119%). Intention to treat analysis revealed significant improvements in anxiety, salivary DHEA, fear of falling and loneliness. There were no significant improvements in health-related quality of life, perceived stress, sleep satisfaction, the Short Physical Performance Battery total or individual scores, handgrip strength, Fried Frailty Phenotype Score, cortisol or cortisol:DHEA. Qualitative analysis illuminated barriers and benefits of the programme. **Conclusions:** The physical activity intervention was deemed acceptable and delivered with moderate fidelity justifying progression to a full-scale trial. Psychosocial effects were evident, but to show significant or clinically meaningful improvements in physical function and salivary hormone balance it is likely that greater adherence, longer intervention and/or higher intensity exercise would be necessary, which remains to be tested in future research.

36) Abstract 1335

A DYADIC LONGITUDINAL ANALYSIS OF PARENT-ADOLESCENT INFLAMMATION TRENDS AND THE ROLE OF SHARED SOCIOECONOMIC CHARACTERISTICS ON FAMILY INFLAMMATION
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Background: Elevated concentration of the pro-inflammatory marker, C-reactive protein (CRP), is increasingly considered an indicator of health risk among adolescent populations.

While genetic factors and shared environmental characteristics, such as socioeconomic status (SES), indicate that adolescent CRP is likely related to parent CRP, there is limited longitudinal research comparing adolescents' inflammation trends across time with their parents' longitudinal patterns. The objective of the present study was to quantify the magnitude of familial interdependency in parent-adolescent longitudinal inflammation trends and to examine whether shared family socioeconomic characteristics explained between-family differences in parents' and adolescents' risk for inflammation.

Methods: A total of N=348 families, consisting of one parent and one adolescent child, were followed every two years in a three-wave longitudinal study. Sociodemographic questionnaires were used to determine measures of parental educational attainment and family income-to-needs ratio (INR). At each time point, parents and adolescents collected dried blood spot (DBS) samples that were assayed for circulating CRP and log-transformed prior to analysis by longitudinal dyadic models.

Results: Dyadic models revealed significant differences in parents' and adolescents' longitudinal inflammation trends (b_{int}=-.15, p<.001). Adolescent CRP increased by approximately 38% between study waves, while parental CRP levels remained relatively stable. Parents' average CRP levels were positively correlated with adolescents' average CRP (r = .32, p <.001), but parental change in CRP over time was not significantly related to change in adolescents' change over time. Parental educational attainment, rather than family INR, explained between-family differences in average inflammation, such that families with one increment higher education had a 7.4% lower average CRP concentration. Family-SES measures did not predict change in parents' and adolescents' inflammation over time.

Conclusion: Study findings suggest that shared family socioeconomic characteristics contribute to family-dependency in parent-adolescent baseline inflammation levels and point to adolescence as an important period of inflammatory change where youth may diverge from parent inflammation trends.

Figure 1. Multilevel dyadic estimates of log-CRP random intercepts for parents and adolescents across the study period. For illustrative purposes, CRP trends are depicted below for a random sample of n=174. Thin lines indicate dyad-specific regression lines for a) parents and b) adolescents. A thick line represents the average regression line for a) parents and b) adolescents.

37) Abstract 1441

EXPERIENCES OF THOSE WITH LONG COVID: A CONTENT ANALYSIS OF PATIENT EXPERIENCES USING TWITTER

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Background: Post-acute COVID-19, or Long-COVID (LC), is a complex illness characterized by illness many weeks, months, or even years after initially becoming ill with COVID. LC remains poorly understood by the medical community. Thus, the present study characterized the sentiments and experiences of patients with LC to shed light on the needs of these patients.

Methods: The present study aggregated anonymized Twitter post data for approximately two months during the 2022-2023 Winter COVID surge (14 December 2022 – 8 January 2023) from users who tweeted using the hashtag "#LongCOVID." Retweets and repeat Tweets were removed automatically by R. After the Tweets were aggregated, three independent raters (undergraduate research assistants) rated each Tweet to determine whether it was posted by a patient with LC (i.e., the Tweet explicitly stated that the patient identified as having LC) or an advocate, caregiver, etc. To assess the unique experiences of this patient group, only Tweets from those who considered themselves to have LC were included. R was used for data aggregation and NVIVO was used for data visualization and sentiment analysis.

Results: The analysis returned a total of 8,050 unique Tweets, with the majority of Tweets being posted by advocates, caregivers, and others who did not mention personally having LC (82.2%). Of the 17.8% of Tweets from those experiencing LC (*N*=1,437), the sentiment analysis revealed that Tweets were generally negative (71.5%). Specifically, Tweets were very negative (29%), moderately negative (42%), moderately positive (19%), and very positive (9%). Negative Tweets most commonly mentioned symptoms (e.g., fatigue, cardiovascular issues) and frustration with medical care, whereas positive Tweets most commonly mentioned promising treatments and sharing advice and resources.
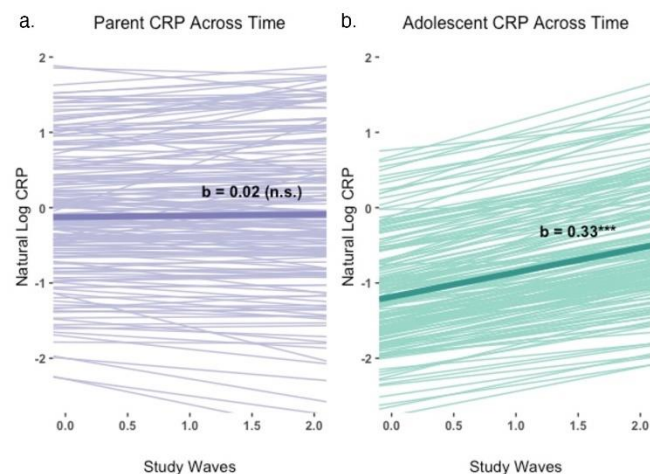
Conclusions: Findings demonstrate that those with LC suffer from a range of potentially debilitating symptoms which adversely affect their quality of life. In particular, there is an overall dissatisfaction with medical providers, especially care coordination for the range of symptoms that patients experience. Results suggest that educating providers on LC and strengthening interdisciplinary care services for those with LC remains needed.

38) Abstract 1407

ASSOCIATION BETWEEN PRE-TRANSPLANT PSYCHOSOCIAL FACTORS AND MOOD STATES IN JAPANESE PATIENTS UNDERGOING HEMATOPOIETIC CELL TRANSPLANTATION

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Background: Patients undergoing hematopoietic stem cell transplantation (HSCT) face substantial psychosocial challenges, often marked by emotional distress and a sense of isolation during their treatment. The Psychosocial Assessment of Candidates for Transplantation (PACT) has been designed to assess these psychosocial risks. A previous study confirmed the reliability and validity of the Japanese version of PACT (J-PACT). The aim of the present study was to investigate the association between pre-transplant psychosocial factors measured by J-PACT and mood states in Japanese patients undergoing HSCT to explore the usefulness of J-PACT.

Methods: The participants were 176 patients undergoing HSCT between January 2009 and August 2023, who were assessed using J-PACT and Hospital Anxiety and Depression Scale (HADS). Each J-PACT subscale scores represent aspects of psychosocial importance. Higher J-PACT subscale scores indicate better psychosocial states, whereas higher HADS scores indicate higher anxiety and depression. The relationship between J-PACT subscale scores and depression and anxiety of HADS (HADS-D and HADS-A, respectively) were analyzed. Additionally, the association between J-PACT and patient demographics such as sex, age, and primary diseases for HSCT diagnosis were analyzed.

Results: "Better personality and psychopathology" subscale of J-PACT was negatively correlated with both HADS-D (r = -0.20, p < 0.01) and HADS-A (r = -0.19, p < 0.01), which was consistent with a previous study. "Less risk for psychopathology" of J-PACT was negatively correlated with HADS-D (r = -0.24, p < 0.01), which was a novel finding. Regarding patient demographics, significant differences were observed in "lifestyle factors" (p = 0.02) and "drug and alcohol use" (p < 0.01) of J-PACT between male and female patients (worse psychosocial factors in men). Besides, significant difference was observed in "better personality and psychopathology" subscale of J-PACT between patients aged 40 years or older and those younger (p < 0.01, worse psychosocial factor in younger patients). No significant correlations were found between primary diagnosis and any of the J-PACT subscales.

Conclusion: Assessing psychosocial factors using J-PACT might be useful to support patients undergoing HSCT.

39) Abstract 1028

TYPE D PERSONALITY AND AUTONOMIC NERVOUS RESPONSES DURING ANGER SUPPRESSION

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Abstract

Objective: To clarify the psychopathological mechanisms linking Type D personality to the risk of hypertension, this study investigated the autonomic nervous response of individuals with Type D personality traits during anger suppression. The first part of this study examined the associations between suppressive emotion regulation with vagal and sympathetic activities. The second part of the study examined the differences in autonomic nervous responses to suppressive emotion regulation between individuals with Type D and non-Type D personalities.

Methods: Undergraduate students (age = 20.29 ± 1.88, 66.7% male), recruited through an online announcement, completed the Type D Scale-Taiwanese version Questionnaires and participated in an anger induction then suppression task, consisting of the following four stages: baseline, anger recall, anger suppression, and recovery.

Results: Results showed the significant vagal withdrawal during anger recall, suppression, and recovery stages compared to the baseline stage, but the sympathetic activity did not show significant changes. Furthermore, individuals with Type D personality showed a more vagal withdrawal response during the anger induction stage, a blunter vagal withdrawal response during the anger suppression stage, and a blunter vagal regulation during the recovery stage compared to the non-Type D personality counterpart.

Conclusion: First, the results validated the hypothesis of Brosschot and Thayer (1998) that emotion suppression can lead to vagal withdrawal and delayed recovery. However, the hypothesis of Mauss and Gross (2004) regarding the sympathetic rise caused by emotion suppression failed to be supported. Second, individuals with Type D personality showed a blunter vagal withdrawal response during the anger suppression stage, which may come from an already withdrawn vagal tone at the anger recall stage. In conclusion, the more pronounced vagal withdrawal response and subsequent blunter vagal regulation under social stress may be one of the possible mechanisms linking Type D personality to hypertension risk.

Key words: Type D personality, anger suppression, autonomic nervous system, vagal withdrawal

40) Abstract 1060

THE LONGITUDINAL ASSOCIATION OF PERCEIVED STRESS WITH VITAL EXHAUSTION IN PEOPLE LIVING WITH HIV

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Background: Psychological stressors experienced by people living with HIV (PWH) have been linked to a host of negative health outcomes. With HIV disease severity and progression, patients report heightened fatigue, loss of vitality, and feelings of exhaustion. However, the relationship of perceived stress (PS) with vital exhaustion (VE) in PWH over time has not been documented. A multilevel modeling approach was used to examine variation relative to the group (between) and the individual (within) mean in: 1) the association of PS with VE; and 2) whether the association of PS with VE changes over time (0, 9, and 18 months).

Methods: Data were derived from a clinical trial evaluating selenium supplementation. At study entry (month 0), 283 PWH (18-55 years; 68% men; 91.6% minorities) completed measures of PS and VE. Two additional assessment time points were also administered (9 months; n=175, and 18 months, n=123). VE was measured by the Maastricht Questionnaire, and PS by the Perceived Stress Scale. A multilevel modeling analysis was used to assess study aims. Mean-centered (continuous), and effect-coded (binary; -1,1), covariates (age, sex, treatment, viral load, and CD4 count) were used in the model.

Results: PWH who experienced higher than the group average PS also experienced higher VE values (b=.92, SE=.07, p<.001). In addition, higher PS relative to the individual mean was associated with higher VE (b=. 0.42, SE=.12, p<.001). However, time did not moderate these associations for between- or within-person differences. The marginal R^2 and conditional R^2 indicated that the current model explained 64% of the variance in VE at the group level and 35% of the variance in VE at the individual level.

Conclusions: In sum, results indicated that among PWH, the positive association of PS with VE was consistent over 1.5 years of assessment, independent of key demographic and

HIV-related disease severity indicators. HIV disease has been associated with elevated stigma and stress linked with a number of psychosocial factors that are exacerbated in minority populations. Thus, the VE linked to PS may be especially relevant in minority populations. Future research should establish whether minority status, in the context of the unique stressors experienced by these populations, moderates the effects of PS on VE in PWH.

41) Abstract 1234

COGNITIVE PERFORMANCE AND VAGAL MODULATION IN ADULTS IN THE CZECH STUDY HEALTHY AGEING IN INDUSTRIAL ENVIRONMENTNVIRONMENT

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Autonomic dysfunction is common in dementia subtypes and mild cognitive impairment, both of which are frequent diagnoses of older age. Several studies demonstrated the link between decreased autonomic modulation and worse cognitive performance long before the old age, but the evidence is far from conclusive. We aimed to assess the relationship between cognitive function and autonomic modulation, indexed by heart rate variability, in a cohort of adults aged 18 to 65yrs. We used data from the Czech study Healthy Aging in Industrial Environment (4HAIE). The analytical sample included 712 participants (309 women) with a mean age of 37.7(SD±11.3). The global cognitive score was calculated as a sum of standardized test scores from 5 tests on memory and executive function. The distribution of the score was not normal, therefore participants were categorized into those with poor cognitive performance and rest (binary variable of lowest 20% vs. rest). The main HRV variable of our interest was root mean square of successive differences between normal heartbeats (RMSSD) stratified into quartiles. After adjusting for age, sex, education and fitness level, we observed that compared with those who had RMSSD in the second quartile (Q2), those with the lowest RMSSD (Q1) had marginally higher odds of poor cognitive performance (OR:1.53;95%CI 0.97-2.42;p=0.07). In our cohort of adults aged 18-65 years we observed limited evidence of an association between cognitive performance and RMSSD, a marker of autonomic dysfunction. This research was co-funded by European union and Ministry of Education, Youth and Sports of the Czech Republic, grant number CZ.02.1.01/0.0/0.0/16_019/0000798 Program 4 Healthy Aging in Industrial Environment.

42) Abstract 1076

SLEEP TRAJECTORIES FROM ADOLESCENCE TO YOUNG ADULTHOOD IN THE US: FINDINGS FROM EAT 2010-2018

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Inadequate sleep has been linked to a number of poor health outcomes, including cardiovascular disease and mortality. The transition from adolescence to young adulthood, a period marked with changes to both one's biology and social context, may be an important period for the development and establishment of critical sleep behaviors. The present study examines the trajectories of several sleep features by socioeconomic status from adolescence to young adulthood. 1,531 participants completed surveys at both baseline (2010; mean age = 14.4) and follow-up (2018; mean age = 22.2), which included measures of weekday and weekend time in bed, fatigue, and trouble falling and/or staying asleep. Participants' socioeconomic status (SES) characterization was derived using an algorithm that took into account the parents' highest education level, eligibility for public assistance, eligibility for free or reduced-cost school lunch, and parental employment status. SES was categorized into 3 groups: low (n = 565), middle (n= 591), and high (n = 375 participants). One-way repeated measures ANOVAs were conducted to assess main effects of time and SES and interaction effects of time by SES. Participants' fatigue level increased from 2010 to 2018 (p < .001) and lower SES participants had more fatigue than those in middle (p = .001) and high (p < .001) SES categories. There was no significant difference in fatigue between middle and high SES categories and changes in fatigue over time did not differ between SES groups. Participants reported more difficulty falling and/or staying asleep over time (p < .001), but this did not differ by SES categories, or by SES categories over time. Weekday time spent in bed showed no significant effects, however, weekend time spent in bed decreased over time (p < .001) and this decrease in time was greater as SES increased (p = .001). These are initial findings with room for change. Understanding sleep during this understudied developmental period may elucidate when interventions should target sleep.

43) Abstract 826

EXAMINING RELATIONSHIPS AMONG DISCRIMINATION, SOCIAL VIGILANCE, AND SLEEP CHARACTERISTICS IN A DIVERSE ADULT MEGA-SAMPLE

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Introduction. Perceived discrimination is posited to harm health through stress response activation including interruption of biological processes such as sleep. Discrimination may evoke an adaptive need for more vigilant behavior to scan for threats in daily life, but chronic vigilance and associated physiological arousal may be a risk factor to health through multiple paths including disrupted sleep. This study aimed to assess whether social vigilance (SV) is crucial to understanding relationships between discrimination and poor sleep (quality, duration) in diverse samples.
Methods. Cross-sectional, self-reported survey data were collected in two racially/ethnically diverse samples: A college student sample from five U.S. universities (n=3,536, 64% women) and a community adult sample from the North Texas Heart Study (n=300, 50% women). All participants completed the same validated measures of perceived discrimination, trait-level SV, and self-reported sleep (quality, duration). Analyses included Pearson product correlations and mediation analyses.
Results. As expected, greater discrimination was associated with increased SV (r's>.22, p's<.01; B's>.19, p's<.01) in both samples. Both samples also demonstrated the expected association between increased discrimination and worse sleep quality (SQ; r's>-.06, p's<.01; B's=-.01, p's<.01). Only the

college sample, however, showed the expected negative association between SV and SQ (r=-.06, p<.01; B=-.01, p<.01) and significant indirect effect of discrimination on SQ via SV (B=-.00, SE=.00, p<.01). Regarding the other focal sleep characteristic, sleep duration (SD), only the college sample showed the expected association between greater discrimination and shorter SD (r=-.13, p<.01; B=-1.06, p<.001). In both samples, SV was not associated with SD and mediation results did not support an indirect effect of discrimination on SD via SV. We also discuss post-hoc analyses examining discrimination effects among sub-samples of marginalized social identities and analyses assessing for moderation by social support.

Conclusions. As predicted, perceived discrimination appears to be associated with poorer SQ through increased vigilance for social threats. These analyses provide support for pathways from discrimination exposure to adverse health that should be further examined in prospective research.

44) Abstract 1125

USING MOMENTARY ASSESSMENT TO EXPLORE LINKS BETWEEN SOCIAL CONTEXT, MENTAL HEALTH, AND DAILY LIFE COGNITIVE FUNCTIONING AMONG OLDER ADULTS

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Objective: Characterizing very early cognitive risk of dementia is difficult with traditional neuropsychological testing. Mobile Cognitive Testing (MCT) uses ecological momentary assessment (EMA) methods to sample daily life cognitive performance differently than neuropsychological testing. The current study examined how social interactions and psychological symptoms were related to MCT performance, and whether MCT mean or variability was more sensitive to psychosocial factors.
Methods: Healthy older adults completed the Social Network Index (SNI), Interpersonal Support Evaluation List (ISEL), Patient Health Questionnaire-9 (PHQ-9) and Geriatric Anxiety Scale (GAS-10). Participants underwent a 10-day EMA and MCT protocol, 4x/day. EMA questions probed current mood, social interactions, and activities (see abstract by Gujral et al.). MCT measures were verbal list learning (Memory List accuracy), spatial memory (Memory Matrix accuracy), a Stroop-like inhibitory control task (Color Trick reaction time [RT]), and a visual search/processing speed task (Matching Pair RT). We aggregated EMA and MCT variables using mean and mean successive squared difference (MSSD) to represent centrality and variability, respectively. Association of MCT with EMA and questionnaires were examined using Spearman's correlations, assuming that higher MCT accuracy and lower MCT variability indicated better cognition.
Results: This preliminary sample included 15 participants (mean age = 71.3 years, mean education = 16.1 years, 4 female, 13 white). Lower Memory Matrix variability was associated with greater SNI network diversity (r=-.56, p=.03) and higher social support (ISEL: r=-.53, p=.04), whereas higher Memory Matrix variability was associated with higher EMA reports of stress (r=.62, p=.03). Greater EMA report of social satisfaction was associated with lower Color Trick (r=-.61, p=.02) and Matching Pair (r=-.65, p=.01) variability, and higher mean Memory List accuracy (r=.55, p=.04). Counterintuitively, lower mean MCT performance was associated with higher

social support networks and lower stress (p's<.05). PHQ-9 and GAS-10 were not associated with MCT performance.
Conclusions: MCT performance is sensitive to psychosocial factors, with mean and variability in daily life cognitive performance likely capturing differential aspects of cognitive vulnerability.

45) Abstract 902

PARSING ACUTE STRESS EFFECTS ON REWARD-RELATED BEHAVIOR: AN RDOC-BASED META-ANALYSIS OF RODENT AND HUMAN STUDIES

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In recent decades, preclinical and clinical work has thoroughly investigated the effects of acute stressors on behavioral responses to reward. Stressors can initiate a cascade of neurobiological changes that modulate the mesocorticolimbic dopaminergic circuits and, ultimately, behavioral response to rewards. However, inconsistent and contradictory findings have been reported, inasmuch as laboratory stress-induction procedures have resulted in blunted, augmented, or unchanged performance on tasks measuring reward-related behavior. The present study aimed to quantify the effects of acute stressors on reward processing by conducting a series of random-effects meta-analyses of rodent and human studies. In so doing, we adopted the Positive Valence System classification of the Research Domain Criteria, considering reward processing parsed in reward responsiveness, valuation, and learning. Results first suggest that acute stress strongly reduces reward responsiveness in rodents, without any significant effect in humans. Second, acute stress significantly decreases reward valuation in rodents and increases it in humans. Lastly, acute stress strongly increases reward learning in rodents, with no effects in humans. In rodents, significant moderators were species (effects on valuation in rats only), food restriction (larger effects on responsiveness), stress duration (larger effects of longer stressors on learning and responsiveness), task type (responsiveness was reduced in consumption tasks) and type of reward (negative effects on responsiveness and valuation with natural rewards and positive effects with pharmacological rewards). Task type moderated the effects of acute stressors on learning in humans, with an increase in instrumental tasks and a decrease in probabilistic tasks. Overall, these analyses suggest that the effects of acute stress on reward processing may vary depending on the specific sub-component considered, which, in turn, may inform reward processing dysfunctions in stress-related conditions. Moreover, the marked heterogeneity across studies, which remained significant even after subgroup analysis, point to the need of a consensus on the modality of stressor delivery (i.e., intensity) and reward tasks to adopt.
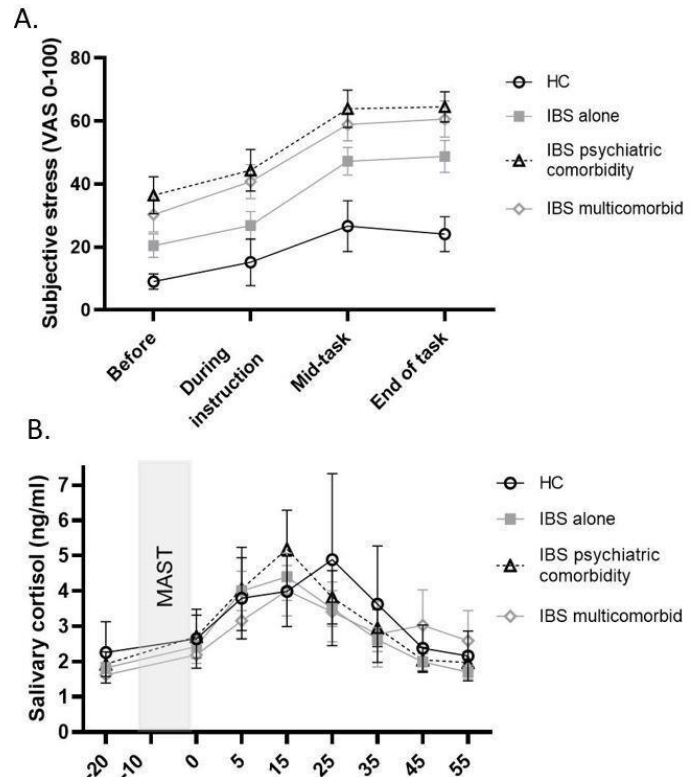
46) Abstract 957

SUBJECTIVE AND CORTISOL RESPONSES TO PSYCHOSOCIAL STRESS IN IRRITABLE BOWEL

SYNDROME (IBS): THE ROLE OF PSYCHIATRIC AND FUNCTIONAL SOMATIC COMORBIDITIES

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Dysfunction of the stress response system has been implicated as a potential mechanism underlying irritable bowel syndrome (IBS), but results have been heterogenous and contradictory. One reason for this might be the lack of control for co-occurrence of psychiatric and functional somatic comorbidities. Therefore, the aim of this study was to investigate differences in subjective and cortisol responses to a psychosocial stressor in IBS patients with and without comorbidities. A preliminary sample of 70 IBS patients performed the *Maastricht Acute Stress Test* (MAST). Thirty-two patients did not suffer from comorbidities (IBS alone), 18 patients fulfilled the criteria for depression and/or anxiety disorder (IBS psychiatric comorbidity), and 20 patients both had a psychiatric and a functional somatic (fibromyalgia and/or chronic fatigue syndrome) comorbidity (IBS multicomorbid). Eight healthy controls (HC) were included. Subjective stress and unpleasantness ratings were collected before the start of the MAST, during instructions, and two times during the MAST. Saliva samples were collected before, immediately after, and 5, 15, 25, 35, 45, and 55 minutes after the end of the MAST. A main effect of group was found for stress ($F_{3,74}$ = 9.20, p < 0.001) and unpleasantness ($F_{3,74}$ = 11.30, p < 0.001) ratings, but no significant time*group interaction effects. Post-hoc analyses indicated that ratings were significantly higher in patients with psychiatric comorbidities than in IBS alone (p = 0.011 for stress, p = 0.004 for unpleasantness), while there were no significant differences in ratings between HC and IBS alone on the one hand and IBS psychiatric comorbidity and IBS multicomorbid on the other hand. There was a significant main effect of time on cortisol levels ($F_{7,74}$ = 20.07, p < 0.001) indicating the task elicited a significant cortisol response. However, the group and time*group effect were not significant. In sum, elevated subjective stress and unpleasantness ratings in IBS during a psychosocial stress task were only apparent in patients that also suffered from psychiatric comorbidities, indicating that the exaggerated subjective stress response in IBS might be due to the high prevalence of psychiatric disorders in IBS. Further research is needed to elucidate the role of psychiatric comorbidities in the cortisol response to psychosocial stress in IBS.

47) Abstract 1297

ASSOCIATIONS OF SEDENTARY BEHAVIOR, PHYSICAL ACTIVITY, AND SLEEP DURATION WITH EMOTIONAL AND COGNITIVE HEALTH IN OLDER ADULTS WITH REMITTED LATE-LIFE DEPRESSION

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Objective: Sedentary behavior, physical activity, and sleep are related but distinct metrics of health behavior patterns that influence healthy cognitive and brain aging. Here, we examined how sedentary behavior (SB), engagement in moderate-to-vigorous physical activity (MVPA), and sleep duration each relate to markers of emotional and cognitive health among older adults with a history of late-life depression. Methods: Participants included 23 sedentary older adults (age 60+ years) with remitted late-life depression. Actigraphy monitoring was completed using an Actigraph GTX link device worn on the wrist 24-hours/day for 7 days. Actigraphy parameters included average daily SB minutes, MVPA minutes, and average daily sleep duration. Emotional health was assessed using questionnaires. Cognition was assessed using the Neuropsychological Assessment Battery (NAB) and the NIH Toolbox Cognition Battery. We examined Pearson correlations of actigraphy parameters with measures of emotional and cognitive health. We also explored partial correlations of each actigraphy measure with emotional and cognitive measures, adjusting for the other two actigraphy measures. Results: In this community-based sample (n=23; mean age = 68 years, 60% female), SB was negatively associated with sleep duration (r=-.90, p<.001) and MVPA (r=-.84, p<.001). SB, MVPA, and sleep duration showed significant correlations with processing speed in the expected directions (NAB Numbers

and Letters A Efficiency; SB: r=-.53, p=0.01; MVPA: r=.54, p=0.01; sleep: r=.50, p=0.02; NIH Toolbox Pattern Comparison Processing Speed r=-.733, p=.002; MVPA: r=.72, p=.003; sleep: r=0.80, p<.001). A lower amount of daily SB was associated with better inhibitory control (NIH Toolbox Flanker r=-.54, p=.04). Longer sleep duration was associated with better working memory performance (r=.54, p=.01). Partial correlation analyses showed that higher amounts of SB and longer daily sleep duration were each uniquely associated with depressive and anxiety symptoms (PHQ-9: SB r=.43, p=.05, Sleep r=.47, p=.03; GAS SB r=.47, p=.03; Sleep r=.45, p=.04). Conclusions: Among older adults with remitted late-life depression, actigraphy-based parameters of health behaviors (SB, MVPA, sleep duration) were differentially linked to aspects of cognitive function, with sleep and SB uniquely linked to depressive and anxiety symptoms.

48) Abstract 1047

THE EFFECTS OF SUBJECTIVE SOCIOECONOMIC AND SOCIAL STATUSES ON FOOD CHOICE IN ADOLESCENTS

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Lower family income and parental education increase the likelihood of unhealthy food choice in adolescents. These structural determinants may affect food choice by contributing to adolescents' perceptions that their families and themselves are of lower status. However, the causal effect of these lower subjective statuses on food choice in adolescents is unknown. The present research fills this gap by testing effects of subjective socioeconomic and social statuses on healthfulness of food choices in USA adolescents (aged 14-17 years) across two preregistered online experiments. In Experiment 1 (n = 473), adolescents were randomly assigned to rank their family on a MacArthur ladder that portrayed families at the top as having the most money, schooling, and respectful jobs and families at the bottom having the least, either after being asked to compare their families to those at the top (low subjective socioeconomic status) or with no comparison (control). In Experiment 2 (n = 786), adolescents were randomly assigned to rank themselves on a MacArthur ladder that portrayed students at the top having the most respect, best grades, and best standing and students at the bottom having the least, either after being asked to compare themselves to students at the top (low subjective social status), the bottom (high subjective social status), or with no comparison (control). After the manipulations, adolescents completed the Multiple Food Test, an online food choice task that has been validated with offline food choice. Effects of the manipulations on subjective statuses were inconsistent across experiments and did not significantly affect food choice in adolescents. However, regardless of study condition, and controlling for family income and parental education, adolescents who perceived themselves as lower in social status chose unhealthier foods (Experiment 1: β = 0.11, p = .012, Experiment 2: β = 0.16, p < .001). These results suggest that perceptions of lower social status about themselves, but not perceptions of lower socioeconomic status about their families, predict unhealthy food choice in adolescents. To determine causality, we recommend future experimental research with alternate

developmentally-sensitive manipulations of subjective social status or longitudinal research examining fluctuations in subjective social status and food choice across school years.

49) Abstract 977

DISSOCIABLE CONTRIBUTIONS OF EFFERENT AND AFFERENT SIGNALS OF AROUSAL ON THE EXPRESSION OF RACIALLY BIASED BEHAVIOUR

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Unconscious racial bias and stereotyping can lead to harmful and even fatal decision outcomes. These biases are shaped by our internal awareness of bodily functions, particularly how we process fear and make racially biased threat assessments, which are influenced by our cardiac signals that reflect changes in our cardiovascular arousal. However, it remains uncertain how prolonged states of psychophysiological arousal impact racially biased perception and cognitive processes.
In this study, we used autonomic (sympathetically-mediated electrodermal) biofeedback to modulate the tonic state of psychophysiological arousal. Thirty-eight participants were randomly allocated to generate either highly alert/aroused or relaxed states through biofeedback. The participants performed a Weapon Identification Task (WIT), which measures racially biased behaviour during these two contrasting physiological states.
We demonstrated a distinct difference between physiologically relaxed and aroused states in behavioural measures of racial distinction. While there was hardly any difference in the relaxed state, the racial prime effect was most prominent in the sympathetically heightened state.
Moreover, effects on racial bias elicited by tonic arousal were dissociable from those associated with phasic interoceptive (cardiac afferent) signals, suggesting differential, yet complementary, contributions of top-down allostatic control and bottom-up viscerosensory afferent input to the neural integration of perceptual and interoceptive representations during social decision-making and the expression of behavioural biases.

50) Abstract 1112

NEGATIVE AFFECT AND SELF-REGULATION IN DAILY LIFE: EXPLORATION OF BI-DIRECTIONAL EFFECTS FROM AN INTENSIVE LONGITUDINAL STUDY OF LATINX ADULTS

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Self-regulation refers to the effortful process through which an individual regulates cognition, emotion, and behavior to achieve a desired outcome. While laboratory studies indicate an inverse relationship between negative affect and self-regulation, the real-world relationships between these processes are understudied, particularly among Latinxs who are underrepresented in research. In this presentation, we will examine the bidirectional and temporal relationships between negative affect and self-regulation in Latinx adults. We will also discuss challenges and opportunities for engaging minoritized Latinx populations in behavioral research involving intensive longitudinal study designs. **METHODS:** Between 2016-2019, healthy Latinx adults (N=59) were recruited from a community sample in New York. Participants completed 40 consecutive days of actigraphy and an end-of-day diary assessing psychological stress and negative mood (depressed, anxious mood) using a 0 (not at all) to 10 (extremely) scale, each night. Self-regulation was also measured each night using a validated scale of impulsivity and restraint. Separate lagged linear mixed models with random intercepts were used to examine within-person effects and temporal associations with adjustment for daily covariates (day of the week, study day), and person-level covariates (sociodemographics). In all analyses, the predictor was centered on participants' own mean. **RESULTS:** Mean age=36.8 (SD=11.0), 69.5% women, 38.6% unemployed, 66.1% immigrant, and 37.2% Spanish-speaking. Preliminary analyses indicate that higher than usual depressed mood (B=-.06,SE=.01, p<.001) as well as higher than usual anxious mood (B=-.04,SE=.01,p<.001) during the day predicted lower self-regulation the next day. Stress did not predict next day self-regulation. Daily changes in self-regulation did not predict next day ratings of stress, depressed mood, or anxious mood. **CONCLUSION:** Overall, results from this mechanistic study suggest that on days when depressed mood and anxious mood were higher than usual self-regulatory capacity was impaired in Latinx adults, whereas changes in self-regulatory capacity did not impact subsequent mood. If replicated, future research could explore the potential for ecological momentary interventions that target resolution of depressed mood and anxious mood to improve self-regulation.

51) Abstract 785

FACETS OF LGBTQ+ IDENTITY ARE DIFFERENTIALLY ASSOCIATED WITH E-CIGARETTE USE AMONG SEXUAL AND GENDER MINORITY YOUNG ADULT SUBGROUPS

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Background: Having a strong sense of self (identity centrality), positive feelings and self-acceptance of one's identity (identity affirmation), and low motivation to protect the privacy of one's identity (concealment motivation) have been linked to positive mental health outcomes among sexual and gender minority young adults (SGMYA). However, how these facets of LGBTQ+ identity are related to substance use and whether these associations differ within gender and sexual identity subgroups of SGMYA is unclear. This study aimed to examine how facets of LGBTQ+ identity are associated with ever use of e-cigarettes among SGMYA.

Methods: SGMYA aged 18-35 years (N=1,322) were enrolled via Prolific for an online study to develop mass-reach tobacco health messages. In this secondary data analysis, we used binary logistic regressions to model the association between LGBTQ+ identity centrality, affirmation, and concealment motivation on ever e-cigarette use among gender and sexual identity subgroups of SGMYA, controlling for sociodemographic factors.

Results: Scoring higher on identity centrality for cisgender gay males (OR = 0.62, 95% CI [0.40, 0.94]), and scoring higher on identity affirmation for cisgender bisexual females, (OR = 0.67, 95% CI [0.48, 0.93]), and bisexual transgender individuals, (OR = 0.42, 95% CI [0.18, 0.95]), was associated with lower odds of ever e-cigarette use. Among participants who identified as a sexual orientation other than heterosexual, lesbian, gay, or bisexual, scoring higher on identity affirmation (cisgender female (OR = 1.60, 95% CI [1.01, 2.56]) or identity centrality (cisgender males (OR = 2.17, 95% CI [1.11, 2.83]); cisgender female (OR = 1.72, 95% CI [1.09, 2.72]) was associated with greater odds of ever use of e-cigarettes. Among bisexual non-binary individuals, scoring higher on identity concealment motivation was associated with greater odds of ever e-cigarette use (OR = 1.95, 95% CI [1.17, 3.25]).

Conclusion: Facets of LGBTQ+ identity were differentially associated with e-cigarette use depending on SGM subgroup, which may reflect varied experiences with minority stress and resilience. Results may inform behavioral intervention development by pinpointing which facets of LGBTQ+ identity are universally protective against e-cigarette use among SGMYA and which are unique to specific sexual and gender identity subgroups.

52) Abstract 1110

SUSTAINABLE CONSTRUCTION AND SUSTAINABLE LAND MANAGEMENT: IMPACTS ON MENTAL HEALTH AND COMMUNITY CONNECTION IN HEALTH BOARD PATIENTS AND FRONTLINE NHS STAFF

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Introduction: A positive link between greenspace and mental health and wellbeing is increasingly being recognised (Madsen et al., 2021). Previous research has highlighted the specific and important impacts engagement in practical outdoor activities can have on well-being and mental health, especially in patients with mental health problems (Davies et al., 2020). However, more research, especially is needed. Additionally, the positive effects of access to the outdoors during the workday on National Health Service (NHS: critical health) workers has been suggested in past research (Pett et al., 2022) but needs more exploration, especially given the coronavirus pandemic. The current study examined how structured engagement with the outdoors/nature via a 6–8-week program, run by Down to Earth, might impact on NHS staff, NHS patients and community members with and without existing physical and mental health problems.

Methods: Data was collected from participants taking part in sustainable construction activities at a hospital site in South Wales (e.g., planting trees, creating buildings with sustainable materials, land management). Participants completed brief self-report measures of mood, wellbeing, engagement with nature, engagement with the community, depression and anxiety pre- and post-intervention

Results: 37 NHS service users, 30 NHS staff n=30, and 20 community members completed the questionnaires. 17 of the NHS staff also provided diurnal salivary cortisol samples pre

and post intervention. Significant reductions in anxiety, boredom and failure amongst NHS service users and non-NHS community participants were found across the intervention. NHS staff showed increased resilience, wellbeing, community connection and connection to nature, and a reduction in common mental health symptoms. Cortisol slopes were steeper post intervention, possibly indicating healthier cortisol patterns for NHS staff.

Conclusions: Engagement with sustainable construction activities led to improvements in mood and stress as well as making participants feel closer to nature and the community. Engagement in sustainable construction may be a valuable intervention.

53) Abstract 1093

ARE HABITUAL EXPRESSIVE SUPPRESSION ASSESSMENTS INTERCHANGEABLE? EXAMINING DIFFERENTIAL ASSOCIATIONS OF HABITUAL SUPPRESSION MEASURES WITH FAMILY ENVIRONMENT, DISPOSITIONS, SOCIAL MOTIVATIONS, AND HEALTH

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Two common self-report measures, the Emotion Regulation Questionnaire (ERQ-ES) and the Courtald Emotional Control Scale (CECS) are used to assess habitual expressive suppression, the tendency to engage in effortful concealment of emotional experiences and expressions from others. Though these two assessments of expressive suppression are often considered interchangeable, recent work has revealed that the ERQ-ES and CECS may tap into different profiles of expressive suppression and suggests that there may be developmental, personality, social, and motivational components underpinning the tendency to engage in one profile of suppression over the other. We used an integrative approach to examine whether these two commonly used measures of habitual expressive suppression were differentially associated with familial, personality, social, and health factors. We utilized three datasets comprising 3,120 participants who engaged in online surveys to test theoretical models of a chronic (CECS) vs. situation-specific (ERQ-ES) form of expressive suppression. We found that the CECS and the ERQ-ES assess two overlapping, yet distinct profiles of habitual expressive suppression. The CECS was associated with factors that suggest a more chronic form of expressive suppression, whereas results were less consistent for factors that may suggest a more situation-specific form of expressive suppression via the ERQ-ES. Together, this research provides a more nuanced approach to assessing emotion regulation at the habitual level and has practical, methodological implications for researchers.

54) Abstract 1180

CLINICAL AND ECONOMICAL DESCRIPTIONS OF A PSYCHOLOGICAL MODEL OF CARE TARGETING HEALTHCARE WORKERS FACING AN ORGANIZATIONAL CRISIS

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While healthcare professionals were portrayed as guardian angels during the COVID-19 pandemic, they are a high-risk group in terms of mental health. For example, female doctors are one of the professional groups most at risk of suicide. The COVID-19 pandemic has further aggravated their psychological fragility, with burnout rates rising from 30% to 50%. Although several studies have measured the prevalence of mental disorders and burnout in these workers, few have specifically investigated psychological interventions in this population. As healthcare systems around the world will inevitably face other crises (pandemic, environmental, understaffing), it is important to learn from past crises in order to be better prepared for the next. In 2020, we conducted a one-year observational study of 564 healthcare workers in Quebec, Canada. We assessed mental disorders and offered psychological treatment to participants with severe mental health symptoms. Our model of care was based on the concepts of voluntarism, reaching-out, preference- and step-care. During the one-year follow-up, 189 different participants were contacted for severe symptoms of post-traumatic stress, anxiety and/or depression. The majority were satisfied with brief psychological interventions and few required more standard psychological therapy. In total, the cost of managing psychological distress was CAD 174 per participant, representing 25% of the total research budget. Given the indirect effect of burnout and mental disorders on quality of care and absenteeism, this seems a reasonable investment at both individual and system levels. This knowledge may ease future implementation of programs to help healthcare workers preserve their own mental health while facing organizational crises.

55) Abstract 1001

TREATING INVISIBLE WOUNDS – OUTCOMES OF INPATIENT PSYCHOTHERAPY IN ADULT SOMATOFORM PATIENTS WITH AND WITHOUT A HISTORY OF CHILDHOOD MALTREATMENT

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Background: Childhood maltreatment has been linked to the development and severity of various mental diseases, including somatoform disorders. Its effect on treatment outcome however is less clear. In this study, we seek to elucidate the influence of childhood maltreatment on inpatient psychotherapy in somatoform disorders.

Methods: We performed a retrospective analysis of all patients admitted to our psychosomatic ward with a clinical diagnosis of a somatoform disorder (defined by ICD-10) between 2016 and 2022. Patients were screened for five types of childhood maltreatment (emotional, physical and sexual abuse; emotional and physical neglect) at admission using the Childhood Trauma Questionnaire (CTQ). They also filled in the Patient Health Questionnaire's Somatic Symptom, Depression and Anxiety scales (PHQ-15, PHQ-9, GAD-7) as well as a measure of personality dysfunction in line with the psychodynamic orientation of our ward, the Operationalized Psychodynamic Diagnostics Structure Questionnaire (OPD-SQ), both at admission and before discharge. Symptom severity,

personality dysfunction and their changes during therapy were related to dichotomized admission CTQ data using t-tests.
Results: Data of 197 patients could be analyzed (51% female, mean age 43 years, mean length of treatment 62 days). 52% reported at least one type of childhood maltreatment. At admission, those with prior maltreatment had significantly higher scores on PHQ-15 ($p = 0.015$), PHQ-9 ($p = 0.002$) and GAD-7 ($p = 0.008$) as well as worse personality functioning by OPD-SQ ($p < 0.001$). However, they also showed greater improvement during therapy and hence before discharge, differences in somatic symptoms, depression and anxiety were no longer significant, while personality dysfunction remained higher ($p = 0.007$). Emotional neglect was most strongly linked to symptom improvement, with effect sizes up to $d = 0.49$ for reduction of PHQ-15.
Conclusion: In adults with somatoform disorders and a history of childhood maltreatment, on average nine weeks of inpatient psychodynamic psychotherapy effectively reduced higher admission scores of somatic symptoms, depression and anxiety but did not equalize personality dysfunction, compared to those without maltreatment. As higher personality dysfunction might be associated with symptom relapse, this should be targeted more in future interventions.

56) Abstract 1074

UNDERSTANDING THE MECHANISMS OF EXCESSIVE DR. GOOGLE USAGE: IS EMOTIONAL AVOIDANCE THE ROOT OF THE EVIL?

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Background. Illness anxiety is associated with excessive online health research (OHR), although OHR sometimes leads to an increase of health worries and negative affect. Health worries were reported to be the only component of illness anxiety sharing a unique association with cyberchondria. Consequently, OHR could be conceptualized as a dysfunctional affective avoidance strategy similar to worrying in generalized anxiety disorder. To test this, fear responses to googling versus imagining long COVID were compared. We hypothesized that fear responses would be higher after googling compared to baseline and lower after googling compared to imagery.
Methods. 60 persons were asked to imagine suffering from long COVID and inform themselves about the condition in the internet in pseudorandom order. Baseline fear and fear responses to both conditions of interest were assessed via self-report, heart rate (variability), respiration rate and electrodermal activity. Multivariate ANOVAS were used to compare conditions, while considering their order. Post-hoc, effects of googling were compared to imagination and baseline in two planned contrasts.
Results. Condition-related differences in subjective fear depended on order: When participants first imagined, googling led to similar fear responses. The fear responses to googling did not exceed the baseline assessment, when they googled first. Independent of order, googling compared to baseline as well as imagery led to increased heart rate, high frequency power and respiration. Contrary, skin conductance level was higher for imagery compared to googling and googling compared to baseline.
Discussion. In line with our hypothesis, imagery elicited stronger subjective fear, when participants googled before imagining. Importantly, skin conductance level was highest after imagery, and higher after googling compared to baseline. Both results point to a transferability of the avoidance theory of worrying to googling. However, cardiovascular and respiratory

responses were strongest after googling, which might be explained by higher motor activity or cognitive load. That participants subjectively reported increased fear after googling only when they imagined before, might be a transmission effect. Alternatively, information processing might be biased to threat, when participants googled in an anxious mood.

57) Abstract 1243

DATA-DRIVEN IDENTIFICATION OF PHYSIOLOGICAL STRESS RESPONSE PHENOTYPES IN HEALTHY POPULATION

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Altered responsivity to daily-life stress has been associated with mental illness, increased risk for mental illness, and with development of mental illness in the future. The physiological stress response can be measured ambulatory with wearable sensors, and consists of a *stress reaction* phase followed by a stress recovery phase. While studies report differences in the stress response of individuals diagnosed with mental illness and at increased risk compared to healthy individuals, the results are mixed: some observe an exaggerated reaction in clinical and at-risk participants, some a blunted reaction, some a delay in recovery, and some find no significant differences. This suggests that group-based comparisons do not inform us which individuals express altered responsivity and may therefore be more vulnerable to daily life stress, and that vulnerable individuals may very well be considered member of the healthy participants. To understand which patterns of responsivity exist, we must employ data-driven techniques that can identify stress response phenotypes: latent groups based on ambulatory physiological stress response. Using finite mixture modelling of cardiological measures of stress reaction and recovery, assessed continuously over 5 days, we will map the structure of stress response phenotypes in a healthy, working sample of 1002 adults. We expect to find that the high heterogeneity leads to a large number of phenotypes that differ from each other in their stress reaction and/or recovery, where the largest phenotype is characterised by a prototypical stress response and the smaller phenotypes show relatively altered responsivity in different aspects and to different degrees. Demographic and lifestyle differences between members of the phenotypes will be described; as will differences in their affective stress response, self-reported through a mood-item 12 times a day. This inductive analysis is the first step we take to understand who is vulnerable to daily life stress due to altered responsivity. The next step in future research will be to assess the clinical relevance of stress response phenotypes in a patient population.

58) Abstract 1228

THINK POSITIVE THOUGHTS – DIFFERENTIAL EFFECTS OF TWO ONLINE INTERVENTIONS TARGETING DEPRESSIVE AFFECT AND THINKING STYLES

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Depressed individuals tend to perceive things more negatively than non-depressed individuals,
which can prolong negative affect as well as stress responses. This can also be reflected in
physiological changes, such as an altered release of stress

hormones. The present study investigated differential effects of two online interventions compared to a control group on affect, depressive symptoms, stress and emotion regulation. The study was pre-registered on a clinical trial registry (DRKS00028170). In eight 20-minute sessions over two weeks, participants practiced either positive mental imagery techniques, where descriptions of everyday situations were presented and the task was to imagine these situations vividly, or mindfulness-based exercises that focused on functional emotion regulation. A stronger reduction of depressive symptoms, in particular with respect to anhedonia, and positive changes in terms of cortisol release were expected for participants who completed one of the two interventions compared to participants who just observed their mood. Furthermore, it was assumed that the mechanisms that lead to the changes are different in the training groups: the mindfulness-based exercises were expected to enhance functional emotion regulation, while mental imagery techniques were expected to enhance cognitive information processing. N=178 adult participants with slightly elevated depression scores, were randomized to the three groups. Preliminary analyses show that depressive symptoms as measured with the Quick Inventory of Depressive Symptomatology (QIDS) decreased significantly over time (pre, post, followup) for all groups (Mindfulness $\chi^2(2) = 17.67$, p < .001, Imagery $\chi^2(2) = 27.64$, p < .001, Control $\chi^2(2)$ = 7.778, p = 0.02). Anhedonia measured with the Dimensional Anhedonia Rating Scale (DARS) however decreased significantly only in the imagery group (Imagery $\chi^2(2) = 8.27$, p = 0.02). Influences of the computer-based exercises on the cortisol regulation as well as on potential underlying pathways by which both types of interventions might promote mental health will be presented at the conference. The preliminary results underline the necessity to analyze the underlying pathways that cause better wellbeing through mindfulness, and mental imagery interventions. A deeper understanding of the effects will facilitate the development of better interventions.

59) Abstract 1313

SUBJECTIVE SOCIAL STATUS INFLUENCES THE RELATIONSHIP BETWEEN OBJECTIVE SOCIO-ECONOMIC STATUS AND PERCEIVED STRESS
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Social status is a well-known predictor of stress in both animal and human studies. In humans, effects of social status are most often observed in relation to socioeconomic gradients in stress and related health outcomes with lower socioeconomic status (SES) regularly associated with greater perceived stress. While SES is typically measured via objective indicators (e.g. income, education, occupation), fewer studies assess individual differences in subjective reports of social status (SSS), though this literature similarly finds low SSS associated with higher stress. Though these indicators are correlated, SSS has been shown to predict status-related outcomes even

after accounting for SES, and it is unclear how these two factors might interact to influence perceived stress. The current study aimed to examine whether SSS influences the well-established relationship between SES and stress while controlling for depression, as our sample scored relatively high on depressive symptomatology. Our diverse sample consisted of 138 (30% Asian, 35% Hispanic, 21% White, 13% Other) young adult (mean age = 22 years) participants who completed online self-report questionnaires assessing perceived stress (Perceived Stress Scale), SSS (Macarthur Scale of Subjective Social Status), and SES (composite of income, financial aid and highest parental education via latent variable analysis). Results showed a significant main effect of both SES (β =-7.3, p=.0107) and SSS (β =-.99, p=.0192) on stress, with lower status on both indicators associating with higher stress. Additionally, there was a significant interaction between SSS and SES (R^2 =.47, β =.59, p=.0280) such that the relationship between SES and stress was present for individuals with low perceived social standing, but not among those with high social standing. Specifically, findings suggest that socioeconomic disadvantage coupled with experiences of diminished social standing additively contribute to stress, and that stress can be alleviated if one's perception of social standing is higher. Future research should explore methods to improve experiences of social standing to mitigate stress among disadvantaged populations.

60) Abstract 1295

EMOTIONAL AWARENESS MODERATES SENSITIVITY OF DEPRESSIVE SYMPTOMS TO SOCIAL CONTEXT IN WOMEN WITH BREAST CANCER
Carter Goldman, BA, Laureate Institute, Anne Chuning, M.A., Laureate Institute, Richard Lane, MD, University of Arizona, Ryan Smith, Ph.D., Laureate Institute, Karen Weihs, MD, University of Arizona

Background: Cancer patients experience clinical depression at a significantly higher rate than the general population. The combination of emotional burden and physical illness in these patients is also known to promote worse health outcomes and greater suicide rates. Therefore, it is crucial to identify factors that may moderate depression in this population. Emotional awareness (EA) is one potential moderator in this regard, given its association with effective emotion regulation.
Methods: In a longitudinal study spanning one year after breast cancer diagnosis, 460 patients completed two measures of EA: the Levels of Emotional Awareness Scale (LEAS) and a written essay in which participants described their personal experience with breast cancer that was scored with the LEAS (essay-based EA). Participants also reported marital/partner support (Social Relationship Inventory; SRI), social support (Social Provisions Scale; SPS), and depression (Center of Epidemiological Studies – Depression; CES-D, Patient Health Questionnaire; PHQ-9). Models (LMs) were run with data taken at baseline to test if EA measures moderated the effect of social support on depression. Linear mixed effect models (LMEs) were also run to test if EA moderated the change in depression from baseline to 9-month follow-up.
Results: Depression levels were higher when social support was low in those with higher essay-based EA. In the LM of depression scores (PHQ-9) including main effects of age, sex, essay-based EA, relationship support (SRI), and their interaction as predictors, the slope of SRI was more negative with increasing essay scores (t(233) = 2.80, p = .015). Longitudinal models predicting depression (CES-D) including age, sex, EA, time, and their interactions, there was a significant two-way interaction such that depression

decreased over time to a greater degree in those with higher essay-based EA (t(415) = -2.23, p = .027).

Conclusion: Our understanding of how marital and social context impact depressive symptoms in breast cancer patients is enhanced by these results showing emotional awareness increases sensitivity to these protective social contexts and facilitates emotional adjustment over time after breast cancer diagnosis. These findings also demonstrate the utility of a performance measure of EA in the assessment of emotion regulation in a clinical context.

61) Abstract 827

EXPLORING THE RELATIONSHIP BETWEEN DEPRESSION, HPA-AXIS STRESS REACTIVITY, AND HEMOGLOBIN A1C IN ADULTS AT RISK OF TYPE 2 DIABETES

Alana Ewen, MPH, University of Maryland, Viktoryia Kalesnikava, PhD, MPH, MSW, University of Michigan, Briana Mezuk, PhD, University of Michigan

Objective: While depression is associated with development of type 2 diabetes (T2D), the physiologic mechanisms underlying this relationship are poorly understood. The goal of this study was to examine the associations between depression, hypothalamic-pituitary-adrenal (HPA)-axis stress reactivity, and hemoglobin A1c (HbA1c) among adults at elevated risk of developing T2D.

Methods: Data come from the Richmond Stress and Sugar Study (n=125, mean age: 57 years, 49% female, 48% Non-Hispanic Black). Depressive symptoms were indexed by the Patient Health Questionnaire-9 and categorized as minimal, mild, and moderate (sum score ≤4, >4 and ≤9, and >9 and ≤14, respectively). HPA-axis stress reactivity and recovery were indexed by salivary cortisol response to the Trier Social Stress Test (TSST) (n=8 collections). T2D risk was indexed by HbA1c (lower risk: ≤5.4%; higher risk: ≥6.2%). The relationship between depressive symptoms, stress reactivity, and HbA1c was modeled using generalized estimating equations, accounting for demographic characteristics.

Results: Overall, 26.4% had mild and 23.2% had moderate depressive symptoms. Those with moderate depressive symptoms (B=0.42, p=0.008) had a more blunt peak response to the TSST than those with minimal (B=0.67, p<0.0001) or mild (B=0.63, p=0.016) depressive symptoms. Among those with higher T2D risk as indicated by HbA1c, cortisol levels significantly increased during the TSST (B=0.84, p<0.0001), and while they subsequently declined, they did not return to pre-TSST levels. In contrast, among those with lower T2D risk, cortisol did not significantly vary during the TSST. The interaction term between TSST response and depression was null (p=0.671), indicating that depressive symptoms did not moderate the relationship between stress reactivity and HbA1c.

Conclusions: Among this sample of adults at elevated risk of developing T2D, both elevated depressive symptoms and higher HbA1c were associated with HPA-axis stress reactivity. However, the relationship between stress reactivity and HbA1c did not vary as a function of depressive symptoms. Findings add to the growing body of research exploring the physiologic mechanisms potentially underlying the depression-diabetes relationship.
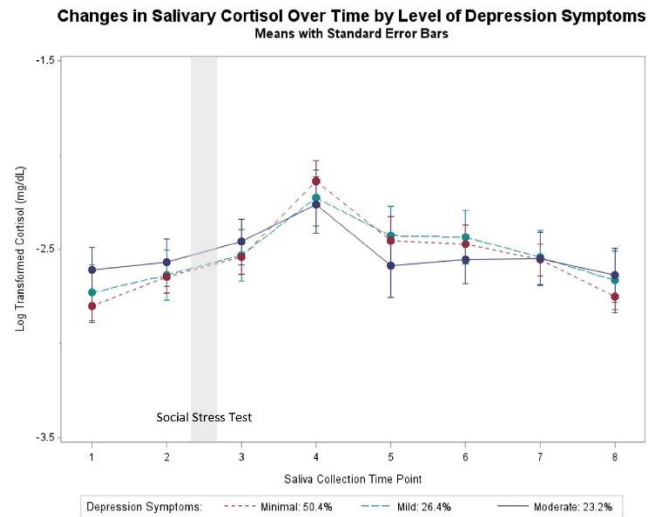

Changes in Salivary Cortisol Over Time by Level of Depression Symptoms
Means with Standard Error Bars

Figure 1

Unadjusted. Salivary cortisol was log transformed to correct for skewness.

Changes in Salivary Cortisol Over Time by HbA1c Level
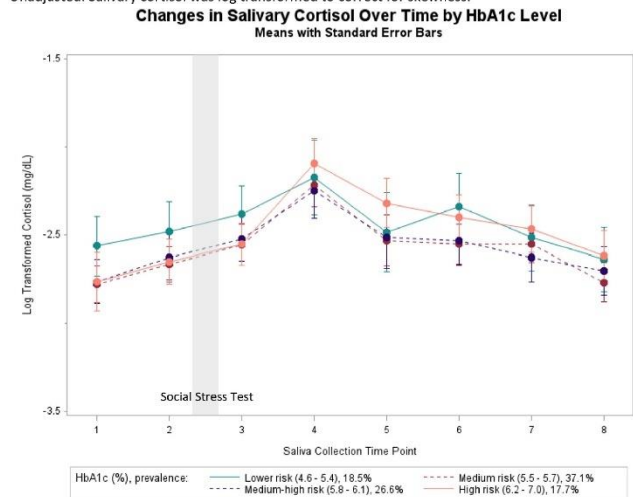Means with Standard Error Bars

Figure 2

Unadjusted. HbA1c readings at baseline were broken up into ten equally distributed groups of "n" and then grouped into quartiles as follows: groups 1 and 2 (HbA1c 4.6% - 5.4%) were combined - to be used as the reference group; groups 3, 4, and 5 were clustered together and identified as having an HbA1c reading of 5.5% - 5.7%; groups 6, 7, and 8 were categorized as having levels between 5.8% - 6.1%; lastly, groups 9 and 10 were similarly grouped and comprised the fourth largest quartile, with HbA1c levels between 6.2% - 7.0%.

62) Abstract 792

BIOPSYCHOSOCIAL NATURAL HISTORY OF ALS: INTRODUCTION TO THE OPEN DATA, ACCESS, AND USE

Suzanne Segerstrom, PhD, MPH, Oregon State University, Edward Kasarskis, MD, PhD, University of Kentucky Medical School

The Seattle Amyotrophic Lateral Sclerosis (ALS) Patient Profile Database is a rich longitudinal dataset of ALS patients (n = 143) and their partners (spouses, significant others, or caregivers; n = 123) from clinics in Seattle, WA; San Francisco, CA; and Philadelphia, PA. The purpose of the study was to characterize the psychosocial and physical natural history of ALS and the interactions between them. Participants and partners (mostly spouses) were separately interviewed in their homes every 3 months for up to 18 months between March 1987 and August 1989, with survival data collected up to 2008. Psychological measures include social cognition (e.g., self-perception and informant perception), psychological processes

(e.g., coping, emotional expression), psychological health (e.g., anger, depression), social role activities (e.g., work, church attendance), and social support. Disease history, severity, progression, and survival data are available along with health behavior history, use of respirator and feeding tube, treatments (including psychotherapy or counseling), and medical and family history. This database is being made usable and will be publicly available, providing the opportunity for scientists to test biopsychosocial hypotheses in this hard-to-obtain patient population. Much of the data has never been analyzed or reported. In this presentation, the structure and contents of the dataset, the means of access, and the limited previous findings will be introduced to the APS meeting attendees.

63) Abstract 1174

NATIVE HAWAIIAN AND PACIFIC ISLANDERS: A PRELIMINARY EXAMINATION OF HEART RATE VARIABILITY, RESILIENCE, AND HEALTH

Darcianne Watanabe, MA, University of California, Irvine, DeWayne Williams, PhD, University of California, Irvine, Julian Thayer, PhD, University of California, Irvine

Although Native Hawaiian and Pacific Islanders (NHPI) have higher rates of cardiovascular disease (CVD) risk factors compared to other ethnic groups, they are vastly underrepresented in research. Heart rate variability (HRV), body mass index (BMI), and self-rated health (SRH) all individually predict CVD risk; however, no study has focused on these variables among NHPI. Moreover, NHPI are a stigmatized group in the US, and discrimination is a factor that has been linked with CVD risk in stigmatized groups. Thus, the current ongoing community-based NIH-funded study examined mean differences in physiological (HRV, BMI) and social-demographic (SRH, discrimination) variables among NHPI (n = 10; Mage =) and non-NHPI (n = 8). A 5-minute resting baseline HRV assessment preceded the administration of self-report questionnaires. NHPI had lower mean HRV (p = .15), poorer SRH (p = .03; rev. scored), and reported greater discrimination (p = .27) with higher BMI (p = .002) than non-NHPI. Spearman correlations showed HRV was negatively associated with BMI (r = –.50, p = .02), and BMI was linked with poorer SRH (r = .67, p = 0.001; i.e., higher scores). Spearman correlations showed a significantly stronger discrimination and SRH link (z = 2.16, p = .03) in NHPI (r =–.703, p = .02) than in non-NHPI (r = .371, p = .29). A marginally stronger resilience and SRH link (z = –1.9, p = .06) was found in NHPI (r = –.671, p = .02) than in non-NHPI (r = .78, p = .01). This study is the first to examine HRV, a widely accepted index of all-cause mortality, along with other CVD risk factors in NHPI, an understudied ethnic group in the U.S. These preliminary data contribute to existing knowledge on NHPIs and may suggest that for NHPI who report greater everyday discrimination, greater resilience may be related to better SRH. Future studies with a larger sample are needed to understand the role of HRV in these cross-sectional relationships.

64) 64) Abstract 846

DIGITAL HEALTH AND PSYCHOSOMATIC MEDICINE: VALIDATION OF AN INTEGRATED PLATFORM THAT INCORPORATES PSYCHOLOGICAL AND PHYSIOLOGICAL ANGLES TO MANAGE CHRONIC LIFE STRESS

Meanne Chan, PhD, Lingnan University, Lik Hang Lincoln Lo, PhD, Lingnan University, Sisi Li, PhD, School of Public Health, Shanghai Jiao Tong University, Charlie Lau, BSSc, The Hong Kong Polytechnic University

Objectives
The COVID-19 pandemic catalyzed the digital revolution of health, with platforms sprouting to address telemedicine, remote diagnostics, and wellbeing. Behavioral medicine had previously utilized digital tools for daily diaries and other naturalistic data collection. Intervention apps have begun to take a role alongside conventional clinical care, largely directed at populations that require alternative access to support due to affordability or stigma. This study features Neurum, a digital health platform utilizing Ecological Momentary Assessment (EMA) and Ecological Momentary Intervention (EMI) techniques to provide personalized health support, augmented by users' inter- and intrapersonal psychological, physiological and biological patterns, fed into a patent-pending algorithm.

Method
Two randomized controlled trials (RCTs) were conducted to evaluate the effectiveness and impact of Neurum. The first RCT tested the effectiveness of Neurum in reducing mental health symptoms amongst adults. The second RCT with couples investigates the additional roles of both interpersonal factors and psychophysiology. Extensive batteries that capture aspects like stress, emotion regulation, coping, mental and physical health symptoms were administered within Neurum; ecological monitoring was maintained via algorithm-driven EMA. Users provided physiological health data via consumer wearable devices before and during the RCT. Personalized intervention modules were always delivered by EMI.

Results
The first RCT demonstrated the effectiveness of Neurum in reducing psychological distress after 4 weeks, and engagement of EMA and EMI did not impact study outcomes. Preliminary results from the second RCT replicated dyadic processes documented in conventional relationship health studies, with spillover effects between psychological and physiological functioning, and crossover effects between couples.

Conclusion
Neurum provides personalized, real-time care, and can be adapted to different populations and situations. Its prediction model and algorithm has uniquely included psychosomatic angles, amidst an abundance of digital tools that solely focus on only one aspect of health. Neurum is also positioned to integrate pathophysiology of disease. Details underlying Neurum's effectiveness and implications on the future of behavioral medicine interventions will be discussed.

65) Abstract 1319

RACE DIFFERENCES IN HEALTH CARE DELIVERY: UNIVERSITY-HOSPITAL PARTNERSHIPS STRENGTHEN THE CLINICAL RELEVANCE OF DISPARITIES RESEARCH

Elizabeth Brondolo, Ph.D., St. John's University, Andrew Miele, MA, Jamaica Hospital Medical Center, Brandon Dial, BA, St. John's University, Kelly Cervellione, MA, M.Phil., Medisys Health Network

Racial/ethnic differences have been documented in the quality of health care delivery, including the likelihood of receiving physical restraints and hospital readmission. Reducing disparities in health care delivery will require evaluating race in the context of other variables at the individual, hospital, and community level. In two studies we applied latent class analyses and regression analyses to electronic health record (EHR) data to understand characteristics of patients and features of the hospital setting which may contribute to differences in restraint use and readmission. These studies were conducted by trainees in a University-Hospital Training Partnership in which physicians work alongside psychology graduate students. **Study 1** included 6846 episodes of physical

restraints involving 5771 unique patients drawn from the EHRs of a safety net hospital in NYC. Latent class analyses yielded a 4-class solution (BIC= 122048.5, entropy = 0.87). Classes were defined by sociodemographic characteristics and clinical conditions which alter mental status, including dementia, neurological and metabolic conditions, substance use, and psychoses. Class 2, the largest class (41.5%, n=2840), had the highest rates of African American (38%) and male patients (74%), the highest burden of psychiatric diagnosis (48%), and the highest rate of homelessness and uninsured (16%) across classes. Compared to other classes, class 2 was significantly more likely to be seen in the emergency department (OR = 1.94, p<0.001) and restrained due to concerns for patient and/or staff safety (OR = 1.5, p< 0.001). **Study 2** included patients (*n*=10,399) presenting from 2017-2021 to hospitals within an urban hospital medical center with conditions identified as high-risk for readmission (AMI, COPD, HF, pneumonia; CMS, 2018). A four-class solution was identified (BIC = 162949.8, entropy=0.86). Patients in a class comprised of Asian men who needed interpreter services (12% of the sample) were more likely to be readmitted than members of the largest class (40%), comprised of Black men with other risks factors related to socioeconomic status and health behavior (OR=1.4, 95% CI=[1.1,1.7]). Collaboration between physicians and psychologists has enabled findings to guide the development of preventive interventions.

66) Abstract 1024

SENSORY PROCESSING SENSITIVITY MEDIATES THE RELATIONSHIP BETWEEN ATTACHMENT ANXIETY, SOCIAL NETWORK ENGAGEMENT, LONELINESS, AND MOOD IN YOUNG ADULTS.

Tara Kidd, PhD, Liverpool John Moores University, Paula Trotter, PhD, Liverpool John Moores University, Aparna Shankar, PhD, Flame University, Susannah Walker, PhD, Liverpool John Moores University

Background: Individuals vary in sensitivity to both environmental and social stimuli, which may modulate the protective health benefits of social engagement on physical and mental health. The environment and social relationships experienced in early life influences brain development and thereby may contribute to variations in processing this sensory information. The association between an important indicator of early life experience, attachment style, and sensory processing sensitivity on social network engagement, loneliness and mood has been relatively unexplored. **Methods:** 241 participants, of which 82% were female aged 20yrs (SD 4.87), were recruited from a North-West University in the UK for this online questionnaire survey. Measures included the Highly Sensitive Person (HSP) Scale (Aron & Aron, 1997), Social Network Scale (Lubben, 1988), Experiences in Close Relationships Scale-RS (Fraley et al., 2011), UCLA Loneliness Scale (Russell, 1996), PANAS (Watson et al., 1988) and Adverse Childhood Experiences Scale (ACEs) (Felitti, 1998). **Results:** Correlations and mediation analyses were conducted. Analyses were adjusted for age, gender, and ACEs. Both attachment anxiety and avoidance were positively correlated with HSP scores, negative affect, and negatively with social network engagement. Attachment anxiety was also positively correlated with loneliness. HSP scores were positively correlated with loneliness and negative affect, but negatively correlated with social network engagement (all p<0.05). Mediation models showed that HSP scores mediated the relationship between anxious attachment only and social network engagement, loneliness, and negative affect (p<0.05). These results tentatively support the idea that attachment anxiety and sensory processing sensitivity may be relevant to understanding variation in loneliness, negative mood, and social withdrawal in young adults. **Conclusion:** These developmental pathways should be considered when formulating targeted interventions to reduce loneliness and social isolation and improve both short and long-term health outcomes.

67) Abstract 1013

A PILOT STUDY TO ASSESS THE FEASIBILITY AND EFFECTIVENESS OF A MOBILE HEALTH APP FOR HEART FAILURE PATIENTS

Nien Yi Pan, Master, Changhua Christian Hospital, Chia Ying Weng, PhD, National Chung Cheng University

Objective : This pilot study aimed to evaluate the feasibility and effectiveness of   mobile health App for heart failure patients. The mobile health App, "Start with The Heart", provides patients with self-monitoring functions of physical and psychological symptoms and health behaviors; as well as a self-help emotion regulation guidance program based on cognitive behavior therapy approach. **Methods :** A total of 14 participants (age = 63 ± 8.91 ; 57.1% male) were recruited then randomly assigned to the intervention group (n = 7) and the control group (n = 7). The patients in intervention group were provided the App along with routine medical care for three months, whereas the patients of control group received routine medical care only. The Minnesota Living with Heart Failure Questionnaire, European Heart Failure Self-care Behavior Scale, Patient Health Questionnaire-9 (PHQ-9) and Generalized Anxiety Disorder 7-item (GAD-7) were administered pre- and post-intervention. **Results :** Participants of intervention group showed the improvements in emotional, physiological and total quality of life, as well as reduced depression and anxiety symptoms. The participants of control group showed only the improvement in physiological quality of life. **Conclusions :** The mHealth App " Start with The Heart ", is feasible and effective on improving the quality of life and reducing depression and anxiety symptoms for the patients with heart failure. The applicability of the App was also discussed.

Key words: App, heart failure, cognitive behavioral therapy, mobile health, quality of life, depression symptom, anxiety symptom

Diagram 1

APP-daily Recording
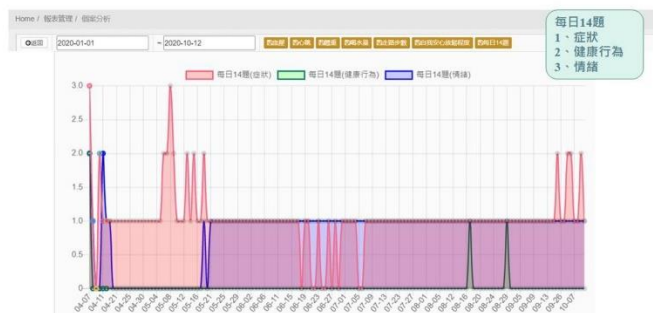

Diagram 2

Abdominal Breathing Guidance

Diagram 3

Data Monitoring at Back-End

Table 1

Pre- and Post-test Comparison in the Intervention group

Variables	APP Intervention Group(n=7)				Z
	Pre-Test		Post-Test		
	Mean	SD	Mean	SD	
MLHFQ Total	25.29	13.68	10.57	7.66	-2.37*
MLHFQ-Emotion	6.57	6.80	1.43	1.51	-2.02*
MLHFQ-Physiology	12.57	7.09	5.57	4.36	-2.20*
MLHFQ-Social	3.57	2.82	2.14	6.11	-1.19
ScBS	24.29	3.15	20.43	6.71	-1.18
PHQ-9	4.86	2.27	0.86	0.90	-2.39*
GAD-7(n=6)	4.67	4.59	0.83	2.04	-2.23*

*$p < .05$, ** $p < .01$, *** $p < .001$

Diagram 4

Pre- and Post-test Comparison in the Intervention group

Table 2

Pre- and Post-test Comparison in the Control group

| Variables | Control Group(n=7) | | | | Z |
| | Pre-Test | | Post-Test | | |
	Mean	SD	Mean	SD	
MLHFQ Total	19.29	17.78	10.57	6.78	-1.15
MLHFQ-Emotion	3.86	4.53	2.86	2.73	-1.09
MLHFQ-Physiology	9.29	4.92	5.00	2.58	-2.12*
MLHFQ-Social	4.43	6.11	2.14	4.02	-0.67
ScBS	25.71	4.65	23.43	8.26	-0.51
PHQ-9	3.29	2.75	2.71	2.63	-1.19
GAD-7	3.71	4.27	4.29	4.92	-0.71

*p < .05, ** p < .01, *** p < .001

Diagram 5

Pre- and Post-test Comparison in the Control group

Table 3

Comparison between Intervention Group and The Control Group on Baseline

| Variables | Intervention Group | | Control Group | | Z |
	Mean	SD	Mean	SD	
MLHFQ Total	25.29	13.68	19.29	17.78	-0.83
MLHFQ-Emotion	6.57	6.80	3.86	4.53	-0.65
MLHFQ-Physiology	12.57	7.09	9.29	4.92	-0.58
MLHFQ-Social	3.57	2.82	4.43	6.11	-0.14
ScBS	24.29	3.15	25.71	4.65	-0.45
PHQ-9	4.86	2.27	3.29	2.75	-0.97
GAD-7	4.67	4.59	3.71	4.27	-0.65

*p < .05, ** p < .01, *** p < .001

Diagram 6

Comparison between Intervention Group and The Control Group on Baseline

Table 4

Comparison between The Intervention Group and The Control Group on Changes value

Variables	Intervention Group		Control Group		Z
	Mean	SD	Mean	SD	
MLHFQ Total	14.71	8.38	12.43	12.61	-1.02
MLHFQ-Emotion	5.14	5.79	1.86	1.68	-1.42
MLHFQ-Physiology	7.86	4.45	.86	2.73	-0.97
MLHFQ-Social	2.00	2.16	6.00	5.74	-0.13
ScBS	7.57	4.16	7.71	5.02	-0.26
PHQ-9	4.00	1.73	1.14	0.69	-3.04**
GAD-7	3.83	4.75	1.14	1.35	-2.65**

Note：Changes value comes from Post Test minus Pre-Test

*p < .05, ** p < .01, *** p < .001*

Diagram 7

Comparison between The Intervention Group and The Control Group on Changes value

5

68) Abstract 1378

HOW DOES A 4-DAY WORKING WEEK CHANGE DEFAULT MODE NETWORK CONNECTIVITY?

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Introduction

The Default Mode Network (DMN) is associated with daydreaming, thoughts related to the self, and episodic memories (1) and is comprised of dorsal medial prefrontal cortex, the lateral parietal, and the posterior cingulate (2). Connectivity within the DMN is influenced by factors, like sleep, mental health, or stress (3, 4) which are often affected by occupational demands (5). This study explored how working patterns influence the connectivity of the DMN, by studying employees switching from a 5-day working week (5DW) to a 4-day working week (4DW), with no loss of salary. We hypothesized that reducing time at work would increase DMN connectivity.

Methods

In this study, 35 participants shifted from a 5DW to a 4DW whilst retaining their salary. The participants were scanned with a 3T Siemens Prisma, using Human Connectome Project (HCP) resting-state fMRI acquisition protocols at baseline (during 5DW), and again after the 12-week trial of a 4DW.

Additional scans were collected using HCP protocols (T1, T2, task fMRI), which were used for HCP multi-modal preprocessing with further normalization, for the statistical analysis in the CONN toolbox. Using region of interest (ROI) to ROI analysis, we investigated the changes in DMN connectivity pre- compared to post-4DW trial, using the dorsal Default Mode Network mask provided by Shirer et al (2012).

Results

DMN connectivity showed no significant difference between pre- and post-4-DW trial, $T(34)= -1.87$, $p = 0.070$ for global efficiency and $T(34) = 2.03$, $p = 0.051$ for local efficiency. However, a trend towards stronger DMN connectivity was observed post 4DW, compared to the 5DW.

Conclusion

Time spent at work may influence brain connectivity, potentially underpinning changes to wellbeing and performance at work (6), but we did not observe significant effects of a 4DW on the DMN, in our present sample. Research shows that stress levels significantly reduce in a 4DW (4). Experiencing stress is linked to higher cortisol levels, which substantially lowers DMN connectivity (7). Sleep has been found to improve in a 4DW (4) and to alter DMN connectivity, where sleep deprivation leads to reduced DMN connectivity (3). Thus, via different mechanisms, DMN connectivity could increase in a 4DW. Recruitment is continuing to investigate how sub-groups may respond differently to the work time reduction.

69) Abstract 750

PERFECTIONISM AND RUMINATION: USING DISTRACTION TO HELP PERFECTIONISTS EFFECTIVELY RESPOND TO FAILURE

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There is a well-established relationship between maladaptive perfectionism and psychological distress (Egan, Wadem & Shafran, 2011). As such, distraction-based interventions may be helpful to perfectionists as these interventions show promise in reducing anxiety and rumination, both of which mediate the relationship between perfectionism and psychological distress (Short & Mazmanian, 2013). Extending this research, the present study examines the relationship between distraction and perfectionist's psychological and physiological responses during recovery from failure. Seventy-nine undergraduates were randomly assigned to one of two groups, control and distraction. Participants in both groups sat for a 10-min baseline, engaged in a 5-min failure task known to elicit reliable stress responses in perfectionists (Birkett, 2011), and completed their respective tasks during a 6-min recovery period. Those in the control group were asked to sit quietly while those in the distraction group were given prompts every 30 seconds asking them to focus their attention and visualize items recited on an audio recording. Blood pressure (BP) and pulse rate (PR) were measured every two minutes throughout the study. Participants who scored in the upper or lower 33rd percentile of the sample distribution, according to the trait-perfectionism questionnaire, were included in analyses and categorized as either high perfectionists (HPs) or low perfectionists (LPs). All groups displayed significant increases in BP and PR from baseline to stressor and significant decreases in BP and PR from stressor to recovery (ps < .05). There was a significant time x perceived stress interaction (p < .001), indicating that HPs had higher perceived stress across all time points compared to LPs. There were also main effects for perfectionism (p = .006) and condition (p = .005) when analyzing rumination and anxiety, such that HPs in the control condition ruminated more and had higher levels of anxiety

compared to HPs in the distraction condition. No significant effects or interactions were shown for PR, systolic BP, or diastolic BP. The results of this study add to previous research suggesting that distraction may be a valuable coping strategy for reducing rumination and anxiety in perfectionists recovering from failure, which could lead to improved mental health.
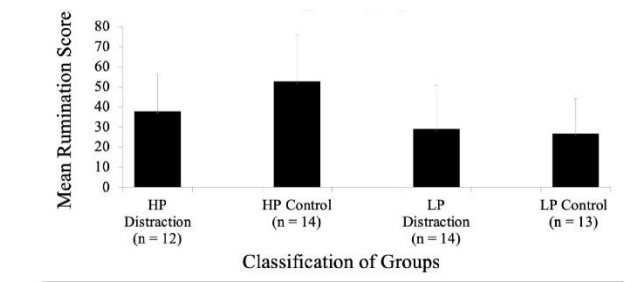

Figure 1. The average scores for rumination as a factor of time. Higher scores indicate higher levels of rumination. HP, High perfectionists; LP, low perfectionists.

Figure 2. The average scores for perceived stress after baseline, stressor, and recovery. Higher scores indicate higher levels of stress. Base, baseline; HP, High perfectionists; LP, low perfectionists.

Figure 3. Systolic blood pressure at baseline, stressor, and each 2-min average during the first 6 min of recovery. B, baseline; S, stressor. HP, High perfectionists; LP, low perfectionists.
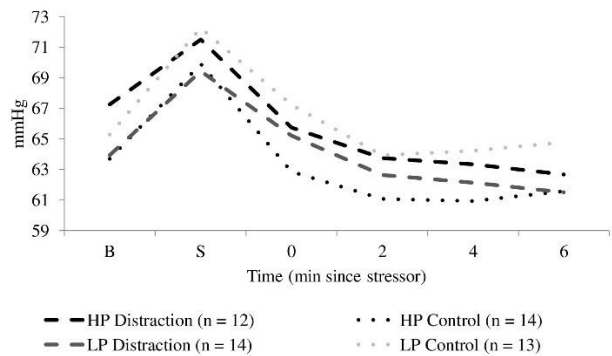

Figure 4. Diastolic blood pressure at baseline, stressor, and each 2-min average during the first 6 min of recovery. B, baseline; S, stressor. HP, High perfectionists; LP, low perfectionists.
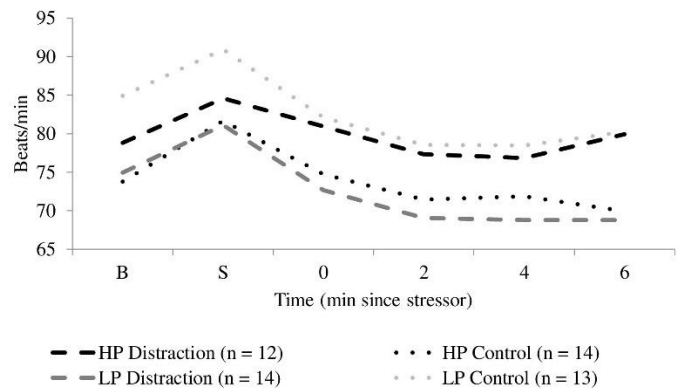

Figure 5. Heart rate at baseline, stressor, and each 2-min average during the first 6 min of recovery. B, baseline; S, stressor. HP, High perfectionists; LP, low perfectionists.

70) Abstract 999

MINDFULNESS APP TRAINING FOR CARDIOVASCULAR HEALTH (MATCH STUDY): RESEARCH IN PROGRESS
Thomas Kamarck, PhD, University of Pittsburgh, Emily Lindsay, PhD, University of Pittsburgh, Carissa Low, PhD, University of Pittsburgh, Matthew Muldoon, MD, MPH, University of Pittsburgh, Scott Rothenberger, PhD, University of Pittsburgh

Most of the literature examining stress and cardiovascular disease (CVD) in humans is based on correlational data to date. Experimental evidence is needed, using standardized intervention tools designed to reduce psychosocial stress and stress reactivity, and in healthy populations with preclinical

atherosclerosis. Mobile health interventions may provide us with an important intervention tool for this purpose.

We have demonstrated associations between two specific daily life measures of psychosocial stress-- Task Strain and Social Conlict-- with precllinical markers of atherosclerosis. These associations are most robust among those who show the largest acute ambulatory blood pressure (ABP) responses to these stressors in the natural environment. We have also developed a 14-lesson smartphone-based mindfulness training program shown to reduce daily life stress and laboratory-induced physiological stress reactivity in a sample of stressed community adults. The current study uses a revised version of this foundational intervention designed to expand its generalizability and temporal reach. Specifically, we will examine whether we can use context-sensitive modeling, in conjunction with mobile sensor data, to identify circumstances in which automated mindfulness prompts may be most fruitfully employed as part of this effort.

In a randomized feasibility study currently underway, we are recruiting 150 middle-aged and older adults (age 45 +) with no history of clinical CVD, who show a heightened CVD risk profile and who are identified as vulnerable to stress. Participants will be randomized to a 4-week mindfulness intervention or an enhanced usual care condition, in which they receive a list of stress management resources alone. Both groups will be followed for 3 months after the intervention. We will examine whether participants who receive our refined smartphone-based mindfulness training show sustained reductions in daily life Task Strain and Social Conflict and ABP response to these daily life stressors.

In this presentation, the rationale and design of this feasibility study will be described, along with plans for a possible folllow-up clinical trial involving measures of preclinical cardiovascular disease to be pursued in the event that we meet our initial goals.

71) Abstract 1394

INTEROCEPTION AND EMOTIONAL CHANGES ASSOCIATED WITH MENSTRUAL CYCLES

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Introduction

Menstrual cycles are regulated by close connection between brain and body. It affects the activity of autonomic nervous systems dynamically and leads emotional changes associated with the cycles. Although numerous researches support crucial role of interoception for integrating bodily responses and emotions, the influence of interoception on the emotional changes associated with the menstrual cycles has little been studied. Here we investigated what aspects of interoception were related with the emotional changes.

Methods

50 females (24.2±4.9 years old) participated two sessions for each, those were Day1 and Day15. Based on the reports about menstrual cycles, each of the session was categorized into the follicular or luteal phase. The heartbeat counting task (HCT) and STAI were conducted, at both Day1 and 15. Heart beats and blood pressure were continuously recorded through the tasks and three minutes resting state. Multidimensional Assessment of Interoceptive Awareness (MAIA) (Mehling et al., 2012) and Premenstrual dysphoric syndrome scale (PMDD scale) (Miyaoka et al., 2009) were completed at Day 1.

Results

We obtained some interactions between interoception and emotional changes between the follicular and luteal phases. Emotional Awareness (awareness of mind-body integration) as Factor 5 of MAIA was positively correlated with increased state anxiety score at the luteal phase (r=.529, p<.005). Also, some factors of MAIA, such as Factor 7 (Body Listening), were positively correlated with PMDD scale score. However, higher performance of HCT at the follicular phase was associated with lower PMDD scale score (r=-0.401, p<.05). Higher HCT performance was also correlated with low sympathetic nervous activity during the resting state and HCT.

Discussion

The associations between PMDD scale and interoception were different by the types of interoceptive measurements. The belief about interoception measured by MAIA was related with susceptibility to bodily changes in the luteal phase. On the other hand, higher interoceptive performance would act to moderate the luteal phase-related emotional changes by flexibly controlling access to bodily information in response to changes in the state of the body.

72) Abstract 1021

A PILOT INVESTIGATION OF THE IMPACT OF ACUTE MENTAL AND PHYSICAL FATIGUE EXPOSURE ON THE RELATIONSHIP BETWEEN CHANGES IN INFLAMMATORY CYTOKINES AND OVERALL FATIGUE LEVEL IN BREAST CANCER SURVIVORS

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Background

Over 3.8 million women have a history of breast cancer in the US, and fatigue is one of the most common post-cancer issues breast cancer survivors (BCS) experience. Although cancer-related fatigue (CRF) is usually present during treatment, about 1 in 4 BCS experience it long after remission. The role of inflammation in cancer development and progression is well-documented; however, more research is needed to clarify the relationship between physical/mental fatigue and inflammatory factors in BCS.This research study aims to document the changes in inflammatory cytokines after exposure to mental and physical fatigue in BCS.

Methods

A total of 46 women (age: 58.9±9.1) were recruited for this study and randomly assigned to one of three groups: exposure to physical fatigue (n=16), mental fatigue (n=15), or control (n=15). Participants exposed to physical fatigue performed a 6-minute walk/run test. Participants exposed to mental fatigue performed a version of a dual 2-back task on a computer. Participants in the control group watched a National Geographic video for 6 minutes. IL-1β, IL-6, IL-8, IL-10, TNF-a, TGF-b, and eotaxin were assessed pre-task, post-task, and during recovery from tasks. Total level of fatigue was measured by the FACIT-F. Difference scores (post-task minus pre-task and recovery minus pre-task) were calculated and correlated to FACIT-F scores.

Results

There was a statistically significant correlation for IL-8 (r=0.56; p=0.03) and eotaxin (r=0.63; p=0.01) in the mental fatigue group; IL-6 (r=0.53; p = 0.04) and eotaxin (r= 0.61; p=0.02) in the control group (Table 1). Trends for a correlation (0.05<p<0.10) were seen with TGF-β (r=0.47) in the physical fatigue group; IL-10 (r=0.49) in the mental fatigue group; TGF-β (r=0.48), IL-8 (r=0.45), IL-1β (r=0.50) and post-task/baseline

difference measurements for TGF-β (r=0.45) in the control group.

Conclusion

There is evidence that level of fatigue is correlated with inflammatory reactions to mentally or physically fatiguing tasks. There have been many studies on long-term CRF in BCS, but this is the first to examine acute reactions to fatiguing events. This pilot study demonstrates the importance of further investigating the relationship between the immediate response to fatiguing activity and inflammatory factors to better understand possible long-term effects of fatigue in BCS.

Table 1. Pearson correlation coefficients between overall level of fatigue (FACIT-F) and inflammatory reactions to fatigue-inducing tasks.

	Physical Fatigue (n = 16)		Mental Fatigue (n = 15)		Control (n = 15)	
	Post-Task/ Baseline Difference	Recovery/ Baseline Difference	Post-Task/ Baseline Difference	Recovery/ Baseline Difference	Post-Task/ Baseline Difference	Recovery/ Baseline Difference
IL-1β	-0.216	-0.244	0.344	0.11	0.146	0.495^
IL-6	0.027	0.227	-0.025	-0.15	0.258	0.528*
IL-8	0.004	0.153	0.557*	0.285	0.367	0.453^
IL-10	0.212	0.272	0.492^	0.121	0.114	0.293
TNF-α	-0.14	-0.096	0.053	-0.137	-0.055	-0.03
TGF-β	0.097	0.474^	0.441	-0.355	0.447	0.478^
Eotaxin	-0.151	0.009	0.633*	0.311	0.34	0.613*

IL: interleukin; TNF-α: tumor necrosis factor alpha; TGF-β: tumor growth factor beta; *indicative of a statistically significant correlation ($p < 0.05$); ^ indicative of a trend for a statistically significant correlation ($p < 0.1$).

73) Abstract 1368

RELIGION AND INFLAMMATION: AN INVESTIGATION OF POSITIVE RELIGIOUS COPING AND SOCIAL SUPPORT AS POTENTIAL MEDIATING PATHWAYS

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Objective. Studies suggest that religion can have a protective effect on cardiovascular disease (CVD). For example, religious attendance has been associated with lower inflammation, which is one pathway underlying CVD. Koenig and colleagues' theory on how religion affects physical health suggests that positive religious coping (RC) and social support are two mediating pathways. Notably, older African Americans (AA) are at greater risk for CVD than other racial groups. This study tested whether positive RC and social support would mediate the hypothesized association between greater religious attendance and lower inflammation in a sample of older AA adults. **Method**. Data was from the Health among Older Adults Living in Detroit (HOLD) study [*N*=210;*final analytic sample, N=185; M$_{age}$ (SD$_{age}$)=67.59 yrs. old (8.37), range=50 – 89; 72.40% female*]. Measures included religious attendance (2 items), the Short Form of the Brief Religious Coping Orientation to Problems Experienced Inventory (brief RCOPE), and the Interpersonal Support Evaluation List (ISEL-12). Covariates included age, sex, socioeconomic status (SES), chronic conditions (16 items), medication use (2 items), waist-to-hip ratio, alcohol use, and smoking. Venous blood was used to assess high-sensitivity C-Reactive Protein (hs-CRP), and cytokines levels to create an inflammatory index (i.e., interleukin-6, tumor necrosis factor-alpha, and interferon-gamma). **Results**. Path analyses indicated a significant positive association in the direct pathway from religious attendance to positive RC with and without covariates. No other significant direct and indirect pathways from religious attendance to inflammation were identified. Instead, covariates such as female and low SES were significantly associated with higher inflammatory levels. Greater chronic conditions and higher waist-to-hip ratio were significantly associated with the inflammatory index. Greater medication use was significantly associated with hs-CRP. **Conclusion**. In our study, positive RC and social support did not mediate pathways from religious attendance to inflammation. Certain sociodemographic factors emerged as predictors of inflammation in support of the current literature. Future studies could examine the protective effects of other religious dimensions or types of social support in lowering inflammation among older AA adults.

74) Abstract 1410

EXPERIENCES OF PATIENTS WITH BEHCET'S DISEASE IN RELATION TO COVID-19 VACCINES: A QUALITATIVE ANALYSIS

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Objectives: Behçet's Disease (BD) is a rare, incurable condition causing inflammation of the immune system, which is managed by oral immune suppressants in the first instance. Lack of treatment risks flares of the disease, but treatment can a) cause negative side effects and b) increases risk of serious complications if the patient develops COVID-19. In the UK, individuals with BD are considered at high risk of COVID-19 due to their immune suppressant medication so offered booster vaccines free of charge on the National Health Service. However, their immune suppressant medication may reduce vaccine effectiveness.

Design: An online qualitative questionnaire study live from March to November 2023 explored participants' attitudes to and experiences of COVID-19 vaccines. Participants also completed the Fear of COVID-19 scale (Ahorsu et al., 2022).

Methods: Participants were UK-based members of a Facebook group for patients with confirmed BD (N=25; 24 female; 1 male), aged 26-61 years (M=45.16). Data was analysed using thematic analysis and content analysis.

Results: All participants had received between two and six doses of a COVID-19 vaccine. Most (n=16, 64%) considered themselves high risk of COVID-19. Participants reported taking the vaccine to reduce their risk of COVID-19, and most felt positive about the COVID-19 vaccine, although some were worried about side effects. Before receiving vaccines, most participants received information leaflets, and some were asked about their medical history, although nine (36%) were not. Thirteen participants (52%) reported side effects from their vaccines, some of which were severe, and 13 (52%) worried that the vaccine might trigger a flare to their condition. Seven participants (28%) reported concerns about the COVID-19 vaccine, mainly related to fear of side effects. However, this did not deter them from having the vaccine as they considered the risk of dying from COVID-19 greater than the risk of side effects/complications from the vaccine.

Conclusions: Although some individuals with BD express concerns about COVID-19 vaccines, they generally feel the benefits outweigh the costs. When people are receiving COVID-19 vaccines, care needs to be taken to ensure that their medical history is checked and they are informed about potential vaccine side effects.

75) Abstract 1404

A FEASIBILITY STUDY OF FLOATATION-REST FOR FATIGUE: AN IDEA THAT WAS WORTH FLOATING

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Background: Floatation-REST (restricted environmental stimulation therapy) was originally developed as a means of better understanding the effects of sensory deprivation. More recently, it has shown promising potential as a therapeutic intervention in conditions such as anxiety. We ran a feasibility study assessing the tolerability of this intervention for participants with disabling fatigue.
Methods: Participants were recruited via online advertisement's and were screened to check they scored at least 36 on the Fatigue Severity Scale (FSS). Pertinent medication changes and previous float experience within the last 6 weeks were amongst the exclusion criteria. Baseline measures included: Modified Fatigue Impact Scale (MFIS); Body Perception Questionaire; hypermobility questionnaire and Tellegen Absorption Scale. Participants completed four 90 minute sessions of floatation-REST across a 2-6 week period with 1 week of ecological momentary sampling (EMS) before and after. Immediate pre and post float measures included interoceptive testing. Heart rate variability (HRV) was measured during floatation. Change in energy was measured by retrospective subjective assessment, changes in validated fatigue scales and EMS.
Results: Baseline MFIS scores (median= 67.5; range= 55-77) indicated a high degree of severity of participant fatigue. 15 participants were recruited to the study. 13 participants started the float intervention and 11 completed all four sessions. No drop out was due to poor tolerability. Most adverse events were mild, expected and related to the pre/post float testing. HRV data was successfully captured throughout all sessions. Participant surveys described improvements in energy levels, sleep and relaxation and 73% "strongly agreed" to an overall positive effect. Furthermore, both statistically and clinically significant reductions were noted in the mean FSS scores (56.9 to 52.6; p=0.044) and the MFIS scores (67.0 to 56.4; p=0.003). Detailed energy assessment was obtained by EMS with 37 to 86 data points per participant.
Conclusion: Floatation-REST appears to be a feasible intervention for people with severe fatigue. EMS, HRV data and other measures were reliably recorded. Reported subjective benefits were supported by an improvement in objective fatigue scores, though the lack of a control group makes these improvements speculative at present.

76) Abstract 939

ASSESSMENT OF SELF-REPORTED INTEROCEPTION AND BODILY SYMPTOMS IN UNDERGRADUATE STUDENTS: CHALLENGES IN MODEL VALIDATION
Livia Guadagnoli, PhD, KU Leuven, Marta Walentynowicz, PhD, KU Leuven, Thomas Janssens, PhD, Ebpracticenet, Maaike Van Den Houte, PhD, KU Leuven, Tabea Eimer, MSc, KU Leuven, Lukas Van Oudenhove, MD, PhD, KU Leuven, Nathalie Weltens, PhD, KU Leuven, Andreas von Leupoldt, PhD, KU Leuven

Introduction: Research suggests the latent structure of somatic symptom reporting includes both a general symptom factor and domain-specific factors, representing affective-motivational and sensory components, respectively. Similarly, interoceptive sensibility includes both sensory and affective components. We sought to confirm the latent structure of three questionnaires measuring somatic symptoms and interoception in a sample of healthy volunteers as the first step of a larger study assessing their interrelationships.
Methods: Undergraduate psychology students completed a series of questionnaires for course credit, including the Interoceptive Sensitivity and Attention Questionnaire [ISAQ], the Patient Health Questionnaire 15 [PHQ-15], and the adapted Checklist for Symptoms in Daily Life [CSD]. Confirmatory factor analyses assessed the bifactor structure (one general and multiple domain-specific factors) of the PHQ-15 and CSD. Four models were estimated for the CSD and PHQ-15: one-factor model, correlated factor model, hierarchical factor model, and bifactor model. The correlated factor structure of the ISAQ (with 3 latent factors) was also assessed. Model fit was evaluated based on the root mean square error of approximation [RMSEA] and the comparative fit index [CFI], and these indices were compared to identify the best-fitting model.
Results: 1,164 participants [mean (SD) age=18.4 (2.0); 89% female] were included. The PHQ-15 revealed poor-fitting models across all model types (CFI<.90, RMSEA>.05) mostly due to high standardized estimated residual variance (>.80) on several items. For the CSD, the bifactor model was the best-fitting model (CFI=.99, RMSEA=.05), although 2 items (of 39 total) with high standard residual variance were removed. For the ISAQ, the correlated factor model was the best fitting model (CFI=.99; RMSE=.03), but only after removing 7 (of 17 total) items due to high residual variance, resulting in 1 factor with only 2 items.
Conclusions: The estimated models either fitted poorly or were significantly adapted due to high standardized estimated residual variance of items, suggesting these questionnaire items are not explained by the latent variables. Future research should assess residual variance and consider potential implications of using relatively healthy young undergraduate students as a sample with similar questionnaires.

77) Abstract 1020

BETTER SLEEP, LESS DEPRESSIVE SYMPTOMS?
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Introduction: In this study the influence of a treatment of insomnia on the therapeutic success of depressive patients in psychosomatic rehabilitation was investigated. Patients received additional training to improve sleep behavior. Objective sleep data were collected by actigraphy and compared with subjective parameters of sleep quality by standardized sleep protocols.
Methods: 34 depressed patients (age M = 48.67 y ± SD = 11.09, ~53% female) were examined at admission (t1) and discharge 5 weeks later (t2) with the german version of the Center for Epidemiological Studies Depression Scale (Allgemeine Depressionsskala, ADS) and Pittsburgh Sleep Quality Index (PSQI). Moreover, sleep protocols and fitness trackers were additionally used during sleep training to record and compare objective and subjective sleep parameters. Data were tested for correlation using Pearson correlation; then analyzed for homogeneity of correlations and, if necessary, an averaged r was calculated across all individuals.
Results: Initial results showed significant improvement in depression scores (Cohen's d = 1.13, p < 0.001) and sleep quality in the PSQI total score (Cohen's d = 1.04, p < 0.001) over the therapy period. Regarding the comparison of sleep quality parameters in the sleep log and fitness trackers, there

was a discrepancy between the subjectively reported and objectively collected data (r < 0.3; min: r=-0.12 to max: r=0.26). No interindividually homogenous correlations were found. Multiple regression analysis showed a positive effect of PSQI score daytime sleepiness with the improvement of depression. **Conclusion:** Improvement in sleep quality is only poorly related with the reduction of depression. Patients subjectively rate their sleep quality worse. The question of whether fitness tracker data offer significant value in the context of psychosomatic rehabilitation remains unanswered.

78) Abstract 1066

COPING WITH INTERPERSONAL RACIAL DISCRIMINATION: STRATEGIES' EFFECTS ON SUBJECTIVE WELLBEING, DEPRESSION AND A PHYSICAL HEALTH

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Racism-related stress such as discrimination is a social stressor and is implicated in Black/White health disparities in the United States (Pascoe and Richman, 2009). Harm from racism-related stress is distinct from general stress, and may be coped with using different strategies (Harrell, 2000; Utsey, Ponterotto, Reynolds, & Cancelli, 2000; Hoggard et al., 2012). Still, evidence for antecedents and effects of racism-related stress on well-being, plus potential protective factors remain equivocal. Drawing from the biopsychosocial model of perceived racism, this study examined the effects of several coping strategies on psychological and physical health in the context of racial discrimination. Employing a cross-sectional survey of 504 Black American adults, we found that coping strategies such as avoidance and confrontational approach were negatively associated with health, consistent with previous literature. We also found that non-confrontational approach strategies were positively associated with psychological well-being, but not with physical health. Furthermore, interaction effects between coping and frequency of racial discrimination suggest that some coping strategies may only be protective in high-discrimination contexts– including social and emotional support.

79) Abstract 1118

USING PRE-RECORDED MUSIC TO INCREASE MENTAL WELLBEING: A CONTEXTUAL STUDY

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The prevalence of stress and mental ill health is a growing concern worldwide, with associated personal, societal and economic wellbeing implications. While music is commonly used to aid relaxation and improve subjective wellbeing, comparatively few studies have systematically examined the effects of music-based interventions in daily life. Previous work has demonstrated that music can aid in reducing stress, but only when the purpose of the music is to explicitly aid relaxation. This study aimed to examine the potential for an internet delivered music-based intervention to reduce stress and improve wellbeing of a non-clinical population in a home context.
Forty-seven UK adult participants were recruited and randomised to one of three music-based intervention conditions (passive, n=15; active, n=15; or control, n =14). They were asked to complete the intervention in a quiet place for 30 minutes, 3 to 5 times a week for 4 weeks. Participants in the active and passive conditions could choose from three different playlists consisting of ambient, jazz, or classical music. Those in the control condition were given 30 minutes of forest sounds to manipulate the effects of music. Participants in the active condition were given instructions to move with the music as they felt appropriate while those randomised into the passive condition were asked to remain still either sitting or lying down and focus on the different aspects of music they heard playing. Participants recorded accompanying psychometric data on compliance, personality, stress and wellbeing weekly.
While there was an overall reduction in Depression Anxiety Stress Scale (stress subscale) scores, regardless of group, $F(3,45) = 17.75$, $p= .001$, $\eta p^2= .287$, there were no significant group-specific effects. Significant differences were also evident between the baseline and after 2 weeks of the intervention, $t(44)= 4.08$, $p< .001$, as well as baseline to the final week of the intervention, $t(44)= 5.00$, $p< .001$.
The results showed a stress-reducing effect but not limited to the experimental conditions. The research was conducted during the Covid-19 Pandemic in 2020, a time of high stress in the general population, and results demonstrating the overall positive impact of the intervention hold promise but require further exploration.

80) Abstract 1115

SELF-CONCEPT, BODY ACCEPTANCE, AND EMOTIONAL CHALLENGES IN YOUNG PEOPLE WITH AN INHERITED CANCER PREDISPOSITION SYNDROME

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Background. After a cancer diagnosis, self-concept and emotional well-being may be disrupted by perceptions that the body is a source of danger, fear, or betrayal. Adolescent and young adult (AYA) cancer survivors are especially vulnerable to negative self-concept given co-occurring developmental and cancer-related bodily changes. Integration of positive body self-representations may promote body acceptance and psychologically protect survivors. This study aimed to examine relationships among self-concept, body acceptance, and emotional challenges in a sample of AYAs living with the chronic high threat of cancer due to Li-Fraumeni syndrome (LFS), an inherited cancer predisposition syndrome. **Methods.** Participants (*N*=57) were AYAs with LFS aged 15-39 years enrolled in a longitudinal mixed-methods psychosocial-behavioral study under the National Cancer Institute LFS study (NCT01443468). The analytic sample included 37 AYAs who completed an online survey. We measured reported self-concept clarity (*e.g.*, *"*I know what kind of person I am") and vulnerability (*e.g.*, "I face an unhealthy future"), history of emotional problems, negative emotions (sadness and/or anxiousness), and body acceptance in the past month. We performed multiple regression to analyze

predictors of negative emotions. **Results.** Participants were mostly female (*n*=30/37, 81%), with mean age 31 years. Mean age at LFS diagnosis was 24 years. About half of AYAs had ≥1 primary cancer (*n*=19/37, 51%) (*e.g.*, breast, brain, sarcoma). Controlling for age and prior cancer history, higher reported vulnerability (β=.50, 95% CI [.23, .82]) and lower body acceptance (β=-.57, 95% CI [-.71, -.23]) were independently associated with negative emotions. **Conclusions.** With or without a cancer diagnosis, AYAs with LFS may experience a sense of vulnerability or low body acceptance, both of which predicted negative emotions. A reverse causal direction cannot be discounted, however. Clinicians might use psychotherapeutic interventions to address negative appraisals or body perceptions among those feeling vulnerable or less accepting of their bodies after LFS diagnosis. Future studies of populations with high genetic cancer risk might examine other factors that potentially influence body self-representations and emotional well-being, such as positive affect, interoceptive ability, bodily threat monitoring, and somatization.

81) Abstract 1445

A POLYREGULATION APPROACH TO HEALTH BEHAVIOUR CHANGE

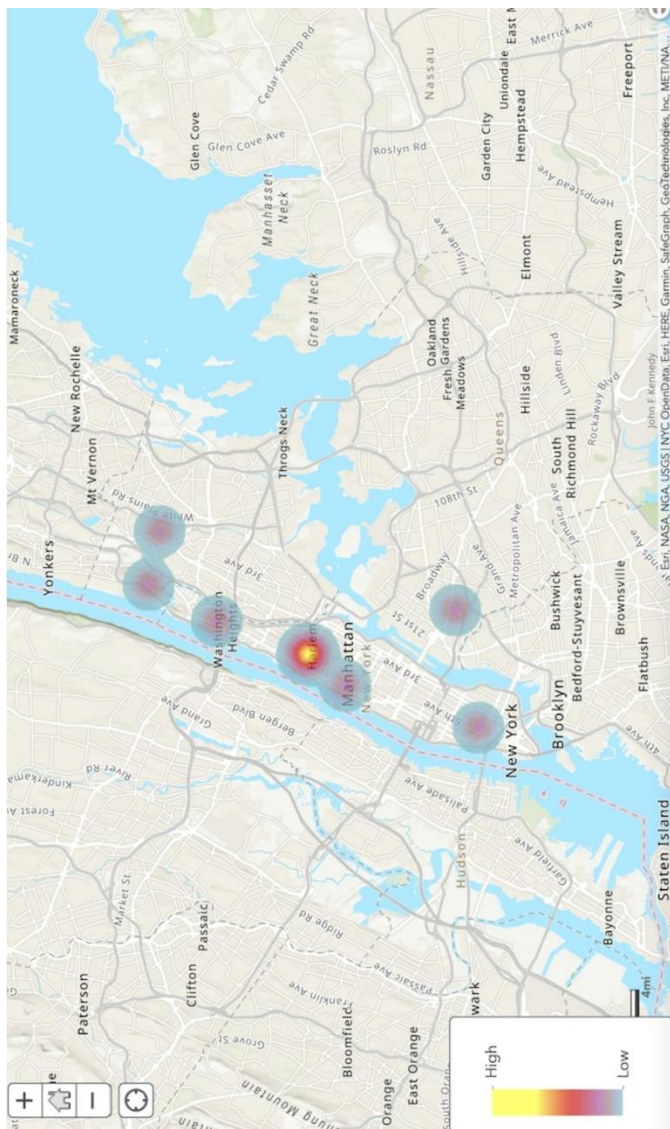*Kaitlyn Werner, PhD, University of Oregon, James Gross, PhD, Stanford University*

Nearly everyone wants to be healthier, yet making the necessary changes to do so can be astonishingly difficult. For example, one of the most common goals people have is to improve their health and fitness (Saad, 2023), yet very few Americans meet the recommended nutritional (12%) or physical activity (24%) guidelines. Such failures to change our behaviour are quite costly at both the individual and societal levels – for example, 30-50% of cancers and 44% of cancer-related deaths can be prevented by adopting a healthier lifestyle, and nearly $173 billion in the U.S. and £6 billion in the UK is spent annually on obesity-related health care costs. To address this fundamental challenge, research has predominantly focused on determining the effects of different strategies in helping people change their behaviour (e.g., Milkman et al., 2021). However, emerging research suggests that people may often rely on multiple strategies within the same regulatory episode – a phenomenon referred to as polyregulation (Ford et al., 2019; Werner & Ford, 2023). Across three samples (N=1505), we examined three key questions: (1) how common is polyregulation in pursuing the goal to eat healthy?, (2) when do people use polyregulation?, and (3) is polyregulation effective? Using cross-sectional and longitudinal methods, participants indicated what strategies they used to regulate a temptation that conflicted with their goal to eat healthy. They then indicated whether they successfully resisted the temptation or not. Finally, we also assessed several contextual features, including conflict intensity, the extent to which people perceived they had control over their environment, motivation for pursuing the target goal, and socioeconomic status. Results suggest that (1) polyregulation is common (23-62%) when regulating temptations that conflict with the goal to eat healthy, (2) people used more or less strategies depending on contextual factors (e.g., conflict intensity, perceived controllability), and (3) people using polyregulation were successful in regulating desires. As a follow-up exploratory analysis, we found that the prevalence of different strategy combinations varied by sample, providing some evidence of regulatory flexibility. We close by outlining a novel integrative framework that better captures the complexities of strategy use in promoting lasting behaviour change.

82) Abstract 1452

CONTEXT MATTER: ASSESSING INTERSECTIONAL DISCRIMINATION AND CARDIOMETABOLIC RISK AMONG SEXUAL AND GENDER MINORITIES OF COLOR
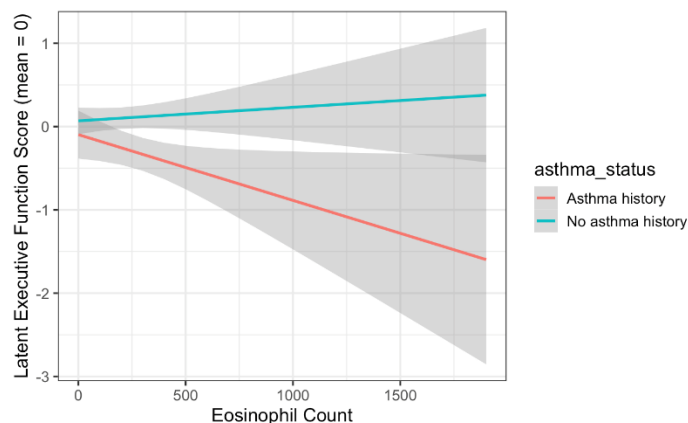
Stephanie Cook, DrPH, MPH, New York University, Mariana Rodrigues, MA, New York University, Erica Wood, MPH, New York University

Sexual and gender minorities are at an increased risk of cardiovascular disease (**CVD**) at an earlier age than heterosexuals. One of the reasons is that emerging adult (18-29) young sexual and gender minorities (**YSGM**) have higher rates of harmful cardiometabolic health behaviors (**CHB;** e.g., physical inactivity) than cisgender heterosexuals. One key factor that leads to increased rates of harmful CHB within YSGM is exposure to intersectional discrimination (i.e., the experiences of discrimination occurring amid multiple identities and/or positions [e.g., race/ethnicity, gender identity, sexual orientation]). Although there is currently research demonstrating links between intersectional discrimination (operationalized within as mircoaggressions) and cardiometabolic health behaviors among SGM, much of this research cannot characterize the experiences and effects of intersectional discrimination on CHB in ways that reflect the lived experience of race, place, and identity among YSGM. Thus, to better understand the contextual features that influence intersectional discrimination on CHB, we employed a geographically explicit ecological momentary assessment (**GEMA**) and a qualitative mapping approach. Participants (N = 32) actively engaged in an extensive 7-day protocol, receiving eight daily Ecological Momentary Assessment (EMA) messages, while their location data was tracked through the Google Maps application on their smartphones. The EMA data, covering microaggressions, were integrated with participants' travel history using R software. The integration facilitated the creation of individualized maps. Upon study completion, participant data were combined to highlight the places in which participants reported having experienced microaggressions and CHB per different intersectional groups (e.g., Black Lesbian Woman, Latinx Gay Men). Utilizing ArcGIS online, we generated heatmaps to visualize the spatial patterns of reported microaggressions. As shown in the figure provided, participants who were racial/ethnic minorities reported experiencing more microaggressions and CHB's in areas with a higher proportion of racial/ethnic minorities. In this presentation we will highlight findings and discuss the importance of utilizing objective contextual variables paired with an intersectional approach.

Youth were classified as having a history of asthma or no asthma history from parent reports of lifetime healthcare contact. Youth with other chronic health conditions were excluded. Cognitive functioning was derived from a confirmatory factor analysis of the NIH Toolbox cognition battery, generating a second-order general intelligence factor score as well as EF, memory, and language scores (N=6466, 19.29% with asthma). Blood eosinophil counts, a marker of asthma-related inflammation, were available for a subset of youth (N=573, 21.3% with asthma). Asthma history was regressed on each outcome variable using linear mixed effects models, adjusting for age, sex, and the random effects of data collection site and family unit.

Youth with an asthma history had EF scores 5.80 months behind those with no asthma history (b = -0.15, $F_{(1, 6443.3)}$ = 24.76), memory scores 9.07 months behind (b = -0.21, $F_{(1, 6359.3)}$ = 32.83), and language scores 4.56 months behind (b = -0.19, $F_{(1, 5956.9)}$ = 22.99), resulting in a cumulative lag in g-factor of 5.85 months (b = -0.13, $F_{(1, 6162.5)}$ = 33.05). The effect of asthma on EF was moderated by blood eosinophil count (b = -0.95, $F_{(1, = 496.24)}$ = 4.40, p = 0.036). While there was no relationship between eosinophil count and EF in youth with no asthma history, youth with asthma showed greater EF deficits with higher markers of ongoing asthma-related inflammation. The results emphasize that asthma is an underrecognized risk factor for altered cognitive development in youth with unknown implications for brain health throughout the lifespan.

POSTER SESSION 3

1) Abstract 1293

IMPACT OF INFLAMMATION ON COGNITIVE DEVELOPMENT IN ADOLESCENTS WITH ASTHMA
Claire Laubacher, MS, University of Wisconsin-Madison, Melissa A. Rosenkranz, Ph.D., University of Wisconsin-Madison

The prevalence of asthma, the most common chronic disease of childhood, is increasing globally. 40% of US youth with asthma aged 12 to 14 have uncontrolled disease. Simultaneously, growing evidence shows that chronic inflammatory diseases, including asthma, have systemic effects on adult brain function and cognitive ability. This raises questions about the role of asthma in adolescent cognitive development given documented deficits in executive functioning (EF) in this population. Using the Adolescent Brain Cognitive Development Study (release 4.0), we examined the relationship between asthma history and cognitive functioning in youth aged 11 to 14 and how this relationship is moderated by a clinically relevant inflammatory marker.

2) Abstract 1298

UNDERSTANDING THE MECHANISMS OF DIGITAL MINDFULNESS-BASED PSYCHOLOGICAL SUPPORT FOR RESPIRATORY DISEASE
Ben Ainsworth, Ph.D., University of Southampton

Asthma affects over 300 million people worldwide, and are leading causes of mortality and is characterised by bronchoconstriction and unpleasant breathlessness. Notably, outcomes are worsened by the presence of psychological dysfunction – with anxiety and depression leading to lower quality of life, increased healthcare utilisation and higher mortality. In this research programme, we explored the potential of digital mindfulness and meditation as a self-management tool for UK patients with asthma. In particular, we focused on the subjective nature of breathlessness sensation. Study 1: In mixed methods analysis of 94 asthma patients who used the Headspace digital mindfulness intervention over 3 months, we explored how meditation practice was associated with improved illness perceptions (including beliefs in consequences of illness and emotional representations).

Qualitative interviews with 18 participants explored perceptions of non-pharmacological interventions for asthma and their impact on quality of life.

Study 2: In this randomised controlled double-blind experiment, 87 asthma patients completed a task that measured the frequency of negative thought intrusions, before they were randomised to recieve guided practice to i) control their breathing, ii) accept their breathing or iii) non-breathing-related control. They then took part in a worry induction, before recompleting the thought intrusion task. We found no differences between accept vs. controlling breathing conditions.

In both the applied, real-world paradigm (Study 1) and the controlled lab experiment (Study 2) we found benefits of mindfulness interventions for people with asthma; but were unable to clearly demarcate mechanisms of mindfulness that were specifically beneficial for people with asthma. Therefore, it is unclear whether mindfulness offers benefits beyond 'generic' stress reduction. However, people with asthma still report it as a helpful self-management tool, and are more likely to engage if they consider it to be a useful and relevant therapy for their asthma.

3) Abstract 1425

ASSOCIATIONS BETWEEN EARLY LIFE ADVERSITY AND MITOCHONDRIAL BIOENERGETICS IN DISTINCT IMMUNE CELL SUBTYPES

Catherine Kelly, BA, Columbia University, Anna S Monzel, PhD, Columbia University, Gabriel Sturm, PhD student, University of California, Natalia Bobba-Alves, PhD, Columbia University, Jack Baker, BA, Columbia University, Michio Hirano, MD, Columbia University, Robert-Paul Juster, PhD, Université de Montréal, George M. Slavich, PhD, University of California, Martin Picard, PhD, Columbia University, Caroline Trumpff, PhD, Columbia University

Background: Childhood adversity is associated with adverse health outcomes that impact psychological and biological health long into adulthood, but the underlying biological mechanisms are not established. Early adversity leads to excessive energy consumption in mixed immune cells, aligning with the energetic model of allostatic load (EMAL) stating that the health-damaging effects of stress arise from excess cellular energy consumption. Here, we hypothesized that greater levels of early-life adversity would increase energy demand and mitochondrial energetic parameters in monocytes (most sensitive to psychosocial exposures), but less so in lymphocytes and not in neutrophils.

Method: We used data from 66 healthy participants (68% women, aged 18-60) from the Mitochondrial Stress, Brain Imaging, and Epigenetics (MiSBIE) study. Adverse life experiences were assessed using the Stress and Adversity Inventory (STRAIN) and Childhood Trauma Questionnaire (CTQ). Leukocytes were freshly isolated from fasting blood samples to measure three key parameters of cellular bioenergetics (Seahorse extracellular flux analysis) reflecting cellular energy demand and capacity. Associations between early-life adversity and cellular bioenergetics were assessed using Spearman correlations and multiple linear regressions.

Results: As hypothesized, individuals reporting more early-life adverse experiences (STRAIN) tended to exhibit greater activity in all bioenergetic parameters in monocytes (average r=0.18). The largest effect was observed for maximal mitochondrial energy transformation capacity (r=0.22, unadjusted p=0.077). Lymphocytes showed similar associations for two of three bioenergetic parameters. The

CTQ yielded similar but weaker or null associations. As predicted, no significant associations were found in neutrophils. Linear regression models adjusting for age, sex, and BMI yielded similar results.

Discussion: These preliminary results are consistent with the EMAL model and with prior research on the energetically expensive gene expression profiles associated with early adversity in monocytes. This work highlights the importance of cell-specific analyses to examine psychobiological associations. Additional research is needed to document the relevance of these findings for human health and aging outcomes.

5) Abstract 1363

RISK FACTORS FOR DEMENTIA: AWARENESS AMONG INDIAN ADULTS

Aparna Shankar, PhD, FLAME University, Deepa Bapat, D.Psych, FLAME University

Background: The prevalence of dementia is expected to increase exponentially in the coming years in India. Unfortunately, little is known about the understanding of dementia and its associated risk factors in the Indian population. Public health interventions that address risk factors for dementia may be an effective way of curbing dementia-related burden. The present study aimed to assess the awareness of risk factors for dementia/late life cognitive changes in a community sample of Indian adults.

Methods: A total of 3084 participants aged 18 years and over who were resident in India were recruited via Qualtrics. The sample was chosen to be representative of the adult Indian population in terms of age and gender. Participants completed an online survey which included questions on demographic variables (age, gender, educational level, occupation and income) as well as questions on awareness of dementia and its risk factors, participants' depressive symptoms (PHQ2; Kroenke et al., 2009), anxiety (GAD2; Kroenke et al., 2009), knowledge of someone with dementia, perceived severity of dementia/memory problems, and worry regarding dementia/ memory problems. Regression analyses were carried out to assess the associations between demographic and psychosocial variables and the number of dementia risk factors that were correctly identified.

Results: Of the seven risk factors provided, family history (59.8%) was the most commonly identified, followed by excessive alcohol consumption (54.6%) and smoking (50.3%). A much smaller proportion of participants identified obesity (31.2%) as a potential risk factor. In multivariable analysis, older age, male gender, familiarity with someone who had dementia or memory problems, lower anxiety, greater perceived severity of dementia/ cognitive problems and greater concern regarding this were associated with identifying more risk factors.

Conclusions: There is limited awareness around dementia risk factors in the general Indian population. Public-health campaigns highlighting modifiable risk factors that also emphasise the seriousness of the condition may be more effective at generating awareness around dementia risk in India.

6) Abstract 1376

HALLUCINOGEN PERSISTING PERCEPTION DISORDER (HPPD): WHEN THE TRIP DOESN'T END

Natalie Gukasyan, MD, Columbia University, Sydney White, BA, Johns Hopkins Center for Psychedelic and Consciousness Research, Matthew Kelly, PhD, MPH, Johns Hopkins Medical

Institution, Nathan Sepeda, BS, Johns Hopkins Center for Psychedelic and Consciousness Research, Sandeep Nayak, MD, Johns Hopkins Center for Psychedelic and Consciousness Research, Steven Locke, MD, Harvard Medical School

Background: Hallucinogen persisting perceptual disorder (HPPD) is a debilitating but understudied condition that can occur after psychedelic use, in some cases from just one exposure. There are no established guidelines for treatment, no FDA-approved medications, and limited data on treatment efficacy. Because the use of psychedelics among the general public is increasing, there is concern that HPPD will become a growing public health problem. **Methods**: We employed an anonymous online survey to collect data from those who self-identified as ever experiencing symptoms of HPPD. Survey questions included content on sociodemographic characteristics, baseline and post-HPPD mental health conditions, details on the precipitating episode of psychedelic use, phenomenology, course of illness, types of treatments used, and response to treatment. The latter was assessed by asking about HPPD symptom change during use of individual medications or other treatments on a 7-point Likert scale from "Much better" to "Much worse." **Results**: 548 respondents completed the survey. 90.5% reported using a medication, supplement, and/or other mental health treatment since onset of HPPD. Benzodiazepines as a pharmacologic class had the highest rates of symptom improvement (58.1%) and low rates of symptom worsening (3.8%). Antidepressants had universally poor rates of treatment response (11.1%) and were much more likely to cause symptom worsening (34.5%). Medications from other classes that emerged as potential treatments of interest given high rates of treatment response included lamotrigine (46% improved), ketamine (48% improved), lurasidone (40%) and olanzapine (38%). Interestingly, non-pharmacologic interventions such as yoga, meditation, acupuncture, and neurofeedback resulted in high rates (>40%) of symptom improvement, though most commonly resulting in only slight improvement. **Conclusions:** The findings are congruent with some of the existing but limited evidence on treatment (e.g., the potential response to benzodiazepines and lamotrigine) but also suggest the potential of other medications, such as select second-generation antipsychotics and ketamine. Data also suggest the possible utility of non-pharmacologic interventions like yoga and meditation. This poorly understood neuropsychiatric disorder is an emerging research opportunity that may link neuropharmacology and epigenetics.

7) Abstract 1430

REACTIVITY OF THE AUTONOMIC NERVOUS SYSTEM DURING STRESS AND REST IN MALE ADULTS WITH ADHD COMPARED TO HEALTHY CONTROLS

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Autonomic system dysfunction has been reported in children and adolescents with attention deficit hyperactivity disorder (ADHD) and may be related to their behavioural characteristics. However, findings are inconsistent and little is known about autonomic regulation in adults with ADHD. We therefore conducted a study in 22 men with a clinical diagnosis of ADHD (mean age 33±7 years; BMI 24.6 ± 2.5) and 23 healthy controls (32 ± 7 years; BMI 26.0 ± 5.5), recording autonomic nervous system (ANS) parameters via Task Force® Monitor. Starting with five minutes of rhythmic breathing, a baseline measurement was obtained and followed by three different stressors: mental arithmetic, listening to a crying baby, and the Ironson Anger Recall Test. Each stressor was followed by a rest period. The assessment concluded with five minutes of quiet music. During these nine phases, we analysed eleven ANS parameters: RR interval (RRI), HRV parameters (root mean square of successive differences (RMSSD), high and low frequency RRI (log HF-RRI, log LF-RRI)), baroreflex sensitivity (BRS), continuous non-invasive systolic and diastolic blood pressure (sBP, dBP), cardiac index (CI), stroke index (SI), pre-ejection period (PEP) and total peripheral resistance index (TPRI).

Even after correction for multiple testing for 99 ANS parameters (Benjamini-Hochberg procedure), we found statistically significant results for several parameters and phases, indicating that participants diagnosed with ADHD displayed a reduced beta-adrenergic (PEP, SI) and parasympathetic (RRI, BRS) activity as well as a heightened alpha-adrenergic activity (TPRI), with the strongest results for the reduced beta-adrenergic activity (Table 1).

Our results suggest that reduced beta-adrenergic activity is most pronounced in ADHD, with increased alpha-adrenergic activity and reduced parasympathetic activity acting as compensatory mechanisms. Therefore, it seems necessary to adopt a multidimensional and standardized view of the ANS to meaningfully evaluate autonomic regulation. The lack of a standardised multidimensional view of the ANS in previous studies contributes to inconsistent results in patients with ADHD.

Table 1: Overview over parasympathetic, alpha- and beta-adrenergic activity during trials in patients with ADHS and healthy controls

ANS activity in patients with ADHD compared to healthy controls	Brea-thing	Base-line	Maths	RS after maths	Baby cries	RS after baby cries	Anger recall	RS after anger recall	Music
parasympathetic (esp. RRI)	↓	↓	(↓)	↓	↓	(↓)	↓	↓	↓
α1-adrenergic (TPRI)	↑	(↑)	(↑)	(↑)	(↑)	(↑)	(↑)	(↑)	(↑)
β1-adrenergic (esp. PEP und SI)	↓	↓	↓	↓	↓	↓	↓	↓	↓

Index: RS: resting state, ↑: heightened activity in patients with ADHS compared to healthy controls, ↓: reduced activity in patients with ADHS compared to healthy controls, (): tendency in the given direction without significance

8) Abstract 1451

PERCEIVED LONELINESS ASSOCIATED WITH ENDOTHELIAL DYSFUNCTION IN A COMMUNITY-BASED AFRICAN AMERICAN COHORT AT RISK FOR CARDVIOVASCULAR DISEASE: A TRANSLATIONAL APPROACH

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Rheumatology and Clinical Immunology, University of Pittsburgh Medical Center, Anca Dobrian, PhD, Department of Physiological Sciences, Eastern Virginia Medical School, Tiffany Powell-Wiley, MD, PhD, Division of Intramural Research, National Heart, Lung, and Blood Institute, Yvonne Baumer, PhD, Division of Intramural Research, National Heart, Lung, and Blood Institute

Background: Little is known about the impact of chronic stress on endothelial barrier integrity, a crucial early marker of atherogenesis – a disorder of the artery wall and root cause of many cardiovascular diseases. **Methods**: We examined the relationship among validated questionnaires to evaluate loneliness-related chronic stress and various hormonal and immunological function measures in a community-based cohort of African American adults from resource-limited neighborhoods and at significant risk for CVD. Then we conducted *in vitro* experiments to probe these effects and learn more about the mechanism of action. **Results**: We determined that a 1-SD increase in self-reported loneliness levels was associated with a 0.32-increase in the product of epinephrine and TNFa (n=42, p=0.04), as well as with a loss in endothelial VE-cadherin expression (p=.03), a marker of endothelial dysfunction, after adjustment for body mass index and CVD risk factors. This effect suggests a synergism between epinephrine and TNFa. In subsequent *in vitro* experiments to probe this effect, we found that epinephrine, a catecholamine increased in individuals experiencing chronic stress, worsens the impact of TNFa, a cytokine reportedly increased in individuals experiencing depression and loneliness, on endothelial barrier integrity; together these biomarkers decreased endothelial VE-cadherin expression (E: 0.94 ± 0.11 and T: 0.79 ± 0.05 vs E+T: 0.58 ± 0.06-fold change of control, p<0.01) and dampened endothelial barrier integrity by increasing inter-endothelial gap formation (E: 1.59 ± 0.16 and T: 1.65 ± 0.17 vs E+T: 2.25 ± 0.13-fold change of control, p<0.001). Additionally, among these same participants, soluble VE-cadherin was associated significantly (n=42, p=.02) with subclinical CVD after adjustment for BMI, as measured by 18-Fluorodeoxyglucose Positron Emission Tomography / Computed Tomographic imaging. **Conclusions**: Taken together, we provide a potential mechanism by which loneliness-related stress could impact endothelial barrier integrity and function - ultimately worsening CVD health disparities.

9) Abstract 1413

THE EFFECTS OF PERCEIVED AND BEHAVIORAL SLEEP ON NEXT-DAY NEGATIVE AFFECT WITHIN THE OBSESSIVE COMPULSIVE SPECTRUM

Hannah C. Broos, MS, University of Miami, William Wohlgemuth, PhD, Miami VA Medical Center, Kiara R. Timpano, PhD, University of Miami

Background: Within the obsessive-compulsive (OC) spectrum, both obsessive compulsive disorder (OCD) and hoarding disorder (HD) are characterized by extensive comorbidity with depression and negative affect. One process which may contribute to comorbid mood symptoms within the OC spectrum is sleep. Sleep has been linked with various physical and mental health indices and has been shown to be a robust predictor of mood. Little research, however, has explored this relationship within the OC spectrum. Additionally, previous research has relied primarily on perceived and cross-sectional assessments of sleep, limiting the conclusions that can be drawn. The current study used multimodal and daily assessments of sleep, including both self-report and actigraphy data, to explore the daily association between sleep and negative affect within an OC spectrum sample.
Method: Participants were adults (*N* = 108) recruited from the South Florida community with clinical levels of OCD and HD, as well as healthy controls. All participants completed an ecological momentary assessment (EMA) protocol for approximately seven days. During this period, participants wore an actigraph watch every day and completed daily self-report ratings of their perceived sleep quality. Participants also reported their level of negative affect each day.
Results: We used a series of two-level multilevel linear models to test whether previous night's sleep predicted next-day negative affect, controlling for age. Separate models were run for each predictor: perceived sleep quality and actigraphy-derived sleep efficiency. Self-reported sleep quality was a significant predictor of next-day mood: worse perceived sleep quality the night before predicted greater levels of negative affect. In contrast, there was no significant effect of actigraphy-derived sleep efficiency on next-day negative affect.
Conclusion: Overall, our study demonstrated that the effect of sleep on negative affect differed between perceived and behaviorally-assessed sleep variables. This suggests that perceived, but not behavioral, sleep may be an important contributing factor to comorbid mood symptoms within the OC spectrum. How people *perceive* their sleep appears to be an important factor contributing to overall mood for individuals within the OC spectrum. These findings have important implications for both research and treatment.

10) Abstract 1454

CARDIOVASCULAR REACTIVITY DURING STRESS AND ITS ASSOCIATION WITH SELF-RATED HEALTH AMONG HEALTHY YOUNG ADULTS

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Cardiovascular reactivity is an interoceptive process that can inform an individual's appraisal of their health. Yet, its association with self-rated health (SRH) has not been studied comprehensively. While higher blood pressure and heart rate in response to stress are associated with better SRH, it is unknown if other cardiovascular markers such as systolic time intervals (pre-ejection period [PEP] and left ventricular ejection time [LVET]) and volumetric measures of cardiac function (cardiac output [CO] and stroke volume [SV]) also relate to SRH. Evaluating these measures' association to SRH can contribute to our understanding of the biological basis of SRH. Thus, this study examined whether PEP, LVET, CO, and SV during a laboratory stressor (Trier Social Stress Test) were associated with SRH.

Ethnically diverse young adults (*M* age = 20.45, *SD* = 1.96; 59% female, 54% Latino) reported on their SRH (1= "*poor*" to 5= "*excellent*") and had electrocardiogram (ECG) sensors placed on their torso to measure cardiovascular activity during a 6-minute rest and a 5-minute speech task followed by an arithmetic task. Change scores were derived from the difference between the point of greatest reactivity to the stressor and the first minute of the standing resting period, with negative scores indicating greater reactivity.

Four ordinal logistic regressions were estimated to investigate whether PEP, LVET, CO, and SV reactivity predicted SRH. Gender, socioeconomic status, and physical symptoms were entered as covariates in all models. Only PEP reactivity accounted for a significant amount of variance in the outcome, LR χ2 (6) = 29.46, *p* < .001 and predicted SRH (B = .019, SE =

.009, OR = 1.02, *p* = .042). Each unit increase in PEP reactivity was associated with a 2% greater chance of reporting better SRH.

Findings highlight that an index of cardiovascular activity is relevant to SRH. Specifically, individuals who exhibited an increase in PEP reactivity (indicative of lower or no stress reactivity) were more likely to also report better health. This could be due to the sympathetic withdrawal that occurs when PEP increases. Higher PEP has also been associated with increased interoceptive abilities, which can help individuals better appraise their health status. Results suggest that the association between cardiovascular reactivity and SRH may depend on the markers used.

11) Abstract 1403

EXPLORING THE PHYSICAL IMPACT OF GRIEF: HEMODYNAMIC RESPONSE TO GRIEF RECALL AND ITS ASSOCIATION WITH PROLONGED GRIEF DISORDER SYMPTOMS IN A BEREAVED SAMPLE

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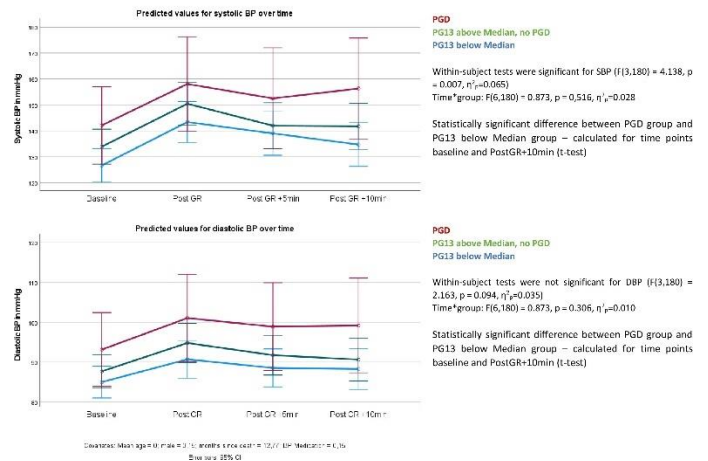
Grief is classified as one of the most stressful life events. Across cultures grief is associated with increased morbidity and mortality. In addition to intense psychological distress, a physical component of mourning, such as elevated blood pressure (BP), has been identified. The present study aimed to investigate the hemodynamic response to a grief-related, semi-structured interview and the impact of grief severity on cardiovascular reactivity during this grief recall (GR).

A total of 67 participants (85% female, age 60 ± 6 years) underwent a lab visit at the Clinic for Psychosomatic Medicine in Ulm, Germany, which included BP measurements during a baseline condition, after a 5-10 minute GR, and during a 10-minute recovery. The study protocol closely resembles the structure of a recently published study by Palitsky & O'Connor and has been culturally sensitively adapted. The study is registered in the German Clinical Trials Register (DRKS00016597).

Repeated measures analyses of variance were calculated to compare systolic BP (SBP) and diastolic BP (DBP) at baseline and at 0, 5, and 10 minutes post-GR. In an exploratory analysis, a subgroup meeting the criteria for prolonged grief disorder (PGD, n=6, 9%) was compared to subjects experiencing different levels of grief, including those below the median split (n=32) of the Prolonged Grief-13 questionnaire and those above the median split but not meeting the criteria for PGD (n=29). All models were controlled for age, sex, time since loss, and intake of any antihypertensive medication. SBP and DBP increased significantly after GR (SBP: + 17,85 mm Hg, $F_{(3,186)}$ = 3.950, p = 0.009, η^2_p = 0.060 and DBP: + 6,51 mm Hg, $F_{(3,186)}$ = 4.554, p = 0.037, η^2_p= 0.068) and remained significantly elevated during the 10-minute recovery period. Exploratory analyses showed that the PGD subgroup appeared to have higher baseline values, a similarly

pronounced reactivity and a delayed decline in both SBP and DBP following the GR – especially when compared to subjects with a lower grief severity (see figure 1).

The study supports the assumption that increasing PGD symptoms could be associated with a dysregulated hemodynamic stress response. Furthermore, results suggest that the chosen GR is a feasible and transcultural applicable task to elicit a hemodynamic response in a bereaved sample up to 2 years after a loss of a loved one.

Figure 1: BP-Reactivity over time per group: PGD, above PG13-Median, below PG13-Median (rmANCOVA)

12) Abstract 1294

EMERGENCY DEPARTMENT THREAT PERCEPTIONS AS PREDICTOR OF AVERSIVE COGNITION ABOUT PHYSICAL ACTIVITY FOLLOWING SUSPECTED-ACS EVENT

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Introduction: Patients hospitalized for acute coronary syndrome (ACS) are at risk for subsequent physical and psychological distress. Perceived threat levels in the Emergency Department (ED) are a predictor of psychological distress, and many patients report fear of recurrent cardiac event symptoms. This may give rise to aversive cognitions about secondary prevention behaviors like physical activity (PA), an important target for improving health outcomes post-ACS. Understanding factors that predispose patients to aversive cognitions about PA may help to identify therapeutic targets for intervention.

Methods: N = 280 participants enrolled following presentation to an academic medical center for suspected ACS. ED threat was assessed via the ED Threat Perceptions Questionnaire (e.g., I worry I will die). Aversive cognitions about PA were assessed at 1-, 6-, and 12-months after discharge using four items (i.e. It scares me when my heart beats rapidly during physical activity; I sometimes avoid physical activity because I'm afraid it will cause me to have a heart event) adapted from the Anxiety Sensitivity Index (ASI).

Results: ED threat perceptions were significantly associated with aversive cognitions about PA at 1- (β=2.12, 95% CI [1.53-2.71] p < 0.001), 6- (β=1.82, 95% CI [1.31-2.33], p < 0.001), and 12-months (β=1.15, 95% CI [0.29-2.01], p = 0.009) post-

discharge, independent of demographics, comorbidities, and disease severity indicators. In nested models, addition of ED threat to a model including demographics and disease severity (i.e., GRACE risk score, length of hospital stay) significantly improved the model (Δ-2 log likelihood = 32.21, df=1; p < 0.001), indicating an effect of ED threat perceptions on subsequent aversive cognitions about PA independent of the index event severity. ED threat perceptions (t-statistic=7.12) were a stronger predictor of aversive cognitions about PA at 1 month than disease severity (GRACE risk score: t-statistic=0.72; length of hospital say: t-statistic=0.61).

Conclusions: ED threat perceptions are a strong predictor of aversive cognitions about PA 1-, 6-, and 12-months after suspected-ACS events. This suggests that patients' acute psychological reaction to the cardiac event and ED environment may play a significant role in determining subsequent engagement with PA to reduce secondary cardiac risk.

13) Abstract 1259

WAKING UP WITH ROSE-COLORED GLASSES: SUBJECTIVE AND OBJECTIVE SLEEP PREDICT NEXT-MORNING STRESS ANTICIPATION, PLEASANT EXPECTATIONS, AND DAILY PHYSICAL SYMPTOMS
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Background: Inadequate sleep has been linked to next-day stressor exposure and reactivity. However, less is known about how sleep affects perceptions of future experiences and events. Negative and positive perceptions of one's future may influence future health, yet little is known about the role of nightly sleep in stress anticipation and daily health within an ecological context. Thus, the current study sought to address this gap by investigating the link between sleep and next-day expectations for stressfulness and pleasantness in daily life, as well as explored whether morning expectations are related to subsequent reports of daily physical symptoms.

Methods: In this pre-registered study, 254 adults ages 24 to 87 (68% women, 38% racial minorities) completed momentary surveys five times a day for up to 14 consecutive days. Participants wore a sleep actigraphy watch continuously, self-reported sleep and expectations each morning on how stressful and how pleasant the day will be, and reported daily physical symptoms every evening.

Results: Results from multilevel models suggested that nights with better subjective sleep quality were associated with expectations for lower stress (B = -0.09, p< .001) and higher pleasantness (B = 0.31, p <.001) for the day. Within-person subjective and actigraphy-assessed sleep duration was also associated with lower stress expectations (subjective sleep: B = -0.16, p <.001; objective sleep: B = -0.18, p <.001) and higher pleasantness expectations (subjective sleep: B = 0.18, p <.001; objective sleep: B = 0.12, p <.001). Additionally, both stress anticipation (B = 0.03, p <.05) and pleasantness expectations (B = -0.05, p <.01) were associated with higher and lower same-day physical symptoms, respectively.

Conclusion: The findings suggest that sleep quality and duration may be consequential to stress anticipation and expectations of positive experiences in daily life. Perhaps poorer/shorter sleep predisposes individuals to attend to more negative cues, adopt a pessimistic perspective, and/or reduce perceived resources (e.g., cognitive resources, energy) for coping with the day's anticipated challenges. A potential avenue for future research could be to examine sleep-related mechanisms underlying associations of the morning expectations of the day's experiences with subsequent physical symptoms and well-being.

14) Abstract 832

MEDIATING ROLE OF DELAY DISCOUNTING BETWEEN DEPRESSION AND DIABETES ONSET
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Background: Numerous studies have investigated a relationship between delay discounting, an indicator of impulsivity, and diabetes treatment outcome. However, the association of diabetes onset with delay discounting among the general population has not been well investigated. Additionally, although depression has been linked to diabetes and delay discounting, studies examining associations among all three factors are scarce. The present study aimed to determine the association between depression scores and the onset of diabetes, with delay discounting as a mediator of this relationship.

Methods: Using data from a three-phase online prospective survey of a community sample, cross-sectional and longitudinal mediation analyses were conducted to examine diabetes prevalence from Phase 1 and incidence from Phases 2 and 3 as the outcomes, depression scores at Phase 1 as the independent variable, and delay discounting at Phase 1 as the mediator.

Results: Delay discounting was significantly associated both with diabetes prevalence (coefficient = 0.170; 95% confidence interval [CI] = 0.066 to 0.278; P = 0.002) and incidence (coefficient = 0.306; 95% CI = 0.098 to 0.540; P = 0.006). Furthermore, through delay discounting, depression scores were also indirectly associated with diabetes prevalence (indirect coefficient = 0.091; 95% bootstrap CI = 0.034 to 0.149), indicating full mediation, and with diabetes incidence (indirect coefficient = 0.138; 95% bootstrap CI = 0.037 to 0.256), indicating partial mediation.

Conclusions: Our results indicate that delay discounting is associated with the onset of diabetes by mediating, likely partially, the association between depression and diabetes.

15) Abstract 1037

LIFETIME EXPOSURE TO AIR POLLUTION AND ITS IMPACT ON NEUROIMMUNOMODULATION: A CROSS-SECTIONAL ANALYSIS OF HEALTHY AGING IN INDUSTRIAL ENVIRONMENT (4HAIE) STUDY
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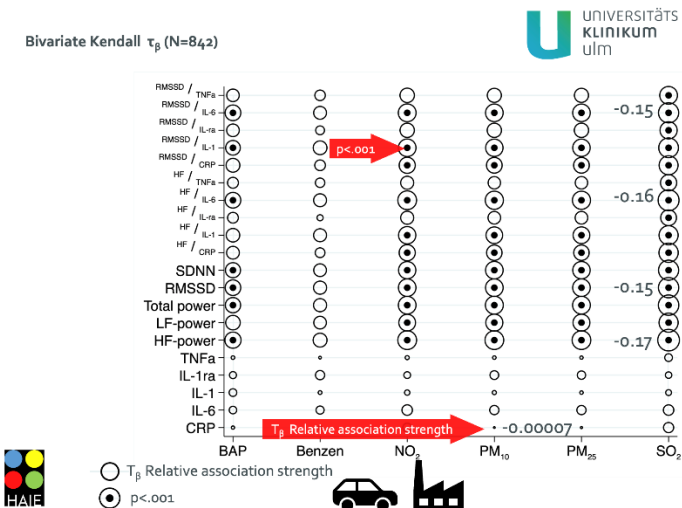
Background: Short-term exposure to air pollution has been linked to impaired immune and autonomic functions. However, limited evidence exists regarding the association between lifetime exposure to air pollution (LEAP) and Neuroimmunomodulation (NIM), a process predominantly

influenced by the cholinergic anti-inflammatory pathway. We hypothesized that increased LEAP is associated with alterations in NIM.

Methods: We investigated the relationship between LEAP and cardiac autonomic modulation, as assessed by heart rate variability (HRV) measures. Data were derived from the Czech study "Healthy Aging in Industrial Environment" (4HAIE), encompassing adults aged 18-65 years. The analytical cohort consisted of 893 participants with complete data on HRV, inflammatory markers (including IL6, IL1, TNF-α, CRP), LEAP, and selected covariates. An individualized LEAP level was computed for each participant, incorporating self-reported areas of residence throughout life and historical annual estimates of neighborhood-level exposure to airborne pollutants, including PM2.5, PM10, NO2, SO2, BAP, and Benzene. HRV was measured during a 10-minute supine session following awakening, with the last 5 minutes of the recording analyzed using Kubios software. Covariates included age, sex, and socioeconomic status.

Results: The mean age of the participants was 37.4 years (SE±0.41). Bivariate analysis demonstrated a robust negative association between NIM indicators and all air pollutants, except for Benzene (all TaubB > -0.15). Kendall's partial correlation analysis revealed a similar albeit weaker negative association between estimated LEAP and NIM measures. Specifically, higher lifetime exposure to NO2 and SO2 correlated with reduced NIM (HFpower/IL-6), with τNO2 = -0.05, p = 0.002, and τSO2 = -0.05, p = 0.003, respectively.

Conclusion: This study provides evidence that higher lifetime exposure to air pollutants is independently associated with alterations in Neuroimmunomodulation. These findings suggest that diminished vagal activity may be a mechanistic link between increased low-grade inflammation and the heightened risk of cardiorespiratory diseases and mortality in regions characterized by high air pollution levels.

Bivariate Kendall τ_β (N=842)

16) Abstract 1379

WHAT ARE HEALTHCARE PROFESSIONALS' EXPERIENCES OF DELIVERING FATIGUE MANAGEMENT FOR MULTIPLE SCLEROSIS? A QUALITATIVE STUDY

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Background: Fatigue is a common and debilitating symptom for people living with multiple sclerosis (MS). There is evidence to show that behavioural treatments, particularly cognitive behavioural therapy (CBT) and forms of exercise therapy, can reduce MS-fatigue over and above existing pharmacological treatments. Previous research has shown that few people living with MS are offered these behavioural treatments; in a UK-wide study, as few as 5.9% of the people surveyed had been offered a behavioural therapy, including CBT, and 2.9% an exercise therapy. Before a standardised and evidence-based fatigue treatment can be developed and successfully implemented into routine care, we must understand the current approach to MS-fatigue management. The aim of this qualitative study was to understand how MS-fatigue is currently managed from the perspective of healthcare professionals working in the NHS and charity-based therapy centres.

Methods: Participants (n=26) were recruited using convenience and snowball sampling through NHS services, community networks, and social media. Participants consisted of occupational therapists (n=15), physiotherapists (n=6), nurses (n=4), and an MS Pilates instructor (n=1) working in regions across the UK.

Results: Five themes were generated using reflexive thematic analysis: (1) detecting fatigue; (2) the self-management approach; (3) current fatigue management strategies; (4) understanding the bigger picture; and (5) making fatigue self-management meaningful. Overall, healthcare professionals appear to take on a coaching role to encourage people living with MS to take ownership of their fatigue self-management and help integrate fatigue management into the wider context of a person's life and MS journey.

Conclusions: These findings provide key recommendations for developing a future healthcare professional-led treatment for MS-fatigue, such as the need to tailor the treatment to work with the priorities of the individual. Key issues should be considered to enhance the implementation of a future treatment to ensure that more people living with MS are offered an effective behavioural treatment for their fatigue. These issues include the high professional workload, the complexity inherent in treating fatigue, and the breadth of fatigue management strategies currently being used, of which not all are evidence-based.

17) Abstract 1382

PROJECT SOAR (SPEAKING OUR AFRICAN AMERICAN REALITIES): SPIRITUALITY AS A PREDICTOR OF POSTTRAUMATIC GROWTH AND PHYSICAL SYMPTOMS AMONG BLACK BREAST CANCER SURVIVORS

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Background: Spirituality (i.e., one's search for and source of meaning and relationship with the sacred) and religious coping hold significant prominence among Black breast cancer survivors. However, few empirical studies have quantitatively examined whether spirituality or religious coping relates to physical symptoms and posttraumatic growth in Black women with breast cancer. Given the persisting health disparities regarding quality of life and survival rates between Black breast cancer survivors and other racial groups, this research gap is important to address, as spirituality and religious coping may serve a protective function. Accordingly, the present study assessed whether, as separate models, dispositional spirituality and cancer-related religious coping were differentially associated with 1) posttraumatic growth and 2)

bothersome physical symptoms. **Method:** Black breast cancer survivors (N=135) were recruited for a cross-sectional online study in Project SOAR (Speaking Our African American Realities), a community-academic partnership. Participants completed the Intrinsic Spirituality Scale (as a measure of dispositional spirituality), the religious coping subscale of the COPE, the Posttraumatic Growth Inventory (with the two spirituality items removed for analyses), and the Breast Cancer Prevention Trial (BCPT) Symptom Scale as a measure of bothersome physical symptoms. Data were analyzed using linear regression models, and covariates were age, cancer stage, education, income, months since diagnosis, comorbid conditions, and receipt of endocrine therapy, radiation therapy, and chemotherapy. **Results:** Higher dispositional spirituality and religious coping were each associated with greater posttraumatic growth ($p<0.05$). Neither spirituality nor religious coping was significantly associated with bothersome physical symptoms. **Conclusion:** Findings demonstrate that both spirituality and religious coping potentially are important contributors to posttraumatic growth, but not physical symptoms, in Black women diagnosed with breast cancer. These correlates of posttraumatic growth may be leveraged in interventions to promote the ability to find benefit in the cancer experience. Future work can explore the downstream effects of spirituality and religious coping to examine how they may influence psychological and physical symptoms over time.

18) Abstract 1246

DEPRESSION, PURPOSE IN LIFE, & PHYSICAL ACTIVITY IN OUT-OF-HOSPITAL VS. IN-HOSPITAL CARDIAC ARREST SURVIVORS

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Background: Psychological and behavioral factors that may promote recovery after cardiac arrest (CA) may differ substantially for those with in-hospital CA (IHCA) and out-of-hospital CA (OHCA). Although OHCA patients have a longer time to return of spontaneous circulation (a risk factor for recovery) than IHCA patients, they do not differ substantially in their risk of long-term mortality. We explored whether OHCA and IHCA patients differ in two positive and negative psychological facets (purpose in life and depression) and in objective physical activity during recovery.
Methods: The PACE Study, an ongoing observational cohort study (N = 151; 63% male), recruits cardiac arrest survivors who are currently admitted to NewYork Presbyterian Hospital. At hospital discharge, patients (*n* = 99) with IHCA

(76.8%) and OHCA (23.2%) completed in-person questionnaires assessing purpose in life and depressive symptoms. Physical activity was assessed via wrist-worn actigraphy (GENEActiv) for 1 week post-discharge (Time 1) and 6 months later (Time 2).
Results: Relative to IHCA patients (*M* = 9.62, *SD* = 4.90), OHCA patients reported lower depressive symptoms (*M* = 6.74, SD = 4.86), *p* = .01. Relative to IHCA patients (*M* = 4.48, *SD* = 0.95), OHCA patients also reported greater purpose in life (*M* = 4.93, *SD* = 0.56), *p* < .01. At Time 1, but not Time 2, OHCA patients engaged in more light physical activity (*M* = 84.4 minutes, *SD* = 57.3 minutes) than did IHCA patients (*M* = 48.6 minutes, *SD* = 43.7 minutes), *p* < .01. Sedentary time did not differ by OHCA vs. IHCA.
Discussion: IHCA patients were more depressed and reported greater purpose at discharge than OHCA patients. Despite initially low levels of light physical activity, the IHCA patients increased their light physical activity during the first half year of recovery such that the factor of CA site (in- vs. out-of-hospital) no longer differentiated physical activity by the time of 6 months after hospital discharge. Future research should explore whether purpose in life and depressive symptoms may be modifiable factors that can be harnessed to increase light physical activity in IHCA soon after discharge. The implementation of policies and guidelines to accommodate for these robust differences are not well documented, and therefore future interventions should specifically target IHCA patients to improve their recovery.

19) Abstract 1172

AUTOMATED MESSAGING PROGRAM TO FACILITATE SYSTEMATIC HOME BLOOD PRESSURE MONITORING: A QUALITATIVE ANALYSIS OF PROVIDER INTERVIEWS

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Background - Hypertension is a leading cause of cardiovascular and kidney disease in the United States, yet blood pressure (BP) control at a population level is poor and worsening. Systematic home blood pressure monitoring (HBPM) programs can lower BP, but programs supporting HBPM are not routinely used. The MyBP program deploys automated bi-directional text messaging for HBPM and disease self-management support.
Objective - To produce a qualitative analysis of input from providers and staff regarding implementation of an innovative HBPM program in primary care practices.
Methods - Semi-structured interviews (average length 31 minutes) were conducted with physicians (n=11), nurses and medical assistants (n=6) from primary care settings. The interview was designed to assess a subset of constructs from the Consolidated Framework for Implementation Research (CFIR). Interviews were transcribed verbatim and analyzed using inductive coding to organize meaningful excerpts and identify salient themes, followed by mapping to the updated CFIR constructs.
Results - Healthcare providers reported that MyBP was usable and that it positively influenced patients' BP self-measurement adherence, health literacy, and empowerment. Provider barriers included the need for training to adopt the innovation. Anticipated barriers to implementation included the lack of integration into the electronic medical record or workflow of the outpatient clinic and lack of an established implementation process (e.g., there were not clear office "champions"). Outer

setting barriers included absence of insurance payments for personal BP devices.

<u>Conclusion</u> - In this qualitative analysis, healthcare providers perceived strong relative advantages of using MyBP to support patients. The identified barriers suggest the need for corrective implementation strategies to support providers in adopting the program into routine primary care practice, such as integration into the workflow and provider education.

20) Abstract 1329

INTEGRATED CARE PRIORITIES FOR COMPLEX MULTI-SYSTEM LONG-TERM CONDITIONS AND FOR LONG COVID.

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The importance of integrated care for complex multiple long-term conditions was acknowledged before the COVID pandemic, but remained a challenge. The pandemic and consequent development of long COVID required rapid adaptation of health services to address the population's needs. In the UK, long COVID clinics were set up to address symptoms occurring simultaneously in several organ systems. This required complex interventions including integrated care and provided opportunities to improve the integrated care provision for complex multiple long-term conditions. This Delphi consensus study was conducted in the UK and found similar integrated care priorities for long COVID and complex multiple long-term conditions, provided by 480 patients and health care providers, with an 80% consensus rate. The resultant recommendations were based on more than 1100 responses from survey participants and were supported by patients, health care professionals, and by patient charities. Participants identified the need to allocate resources to support integrated care, access to care and treatments that work, diagnostic procedures that support the personalization of treatment in an integrated care environment, and structural consultation between primary and specialist care settings including physical and mental health care. Based on the findings we describe a model for delivering integrated care as a complex intervention delivered by a multidisciplinary team for people with complex multisystem conditions. These recommendations can inform improvement of integrated care for complex multiple long-term conditions and long COVID at international level.

21) Abstract 1339

HOW DOES A 4 DAY WORKING WEEK CHANGE INTEROCEPTION?

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1) Introduction
Interoception is the ability of the brain to track internal bodily states, with the aim of responding appropriately in order to achieve homeostasis. Interoception has been associated with cognitive and emotional processes, while dysfunction in the interoceptive system plays a central role in the aetiology of mental health disorders. Sleep quality and stress, which are influenced by occupational status and working patterns, have been linked to changes in specific dimensions of interoception. In the current study, we investigated whether a 4-day working week impacted interoceptive function in the general population.

2) Methods
20 full-time employees in businesses switching from a 5-day to a 4-day working week with no loss of salary were recruited. Participants performed an interoceptive focus task while undergoing fMRI, in addition to out-of-scanner heartbeat perception tasks and interoceptive questionnaires, before and after a 12-week trial of a 4-day working week.

3) Approach for statistical analysis
The fMRI data obtained during the interoceptive focus task was analysed with first- and second-level models. We assessed which brain areas were active during the interoceptive-focus task and if there was any significant change in task-related activity after the 4-day working week trial period.
T-tests were used to investigate whether there were significant changes in the heartbeat perception tasks and interoceptive questionnaires as a result of a 4-day working week. Linear regression was used to detect the presence of subgroups that might benefit most from a 4-day working week.

4) Results and conclusions
The mid and posterior insula showed significant activity during the interoceptive focus task compared to the control task. However, no significant changes were observed as a result of the 4-day week.
A 4-day week was associated with close to significant changes in interoceptive accuracy and sensibility. Results also suggested the presence of subgroups most likely to benefit from a 4-day week in terms of interoceptive function.
Sample size likely limited statistical power (recruitment continues). Future work can assess the fMRI data on a more fine-grained level, for instance utilising participant ratings obtained during the focus task.

22) Abstract 1170

REMOTELY DELIVERED MINDFULNESS-BASED COGNITIVE THERAPY FOR SCAD SURVIVORS: FINDINGS OF AN OPEN PILOT TRIAL

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Spontaneous coronary artery dissection (SCAD) is an increasingly recognized etiology of cardiac events among young women. About half of SCAD survivors struggle with fear of recurrence (FOR), contributing to poor health behaviors. We adapted Mindfulness-Based Cognitive Therapy (UpBeat-MBCT) to target FOR, sleep, and physical activity in SCAD survivors and assessed feasibility and acceptability in an open pilot trial. N=19 participants enrolled (10/2021-03/2022) across two cohorts (94% female, 95% White, *M*age=51). Participants completed pre/post-intervention surveys; actigraphy and daily diaries for 7 days pre/post; and exit interviews. Primary

outcomes were feasibility of enrollment, data collection, attendance ($\geq$6/8 sessions), retention (completion of post-survey), and intervention acceptability (program satisfaction M$\geq$7.5 on scale of 1-10; exit interview themes). Refinements were made between cohorts. Enrollment goals were met in 5 weeks for Cohort 1 and 8 weeks for Cohort 2. At baseline, 100% (19/19) of participants completed the survey and actigraphy; 68% (13/19) completed daily diaries. In Cohort 1, 33% (3/9) attended $\geq$6/8 sessions, 33% (3/9) were retained, 44% (4/9) completed actigraphy, and 11% (1/9) completed daily diaries. Results indicated hearing about SCAD from others was emotionally activating and associated with attrition; refinements included placing boundaries around group sharing and extending eligibility criteria from 1 to 3 months post-SCAD. In Cohort 2, 70% (7/10) attended $\geq$6/8 sessions, 90% (9/10) were retained and completed actigraphy, and 60% (6/10) completed daily diaries. Among those retained across both cohorts, program satisfaction was M=8.3 (SD=1.8) and 91% (10/11) would recommend the program. Pre/post changes in FOR among completers showed a medium-large effect size for improvement (d=.55). Exit interviews revealed valuing connection with other survivors, decreased FOR, and improved sleep. Cohort 2 expressed desire for greater sharing of personal SCAD stories. SCAD survivors were eager to participate in this trial. Intervention completers reported reduced FOR and increased social connection, providing preliminary support for benefits of UpBeat-MBCT. Further work is needed to balance sharing of personal SCAD stories with setting boundaries to prevent emotional overwhelm and testing the intervention in a randomized controlled trial.

23) Abstract 1412

THE EFFECT OF RIFAXIMIN ON STRESS SENSITIVITY: PRELIMINARY ANALYSIS OF A RANDOMIZED, TRIPLE-BLIND, PLACEBO CONTROLLED CLINICAL TRIAL

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Preclinical studies have shown that rifaximin, a non-systemic antibiotic acting locally in the gastrointestinal tract, may alleviate psychobiological effects of social and chronic stress through the modulation of gut microbiota. However, the effects of rifaximin on the gut microbiota profile and subsequent alteration of psychobiological processes in humans remain to be investigated. We hereby perform a triple-blind, between-subject, placebo-controlled clinical trial on 72 healthy men to examine the effects of rifaximin on psychobiological responses to acute stress.
Participants are randomly allocated to receive either rifaximin (550 mg PO, BID) or placebo, daily, for two-weeks. Psychobiological responses to a laboratory stress task, the Maastricht Acute Stress Test (MAST), are compared at pre- and post-intervention. These responses include systolic and diastolic blood pressure, pulse rate, and visual analogue scale (VAS) ratings of stress.
We conducted preliminary analysis on 25 healthy men ($n_{group\ 1}$=12, $n_{group\ 2}$=13). Age and BMI were similar between treatment groups 1 and 2 (28.5 ± 6.02 years vs 25.77 ± 6.14 years, p= 0.30; 21.99 ± 2.21 kg/m^2 vs 22.49 ± 1.69 kg/m^2, p= 0.76). The MAST successfully induced the expected psychobiological responses in both treatment groups at pre- and post-intervention, as indexed by significant increases in systolic and diastolic blood pressure, pulse rate, and VAS ratings of stress (main effect of timepoint, all $p < 0.0001$). However, the current lack of group-by-visit interaction effect indicates that the intervention did not differentially modulate these variables (all $p > 0.1$).
While we cannot reveal the intervention received by each arm due to retention of the blind until the end of the trial, our preliminary analysis on a third of our target sample, albeit underpowered, shows no significant effects of treatment on autonomic and subjective responses to acute psychosocial stress. It is possible that other microbiota-gut-brain pathways such as the hypothalamic-pituitary-adrenal (HPA) axis and immune response are involved in mediating and/or moderating the previously reported effects of rifaximin. Thus, salivary cortisol and peripheral inflammatory marker (i.e., cytokine and C-reactive protein) analyses are planned. Importantly, analysis of gut microbiota composition will also be conducted.

24) Abstract 932

CURRENT EVIDENCE FOR THE EFFICACY OF NEUROMODULATION IN POST-COVID-19 CONDITIONS: A SYSTEMATIC REVIEW

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As a result of the SARS-CoV-2 pandemic, over 65 million people are suffering from persisting symptoms. The "post-COVID-19 condition" – as defined by the World Health Organization - comprises a wide range of symptoms, including neuropsychiatric complaints. To date, effective treatments are lacking. Therefore, we aimed to summarize recent research findings on the efficacy of minimally- or non-invasive brain stimulation techniques in reducing post-COVID-19 symptoms. A systematic search of the literature including three electronic databases (*PubMed, PsycINFO, Web of Science*) was conducted through December 2022. The review was pre-registered (PROSPERO, 2022; CRD42022378409) and performed according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Of the 336 studies initially retrieved, 204 were screened after exclusion of duplicates, and six trials met our inclusion criteria. One study used transcutaneous vagus nerve stimulation (tVNS), one used transcranial alternating current stimulation (tACS) and four studies used transcranial direct current stimulation (tDCS) for the treatment of post-COVID-19 symptoms. All six included studies provided preliminary evidence for a beneficial effect of the applied neuromodulation technique on symptoms of post-COVID-19 as well as acute SARS-CoV-2 infection. Generally, research regarding the effects of neuromodulation on post-COVID-19 conditions is scarce. Recent trials focused on transcranial electrical stimulation and transcutaneous vagus nerve stimulation in patients with acute SARS-CoV-2 infection as well as post-COVID-19 syndrome and provided initial evidence for a positive effect of neuromodulation in the investigated conditions. The underlying pathophysiology of post-COVID-19 needs to be further explored in order to develop additional effective treatments.

25) Abstract 863

PSYCHOMETRIC VALIDATION OF THE UNIDIMENSIONAL

PHQ-ADS TO ASSESS DISTRESS IN BREAST CANCER SURVIVORS

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Objective: Distress is a challenge that persists amongst breast cancer patients, and there is a need for methodologically rigorous ways to capture this. The Patient Health Questionnaire Anxiety and Depression Scale (PHQ-ADS) is as a composite measure of depression and anxiety and has been used to measure distress across several patient populations. The aim of this study was to perform a psychometric evaluation of a 15-item version of the PHQ-ADS within a breast cancer population.
Method: Breast cancer patients (*N*=280) were obtained via online recruitment. A longitudinal observational questionnaire design was used, with a baseline and 12-month follow-up. Depression (PHQ-8) and anxiety (GAD-7) items were added for the composite PHQ-ADS distress score. Additional measures included: distress thermometer (convergent validity), quality of life (FACT-G) and COVID distress (discriminant validity), as well as fear of cancer recurrence and self-compassion (predictive analysis). Confirmatory factor analysis (CFA) using weighted least squares mean and variance adjusted (WLSMV) estimation was conducted in MPlus.
Results: One, two and bi-factor CFA models for the PHQ-ADS were evaluated. The bi-factor model had best model fit. Omega hierarchal for the general distress factor was 0.914, accounting for 82% of explained variance (ECV). This suggests the PHQ-ADS is sufficiently unidimensional to warrant the use of a total score. A strong correlation was observed when analysing convergent validity. Moderate/strong correlations were also observed for discriminant validity. The predictive analysis indicated self-compassion to be an independent longitudinal predictor of distress at 12-months, whilst accounting for fear of cancer recurrence and demographic/clinical variables, as hypothesised.
Conclusions: The PHQ-ADS demonstrated good structural and convergent validity, with supporting evidence for the predictive analysis. The poor discriminant validity observed may be due to methodological constraints, rather than faults pertaining to the scale. Hence, the scale may prove utility in a breast cancer population within research as well as in clinical settings where screening of distress may be beneficial.
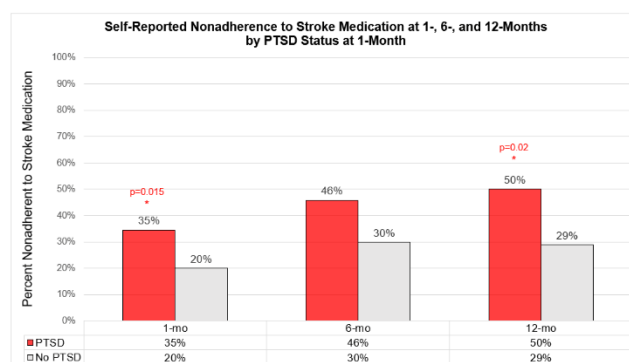
26) Abstract 1435

POSTTRAUMATIC STRESS DISORDER AFTER SUSPECTED STROKE AND NON-ADHERENCE TO MEDICATION.

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Introduction: Symptoms of Posttraumatic Stress Disorder (PTSD) are common among patients who have experienced strokes and transient ischemic attacks (TIAs). Previous studies have indicated that patients manifesting PTSD symptoms often develop aversive associations with their stroke medications. We sought to assess whether PTSD symptoms were also associated with medication nonadherence. **Methods:** From

October 2016 to November 2021, we enrolled patients who presented to the emergency department of an academic medical center in NYC for suspected stroke. Stroke/TIA-induced PTSD was assessed 1-mo after discharge using a modified PCL-5 scale (score ≥ 33 indicating PTSD) and medication adherence was assessed at 1, 6, and 12 months using a single-item self-report question asking how often stroke medication was taken as prescribed in the last month. Response options were "less than half the time (<50%), half the time (50%), most of the time (75%), nearly all the time (90%), all the time (100%). Nonadherence was defined as taking medication less than 100% of the time. Covariates assessed included sociodemographic factors, disability (modified Rankin score), stroke severity (NIH scale), and neurologist-adjudicated stroke events. **Results:** Of 621 patients (mean age 62.8 ± 14.3 years; 50.3% female, 48.4% Hispanic) who completed one-month assessments and received stroke prevention medication, 64.4% had confirmed strokes, 8.5% TIAs, 21.9% stroke mimics, and 5.2% equivocal events. The prevalence of PTSD at 1-mo was 9.3%. Medication nonadherence was more common in patients with versus without PTSD at 1, 6, and 12 months (Figure). In adjusted analyses, suspected stroke-induced PTSD remained associated with medication nonadherence at 1-mo (aOR 2.2 95% CI 1.0–5.0; P=0.05). Younger age (P=.002) and stroke mimic subtype (P=0.04) were also associated with nonadherence. Similar patterns were found when PTSD was entered as a continuous score and between PTSD at 1-mo with nonadherence at 6-mo and 12-mo. **Conclusions:** PTSD was present in approximately 1 in 10 patients one month after hospitalization for suspected stroke and was related to medication nonadherence in the year after the event. Addressing PTSD symptoms in Stroke/TIA patients could play a critical role in improving medication adherence, thereby potentially reducing the risk of recurrent strokes or transient ischemic attacks.

Self-Reported Nonadherence to Stroke Medication at 1-, 6-, and 12-Months by PTSD Status at 1-Month

27) Abstract 1088

NEGATIVE DIALOGUE TOWARD THE SELF: EXPLORING UNCOMPASSIONATE SELF-RESPONDING AND ITS ASSOCIATION WITH AUTONOMIC NERVE ACTIVITY

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***Background*:**
Previous studies have shown that the negative facets of the self-compassion construct are more strongly linked to mental health problems. Autonomic nerve activity has contributed to exhibiting unique insights into the processes of self-

compassion. Evidence has started to link self-compassion with parasympathetic activity; however, little has been known about the relationship between uncompassionate responding and sympathetic activity. Therefore, this study aimed to investigate the relationship between uncompassionate self-responding and autonomic nerve activities, especially sympathetic activity.

Methods:
This cross-sectional study recruited 134 healthy young adults in Taiwan. The applied measurements of the sympathetic and parasympathetic activity were the pre-ejection period (PEP) and root mean square of successive differences (RMSSD) during resting period. The negative components of self-compassion, including self-judgment, isolation, and over-identification, were measured using the subscales of the Taiwanese Version of the Self-Compassion Scale. Forward selection method was used for the selection of covariates, including age, sex, BMI, heart rate, depression, anxiety, PEP, and RMSSD in the multiple linear regression.

Results:
By dividing the high-score and low-score groups of negative self-compassion, the result showed a significant difference between the two groups in PEP (t = 2.355, p = 0.020) rather than RMSSD (t = 1.772, p = 0.079). Controlling for potential covariates, multiple linear regression revealed that PEP but not RMSSD was significantly associated with negative self-compassion (β =-0.036, p =0.041). Further investigating self-judgment, isolation, and over-identification separately, multiple linear regression showed that PEP was significantly associated only with self-judgment (β =-0.014, p =0.020) rather than isolation and over-identification.

Conclusions:
Our results noted that people with high uncompassionate responding tendencies could experience more negative emotions and thoughts, exhibiting higher sympathetic activity. Higher sympathetic activity was independently associated with higher uncompassionate responding tendencies. Furthermore, among the three negative facets, sympathetic activity was independently and positively associated with self-judgment tendency rather than isolation and over-identification.

28) Abstract 1302

THE ROLE OF RELATIONAL APPROACH MOTIVATION ON C-REACTIVE PROTEIN AND SEXUAL WELL-BEING
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Background: Recent psychoneuroimmunology (PNI) work has shown that heightened inflammation is associated with affiliation and connection in close relationships (e.g., social support, relationship quality). Within high-quality romantic relationships, sex is another way couples can connect. The present work extends recent associations between inflammation and affiliation by a) examining sexual well-being as a novel affiliative outcome and b) exploring social motivation as a moderator, specifically, relational approach motivation to approach rewards or positive outcomes with a partner.
Methods: One-hundred fifty-eight individuals in committed romantic relationships reported their relational approach motivation at baseline. They also provided a blood sample three times over one month; blood was assayed for C-reactive protein (CRP). Participants also reported on their sexual well-being throughout the month (i.e., frequency of sex, sexual satisfaction, frequency of partnered and unpartnered orgasm).
Results: Controlling for biological sex, age, birth control, anti-inflammatory use, and BMI, results demonstrated that those

more oriented to approach relational rewards with their partner demonstrated a significant positive association between CRP and sexual satisfaction and, separately, number of partnered orgasms. The interaction between CRP and approach motivation predicting frequency of sex or number of unpartnered orgasms was non-significant. However, relational approach motivation interacted with CRP to predict other affiliative behaviors with the partner: shared laughter, affectionate touch, and social support. Relational avoidance motivation did not moderate associations between CRP and sexual well-being.
Discussion: The findings show that relational orientations are an unexplored factor in the association between inflammation and affiliation toward a close other. This work contributes to the broader PNI literature by demonstrating global differences in the interplay between the immune system and social experiences; future work should examine others (e.g., attachment, personality). The findings also have implications for relationship science, namely, the importance of considering the role of the body (i.e., the immune system) in relationship outcomes.

29) Abstract 1027

ADVERSE CHILDHOOD EXPERIENCE TYPES AND MARGINALIZATION STATUS DIFFERENTIALLY PREDICT INFLAMMATORY RESPONSE TO ACUTE STRESS
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Aims: Adverse Childhood Experiences (ACEs) are stressful events occurring prior to the age of 18 that can be categorized by type, including abuse, neglect, and household dysfunction. Higher ACE scores are linked to negative health outcomes in adulthood, including maladaptive inflammatory response. Marginalized racial groups are at similar risk for poor health and inflammatory consequences. Less is known about ACE type or marginalization status and their respective impacts on inflammation. This study assessed ACEs, ACE subtype, and marginalization status as potential influencers of inflammatory marker levels in response to acute stressors.
Method: Adult women (N=44) with body mass indexes ≥ 27 (kg/m^2) enrolled in a larger parent study (NCT04076722) were used for analyses. Participants completed the Adverse Childhood Experiences questionnaire, and baseline inflammation biomarkers (IL-6, IFN-γ, TNF-α) were collected via peripheral intravenous catheter. Participants were exposed to a validated speech-task stressor then remained in the lab 90 minutes following exposure. Inflammation markers were repeated at 30-, 60-, and 90-minutes post-task. Total area under the curve increase (AUC_i) was calculated to evaluate changes throughout the 90 minutes post-stressor for each biomarker. Linear regressions tested the relationship between each inflammatory marker and 1) ACE subtypes and 2) ACE subtypes + marginalization status.
Results: The abuse ACE-type was associated with IFN-γ AUC_i from 30- to 60-minutes post-task (β = .438, p = .022). When introducing marginalization status, abuse remained associated with IFN-γ 30-60 AUC_i (β = .410, p = .025), and marginalized status converged on significance with IFN-γ AUC_i factor (β = -.329, p = .051). Marginalization status was also associated with 30-60 AUC_i for IL-6 (β = -.333, p = .044) and TNF-α (β = -.320, p = .043). ACE-types of neglect and household dysfunction were not correlated with any markers.
Conclusion: A history of abuse ACE-type was found to be associated with increased IFN-γ response following an acute stressor, while marginalization was linked to reduced post-

stressor response in multiple inflammatory markers. Further research should examine potential aspects of ACE types as well as marginalized group status and their unique impacts on acute stress responses.

30) Abstract 1059

INFERTILITY AND PSYCHOLOGICAL DISTRESS AMONG ADOLESCENTS AND YOUNG ADULTS WITH CANCER: THE MEXICO CANCER SURVIVORSHIP REGISTRY

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Background: In 2020, 24,000 new cancer cases were diagnosed among adolescents and young adults (AYAs) in Mexico. Infertility due to the cancer itself or treatment-related toxicity affects 30-75% of AYAs. Infertility concerns are associated with poor quality of life, relationship satisfaction, and self-worth. In resource-limited settings, cancer control efforts are primarily focused on treatment, hence fertility preservation planning and accessibility are scarce. This study aimed to examine the association between infertility and psychological distress (i.e., anxiety and depression) among AYA cancer survivors in Mexico.
Methods: Data for AYAs (ages 18-39) who participated in the Registro de Supervivientes de Cancer (Cancer Survivor Registry) developed by the Instituto Nacional de Cancerología in Mexico was utilized. A self-report survey was conducted via convenience sampling during 2014-2018. Univariable and multivariable logistic regression models were used to calculate odds ratios (ORs) and corresponding 95% confidence intervals (CIs).
Results: AYA cancer survivors (N=470) had a median age of 34 (IQR: 29-37) and were predominantly women (67%), 48% had a college education or higher, and 36% resided in Mexico City. The most common tumor sites were lymphoma (16%), breast (16%), and testicular (13%) cancer with the majority being Stage III (18%) tumors, and 11% of AYAs reported infertility. After adjusting for education level, geographical region, tumor site, cancer stage, treatment type (i.e., surgery, chemotherapy, radiotherapy, or hormone therapy), women who reported infertility were more likely to have anxiety (OR 2.7, 95% CI: 1.2-5.9) and depression symptoms (OR 2.3, 95% CI: 1.1-5.0) than those who did not report infertility. There was no association between infertility and anxiety/depression among male AYA cancer survivors.
Conclusions: Infertility is associated with anxiety and depression symptoms among AYA Mexican female cancer survivors, but not among Mexican male cancer survivors. Further investigation into reproductive concerns, psychosocial distress, financial toxicity, and cognitive function among Mexican AYAs is needed. Mexican AYA cancer survivors experiencing infertility may need additional support to address unmet needs.

31) Abstract 1300

IMPACT OF USE OF A SMART BASSINET ON MATERNAL SLEEP AND MENTAL HEALTH IN NEW MOTHERS WITH A HISTORY OF DEPRESSION

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Objective: The postpartum period can often be beset with depressed or anxious mood, fatigue, and considerable chronic daytime sleepiness. Improving infant sleep may have a direct effect on maternal sleep and mental health. The current study evaluated the use of a responsive bassinet on improving infant sleep, and in turn maternal sleep and psychological functioning in women with a history of depression.
Methods: Sleep and psychological data was collected from 166 women with a history of depression; 138 women received a smart bassinet (intervention) and 28 women received a commercial bassinet (control). Data was collected for six-months post delivery. Mothers completed monthly surveys regarding infant sleep and behavior, maternal sleep quality, and postpartum depressive symptoms. Linear regressions were done to determine whether sleep in late pregnancy was associated with depression and anxiety scores.
Results: At baseline, postpartum depression and anxiety was significantly higher in the control than intervention group and were controlled for in subsequent analyses. Multilevel structural equation modeling (MSEM) revealed that infants in the smart-bassinet group slept significantly longer across the six-month period than the control group on average ($\beta = 0.32$, 95% CI [0.056, 0.568]). For mothers, group assignment was unrelated to maternal sleep quality, postpartum depression, and anxiety at the between-person level. However, group assignment significantly predicted within-person variability in maternal postpartum depression symptoms ($\beta = -0.32$, 95% CI [-0.543, -0.072]), maternal anxiety ($\beta = -0.43$, 95% CI [-0.646, -0.198]), and maternal sleep quality ($\beta = -0.43$, 95% CI [-0.777, -0.090]), such that mothers in the smart-bassinet group had more consistent sleep quality and mental health across the six-month period than those with commercial bassinets.
Conclusion: Preliminary results indicate the use of a smart bassinet can lead to increased infant sleep, and less variable postpartum depression and maternal sleep quality. Further research on postpartum depression, maternal sleep quality, and infant sleep duration using a larger, randomized sample is needed.

32) Abstract 1158

CAREGIVING EXPERIENCES AND HEALTH OF RACIALLY/ETHNICALLY DIVERSE SEXUAL AND GENDER MINORITY INFORMAL CAREGIVERS OF INDIVIDUALS WITH ALZHEIMER'S DISEASE AND RELATED DEMENTIAS

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Background: Caregivers of individuals with Alzheimer 's disease and related dementias (ADRD) often tend to experience worse mental and physical health outcomes compared with those providing care to individuals with other chronic conditions. Sexual and gender minority (SGM) ADRD caregivers may experience compounding stressors, such as stigma and discrimination, which may increase their risk for health disparities.
Methods: Weighted estimates were examined using the 2021 Behavioral Risk Factor Surveillance System data to assess differences in sociodemographic characteristics, caregiving experiences, and health of SGM and non-SGM ADRD caregivers. Associations between SGM identity and health outcomes were examined using multivariable regression, adjusting for sociodemographic characteristics and caregiving experiences; and differences in health by SGM identities.
 Results: SGM ADRD caregivers were younger, less likely to be married/partnered, and more likely to provide personal care to their care recipient than non-SGM ADRD caregivers. SGM ADRD caregivers reported more days of poor mental health, a

past diagnosis of depression after accounting for age, relationship status, and provision of personal care. Subgroup analysis showed that compared with cisgender (not transgender) heterosexual males, cisgender heterosexual females, cisgender gay males, cisgender bisexuals, and transgender respondents reported more days of poor mental health and a past diagnosis of depression.

Conclusions: SGM and non-SGM caregivers differed in age, marital status, provision of personal care, mental health status, and diagnoses of depression. Future research with diverse SGM ADRD caregivers is needed to further assess the intersections of race/ethnicity, SGM identity, and ADRD caregiving on mental and physical health.

33) Abstract 1049

COGNITIVE-TRAINING IN MIDDLE-AGED ADULTS: EVIDENCE FOR NEAR TRANSFER AND NEUROPLASTICITY
Natasha Sigala, PhD, Brighton and Sussex Medical School

Cognitive training offers a potential approach to preventing cognitive decline in later life. Repetition of targeted exercises may improve, or at least preserve, specific domains and general cognitive abilities by strengthening neural connections and promoting neuroprotective processes within brain networks. We investigated the effects of cognitive training (4-6 weeks) in middle-aged adults (40-50 years). Participants in the experimental condition (n=20) completed an adaptive programme, while the active control group (n=20) completed a non-adaptive training. The training targeted working memory, attention, and other executive functions, such as inhibition. To test for improvements, we examined performance on the training tasks. Both adaptive and non-adaptive participants showed substantial improvements throughout training. To test for a general improvement in cognitive ability, we assessed untrained transfer tasks (a fluid intelligence test, an associative memory task, and a working memory task). We found a significant difference between pre-and post-training scores for the near transfer task of N-back, specifically for the 4-back condition, indicating that the cognitive training was successful in middle-aged adults. There was a significant positive relationship between working memory training outcome and post-training 4-back scores, supporting the conclusion that improvements in working memory, particularly transferred to an untrained task, require the same ability. Additionally, we performed structural and functional neuroimaging of the participants before and after completing the training programme. We found a significant increase in ODI in the frontal pole post-training. The increased grey and white matter ODI may indicate new neurite growth due to cognitive training. Moreover, we found increased activity in the parahippocampus, the fusiform gyrus, and the cerebellum during the transfer tasks. Activation increases have been explained as added recruitment of brain regions or as response strengthening within a cortical region. These mechanisms are thought to result in increased capacity in the processes performed by these areas.

34) Abstract 1256

PUT A LITTLE LOVE IN YOUR HEART: ASSOCIATIONS BETWEEN SOCIAL RELATIONSHIPS, CARDIAC ANXIETY AND QUALITY OF LIFE AMONG PATIENTS WITH SPONTANEOUS CORONARY ARTERY DISSECTION
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Background: Social relationships and the ability to respond to a loved one's needs have significant effects on psychological and physical health. Couple distress is linked to cardiovascular risk factors, whereas support is associated with better outcomes. Relationship strain is not uncommon post-cardiac event, but it is unclear how relationship quality is linked to patients' cardiac-related anxiety or quality of life (QoL). Spontaneous coronary artery dissection (SCAD), a form of acute coronary syndrome that often causes a heart attack, has been associated with distress, but social relationships are rarely measured. To our knowledge, only two studies, with small samples (<15), investigated general social support and no studies examined relationship quality in the SCAD population. Further, no studies have examined the relationship between these variables. **Objective:** The purpose of the study was to examine the associations between social relationships, cardiac-related anxiety and QoL among patients with SCAD. **Methods:** Patients with a diagnosed SCAD were recruited from a cardiac care hospital. Patients completed a sociodemographic questionnaire and validated measures of relationship quality (dyadic adjustment scale; DAS), cardiac-related anxiety (cardiac anxiety questionnaire; CAQ), and disease-specific QoL (Health-related QoL; HeartQoL). Descriptive analyses and bivariate correlations were conducted. **Results:** Participants (N=91; 88.4% female; M age=52.3; 78% White; 67% married; M years in couple relationship = 24) reported reported similar levels of social support as previous SCAD and other cardiac patients (M=28.0±6.0); 19.4% of patients reported being in distressed relationships. Many participants (41%) reported elevated cardiac-related anxiety. Social support was associated with emotional QoL (r=.37; p<.001), but not physical QoL or cardiac-related anxiety. Relationship quality was also associated with emotional QoL (r=.36; p=.01), but not physical QoL; there was a trend toward significance for cardiac-related anxiety (r=-.25p=07). **Conclusions:** These preliminary data suggest that social relationships are linked to emotional QoL among patients who have experienced a cardiac event (i.e., SCAD). The relationship between physical QoL and cardiac-related anxiety requires further study.

35) Abstract 782

FINANCIAL TOXICITY AND ITS ASSOCIATION WITH DIABETES DISTRESS
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Background
The chronic behavior nature of diabetes self-management leads to diabetes distress, often manifested by being overwhelmed and discouraged. With almost 40% of individuals with diabetes experiencing diabetes-related distress, it can have a negative impact on diabetes control, quality of life, and overall health. Despite a wealth of scholarship on diabetes distress, the impact of financial well-being/toxicity on diabetes distress is understudied.
Aim
This study explored if financial well-being/toxicity significantly predicts diabetes distress among adults with type 1 or type 2 diabetes.
Methods
This was a cross-sectional analysis of participants in an RCT using multiple linear regression. Diabetes distress was measured using the Diabetes Distress Scale (0-6), with higher scores indicating high diabetes distress. Financial well-being

was measured using the 12-item COST-FACIT scale (0-44), with lower scores indicating financial toxicity. We controlled for sociodemographic variables (e.g., HbA1C, age). We used multiple linear regression to analyze data.

Results

A total of n=600 were included in the analysis. The mean diabetes distress score is 3.76 (SD = 1.38). We found a statistically significant difference in diabetes distress between those with type 1 diabetes (M = 4.00, SD = 1.29) and type 2 diabetes (M = 3.71, SD = 1.40, p = .020). Controlling for sociodemographic variables, financial well-being/toxicity is a significant predictor of diabetes distress ($F(21, 551)$ = 8.54, $p <$ .001, $R2$ = 26.6%). Diabetes distress is moderately negatively associated with financial well-being/toxicity (b = -.349)

Discussion

As prior studies suggest, financial well-being/toxicity is a significant social determinant of health. Given the significant burden that comes with diabetes management due to high costs and expenses, this can have a harmful effect on a person's quality of life. We need to take individual, clinician, institutional, and national steps to address financial toxicity in diabetes distress.

Conclusion

We cannot ignore financial toxicity's negative consequences on individuals with diabetes. Policy changes at the national level to reduce the cost of diabetes distress and discourage using low-value interventions can ease the financial strain on patients while improving their quality of life.

36) Abstract 1025

LIVED-EXPERIENCES OF WOMEN WITH VITILIGO: AN INTERPRETIVE PHENOMENOLOGICAL STUDY

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Vitiligo is a highly prevalent pigmentary skin disorder impacting an estimated 2% of the global population. Individuals afflicted with this condition often face social stigma due to changes in their skin pigmentation which further results in discrimination at various levels. Both men and women are affected by the condition, however, women have a greater impact than men. Women endure heightened challenges on different fronts, leading to a more frequent presence in dermatology clinics seeking assistance. The study therefore aims to explore the psychological and social repercussions of vitiligo on women as they navigate their life experiences, employing Interpretative Phenomenological Analysis as our investigative approach. For this purpose, in-depth semi-structured interviews were conducted on female vitiligo patients (N=11) recruited from public hospitals by implementing a purposive sampling technique. Each interview session was meticulously audio-recorded and subsequently transcribed for analysis. Various thematic categories that emerged from the data were identified as the perception of illness, societal responses and experiences, psychological dimension, and coping strategies towards the disease. The findings indicate that the perception of illness was a nuanced experience for each individual. The discomfort attached to the skin was a shared perception amongst the participants. It was found that women with vitiligo experienced a range of social reactions (lack of acceptance towards their appearance, evasive questioning by people, and social avoidance) stemming from their skin condition leading to social discrimination at various levels. Amongst these, increased degrees of challenges revolving around marriage & job prospects were commonly discussed topics. Participants reported having significant emotional disturbances (fear of rejection & self-esteem issues). It further provides insight into

the coping mechanisms adopted by the patients revealing that camouflage, avoidance of social situations, and religious practices were most frequently used. The effect of education on perceptual experience of life emerged as a unique theme highlighting the importance of education in influencing the lived experience. Additionally, it highlights the dire need for a psychologically oriented management plan to improve the well-being and quality of life of these patients.

37) Abstract 1397

PSYCHOLOGICAL, BEHAVIORAL, AND COMPUTATIONAL CHARACTERISTICS OF IRRITABLE BOWEL SYNDROME 1: WHAT DISCRIMINATES PATIENTS FROM HEALTHY CONTROLS?

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Introduction: Irritable bowel syndrome (IBS) is a disorder of the brain-gut axis defined by bowel dysfunction but also specific psychological and behavioral characteristics. The importance of different aspects of anxiety has been well established, however measures of cognitive performance and perception of bodily states are rarely used in IBS research. The aim of this study was to determine which types of measures discriminate between IBS patients and healthy controls. In addition to commonly used self-report measures, the participants completed an interoception task and a series of computerized tasks which measure planning, working memory and decision making.

Methods: Fifty IBS patients and 64 healthy subjects participated in the study and completed a set of questionnaires: State-trait Anxiety Inventory (STAI), Visceral Sensitivity Index (VSI) and Anxiety Sensitivity Index (ASI). Participants also completed computerized versions of Tower of London (TOL), Reverse digit span and Reinforcement Learning Task (RLT). Finally, they completed a heartbeat-counting task for interoceptive accuracy.

Results: To test if we can predict group membership (IBS vs healthy control), a logistic model with 9 predictor variables was fitted to the data. The model correctly categorized 90% of the sample. All anxiety measures were significant predictors, along with accuracy and time data for TOL and digit span, and value sensitivities from the RLT. Higher STAI and VSI scores, higher number of correct tasks and longer time until first move (TOL) increase the likelihood of a participant being categorized as an IBS patient. Higher ASI, longer digit span and time for digit span recall lower the likelihood of a participant being categorized as an IBS patient. The value sensitivities (RLT) have different effects on group prediction depending on the task condition. Interoceptive accuracy was not a significant predictor of group membership. A model containing only measures of anxiety correctly categorizes 85% of the sample, while a model with only measures of cognitive function correctly categorizes 62% of the sample.

Conclusion: Self-report measures are relatively good for discriminating between IBS patients and healthy controls, but cognitive tasks significantly improve prediction accuracy.

Keywords: IBS, anxiety, cognitive function, interoceptive accuracy, reinforcement learning

38) Abstract 1372

DURING TRAUMA RECALL, PRAYER AND MEDITATION FREQUENCY DAMPEN AUTONOMIC REACTIVITY: MODERATING ROLES OF SELF-COMPASSION AND CARDIAC VAGAL TONE

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Introduction: Evidence supports a consistent link between spirituality/religiousness (S/R) and both physical and mental health after experiencing trauma or adversity. The mechanisms underlying these relationships remain poorly understood. Previous studies show evidence that spiritual practices (e.g., prayer, meditation, church activities, mind-body techniques) improve autonomic functions, resulting in decreased sympathetic activity and increased parasympathetic activity as indexed by high heart rate variability (HRV), demonstrating that S/R may dampen cardiovascular stress reactivity. Research also shows that individuals with reduced resting HRV (rsHRV) are more likely to develop PTSD and more severe symptoms than those with higher rsHRV. Moreover, there is a suggestion that self-compassion (i.e., the tendency to be open to one's own suffering without avoiding it; SC) impacts the pathway between S/R and health after experiencing trauma and is associated with higher HRV. **Aims**: To elucidate the extent to which SC explains these connections, we examined the relationship between S/R practices and autonomic reactivity during trauma recall, and explored whether rsHRV would moderate this association depending on the levels of SC (i.e., a moderated moderation). **Methods:** Self-reported prayer and meditation frequency (PMF) and SC data were collected at baseline visit in a sample of 26 women with PTSD participating in a clinical trial of an augmented trauma writing intervention. Photoplethysmography (PPG) was continuously recorded during audios of script-driven narratives of traumatic events, to derive HRV measures. **Results**: Hierarchical regression analyses showed that PMF positively predicted HF-HRV reactivity to trauma recall (b = 10.5, p = .02, 95% CI [1.59, 19.53]) and this was moderated in a two-way interaction by levels of rsHRV (b = -2.66, p = .02, 95% CI [-4.89, -.43]) and SC (b = -3.28, p = .03, 95% CI [-6.28, -.28]) and in a three-way interaction (b = .83, p = .03, 95% CI [.08, 1.57]), such that the positive relationship between PMF and HRV reactivity was strongest at lower levels of rsHRV and SC. **Conclusions:** These findings suggest that PMF is a resilience factor for coping in the face of traumatic event recall by improving autonomic regulation, while playing a protective role in individuals with poor self-regulatory resources.

39) Abstract 1317

HOW LONELY DAYS MAY AGE US: DAY-TO-DAY LONELINESS PREDICTS INFLAMMATION ACROSS 10 YEARS

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While the literature has conceptualized loneliness as a stable, trait-like risk factor rather than an experience that can vary, recent evidence points to fluctuation in daily experiences of loneliness and its health implications. The current study examined whether average levels and fluctuations in loneliness in daily life was associated with higher levels of inflammatory markers interleukin (IL)-6 and IL-10. The sample included 489 middle-aged and older adults who participated in the National Study of Daily Experiences in 2005-2009 and the Biomarker Project of the Midlife in the United States study in 2013-2018. 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 at the follow-up 10 years later, they provided fasting serum samples that were assayed for IL-6, IL-10, and IGF-1. Consistent with prediction, those who were more susceptible to loneliness in daily life (I.e., fluctuated more in their loneliness in daily life) had higher IL-10 (B(SE)=0.28(0.14), p=.04) and trended toward higher IL-6 (B(SE)=0.27(0.14), p=.05). This was above and beyond average daily loneliness, and standard covariates including age, gender, comorbidities, and BMI. Implications of longitudinal associations between daily experiences of loneliness and inflammation 10 years in the future are discussed, as are other aging-related mechanisms.

40) Abstract 1201

TRAIT EMPATHY AND TRAIT MINDFULNESS INFLUENCE THE RELATIONSHIP BETWEEN COMMUNITY SOCIAL STATUS AND ANXIETY

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Low perceived social status relative to one's community is associated with anxiety and adverse health outcomes (e.g., CVD). Although experiences of diminished status have been associated with increased trait empathy (TE;ability to understand others' perspectives, experience affective reactions to others' emotions), how empathy impacts anxiety is unclear. However, higher trait mindfulness (TM;tendency to pay attention, nonjudgmentally to present moment experience) reliably protects against anxiety and is related to increased levels of TE. Though disadvantaged individuals have also been shown to demonstrate higher TM, no studies have examined these variables together in a diverse, low-income population. It is unclear whether both TM and TE influence the established relationship between social status and anxiety. We explored whether the relationship between SSS (MacArthur Scale) and anxiety (State Trait Anxiety Inventory) was moderated by TM (Trait Mindfulness, Attention, and Awareness Scale) and TE (Interpersonal Reactivity Index) after controlling for demographic covariates. Our diverse sample (36% Hispanic, 32% Asian, 20% White, 11% Other) of 180 (M=22) participants completed all measures remotely. Lower SSS was associated with higher anxiety (β =-.28, p<.01). Additionally, higher TE (β=.93, p<.01) associated with higher anxiety, while TM did not predict anxiety (β=.93,p=.70). Finally, results showed that both TM(R² =.03,β=-.58 p=.013) and Trait Empathy (R²=.06,β=-.08,p<.01) moderated the relationship between SSS and anxiety (R² =.29,β=-.64,p<.01). Specifically, the moderation suggests that while TE increases anxiety in all participants, high TE is associated with significantly higher anxiety among low SSS individuals relative to high SSS individuals. The effects of TM against anxiety were significantly stronger among high SSS relative to low SSS individuals. These findings support that low SSS confers risk for increased anxiety and suggest that past mixed associations of TE and anxiety may be due to differences in social status. Further, these results imply that mindfulness may be more protective against anxiety in high status individuals. Future research should explore whether TM and TE rely on shared mechanisms to help mitigate anxiety in the face of status disparities and should examine the overlapping cognitive and physiological underpinnings of TM/TE.

42) Abstract 983

IMPROVING QUALITY OF LIFE FOR MIGRAINE PATIENTS: FEASIBILITY OF AN EXERCISE AND SLEEP EDUCATION INTERVENTION TO REDUCE MIGRAINE SEVERITY AND IMPROVE DEPRESSION AND ANXIETY SYMPTOMS

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Migraine is the second most disabling illness in the world. Lifestyle factors, including exercise and sleep practices, are all part of the biopsychosocial model underpinning the complex nature of migraines, yet prior research has largely focused solely on biological causes following the biomedical model. Thus, few studies have evaluated lifestyle interventions to improve migraine, and even fewer have included migraine comorbidities. For this study, we implemented a phone-delivered educational intervention aimed to inform migraine patients of best sleep practices with weekly sleep hygiene goals. In addition, participants engaged in aerobic exercise for 40 minutes 3 times per week for 3 weeks. Nineteen participants were randomly assigned to either the intervention group (n = 10) or control group (n = 9). Participants completed surveys measuring depression, anxiety, quality of life, migraine disability, and several sleep measures at baseline and after the intervention. Ecological momentary assessment (EMA) was used to track migraine frequency, duration, intensity, and sleep with 3 assessments per day over the 4-week study period. All participants showed high compliance with the EMA procedure (93% overall, 84% minimum individually). There was high compliance to the exercise intervention (completing at least 6 of the 9 exercise sessions). Results showed a statistically significant difference in physical activity minutes in weeks 2 ($p < .001$), 3 ($p < .001$), and 4 ($p < .001$) compared to week 1 for the intervention group as well as a significant difference in daily sleep duration in week 4 ($p < .05$) compared to week 1 for the intervention group compared to the control group. Depression ($p < .05$) and anxiety ($p < .05$) scores significantly improved post intervention compared to baseline for those in the intervention group. This pilot study demonstrated the feasibility for using this intervention with migraine patients and the advantages of measuring migraines using EMA. Future work should employ this intervention with more participants for a longer duration to assess its efficacy in improving migraine health, depression, and anxiety. Further, these findings suggest that there would be value in clinicians educating and supporting migraine patients in adopting aerobic exercise in concurrence with improved sleep hygiene habits for health benefits without adverse effects.

43) Abstract 1434

OUTDOOR TIME, MOVEMENT BREAKS, AND AFFECT: FINDINGS FROM A LARGE-SCALE PRAGMATIC TRIAL

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Introduction
Time spent actively outdoors has shown benefits to physical and mental health. In recent years, brief movement breaks (~1-5 min) have been endorsed as a strategy to offset the harms of sedentary behavior, however, it is unclear how short episodes of physical activity outdoors yield mental health benefits. The purpose of this study is to investigate the association of brief outdoor movement breaks with daily mood in a large scale pragmatic trial.
Methods
This study included a general sample of adults (n=8712, 86% female) recruited via a collaboration with NPR. Participants self-selected into 1 of 3 movement doses (5 min of walking for every 30/60/120 min). Breaks consisted of walking at a self-selected pace for 5 min. Each participant was instructed to take breaks at the chosen frequency during waking hours for 2 weeks. Affect and environmental effects that impact ability to take breaks outside (i.e., weather factors) were assessed daily. A random coefficients linear mixed model was used to predict affect from the occurrence of movement breaks outside that day.
Results
The median percentage of days participants reported outdoor movement breaks was 16.7 (IQR: 42.8). Participants who reported outside breaks on 50% or more days showed higher compliance to the breaks protocol (mean 24.0 [SE 0.6]) than those who took outside breaks on 1-24% of days (mean 20.4 [SE 0.6]) or 0% of days (mean 17.0 [SE 0.5]). (P<0.001) The mean daily affect (MDA) rating across all participant days was 16.0 (IQR: 27), on a -50 to +50 scale. MDA was higher on days participants reported taking breaks outside: participants reported MDA of 18.3 [SE 0.2] on days when outside movement breaks were taken, and MDA of 15.2 [SE 0.2] on days without outside movement breaks.(P<0.001)
Conclusions
This work demonstrates that brief outside movement breaks are positively associated with daily affect. Participants who reported taking breaks outside also demonstrated greater compliance to their movement break protocol, suggesting that outdoor physical activity may help facilitate breaking up sedentary time. Improved positive affect on days when outside breaks were taken demonstrates the need for more inquiry into the relationship between exercise environment and mental health, and strategies to encourage outside movement to break up sedentary time and support mental wellbeing.

44) Abstract 948

PERCEIVED STRESS AND EMOTION REGULATION PREDICT DAILY HEALTH INDICATORS

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Objective: Emotion regulation, the ability to regulate emotional responses to environmental challenges, is important for daily living and is associated with positive health outcomes, such as better sleep and lower blood pressure. However, higher perceived stress may mitigate the benefits of emotion regulation on health. The current study examined between- and within-person effects of daily perceived emotion regulation and stress on sleep and blood pressure reactivity in a large, international dataset.
Methods: Participants (N = 4,593) provided data at three daily check-ins through a phone application (M_{age} = 49.3; range= 18-87; 70% male; 80% Caucasian; 70% USA; $M_{check-ins}$ = 11, Total check-ins = 30,491). Perceived emotion regulation and perceived daily stress were measured daily via single-item responses on days participants did not report an acute stressor. Sleep hours, feeling refreshed after waking, sleep disturbances, and sleep quality were prompted at each morning check-in. Blood pressure measurement was prompted at every check-in and reactivity was calculated as the difference in nighttime and morning blood pressure

assessments. Linear mixed-effects models were adjusted for age, race, education, health conditions, income, and geographic location.

Results: On average, participants reporting lower perceived emotion regulation and more perceived daily stress, reported significantly fewer hours of sleep compared to participants with less average perceived daily stress (γ= .46, SE = .13, p < .001). Though there were significant between- and within-person main effects of perceived emotion regulation and perceived daily stress on all sleep and BP reactivity measures, no other moderation models were significant.

Conclusion: Lower perceived emotion regulation is associated with fewer hours of sleep, especially for people with higher perceived daily stress. Maintaining a low stress environment may increase sleep hours, which is associated with lower risk of diabetes, hypertension, cardiovascular disease, and mortality. This may be especially important when protective health factors, such as the capacity to regulate emotions, are under-developed.
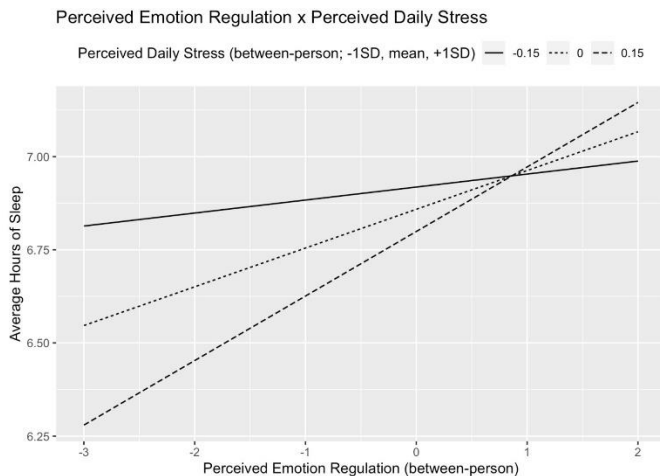

Figure 1. The effect of between-person emotion regulation at +1SD, mean, and -1SD levels of perceived daily stress on average hours of sleep.

45) Abstract 937

EFFECTS OF DIGITAL TRANSFORMATION ON EMPLOYEES' PSYCHOPHYSIOLOGICAL STRESS A LONGITUDINAL, QUASI-EXPERIMENTAL CONTROL GROUP STUDY

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The rapid outbreak of the COVID-19 pandemic caused an accelerated need to implement novel information and communication technologies (ICTs). ICT's are commonly deployed with the aim of increasing productivity and efficiency; however, previous questionnaire-based research suggests that the implementation of ICTs may contribute to enhanced stress levels a.

The present study aimed to examine the effects of an ICT implementation on psychophysiological stress-levels of employees in real life using a longitudinal, quasi-experimental control group design. Over 17 months (t0: November 2021 to t3: March 2023) two medical research laboratories in different German University Hospitals, which are part of a collaborative research center, were monitored at 4 time points. Only the experimental group (n = 23 employees; M = 33.64 years, SD = 8.69 years, 60.87% female) and not the control group (n = 21 employees; M = 36.48 years, SD = 9.52 years, 76.19% female) experienced the implementation of an electronic lab notebook (ELN) between t0 and t1. Employees' chronic stress was assessed based on psychological (e.g., chronic stress; exhaustion) and physiological (e.g., heart rate variability; hair steroids) markers.

Regarding the psychological markers, Multi-Level-Analyses revealed a significant increase in the experimental, but not in the control group (t_{44} = 2.86 p = 0.005), such that self-reported chronic stress increased from t0 through t3. Further, a significant interaction effect between age, time, and lab (t_{44} = 2.37, p = 0.019) indicated that older employees depicted longer elevated subjective stress levels. Multi-Level-Analyses did not reveal any significant differences in exhaustion symptoms and any of the physiological markers between the experimental and control group. However, sub-analysis revealed a near to significant trend towards an increase in hair cortisol after the introduction of the ELN in the experimental compared to the control group (t-Test at t2: p < .01; Cohen's d = .08).

The results of this study indicate that the implementation of ICTs is associated with measurable (short term) changes in individual chronic stress levels, which depend, at least partly, on individual characteristics (i.e., age). Additional research using larger samples, varied ICT implementations, and incorporating ambulatory psychophysiological assessments is needed.

46) Abstract 936

EFFICACY OF MINDFULNESS ON SUBJECTIVE FEELINGS, AUTONOMIC ACTIVITY, AND ENDOCRINE LEVELS AFTER ACUTE MENTAL STRESS

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Recently, mindfulness has become a major psychotherapy intervention for improving anxiety and mood symptoms and preventing the recurrence of depression. Mindfulness interventions contain different instructions, including focusing on the breath and focusing on sounds. However, the influence of different instructions on the therapeutic mechanisms of mindfulness remains unknown. Therefore, this study investigated the effect of different manipulations on subjective feelings, autonomic activity, and the endocrine system after acute mental stress. Participants were divided into three conditions: focusing on the breath, focusing on sounds, and a control group. Then, the participants conducted a difficult arithmetic task for five minutes and completed one of the three conditions for 15 minutes. Results indicated that the participants focusing on the breath showed more positive emotions, less negative emotions, more relaxation, and less fatigue than those focusing on sounds or in the control condition. Moreover, the level of cortisol, a stress hormone, decreased in participants focusing on the breath than those focusing on sounds or the control conditions. This empirical study indicates that focusing on the breath is an effective manipulation to decrease stress hormones after acute mental stress.

47) Abstract 1208

ADVERSE CHILDHOOD EXPERIENCES AND MORTALITY RISK: THE MECHANISMS OF SELF-ACCEPTANCE AND PURPOSE IN LIFE

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Objective: Adverse Childhood Experiences (ACEs) are associated with a broad range of negative health outcomes, and possibly mortality. The pathways that link these factors have yet to be determined. Those who have ACEs tend to display lower self-acceptance and purpose in life/meaning during adulthood. As such, we tested whether self-acceptance and purpose may be indirect mechanisms in the ACEs mortality risk relation.

Methods: The sample comprised of adults (N = 6218; M±SD= 46.89 ± 12.94 years) who were followed over a 24 year period. We examined ACEs with a comprehensive measure which incorporated 20 possible childhood adversities including emotional and physical abuse, household instability, socioeconomic climate, and ill health.

Results: ACEs significantly increased mortality risk. Self-acceptance and purpose were indirect pathways between ACEs and mortality risk. These effects withstood considerable adjustment and sensitivity analyses.

Conclusions: ACEs appear to predict future mortality risk partially through the erosion of self-acceptance and purpose. Self-acceptance and purpose are potentially amenable to change through intervention, leading to the possibility that targeting them may lead to a longer life for those with ACEs.

48) Abstract 1351

DIGITAL HEALTH TECHNOLOGY CAN PROMOTE PHYSICAL AND SOCIAL ACTIVITY IN OLDER PEOPLE: THE GOALD PROJECT.

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Introduction: Physical activity has established benefits for healthy ageing. Increasingly digital technologies are being used as tools to support and/or increasing physical and social activity among the growing older adult population. Digital technologies can offer solutions which can positively impact on improve quality of life and health. The GOALD project is a 3-year interdisciplinary research project in Scotland and Southwest England to design, deliver and evaluate digital resources to support physical activity, social connectedness, and sports-based reminiscence in older people. This project explored and evaluated feasibility of using digital technologies to support physical activity and support businesses to develop related products and services to enhance support for physical activity in older adults.

Methods: Participants were recruited from three care homes and three community groups; including 58 older adults (60+), 2 younger adults (16-25), and 18 adult staff members. Between October 2022 and August 2023 participants were invited to co-production groups to appraise six technologies for the purpose of physical activity. Transcripts and researcher notes data from co-production workshops were analysed thematically.

Results: Key themes were enjoyment, value of technologies, barriers, technological modifications, and physical activity content. Participants enjoyed and actively engaged with the products. Greatest value was perceived for those less active.

Preference was for products to support and supplement physical activity sessions led by people not replace people. Barriers included space, participant capabilities and technological hurdles such as accessibility. Design modifications included audio and visual modifications to enhance useability. Physical activity content required greater options around the frequency, intensity, type, and time.

Discussion: Product developers looking to use digital technologies need to consider a variety of adaptations including accessibility, useability, and software. Older adults are keen to engage with digital products as part of an integrated process with incorporates both the technology and in-person interaction. GOALD has demonstrated the utility of a co-production approach to the design/adaptation of digital technologies for supporting physical activity to enhance healthy ageing.

49) Abstract 945

PSYCHOBIOLOGICAL RESPONDING AND RECOVERY DURING HIGH-FIDELITY TRAINING IN PRE-HOSPITAL EMERGENCY MEDICINE

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Individuals who provide critical emergency care mount rapid psychobiological responses when faced with an incident. These responses are adaptive and ensure resources at time of demand; however, frequent activation with minimal opportunity for recovery can have negative consequences for health and wellbeing. Monitoring individuals engaging in real emergency situations would provide an understanding of their stress responses during critical care; however, this presents significant logistical challenges. A viable alternative is to assess individuals during high-fidelity training scenarios. This is the first continual assessment of psychobiological responding during high-fidelity training in pre-hospital emergency medicine. In a sample of doctors and paramedics (N=27), psychological (state, cognitive, and somatic anxiety; stress and worry; perceived demands and control) and biological (continuous heart rate via Garmin smartwatches; 4 daily saliva samples for assessment of diurnal cortisol indices) measures were obtained for 10 days of training and a weekend of no activities. Training involved the acquisition of human factors, non-technical and surgical skills, and the application of these skills in complex high-fidelity scenarios including road-traffic accidents, firearms incidents, and swift water rescue operations. Psychobiological responding during training was distinct from the weekend and characterised by significant increases in anxiety, stress and worry, elevated heart rate and diurnal cortisol secretion. The highest levels of psychobiological responding were observed on days characterised by greater perceived demands, and lower perceived control of the day's events. Higher psychobiological responding and lower control were most evident on the days comprising complex multiple scenarios. These scenarios are typical of the day-to-day requirements of emergency services and given their high-fidelity and authenticity, the observations are representative of functioning during real-life critical care emergencies. Frequent and increased psychobiological responding increases allostatic load and is a contributor to burnout. As burnout is a significant concern in emergency medicine, this study identifies patterns of responding and recovery that may impact upon health and wellbeing in the long-term.

50) Abstract 1358

AFTERNOON-EVENING SERUM CORTISOL AND ANXIOUS

MOOD IN TWO COHORTS OF POST-SURGICAL BREAST CANCER PATIENTS

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Background: A cancer diagnosis is a highly stressful experience that may be accompanied by altered secretion of cortisol, indicating hypothalamic-pituitary-adrenal (HPA) axis activation. Increased cortisol has been linked to poorer prognosis and health outcomes in various cancer types. Yet, the impact of anxiety on cortisol levels in women with breast cancer (BC) remains unclear. This study examined the relationship between afternoon-evening (PM) cortisol and self-reported anxiety post-BC surgery.
Methods: Two cohorts of stage 0-III BC women from 1998-2005 (Cohort I; N=240) and 2006-2013 (Cohort II; N=183) enrolled in stress management clinical trials 2-10 weeks post-surgery, prior to adjuvant treatment. Participants provided a baseline PM serum cortisol sample (4:00–6:30pm) and completed the Affect Balance Scale (ABS) to measure anxious mood. Of the 423 women enrolled, 308 provided blood samples. Multiple regression tested the association between cortisol and anxiety adjusting for age, stage, type surgery, and study cohort.
Results: Participants were predominantly middle-aged (mean 52.54 years; range 23-80), with stage I (46.4%) disease. Serum was collected from 128 and 174 patients from Cohort I and II, respectively. Cortisol levels were significantly higher in Cohort I ($t(306)$ = -6.083, p = < .001). In the combined sample, a significant relationship emerged between serum cortisol and ABS-anxiety ($r = 0.127$; $p = 0.027$), with no other subscales showing significant associations. After adjusting for confounders, higher anxiety levels predicted higher PM serum cortisol, R^2 = .14, F [5,301] = 9.99, p = <.001.
Conclusion: We found an association between higher serum cortisol levels and greater anxious mood in post-surgical BC patients. Given the close link between stress physiology and disease progression, effective anxiety management after BC diagnosis may promote successful adaptation to treatment-related disease challenges.

Variable	Unstandardized			Standardized	
	B	SE	B [95% CI]	β	p
Constant	5.012	3.203	[-1.293, 11.316]		.119
Age	-.023	.046	[-.114, .68]	-.028	.621
Stage (I-III)	1.347	.542	[.281, 2.414]	.138	**.013***
Surgery Type (REF = lumpectomy (v. mastectomy))	-.609	.869	[-2.319, 1.101]	-.039	.484
Study Phase (REF = Cohort I (v. Cohort II)	5.503	.877	[3.777, 7.228]	.347	**<.001****
ABS-Anxiety	1.292	.592	[.127, 2.456]	.120	**.030***

Total Model $R^2 = .14$, $F[5,301] = 9.991$, $p = <.001$

PM Serum Cortisol

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51) Abstract 1109

SOCIAL BALL AND PHYSIOLOGICAL REACTIVITY: HEART RATE (VARIABILITY), SKIN CONDUCTANCE AND BLOOD PRESSURE RESPONSES TO SOCIAL EXCLUSION

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Introduction. Research shows that social exclusion has widespread detrimental effects, such as impacting blood pressure. The current study adds to this line of research by testing the extent to which excluded (versus included) participants experience heightened physiological reactivity in response to the social exclusion paradigm Social Ball (SB), a more realistic and elaborate version of Cyberball. Showing that SB evokes an experience of exclusion and impacts physiological reactivity is important as it can then be used to better understand how social exclusion impacts physical well-being. **Method**. Data collection is still ongoing (n=101). The current has a mean age of 20.33 (SD=2.684) and is predominantly female (79.2 %) and white (85.1%). Participants engaged in the SB task within a controlled laboratory environment ($n_{exclusion}$=51) while an electrocardiogram, electrodermal activity, and continuous blood pressure were continuously recorded to assess changes in both the sympathetic- and parasympathetic nervous system. **Results**. An independent samples t-test indicated there was no significant difference between the exclusion and inclusion conditions on inter-beat interval (heart period) reactivity following the task, F=0.132, p = .718. Furthermore, five Mann-Whitney U tests indicated that there was no significant difference between the exclusion and inclusion conditions on RMSSD (i.e., indicator of heart rate variability; z=0.60), systolic (z=-1.01) and diastolic (z=-1.12) blood pressure, or on skin conductance level (z=0.49) or responses (z=0.96; all p's > .05). **Discussion**. The findings do not provide support for any effects of exclusion manipulated by SB on heart rate (variability), skin conductance, or blood pressure. Our results indicate that either there is no effect of social exclusion on physiological responses, or using SB to examine the physiological effects of social exclusion may not be appropriate or comprehensive. Other tasks involving social exclusion should be explored. However, given that reactivity was calculated by means of the physiological measures between baseline and task, after data collection is finalized, we plan to perform multilevel analyses on minute or 30-second averages with the experimental phase to explore response patterns over time, and whether these response patterns differ between the exclusion and inclusion condition.

52) Abstract 1426

A NOVEL MEASURE OF ENDOTHELIAL FUNCTION USING FOREARM IMPEDANCE CARDIOGRAPHY

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A Novel Measure of Endothelial Function using Forearm Impedance Cardiography

James R. Cirillo, Kristen T. Stopfer, Anna R. Luisi, Jaya A. King, Kennedy J. Reeves, Abhay Bhatt, Chloe D. Farago, Peter J. Gianaros, & Mark R. Scudder

The health of the endothelium, a layer of cells lining the interior surface of blood vessels, is implicated in the development of atherosclerosis and other cardiovascular disease outcomes. Endothelial dysfunction can arise over time and is primarily characterized by impairments in endothelial-dependent vasodilatory capacity. Several non-invasive techniques have been developed to measure this capacity in response to reactive hyperemia (i.e., the increase in blood flow following occlusion of blood blow), many of which use changes in temperature or volume as their primary outcome. However, few studies have attempted to determine if changes in blood flow during reactive hyperemia can be successfully recorded using electrical impedance (i.e., impedance cardiography) in the forearm, which may serve as a viable index of endothelial function. Accordingly, among 13 participants (average age = 25 years), electrical impedance (dZ/dt in ohms/sec) was collected from the forearm before and after a 5-minute occlusion of the brachial artery. Average dZ/dt values significantly increased post-occlusion and remained elevated above baseline values throughout the 5-minute recovery period (average percent change Baseline-Recovery = 29.2%, p < 0.001, t = 8.70). However, when measurements were repeated (separated by ~1 week), limited stability over time was observed (r = 0.22). Forearm impedance cardiography, given its non-invasive nature, ease of application, and relatively low cost, shows promise as an accessible measurement of endothelial function, yet additional research is needed to optimize conditions that would improve its test-retest reliability.

53) Abstract 1331

PROVIDING CONTEXTS TO PATIENT-ORIENTED CARE: PILOT APPLICATION OF THE PATIENT DIGNITY QUESTION IN A NEUROSURGERY CLINIC

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Background: Patient-provider communication is critical to improve patient satisfaction especially in neurosurgery where treatment considerations are complex and vary upon patient concerns and goals. Per Ecological Systems Theory, contexts - relationships, family/work, culture - influence individual preferences and decision-making. The Patient Dignity Question (PDQ) - "What do I need to know about you as a person to give you the best care possible?" is well validated to elicit patient preferences in several settings but not studied in neurosurgery. In this study, we examined if PDQ would promote perceived compassion and analyzed themes of personhood and contexts valuable to neurosurgery patients.
Method: A quasi-experimental (baseline vs. implementation) explanatory sequential mixed-methods design was piloted in a tertiary academic neurosurgery clinic in Southwest U.S. At baseline, first-time and return adult neurosurgery patients reported provider compassion on the Sinclair Compassion Questionnaire immediately after visit. In the implementation phase, patients wrote down responses to PDQ before visit and reported on SCQ and whether they discussed PDQ with neurosurgeon after visit. A subset of patients attended post-visit individual interviews about PDQ implementation. Thematic analysis was conducted on PDQ responses and verbatim transcripts.
Results: More patients who discussed PDQ with neurosurgeon (N=152, Mage=60 years, M=68%) perceived highest compassion than those who didn't discuss PDQ (N=131, Mage=63 years, M=47%) or those at baseline (N=149, Mage=60 years, M=57%), p=.002, especially in first-time but not return patients. Analysis of 270 written PDQ responses and 24 transcripts highlighted themes of personhood (values, goals, identity, lifestyle, spirituality), with 58% frequency; medical history/goals (37%), communication preferences with neurosurgeon/medical team (28%), effects of time (23%; i.e., chronosystem), and familial/career considerations (13%; %; i.e., microsystem). Most patients expressed appreciation of incorporation of PDQ.
Discussion: PDQ can prompt important insights about neurosurgery patients' personhood preferences affected by familial and social contexts across time. These discussions promote compassionate patient-oriented care especially for first-time patients, urging larger-scale experimental research on effects of PDQ.

54) Abstract 1164

RACIAL DISPARITIES IN THE FREQUENCY AND TIMING OF CODE STATUS ORDERS AMONG WOMEN WITH BREAST CANCER: A COX REGRESSION APPROACH

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Background: African-American women with breast cancer have a disproportionately higher risk of mortality, although their overall incidence of disease is lower. Despite this, advance care planning (ACP) and consequent code status (CS) documentation remain low in this vulnerable patient population. CS orders [i.e., Full code, Do Not Attempt Resuscitation (DNAR), Do Not Intubate (DNI)] allow consideration of patient preferences regarding the use of aggressive treatments, such as cardiopulmonary resuscitation and intubation. The aim of this study is to characterize presence of CS orders and determine whether race affects presence of CS documentation after first breast cancer encounter.
Method: Data include information from 7724 women with breast cancer from the University of Chicago Medical Center between the years of 2016-2021. Covariates with difference in survival curves were identified through significant log-rank tests and subsequently included in a Cox regression. This includes adjustment for age-group (18-64, 65+) through

stratification, and covariate adjustment for inpatient stays, secondary breast cancer, marital status, and body mass index. Results: Results indicate that CS orders after the first breast cancer encounter were uncommon (7.2%). Women who died had a higher number of CS orders (2 vs. 1; p<.001) and less time until first CS order (336 vs. 747 days; p<.001). Their first, second, and last CS orders were more likely to be DNAR or DNAR/DNI and occur in an inpatient hospital setting (all p<.001). In the cox regression, Black/African-American race emerged as a significant predictor of any CS orders compared to white race (HR = 2.70; 95% CI: 2.28, 3.20).

Conclusion: CS documentation in this sample of women with breast cancer was low overall, yet rates were higher among Black/African American patients. These findings may reflect the racial disparities (e.g., higher cancer malignancy) in breast cancer mortality risk given that race remains a significant predictor of CS documentation even when accounting for indirect measures of cancer severity. Future research is needed to identify factors unique to African American women that would increase CS documentation so that goal concordant care can be prioritized among breast cancer patients.

Table 2. Adjusted cox proportional hazard model of code status documentation

Characteristic[1]	HR[2]	95% CI[2]	p-value
Race			
White	—	—	
Asian/Mideast Indian	0.80	0.43, 1.46	0.5
Black/African-American	2.70	2.28, 3.20	<0.001
Other or Unknown	1.24	0.82, 1.87	0.3
Diagnosis of secondary breast cancer	9.97	6.13, 16.2	<0.001
Inpatient stays	2.40	2.06, 2.80	<0.001
Marital status			
Single	—	—	
Divorced	0.94	0.73, 1.21	0.7
Married	0.64	0.53, 0.77	<0.001
Other or unknown	0.54	0.34, 0.86	0.009
Widowed	1.13	0.93, 1.39	0.2
Body mass index	0.98	0.97, 0.99	<0.001

[1]Age groups (18-64, 65 and older) are controlled for through stratification.

[2]HR = Hazard Ratio, CI = Confidence Interval

55) Abstract 1327

WORK STRESS, MENTAL WELLBEING AND PRESENTEEISM IN EMPLOYEES IN THE UNITED KINGDOM DURING THE COVID19 PANDEMIC (EMPOWER STUDY).
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Work stress and related anxiety and depression can have an enormous impact on the well-being and work productivity of employees. In the context of the European platforM to PromOte Wellbeing and HEalth in the workplace (EMPOWER) study, we report characteristics of 334 employees recruited in NHS mental health trusts and a University in the United Kingdom. 89(35%) reported presenteeism. Mean(SD) depression score (PHQ9) was 7.4(5.6), anxiety score (GAD7) 5.9(4.6), somatisation score (PHQ-15) 7.8(4.3) and wellbeing score (WHO-5) 42.7(21.2). In the group reporting presenteeism, scores were significantly worse (p < .001) for

depression (9.69); anxiety (7.36), and wellbeing (34.38). However, none of the scores reached clinical level. Pearson correlation analysis showed significant associations between mental health and presenteeism. Depression and anxiety (.73) and somatisation (.59) were associated with large effect sizes. Well-being was negatively associated with depression (-.75) and anxiety (-.58). Depression (.38), anxiety (.29), somatisation (.33) and wellbeing (-.30) were associated with presenteeism.

Regarding adverse work circumstances, 65% reported too much work to do, 54% had to adapt to continual changes, 41% reported poor communication within the organisation, 38% had working hours hindering private life, 30% reported a bad working atmosphere, 25% reported lack of influence on how the job was performed, and 24% reported lack of or inappropriate means to perform the job.

Pearson correlation analysis showed significant associations between stress levels due to psychosocial risk factors at the workplace and mental health outcomes such as depression (.39), anxiety (.36), somatisation (.29), a negative association with wellbeing (-.43) and an association between work-related stress levels and presenteeism (.21).

Conclusion: The participants in this sample indicated elevated stress levels due to psychosocial risk factors at the workplace associated with depression, anxiety, somatisation, low well-being and presenteeism. Given the numerous reported adverse work circumstances, the finding that average levels of depression, anxiety and low well-being in the sample were mild might indicate factors enhancing resilience of the workforce that warrant further study.

56) Abstract 1171

EXAMINING INDIVIDUAL-LEVEL DIFFERENCES IN STRESS AND COPING STRATEGIES AMONG BLACK WOMEN ENROLLED IN A BEHAVIORAL WEIGHT LOSS INTERVENTION
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Black women disproportionately report elevated stress levels, tend to adopt coping strategies that might adversely impact their health, and report lower levels of physical activity in comparison to other racial and ethnic groups. This study describes stress, and associations with sociodemographic, coping, and physical activity-related characteristics among Black women enrolled in a behavioral weight loss (BWL) intervention. Data are from the baseline assessment of participants (n=41) enrolled in an ongoing randomized controlled trial evaluating a stress management-enhanced BWL intervention among Black women with obesity (BMI ≥30 kg/m^{2}) and elevated stress levels (PSS-10 score ≥ 13). Stress was categorized as moderate (≥13-26) and high (27-40). Coping strategies were categorized into four styles: problem-focused approach, problem-focused avoidance, emotion-focused approach, and emotion-focused avoidance. Descriptive statistics were generated, and a series of chi-square tests and independent T-tests were conducted to examine the associations between stress levels and sociodemographic factors, coping strategies, and physical activity-related characteristics. On average, participants were 41 years old (SD=12.36) and reported an annual household income of ≥$40,000 (83.3%). Forty-three percent were single/never married and 71.4% had a bachelor's degree or higher. Most participants were classified as having moderate stress (71.4%). There were no significant differences in

baseline demographics between those who reported moderate stress and those who reported high stress. However, high stress (vs. moderate) was associated with a higher score for emotion-focused avoidance (15.55 (2.70) vs.13.5 (2.53), *p*=.03). Participants reporting higher stress (vs. moderate stress) did not differ on physical activity intensity (i.e., vigorous, moderate) or level of exertion (i.e., normal, weak). Black women enrolled in a behavioral weight loss intervention who reported high stress levels were more likely to endorse a higher score for emotion-focused avoidance. Emotion-focused avoidance (i.e., disengagement) can help in immediate stressful situations; however, long-term it is linked with adverse effects on both psychological and physical well-being. The findings underscore the need for evaluating coping strategies in future behavioral weight loss interventions.

57) Abstract 1285

ASSOCIATIONS BETWEEN SELF-REPORT QUESTIONNAIRE DATA AND ECOLOGICAL MOMENTARY ASSESSMENT OF SOCIAL CONTEXT AND EMOTIONAL HEALTH AMONG COMMUNITY DWELLING OLDER ADULTS.

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Objective: Previous work has focused on enduring effects of psychosocial context, yet day-to-day aspects of psychosocial context are also important for healthy aging but are less well characterized. Here, we examined psychosocial factors using both self-report questionnaires and ecological momentary assessment (EMA). The goal was to examine whether higher social engagement and mood were similarly captured by self-report and EMA measures.
Methods: Participants were older adults (age 60+) without dementia or current psychiatric illness. Social connectedness was measured using the Social Network Index (SNI) and Interpersonal Support Evaluation List (ISEL). Depressive and anxiety symptoms was examined using the Patient Health Questionnaire (PHQ-9) and Geriatric Anxiety Scale (GAS-10), respectively. Participants underwent a 10-day mobile health protocol consisting of 4 burst assessments per day including EMA and cognitive assessment (see abstract by Weinstein et al.). EMA questions probed current mood, social interactions, and daily activities. Nonparametric correlations were examined between self-report questionnaires and aggregate data from 10 days of EMA of social context and mood.
Results: In this preliminary community-based sample, 15 participants completed all tasks (mean age = 71.3 years, mean education = 16.1 years, 4 female, 13 white). Anxiety symptoms were the most sensitive to EMA reports of daily life as compared to depressive symptoms and social network indices. A higher level of anxiety symptoms (GAS-10) was associated with higher worry (r=.56, p=0.03), lower time spent in and satisfaction derived from social interactions (time: r=-.56, p=.03; satisfaction: r= -.59, p=.02), lower reports of happiness (r=-.63, p=.01), higher reports of depressed mood (r=.67, p=.007), and higher levels of loneliness (r=0.61, p=0.01). A higher level of depressive symptoms (PHQ-9) was associated with a shorter duration of time spent socially interacting with others (r=-0.61, p=0.02) and lower reports of happiness (r=-.52, p=0.04). Social connectedness measures were not associated with EMA assessments of mood and social context.
Conclusions:
Among community-dwelling older adults, anxiety symptoms may have broad adverse implications for emotional and social

wellbeing in daily life. Depressive symptoms more specifically relate to lower social engagement.

59) Abstract 953

EMPLOYED DEMENTIA SPOUSAL CAREGIVERS HAVE LOWER CHRONIC INFLAMMATION THAN RETIRED DEMENTIA SPOUSAL CAREGIVERS

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Informal caregiving for a spouse with dementia is a chronic stressor that can increase one's risk for adverse health outcomes, partially through elevated systemic inflammation. We hypothesized that employed caregivers would have higher inflammation than their retired counterparts, as employed caregivers have stressors from work *plus* stressors from caregiving. **Methods.** We examined the effect of employment status on chronic inflammation cross-sectionally in a sample of 97 caregivers, 21 employed and 76 retired (*M* = 71.30 years old, *SD* = 8.13 years; 74.2% women; 80% white). Participants reported their demographics and health information, as well as their depressive symptoms (Center for Epidemiological Studies Depression Scale), anticipatory grief (Anticipatory Grief Scale), and adverse health symptoms related to caregiving (Margaret Blenker Research Center Caregiver Strain Instrument). Participants completed blood draws during in-person lab visits; we measured monocyte stimulated pro-inflammatory cytokines (interleukin-6, tumor necrosis factor alpha, and interleukin-1 beta), which were combined in a linear composite variable. Multilevel regressions were run with a random effect of assay plate. **Results.** Employment status was predictive of the composite levels of inflammatory cytokines (*p* = .05). Employed caregivers had lower levels of inflammation compared to retired participants in analyses with and without covariates of other known predictors of inflammation. The effect of employment status was not explained when accounting for the effects of depressive symptoms, anticipatory grief, or adverse health symptoms related to caregiving (see Table). According to our post-hoc power analyses, we had power greater than .80 to detect the present, medium effect sizes with a sample size of 97, 2 tested predictors, and 11 total predictors. **Discussion.** Contrary to hypotheses, we found that retired caregivers had higher monocyte stimulated pro-inflammatory cytokines, suggesting that there may be some psychological benefits associated with work. Perhaps work is a place where caregivers feel a sense of control, mastery, and/or psychological distance from their caregiving duties, per work recovery theories. Retired caregivers may not have the same 'break' from caregiving stress.

Predictors	B (SE B)	B (SE B)	B (SE B)	B (SE B)
(Intercept)	5.63*** (0.72)	5.55*** (0.70)	4.95*** (0.74)	6.16*** (0.75)
Age	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
Sex[1]	-0.06 (0.13)	-0.07 (0.13)	-0.10 (0.13)	-0.08 (0.13)
Education	-0.01 (0.05)	-0.02 (0.05)	-0.03 (0.05)	-0.03 (0.05)
Body mass index	0.02 (0.01)	0.02 (0.01)	0.02 (0.01)	0.01 (0.01)
Comorbidities	-0.01 (0.04)	0.00 (0.04)	0.00 (0.07)	-0.01 (0.04)
Anti-inflammatory medications	-0.01 (0.24)	-0.01 (0.23)	-0.04 (0.23)	-0.05 (0.24)
Poor sleep quality	0.00 (0.01)	-0.00 (0.02)	-0.01 (0.01)	-0.00 (0.01)
Weekly alcoholic drinks	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Weekly caregiving hours	0.01 (0.02)	0.01 (0.02)	0.01 (0.02)	0.02 (0.02)
Employment status[2]	-0.27* (0.14)	-0.29* (0.14)	-0.30* (0.14)	-0.31* (0.14)
Depressive symptoms	–	0.02* (0.01)	–	–
Anticipatory grief	–	–	0.29* (0.11)	–
Adverse health symptoms	–	–	–	-0.17* (0.09)
Random Effects				
σ^2	0.27	0.25	0.25	0.26
τ_{00}	0.00	0.00	0.00	0.00
N	2 plates	2 plates	2 plates	2 plates
Observations	97	97	97	97
Fixed Effects R^2	.13	.19	.19	.17

Note. [1]Sex is coded so 1 = male and 2 = female. [2]Employment status is coded so 0 = retired and 1 = working full or part time. σ^2 = indicates level 1 residual variance; τ_{00} = indicates level 2 residual variance. * indicates $p = 0.05$; *** indicates $p < .001$

60) Abstract 1299

A PROSPECTIVE STUDY OF THE EFFECTS OF DEPRESSION, COPING AND THEIR MODERATION BY GEOGRAPHICAL CONTEXT ON SURVIVAL TIME IN BREAST CANCER PATIENTS

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Introduction: Breast cancer survivorship in the year after diagnosis requires coping with stressors related to multiple impacts of the illness and its treatment on the trajectory of a woman's life. The goal of this study was to predict mortality in women from shortly after diagnosis with breast cancer to eight years later. Key predictors were indicators of depression and cancer-related coping processes.
Method: 460 breast cancer patients from CA (n=297) and AZ (n=163) were assessed 2 months on average after diagnosis; 75 participants died during 8-year follow-up. Cox proportional hazards models predicting mortality were tested for differences in site of data collection (CA vs AZ) and from baseline levels of depressive symptoms (CES-D $\geq$ 16), major depressive disorder (MDE), cancer-related avoidance coping (COPEAv) and acceptance coping (COPEAc), disease stage (0 – 4), medical comorbidity (Groll) and age.
Results: Univariate predictions were significant only for disease stage 4(ref Stage 1) (HR 0.47; p=0.005) and site (ref: AZ) CA (HR 0.57; p=0.016) with a trend for comorbidity (HR 1.12; p=0.06). Age was NS and dropped from further analyses. Multivariate analyses controlling for stage, site and comorbidity showed a trend for MDE (HR 1.7l p=0.07) but not CES-D >=16 (HR 0.94; p=0.23) predicting mortality and a trend for COPEAv (HR 1.72; p=0.072) but not COPEAc. The effect of COPEAc on mortality was significant (HR 0.63; p=.037) when *not* controlling for site, revealing site as a suppressor variable for the otherwise significant prediction of survival by COPEAc (HR 0.66; p=0.037). COPEAc was higher in participants from CA than from AZ.
Conclusions: Prediction of mortality after breast cancer diagnosis from disease stage, comorbidity and MDE was consistent with the literature. Significantly lower mortality in participants from CA compared with AZ was novel. Prediction of lower mortality from COPEAc was not evident when site was in the multivariate model suggesting the need for further investigation of the strong association of higher COPEAc in the context of living in CA for understanding how coping through

accepting one's cancer experience may be related to slower disease progression.

61) Abstract 956

ADHERENCE AND CARDIAC ANXIETY IN DECOMPENSATED VS. STABLE HEART FAILURE PATIENTS

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Background: Nonadherence is a major challenge in treating chronic illnesses such as chronic heart failure (CHF), where it may lead to cardiac decompensations and premature death. We therefore studied associations of an objective measure of adherence and psychological variables with cardiac decompensations and future hospitalizations.
Methods: We included 172 patients (31% women, 63±15 y/o) with chronic heart failure (CHF), of whom 76 were currently decompensated while 96 were clinically stable. Patients were asked for their CHF-related knowledge (4-item multiple choice quiz) as well as symptoms of depression (HADS) and cardiac anxiety (CAQ). Adherence to cardiac medications was measured once at baseline by mass spectrometry of urine samples.
Results: On average, patients had been prescribed 3.5 cardiac drugs but only 54.1% were fully adherent in urine analyses and 14.0% took less than half of prescribed drugs. Adherence depended on the number of prescribed drugs. While all patients with only one cardiac drug prescription were adherent, only 6.3% of patients who were prescribed 5 cardiac medications, were fully adherent. In contrast, neither depressive symptoms nor cardiac anxiety or CHF-related knowledge predicted adherence.
Patients who had missed 2 or more prescribed drugs had an odds of 5.2 (CI: 1.5-18.6) for decompensation. Decompensated patients also had poor CHF-related knowledge (d=.76; p<.001), more depressive symptoms (d=.39; p=.014) and cardiac fear (d=.42; p=.005). Hospitalizations until 3-month follow-up were independently predicted by cardiac fear (OR=2.10; CI:1.03-4.28) and marginally by initial decompensation (OR=2.44; CI: 0.96-6.20) but not by initial adherence, depression, or CHF-related knowledge.
Conclusion: Although almost half of patients in this CHF sample showed insufficient adherence which may have contributed to current decompensation, baseline adherence had no effect on hospitalizations over the subsequent three months which were best predicted by heart-related fears.

62) Abstract 1073

"AND HOW DID THAT MAKE YOU FEEL?" – FREQUENT SYMPTOM SCHEMA ACTIVATION AND HEALTH ANXIETY PREDICT SYMPTOM SEVERITY IN THE AFFECTIVE PICTURE PARADIGM

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Background: Negative affect, attention processes, and predisposing traits (such as health anxiety) can influence an individual's symptom perception. In this study, we used the Affective Picture Paradigm (APP, Bogaerts et al., 2010) to induce symptoms using affective picture stimuli while varying the frequency of symptom queries and assessing health anxiety.

Method: In a convenience sample of N = 124 participants, we conducted the APP and asked them to fill out questionnaires, such the HAI for health anxiety. Participants were randomized to either a frequent-query condition (18 symptom checklists) or a rare-query condition (6 symptom checklists). These data were analyzed using ANOVAs, cross-lagged panel models, moderation models, and multilevel models.

Results: Both groups had comparable symptom baseline values, but people in the frequent as opposed to rare condition reported significantly higher symptom levels once the experiment started ($F(1,120) = 14.319$, $p < .001$). Symptom levels stayed stable over the course of the experiment and were best predicted by symptom levels at earlier timepoints in the experiment ($\beta = 0.43$ and $\beta = 0.68$, both $p < .001$). Health anxiety levels significantly predicted symptom levels ($F(1,121) = 10.054$, $p = .002$) and significantly moderated the relation between condition and symptom levels ($F(2,121) = 16.253$, $p < .001$).

Conclusion: Asking people about their symptoms does not incite habituation or sensitization processes, but instead leads to a symptom schema activation. People in the frequent condition have an active cognitive schema because they are constantly re-prompted, while people in the rare condition have more time to allow the schema to be deactivated. In terms of the predictive processing model (e.g., Van den Bergh et al., 2017), this corresponds to the *prior*. Health anxiety and schema activation frequency predispose higher symptom reports.

64) Abstract 920

DO EXPECTATIONS SHAPE INTEROCEPTIVE PERCEPTIONS ACROSS BODY DOMAINS?

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Theoretical background. According to predictive coding theory (PCT) our brain constantly makes predictions concerning incoming sensory input on the basis of prior experiences and knowledge. Given that sensory input is often imprecise, strong predictions can lead to distortions in the perceptual process and in combination with a liberal response bias may contribute to somatic symptom distress. Against this background, we investigated the influence of sham electromagnetic field (EMF) radiation on interoception (sensitivity and response bias) across body domains.

Methods. 113 subjects participated in the experiment. Half of the participants were deliberately misled into believing that a strong Wi-Fi signal was active during the tasks, potentially leading to temporary bodily sensations such as tingling or headache. All participants completed self-reports on symptom burden (PHQ-15, custom-developed rating scale) and two signal detection tasks. In the somatic signal detection task (SSDT), subjects were asked to indicate whether or not they perceived a vibrotactile stimulus. In the cardiovascular signal detection task (cvSDT), participants were asked to indicate

whether their perceived number of heart beats corresponded to a given response option.

Results. There was no group difference for sensitivity or bias in either task. However, individuals in the EMF group experienced trend wise more body symptoms during the experiment than controls, $F(1,111) = 3.477$, $p = .065$, $\eta p^2 = .030$. Higher symptom experience during the experiment in the EMF group was associated with more liberal responses in the SSDT ($r = -.281$, $p = .034$). Also, higher general symptom burden (PHQ-15) in the EMF group was associated with lower sensitivity in the SSDT ($r = -.334$, $p = .011$).

Discussion. Prior expectations might have caused symptom experience in the EMF group. Also, elevated levels of symptom experience were related to a more liberal 'better safe than sorry' approach, which is considered a risk factor for somatic symptom disorder. An accurate perception of one's own body may be a protective factor as it was associated with lower symptom burden. As correlational analyses do not allow to draw conclusions about causality, further experimental studies are needed to shed light on the influence of prior expectations on interoceptive processes.

65) Abstract 1322

PERCEPTIONS OF ANTI-RACISM EFFORTS AND MENTAL HEALTH AMONG STUDENTS IN HIGHER EDUCATION IN THE UNITED STATES

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BACKGROUND: Anti-racism efforts are imperative for campus communities, yet little is known about whether perceiving their presence on campuses relate to a range of mental health outcomes among students.

METHODS: We analyzed data from the Healthy Minds Study 2020-2021. Using multivariable logistic regression, we examined the associations between perceptions of anti-racism efforts (I believe my school actively works towards combating racism within the campus community) and a range of mental health outcomes, adjusting for age, gender, and race/ethnicity.

RESULTS: Individuals who disagreed that their schools combatted racism their campus communities had significantly greater odds of mental health problems (depression, anxiety, psychotic experiences, suicidal ideation, suicide plan, suicide attempt, perceived need for help, and loneliness) and lower odds of flourishing when compared with those who strongly agreed with the statement. For all outcomes, we observed an apparent dose-response association.

CONCLUSION: Perceptions of anti-racism on campuses were inversely associated with mental health problems, calling for more research to test the effects of antiracism efforts on mental health.

66) Abstract 1033

BAYESIAN LONGITUDINAL MODELING FOR ANALYSIS OF OBESITY WITH INCOMPLETE PROPORTION DATA

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Obesity is a worldwide growing problem and is the underlying cause of many diseases, comorbidities, and psychological disorders, including but not limited to high blood pressure, diabetes, high cholesterol, heart disease, stroke, anxiety, depression, and sleep disorders. Since obesity is a chronic disease, longitudinal modeling is an effective approach to unravel the complex disease evolution and factors that may affect the process. In this study, using the Fels data from the largest and longest running study of human growth over the lifespan, we propose a longitudinal structural equation

modeling approach to investigate the interrelationship between the changes of body mass index and proportion body fat as well as potential factors that may have impact on the changes. Due to the complicated nature of the data, four technical challenges have been addressed under a Bayesian paradigm, including (a) proportion outcome variables (proportion body fat), modeled via beta, beta rectangular and simplex distributions by introducing add-on models to traditional longitudinal model; (b) individually varying time metrics handled via definition variables; (c) nonlinear change patterns handled via fitting polynomial latent curves with truly individually varying time points; and (d) non-ignorable missing data (i.e., missing not at random data) handled via an add-on selection model. Our preliminary analysis has shown that the proposed models fit data better than existing models in the literature and provide more interpretable analytical results. We will create a guideline for feature comparisons between the proposal models and commonly used traditional models. A practical step-by-step tutorial on how to apply the proposed methods will also be provided.

THE INTERACTION OF HYPERMOBILE EHLERS-DANLOS SYNDROME ON THE INDUCTION OF BRAIN FOG IN POSTURAL ORTHOSTATIC TACHYCARDIA PATIENTS USING A LOWER BODY NEGATIVE PRESSURE CHAMBER

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Background
Postural Orthostatic Tachycardia Syndrome (POTS) is a chronic and incapacitating disorder of the autonomic nervous system, characterised by orthostatic intolerance. Symptoms include palpitations, light-headedness, and cognitive deficits, such as difficulties in thinking, focusing, and forgetfulness, collectively termed as 'brain fog' (BF). However, there is not yet an understanding of the aetiogenesis or any factors that may predispose individuals to BF. A way to mimic the physiological effects of orthostasis on the body is using lower body negative pressure (LBNP). Activation of the chamber isolates the lower body from atmospheric conditions and causes venous blood to sequester in the lower limbs. We used this modulation to investigate the induction and effects of BF in POTS patients and controls.
Methods
Participants (16 POTS patients, 8 controls – recruitment still ongoing) were screened for hypermobility disorders and administered a series of questionnaires pre- and post-induction of BF via LBNP at 40 mmHg, including self-report VAS scales of BF. Statistical analysis was undertaken by exploring independent samples t-tests and repeated measures in a general linear model.
Results
Mean pre- and post-BF ratings for controls were 4 (±10.5) and 19.75 (±26.31), respectively. Statistical tests identified differences to be significantly different at $p < 0.01$. Hypermobility assessment revealed that no controls had hypermobile Ehlers-Danlos syndrome (hEDS), while 9 patients met hEDS criteria.
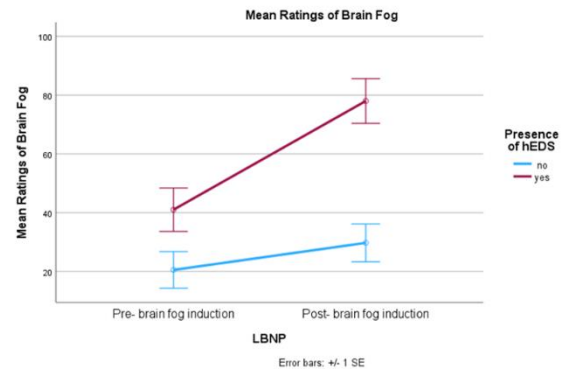A 2-factor ANOVA on pre- and post-induction BF ratings identified significant effects of LNBP ($F = 22.03$, $p < 0.01$) and

the presence of symptomatic hypermobility ($F = 7.96$, $p < 0.01$) on the induction of BF (fig 1).
Figure 1. Individuals with hEDS and induction of brain fog.
Conclusion
We present for the first time an informed observation that hEDS results in greater change in pre- to post-BF ratings via LBNP (orthostatic challenge). Future data will be enriched by cerebral perfusion and brain activity metrics. This has significant implications for our understanding of the physiological correlates of BF and its ability to modify cognition. This may inform future clinical practice, such as guiding personalised medicine and furthering our understanding of brain-body interactions.

Mean Ratings of Brain Fog

Error bars: +/- 1 SE

68) Abstract 1023

CONTEXTUAL FACTORS OF RACISM-RELATED STRESS

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Racism-related stress is a social stressor found to have deleterious effects on physical health and well-being, and is implicated in persistent racial disparities (Pascoe and Richman, 2009). Most often operationalized as experiences of discrimination, extant literature suggests that racism-related stress is distinct from general life stress and may be coped with using different strategies, such as increased avoidance (Harrell, 2000; Utsey, Ponterotto, Reynolds, & Cancelli, 2000; Hoggard et al., 2012). Evidence also suggests strategies that are often successful in promoting well-being, such as cognitive reappraisal of emotion, may not be effective in contexts of oppression (Perez & Soto, 2011). Furthermore, environmental and contextual factors have been lauded as essential to understanding racism-related stress for decades, yet most existing psychosocial measures of racism-related stress capture specific discrimination events (e.g., being denied a job) in few domains (e.g., work or medical settings) alongside limited coping strategies (Harrell, 2000; Williams, 1997). However, the same racialized event (e.g., being called a slur) likely has a significantly different impact coming from, for example, a work supervisor versus a stranger online. This difference may influence how the experience is appraised, what coping strategies are available, and ultimately, how efficacious the coping strategies are. The authors aim to address these gaps through a daily diary study with a community sample of Black American adults to explore interpersonal contextual information about the experiences of racism-related stress and of coping. The daily diary format allows for high fidelity self-report of stressful racialized experiences and their social contexts, such as participants' relative status and relationship to others involved in the experience. Additionally, the daily diary captures participants' initial appraisals of the experiences, coping strategies, and

outcomes including depression, anxiety, positive well-being, and sleep quality. (These data are currently being collected and the manuscript will be under preparation in Spring 2024.)

70) Abstract 1150

EX-VIVO INFLAMMATORY REACTIVITY IN RELATION TO SOCIAL STRESS: AN INNOVATIVE WAY TO MEASURE CHRONIC INFLAMMATION WITHIN YOUNG HEALTHY INDIVIDUALS

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Background: Social stress has been consistently documented as negatively impacting health. Herein, chronic inflammation is an intermediate health outcome translating those psychosocial adversities into biological risk. Indeed, meta-analyses demonstrated that childhood trauma and stress contribute to a pro-inflammatory state in adulthood. However, the findings were mixed when inflammation is measured as outcome during childhood or adolescence. Similar, our own previous longitudinal study with adolescents found no relation of interpersonal stress with inflammatory cytokines but even a trend towards negative associations appeared. Methodological improvements seem necessary since the typical approach of measuring circulating inflammatory parameters brings the disadvantage of very low concentrations (i.e., causing floor effects, clinically irrelevant changes, detection issues) and of being a static approach (i.e., a snapshot influenced by acute infections or adiposity). As an innovative alternative, the current study applies a recent field-friendly ex-vivo inflammatory reactivity measurement (McDade et al., 2021). Method: Our longitudinal Outside-In study examines how social stressors may pose risks for adolescents' health (n=440). In the first three years of secondary school, we collect questionnaires and biological measures for six repeated measurement waves. Using only three drops of finger-stick blood, dried blood samples were collected in 347 participants. Before drying the blood, an ex-vivo cell culture happened: each blooddrop was incubated for 4 hours at 37°C with the bacterial compound lipopolysaccharide (LPS), LPS plus glucocorticoids or a control solution. This LPS stimulates pro-inflammatory cytokine production by the immune cells. Those ex-vivo produced cytokines (IL6, TNFα, IL1) reflect inflammatory reactivity and its glucocorticoid resistance.
Results: Samples are now being analysed at Northwestern University and statistical analyses will be performed in October. Patterns of childhood adversity and bullying victimization over 2 years will be tested as predictor of inflammatory reactivity and how this might mediate mental health. Next, the link with pro-inflammatory gene expression, autonomic nervous activity (measured by heart rate variability and skin conductance), salivary cortisol patterns, and daily emotional processes will be tested.

71) Abstract 1360

PHENOMENOLOGICAL EFFECTS OF BREATHWORK
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High ventilation-type breathwork (breathwork) has been practiced for millenia across cultures worldwide for spiritual and healing purposes. In the modern era, breathwork has continued to branch and evolve into a spectrum of practices with varying aims, ranging from general wellness and relaxation to achieving non-ordinary states of consciousness akin to psychedelic experiences. Conscious Connected Breathwork (CCB), Grof Holotropic Breathwork ®, and the Wim Hof method ® are some examples of contemporary breathwork practices that are gaining significant popularity. Therapeutically, breathwork may have benefits as adjunct treatment of various mental health disorders, including PTSD, anxiety, and depression. Breathwork has the potential advantage of being a non-pharmacological, self-titrating, and highly accessible therapy. Given reports of rich and non-ordinary subjective experiences during breathwork practices, the phenomenology of the experiences themselves is believed to mediate long-term psychological effects, though little is known about these effects and the potential risks of breathwork. Here we present results from our study of the phenomenology of breathwork. Subjects engaged in a CCB-like breathwork practice in three different settings: at home, in a physiology lab, and during an fMRI protocol. Subjective measures of phenomenology including the 5D-ASC, MEQ, PANAS, and others were recorded after the breathwork sessions. Our preliminary findings suggest breathwork can elicit subjective experiences similar to those elicited by psychedelics. For example, subjects reported highest phenomena in the oceanic boundlessness domain of the 5D-ASC at levels similar to some studies using psychedelic compounds. Narrative accounts described themes of peace, connectedness, release, and psychological insights. There were no adverse events during all study modalities. Subjective reports were consistent across the settings supporting the generalizability of experimental settings. Overall, our findings of safety and characterizations of the subjective states induced by breathwork are necessary steps to understanding the mechanism of such practices, and findings support breathwork as a potentially effective mind-body practice for a spectrum of mental health uses, including as an alternative to psychedelic-induced non-ordinary states of consciousness.

72) Abstract 1029

NEUROIMAGING VIA THE EDNI PROJECT: DISCOVERING MRI-BASED BIOMARKERS FOR ANOREXIA NERVOSA AND THEIR FUTURE PROSPECTS
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Kyushu University Hospital, Shu Takakura, MD,PhD, Department of Psychosomatic Medicine, Kyushu University Hospital, Keiko Ino, MD,PhD, Department of Behavioral Medicine, National Institute of Mental Health, National Center of Neurology, Yoshiya Moriguchi, MD,PhD, Department of Behavioral Medicine, National Institute of Mental Health, National Center of Neurology

Eating disorders (EDs) are characterized by intense preoccupations with body shape and weight, resulting in maladaptive eating behaviors. Among them, Anorexia Nervosa (AN) is especially notable for its distinctiveness, suggesting a promising avenue for biomarker research. While genetic associations for AN were unveiled in 2019 through genome-wide studies, the journey towards identifying brain imaging biomarkers has been incremental. The 2022 ENIGMA Eating Disorders Working Group provided a metadata analysis involving 685 AN patients and 963 healthy controls. Nonetheless, ENIGMA encountered challenges, primarily its absence of a deep regional study.

This highlights the significance of our initiative: the Eating Disorder Neuroimaging Initiative (EDNI). By collecting MRI data from over 100 AN patients in a single cohort, EDNI promises richer, more detailed, and potentially more accurate findings. Such a robust sample size, when compared to meta-analyses, can offer sharper correlations, minimize biases, and make it possible to detect nuanced yet clinically impactful patterns.

Expanding on this, our recent studies have further explored the neuroanatomical complexities of AN using data from multiple centers. This includes identifying variations in brain structure abnormalities, resting-state functional connectivity (rsFC), and the prospect of using machine learning to pinpoint MRI-based biomarkers in AN. A combined method of analyzing T1-weighted images, functional MRI, and FreeSurfer-derived datasets has provided unparalleled insights by comparing AN patients to their healthy peers in terms of brain architecture and function. Our key findings revealed decreased gray matter volume (GMV) in regions such as the cerebellum, frontal, and temporal lobes for those with AN. Moreover, variations in rsFC were most evident in the dorsolateral prefrontal cortex (DLPFC) and cerebellum. Intriguingly, machine learning analyses emphasized the potential of cortical thickness as a differentiating factor for AN. Our comprehensive results provide a clearer understanding of AN's underlying mechanisms, paving the way for cutting-edge MRI-based biomarker research. This progress signals the dawn of a new phase in the diagnosis and therapeutic approach to AN, focusing on cognitive-behavioral therapy (CBT).

73) Abstract 974

LOW FREQUENCY BLOOD PRESSURE VARIABILITY, A NEW BIOMARKER OF RISK OF NEURODEGENERATIVE DISORDERS?

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Like heart rate, blood pressure oscillates on a beat-to-beat basis at low (0.04-0.15 Hz, LF) and high (0.15-0.40 Hz, HF) frequencies but unlike HRV, little is known about its underlying physiology or clinical significance. Some studies suggest that LF-BPV has a pathogenic effect on the cardiovascular system: compared to static pressure, BP oscillations may damage the endothelium and while the evidence is limited, some researchers recommend reduction of BPV as a therapeutic target independent of mean BP.

However, other evidence suggests that LF-BPV may be protective, at least in the brain, secondary to greater distribution of blood flow, protection of tissue oxygenation, and the clearance of cellular and metabolic debris from interstitial fluid. Observational studies show that greater LF-BPV is associated with greater tolerance to central hypovolemia induced by lower body negative pressure (LBNP) or other manipulations, consistent with greater cerebral tissue oxygenation. Experimental induction of LF-BPV has the same effect.

Observational and experimental studies also show that LF-BPV contributes to greater fluid transport and solute clearance within the cerebral microvasculature and tissues, an important effect since clearance of cerebral Aß is central to AD pathogenesis. These data suggest that LF-BPV may indeed be a therapeutic target but that it should be enhanced, not reduced, and LF-BPV can be increased by multiple maneuvers ranging from simple (0.10 Hz breathing, standing) to more complicated (LBNP, oscillatory pressure applied to the calves). Although all these maneuvers increase LF-BPV, it is unclear whether these effects are maneuver-specific or instead, are trait-like characteristics of individuals. To address this, we tested the LF-BPV-enhancing effect of 0.10 Hz breathing and standing in 93 individuals. Compared to spontaneous breathing, slower breathing significantly increased ln LF-BPV
(2.08 mmHg^2 and 3.24 Hg^2 respectively for SBP t(92) = 13.37, p<0.001). Compared to the seated position, standing also increased ln LF-BPV (2.01 mmHg^2 and
2.53 mmHg^2 respectively, t(78) = 4.55, p<0.001). LF-BPV responsiveness to these two simple manipulations was significantly related: r = 0.56 (LF-SBPV), suggesting that it is a trait characteristic, not manipulation-specific, that may be a novel biomarker for risk of neurodegenerative disorders.

74) Abstract 1371

THE INFLUENCE OF INTEROCEPTION ON THE RELATIONSHIP BETWEEN ALEXITHYMIA AND THE ABSTRACT WORDS COMPREHENSION

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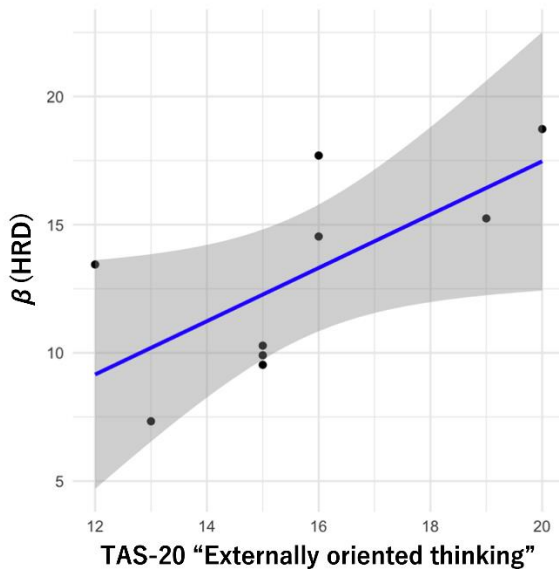
Introduction: Alexithymia (Alex) has been suggested to be associated with impaired interoception (e.g., Brewer et al., 2015) and language function deficits (e.g., Hobson et al., 2019). However, the specific aspects of language ability related to Alex and those interaction with interoception. Therefore, the aim of this study is to clarify which facets of language ability does Alex exhibit characteristics.
Methods: We analyzed data from 9 participants (4 females; mean age = 21.9, *SD* = 1.45). Participants first completed the following questionnaires: MAIA (Mehling et al., 2012), AQ (Baron-Cohen et al., 2001), SDS (Zung, 1965), STAI (Spielberger et al., 1970), and BVAQ (Vorst et al., 2001). Subsequently, they performed the Heart Rate Discrimination task (HRD task; Legrand et al., 2022). And then they Their language abilities were evaluated by WAIS (VCI) (Wechsler, 2018a; 2018b) and some items from The Standardized Comprehension Test of Abstract Words (SCTAW) (numbers 32 to 45; Haruhara et al., 2002). We also conducted the emotion concept interview (Wotschack et al., 2013) and participants were asked three questions for each of the six emotions and we

calculated *Synonym*, *Situation*, *Symptom*, *Evaluation*, *Meta*, *H esitation*, and *Null responses* using their responses.
Results: No significant correlations were observed between the scores of WAIS and TAS-20, whereas trends of positive correlation were observed between TAS-20 factor of the DIF (Difficulty Identifying Feeling) and *Synonyms* ($r = 0.65$, $p = 0.058$) and TAS-20 factor of the DDF (Difficulty Describing Feelings) and *Situations* ($r = 0.64$, $p = 0.064$). Regarding the results of the HRD task, a significant negative correlation was found between the β (slope) of interoception trials and DDF ($r = -0.77$, $p = 0.015$), and a significant positive correlation was observed with TAS-20 factor of the EOT (Externally Oriented Thinking) ($r = 0.67$, $p = 0.046$). Hence, higher scores on DDF was associated with increased accuracy in the HRD task, while higher scores on EOT was linked to decreased it.
Conclusions: The basic language ability would be unlikely to attribute the degree of Alex, but abstract words comprehension regarding emotion concepts might be related to it and interoceptive belief could be involved in this relationship. This experiment is currently ongoing, and a comprehensive analysis is going to be conducted.

different emotional imagery scripts (i.e., hostile-resistance, relaxation, and acceptance) while standing on an unstable support surface with closed eyes. End-tidal CO2 (PetCO2) values were measured during the emotional imagery trials. After each script, participants filled out questionnaires about their affect and their physical complaints by means of the Positive and Negative Affect Scale (PANAS) and the Dagelijkse Leven Klachten Lijst (DLKL), respectively. The effect of the script's content on PetCO2, psychological affect and physical complaints was calculated with a repeated measures full factorial model.
Results
Intermediate analyses revealed a significant effect of script on affect (positive affect: p= 0.008, negative affect: p< 0.001 – See Fig. 1.3), but not on PetCO2 (p= 0.51 – See Fig. 1.1) and physical complaints (p= 0.053 – See Fig. 1.2). Post-hoc analyses demonstrated that individual's positive affect was higher during the relaxation script compared to the hostile-resistance script (mean difference (MD)= -8.78). Negative affect was higher during the hostile-resistance script compared to both the acceptance (MD= -2.94) and relaxation (MD= -4.78) script. By March 2024, the sample size will be enlarged to 30 participants.
Conclusion
In line with our hypothesis and earlier research, inducing negative emotions evoked stronger negative affect compared to inducing positive emotions, and vice versa. However, no effects of emotions on physical complaints nor on PetCO2 were present. Future research should investigate these effects in clinical populations, such as individuals with low back pain.

75) Abstract 1038

THE EFFECT OF DIFFERENT EMOTIONAL IMAGERY SCRIPTS ON END-TIDAL CO2, PSYCHOLOGICAL AFFECT, AND PHYSICAL COMPLAINTS IN HEALTHY INDIVIDUALS
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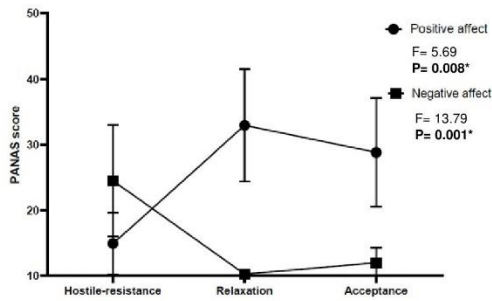
Background
Emotions evoke alterations in an individual's physiological and psychological state. In order to obtain insights into the interaction between emotions, psychological state, and physical complaints, we analysed the effects of different emotional imagery scripts on end-tidal CO2 (PetCO2), psychological affect and physical complaints in healthy individuals.
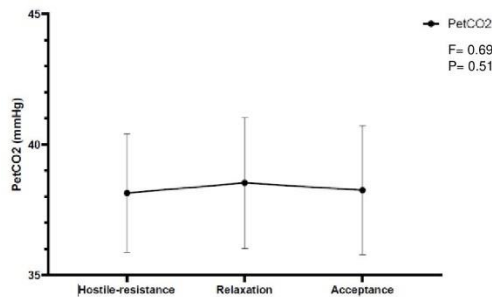**Methods**
The protocol was registered at clinicaltrial.gov (NCT04074798). Healthy individuals (n= 16) were randomly exposed to three
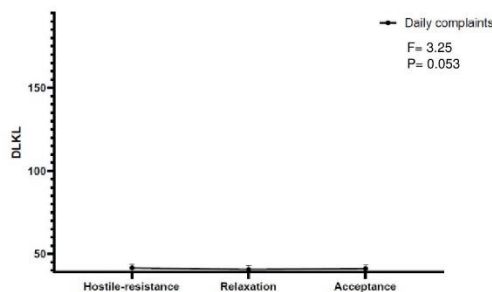
1.1 Effect of emotional imagery scripts on psychological state

Positive affect
F= 5.69
P= 0.008*

Negative affect
F= 13.79
P= 0.001*

1.2 Effect of emotional imagery scripts on PetCO2

PetCO2
F= 0.69
P= 0.51

1.3 Effect of emotional imagery scripts on daily complaints

Daily complaints
F= 3.25
P= 0.053

76) Abstract 1149

PATIENTS WITH POST-COVID-19 SYMPTOMS HAVE HIGH SOCIOECONOMIC STATUS AND IMPROVE WITH OPEN-LABEL PLACEBOS AND BREATHING INTERVENTIONS

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Background: Up to 80% of patients suffer from persistent somatic, psychological and social symptoms and difficulties more than six months after a COVID-19 infection without any detectable organ cause. First articles hypothesize that post-COVID-19 could be a somatic symptom disorder. Experimental studies showed that such symptoms could be significantly improved after an open administration of placebos ("open-label placebo") or with heart rate variability (HRV) biofeedback such as paced breathing. Data of an experimental study will be analysed regarding socioeconomic status, utilization of the health care system and aspects of somatic symptom disorders. **Methods**: 80 Patients with post-COVID-19 syndrome are randomised to four groups: an open-label placebo intervention (OLP), a paced breathing training (PBT), both (OLP+PBT), or no additional treatment (TAU). The OLP groups take two placebos/day and receive the information that placebos can significantly improve symptoms, e.g. via the activation of "self-healing powers". The PBT groups receive a standardized training to breath at 6 breaths/min two times per day for 6 min. At inclusion (T0) and after four weeks (T1) post-COVID-19 and somatic symptoms (PHQ-15), as well as behaviour related to health care utilisation are assessed.
Results: Patients (N=60 to date, 60% female, 48 ± 13 years) improved significantly in somatic symptoms (PHQ-15; p=0.004), and in quality of life (QoL; p<0.001) and general health (p=0.022) assessed on a 100-point scale from T0 to T1, but with no differences between groups. They have a good to above-average socioeconomic status: 80% have a partner, 69% completed high school, 51% work full-time and 33% work part-time, 52% of the people earn an average German salary or more. However, 13% were not able to work during the whole last year, and 22% have 5 days of sick-leave or less (Md=45 days). Between T0 and T1, 32% were on continuous sick leave, while 48% were not sick at all, with no difference between groups.
Conclusion: Patients generally felt better as a result of study participation, which may be an effect of increased care. The majority had a good socioeconomic status. Whether this predicts symptom improvement will be evaluated as soon as the required number of cases is reached and will be presented at the conference.

77) Abstract 1185

DISCRIMINATION, ETHNIC ENCLAVES, AND IMMIGRATION CONCENTRATION AS PREDICTORS OF DIABETES AND DEPRESSIVE SYMPTOMS AMONG HISPANIC/LATINX ADULTS

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Comorbidity of depression and diabetes is an important health concern as depression is associated with reduced quality of life and increased diabetic complications, and diabetes is associated with greater risk for depression. There is evidence that the Hispanic/Latinx population may have stronger associations between depression and diabetes over time than non-Hispanic/Latinx adults. This greater co-occurrence could be due to experiences unique to this population, such as greater stress from discrimination. Potential protective factors such as ethnic enclaves (high composition of specific race/ethnic groups in an area) and immigrant concentration (number of immigrants residing in an area), could also reduce the association between diabetes and depression for Hispanic/Latinx adults. Ethnic enclaves and immigrant concentration has been associated with larger social networks, which could have positive impacts on mental and physical health. I hypothesize that 1) higher discrimination will be associated greater likelihood of diabetes and greater depressive symptoms, 2) ethnic enclaves will be associated with greater likelihood of diabetes and lower depressive

symptoms, and 3) immigrant concentration will be associated with lower likelihood of diabetes and lower depressive symptoms over time. The current analysis will be conducted using the National Longitudinal Study of Adolescent to Adult Health (Add Health). I will use data from two adult assessments when participants were 24-32 years old (Wave IV) and 33-43 years old (Wave V), as these were the two waves where both diabetes (via diagnosis, hemoglobin A1c [HbA1c], and fasting glucose) and depressive symptoms were measured. Multivariate linear regressions will be conducted to test whether the independent variables (i.e., discrimination, ethnic enclaves, immigrant concentration) at Wave IV will be associated with diabetes outcomes at Wave V. Linear regressions will be conducted to test whether the same independent variables at Wave IV are associated with depressive symptoms at Wave V. An alpha level of .05 will be used to determine statistical significance. These analyses are not yet completed, though data analyses have begun and will be completed by the time of the conference. Studies specific to this group are needed to inform health and social policy in the Hispanic/Latinx population.

Neurodiversity As a Central Theme in Psychosomatic Medicine

Lisa Quadt, PhD, Brighton and Sussex Medical School

Neurodiversity describes a spectrum of neurological differences in humans, most often referring to neurodevelopmental conditions such as autism, ADHD, or Tourette syndrome. Neurodivergent individuals think, feel, sense, interact, and behave differently than the anticipated majority. However, contrary to persistent stereotypes, and similarly to neurotypical people, they present on a complex spectrum of (dis)ability, challenges, and strengths. There is now a robust research base indicating that neurodivergent individuals across the lifespan have worse physical and mental health outcomes, that their life expectancy is up to 30 years reduced, and that their needs are often unmet in healthcare, social care, educational, and social settings, with devastating effects on their wellbeing. In this symposium, we will discuss how the field of psychosomatic medicine is in an ideal position to tackle these issues, and to foster neurodiversity-affirmative bench-to-bedside research and clinical practice. Traditional research assumes and focuses on perceived behavioural, emotional, and neurological deficits in neurodivergent populations, with little attention to societal impacts and bodily mechanisms. However, three main aspects likely factor into the heightened vulnerability to psychosocial stress of neurodivergent individuals: (1) bodily mechanisms, such as altered autonomic nervous system function, (2) neurological differences in sensory and emotional processing, and (3) living in a world that is built for and favours the neurotypical majority. Identifying targets for intervention on all three levels is crucial for improving neurodivergent wellbeing. We will present novel clinical research from a non-ableist perspective that aims to enhance our understanding of neurodiversity as a central theme in psychosomatic medicine and maps out research and clinical goals for better quality of life of neurodivergent people of all ages.

Individual Abstract Number: 1199
Understanding and Overcoming Barriers to Healthcare for Autistic People

Sebastian Shaw, PhD, MD, Brighton and Sussex Medical School

Autistic people report a wide variety of barriers to accessing healthcare, including primary care, secondary care, and broader screening programmes. Recent research has found associations between these reported barriers and self-reported adverse health outcomes. Given the reduced life expectancy, and increased mortality across all diagnostic categories, it is vital that autistic people feel empowered to access healthcare. It is also vital that such access be facilitated for all healthcare, not just in times of crisis. Given the higher rates of co-occurring conditions, such as hypertension and diabetes, access to primary and preventative healthcare is key if we are to make a meaningful, longer lasting difference.

Within this session, attendees will be taken through quantitative (cross-sectional) and qualitative data concerning barriers to healthcare for autistic adults. Following this, attendees will be briefly introduced to the "Autistic SPACE" framework, which can facilitate reasonable adjustments for autistic people in healthcare settings. This framework outlines adjustments within the following domains:

- Sensory
- Predictability
- Acceptance
- Communication
- Empathy
- Physical space.
- Processing space.
- Emotional space.

Individual Abstract Number: 1202
The impact of unconscious bias and stigma in research and healthcare on neurodivergent wellbeing

Mary Doherty, MD, Autistic Doctors International

Stigma and stereotypes have a wide range of harmful effects on neurodivergent people, including ableist healthcare negatively impacting access and health outcomes for autistic and otherwise neurodivergent people. The narrative around disability in medicine often assumes a detrimental effect of disability on quality of life, which contrasts with the perspectives of disabled people. Unconscious bias may impact healthcare consultations, compounding the known healthcare disparities experienced by autistic people.

This presentation, by an autistic clinician and academic, will explore the impact of felt stigma, from both a personal and academic perspective. Experiences of autism-related stigma will be shared and attendees will be invited to examine their own unconscious biases, including consideration of how such awareness can facilitate or impede access by autistic and neurodivergent patients.

Recent research data linking autism stigma and poor mental health outcomes will be presented, along with research on factors impacting disclosure by autistic people. This will be followed by practical suggestions for change on a personal, practice, and wider societal level.

Individual Abstract Number: 1205
Understanding complexity: connective tissue variants (hypermobility) link neurodivergence to bipolar disorder

Emily Bucknill, BSc, Brighton & Sussex Medical School, Lisa Quadt, PhD, Brighton and Sussex Medical School, Hugo Critchley, PhD, MD, Brighton and Sussex Medical School, Jessica Eccles, PhD, MD, University of Sussex

Background

Neurodivergence describes neurodevelopmental conditions such as attention deficit hyperactivity disorder (ADHD), autism, and Tourette syndrome. Previous studies have established a connection between joint hypermobility (JH) and ADHD, autism and bipolar disorder (BD). However, there is a paucity of available studies describing the relationship of multiple neurodivergent conditions with BD, and the role of JH. This case-control study investigated the relationship between BD, and ADHD and autism, and whether this relationship was mediated by higher rates of JH.

Methods

Data was collected from 54 participants without BD and 52 participants with BD, and the two groups were compared. Screening instruments included the Wender Utah Rating Scale (WURS) for ADHD, the Ritvo Autism Asperger Diagnostic Scale (RAADS-R) for autism and a 5-item questionnaire for JH. X^2 and t-tests were performed to establish group differences. Subsequently, odds ratios were calculated via logistic regression. A mediation analysis was performed to determine whether the relationship between BD and neurodivergence was mediated by JH and was conducted according to the method of Hayes.

Outcomes

The rates of likely autism, ADHD and JH were greater in the BD group (84.6%, 65.4% and 55.8% respectively) than observed in the comparison group (22.2%, 3.7% and 18.5% respectively). The odds of having a diagnosis of BD was 18.189 (CI 95% = 6.703, 49.407) times greater in those likely autistic, 46.888 (95% CI = 9.96, 220.737) times greater for

those with likely ADHD and 5.111 (95% CI = 2.10, 12.44) times greater in those meeting the screening criteria for JH. Mediation analysis showed that JH mediated the relationship between neurodivergence and BD in this study (indirect effect: b = 0.368, 95% CI = 0.038, 1.336).

Interpretation

This study demonstrates a relationship between neurodivergence and BD, which was mediated by JH. There should be a greater degree of suspicion for a diagnosis of JH and neurodivergence in patients with BD. Additionally, routine screening and awareness of these associations may streamline early access to personalised, appropriate care and diagnosis, allowing an improved quality of life.

Individual Abstract Number: 1206
ADHD and emotion processing
Sarah Garfinkel, PhD, University College London, Benedict Greenwood, MSc, University College London
Attention Deficit Hyperactivity Disorder (ADHD) is typically conceptualized using features pertaining to attention, such as increased distractibility and capacity to hyperfocus, and/or hyperactive traits. In addition, ADHD individuals and those with high ADHD traits also display changes in emotion-based processing. This talk will focus on the emotion presentation of individuals with high ADHD traits, where increases in depressive and anxious symptomatology are commonly displayed. In addition, ADHD is associated with elevated rejection sensitivity dysphoria, manifesting as heightened emotional reactions to negative judgements, exclusion or criticism. Finally, empirical research detailing cognition and emotion interactions will demonstrate how apparent changes in attentional processing may be driven, in part, by altered and/or augmented emotional responses. Together this research suggests that elevated emotional reactivity may be a core feature of ADHD with broad implications for shaping cognition and behaviour.

Symposium 840
Thursday 3/21/24 11:30-12:30

Equity and Antiracism: A Panel on Bridging Theory to Practice Across Academia and Healthcare
Yvette Szabo, PhD, California State University, Los Angeles
It is well recognized that marginalized and minoritized racial groups experience disparities in access to quality healthcare, both in the US and abroad. In the wake of the COVID-19 pandemic, there have been renewed calls to action to reduce racial health disparities by dismantling oppressive systems and approaching research and training from an antiracism and multicultural lens. This panel brings together scholars across academia, medicine and healthcare to discuss their experiences engaging in health equity work from an antiracist lens. The panel format will include introductions from the panelists focused on how their work relates to the topic, a moderated discussion on common themes that bridge speakers, then a facilitated discussion with the audience. Gaurish Chawla, PhD is a medical doctor and sociologist. He will describe key findings from an antiracist medical practice conference on the status of antiracist work in medical education, including changes in working conditions and curricula.
Briana Mezuk, PhD is a social epidemiologist. She leads programs that train early-career investigators to conduct interdisciplinary biopsychosocial research that addresses minority health and health disparities. Her presentation will reflect on the challenges of bridging disciplines which vary in their approach, emphasis, and language for addressing racial disparities in health.

Melanie Sabado-Liwag, PhD, MPH is a health promotion scientist. Her presentation will reflect on her ongoing work using community-based approaches, working alongside communities of color and marginalized groups to develop evidence-based, culturally-tailored health promotion strategies.
Ulla McKnight, PhD is a sociologist. Her presentation will focus on global issues related to inequitable access to HIV and sexual health care in the UK as well as differences in how race and racism may manifest in the US and UK.
This panel directly relates to the annual meeting topic by encouraging panelists to discuss how their work incorporates the role of structural determinants of health and historical context. Ensuring that local perspectives are highlighted at the annual meeting, two panelists are from Brighton. Further, this panel integrates previous meeting feedback requesting opportunities to engage in discussion and to build a community of scholars centered around health equity.

Individual Abstract Number: 1191
Antiracist Practice in Medical Education: An institutional intervention
Gaurish Chawla, PhD, Brighton and Sussex Medical School
Gaurish Chawla is a Senior Lecturer at Brighton and Sussex Medical School where he also chairs the school's staff Equality and Diversity Committee. Gaurish has convened the Anti Racist Practice in Medical Education Conference in 2021 and 2022. The conferences have attracted international audiences and aimed to connect colleagues working to foster Anti Racist Practice within Institutions. Gaurish's focus in this area is on devising and implementing institutional interventions that can align with aims of anti-racist practice for three key domains of higher education institutions: Curriculum design and management, Staff Belonging and Engagement and Cultural Embedding of Improvement. In this presentation, he will share reflections from his work to inform the audience about the enablers and barriers to anti racist practice in Medical Education. This will include reflecting on organizing the Conference as an 'anti racist intervention', and reflecting on theoretical underpinnings of praxis.

Individual Abstract Number: 1193
Community Considerations for Health Equity and Research: Chronicles from Asian American and Pacific Islander Projects
Melanie Sabado-Liwag, PhD, MPH, California State University, Los Angeles
The COVID-19 pandemic has disproportionately impacted Asian Americans and Pacific Islanders (AAPIs), exacerbated existing health disparities, and increased public recognition of racism as a structural determinant of health. Social unrest during the pandemic, the homogenizing of AAPI populations in US nationally representative data, and a rise in racially motivated hate crimes collectively stimulated calls for community-led efforts to disaggregate AAPI sub-ethnic groups and promote equitable allocation of COVID-19 resources. Little is known, however, about the mental health status of sub-AAPI groups and their experiences with racism at the structural (e.g. policies, institutional practices, cultural norms), interpersonal (e.g. personally mediated, overt racism), and intrapersonal levels (e.g. colorism, internalized). The focus of this panel presentation will be reflecting on ongoing efforts to further understanding these domains using community-based and community-centric strategies. We will also discuss actions towards supporting data disaggregation collection and dissemination efforts to include information on racial discrimination and on the use and availability of mental health services among sub-ethnic groups. Inviting community input and partnerships will further facilitate proper funding for

community organizations, promote higher quality mental health care and increase capacity for community-driven initiatives that promote nondiscrimination and mental health equity, particularly among all Asians and Pacific Islanders.

Individual Abstract Number: 1192
Disciplinary Intersections as Forums for Minority Health and Health Equity Research
Briana Mezuk, PhD, University of Michigan
"Interdisciplinary team science" has been touted as critical to advancing innovative approaches to complex problems, including those related to health inequities. Challenges to interdisciplinary science include differences in jargon and norms, as well as theoretical frameworks and how scientific "rigor" is operationalized and evaluated. However, disciplines do not just vary in their jargon and methodology - they also vary in their assumptions, emphasis, and relative "call to action" to address racial disparities in health. This session will discuss two examples of efforts to promote interdisciplinary team science that addresses health inequities at the University of Michigan: the Michigan Integrative Well-Being and Inequality (MIWI) Training Program, and the Michigan Center for Urban African American Aging Research (MCUAAAR). Both use Engel's biopsychosocial model as a framework for identifying disciplinary assumptions and promoting meaningful collaboration in minority health and health equity research.

Individual Abstract Number: 1194
Racialised Impediments to Providing and Receiving Specialist Maternal Health Care in England
Ulla McKnight, PhD, University of Sussex
Upfront charging for antenatal care in England often means migrant women with complex healthcare needs access care significantly later in their pregnancies than is recommended, even avoiding antenatal care altogether, for fear of bills and deportation. The consequences of delayed engagement with antenatal services are particularly acute in high risk pregnancies that require early and consistent specialist antenatal care, e.g. for those with maternal hypertensive disorders (MHDs) and HIV – conditions which disproportionately affect ethnic minority women and increase the chances of a pregnant person needing a caesarean section (in turn increasing the risk of surgical site infections that may drive antimicrobial resistance (AMR). Drawing on her research in her roles as part of the University of Sussex's Ethnicity, Race and Diverse Societies Research Network and the Centre for Cultures of Reproduction, Technologies and Health, Dr. McKnight will discuss racialised impediments to accessing and providing specialist maternity care (some parts of which may be free of charge) to Black and minority ethnic migrant cis women living with HIV and/or at risk of developing MHDs. The talk contributes to understandings of disease by showing how race and racism are part of disease even when they are seemingly absent and this has important effects on the experience of illness and on efforts to prevent vertical transmission of HIV, reduce racialised health inequalities and mitigate the risks of AMR. In her presentation, Dr. McKnight will also reflect on the way in which the use of race/ethnicity as a marker of vulnerability to infection and increased morbidity in the UK is influenced by research on Africans Americans in the US.

Symposium 951
Thursday 3/21/24 1:45-2:45

Complex Chronic Stress and Traumatic Exposures of Middle Eastern and North African (MENA) Populations:

From Health Systems to Refugee and Immigrant Biological and Mental Health Outcomes
Layla Banihashemi, Ph.D., University of Pittsburgh, Dept. of Psychiatry
The Middle Eastern and North African (MENA) region continues to face urgent sociopolitical crises that encompass a complex layering of chronic stress and traumatic exposures. These include gender apartheid, discrimination/persecution of ethnic, religious, and sexual and gender minorities, religious trauma, armed conflicts, and obstructed humanitarian aid. Some MENA countries face extreme repression of rights to freedom, including free speech, artistic expression, and peaceful assembly, with detention, forcible rehabilitation, arrests, unconventional weaponry and potential torture exposure. Standard stress and trauma-related measures do not capture many of these experiences, thus, the relationships between such exposures and health outcomes, and their underlying mechanisms, are understudied. An emerging literature indicates relations among cumulative trauma exposures and/or acculturation stress, emotion reactivity-evoked neural responses, and affective and trauma-related disorders in MENA refugees and immigrants.
An enhanced understanding of MENA health systems and mechanisms underlying links between MENA-specific chronic stress and trauma exposures and risks for, or resilience against, physical and mental health disorders will provide novel targets for intervention. We share new data in: 1) a large, longitudinal Northwest Syrian population investigating conflict exposure (e.g., bombardments, civilian attacks) and its impact on health services utilization, with a focus on health system strengthening via community-oriented approaches, 2) a longitudinal sample of MENA refugee youth and adults resettled in the U.S. examining cumulative trauma exposure, biological indicators of posttraumatic stress, anxiety, and somatic symptoms, post-migration environmental influences, and implications for community-based interventions, and 3) a MENA refugee and immigrant mother-offspring sample examining maternal psychosocial stress and telomere length in both mother and offspring. Thus, we highlight novel data across three studies with evidence of the contributions of MENA-specific trauma exposures, related physiological responses and acculturative stress to health systems, and biological and mental health outcomes contributing to lifespan health and aging-related diseases.

Individual Abstract Number: 1012
Physiological and Immune Processes Impacting Mental and Physical Health in Adults and Youth Resettled as Refugees
Lana Grasser, Ph.D., Wayne State University School of Medicine
Background: Exposure to stress and trauma activates key adaptive pathways, including the sympathetic adrenomedullary system and the immune system, which can result in long-term health impacts of trauma especially when experienced during sensitive developmental periods. Alterations in these systems are measurable through non-invasive methods including skin conductance response (SCR), fear potentiated startle (FPS), and inflammation. Further, somatic symptoms are important contributors to psychological distress and dysfunction. Adrenomedullary and immune responses to stress and trauma may become maladaptive in the context of trauma-related psychopathology and link severity of psychopathology with somatic symptoms We aimed to determine the relation between severity of trauma related psychopathology and somatic symptoms in persons resettled as refugees, investigate underlying biological mechanisms, and provide extensions to treatment.

Methods: n=81 Middle Eastern/North African (MENA) adults (43F, M_{age}=38.11 years) and n=71 youth (35 females, M_{age}=12.7 years) were assessed at initial arrival and 2 years following resettlement in southeast Michigan from Syria or Iraq. Participants completed self-report assessments of trauma exposure, posttraumatic stress, anxiety, depression, and somatic symptoms.

Results: In adults, somatic symptoms were significantly correlated with current, total PTSD, anxiety, and depression symptoms (rs>.60, ps<.001), Levels of pro inflammatory IL18 and CRP did not explain any additional variance in somatic symptoms. In youth, Trauma exposure was significantly associated with SCR to trauma interview, R^2 = .084, p = .042. SCR to trauma interview was positively correlated with reexperiencing (R^2 = .127, p =.028), and hyperarousal symptoms (R^2 = .123, p = .048). FPS to both threat and safety cues was associated with greater trauma exposure, and individuals with probable PTSD failed to extinguish learned fear compared to those without (F=6.25, p=.015).

Conclusion: Our findings highlight how multiple biological systems are reconfigured following exposure to trauma, the implications for psychopathology, and the need to operationalize treatments that concurrently target physical and mental health, like trauma-informed yoga and somatic movement therapies.

Individual Abstract Number: 1018
Conflict Affected Populations in Syria: from Displacement, Utlisation of Health Services, Attacks on Healthcare, and Physical and Mental Health Outcomes to Locally Informed Health System Interventions
Abdulkarim Ekzayez, MD, PhD, King's College London
This presentation will summarize a number of research studies that have been conducted concerning the conflict-affected population in Syria, with an emphasis on Internally Displaced Persons (IDPs). An extended longitudinal study explored the impact of conflict incidents on the utilisation of health services, demonstrating negative repercussions on health-seeking behaviour and an increase in the rate of caesarean sections. Another study investigated the impact of attacks on healthcare, which were found to have a direct link to community resilience. The prevalence of suicide and drug abuse, both highly prevalent negative manifestations of mental health issues, were studied in Syria using media analysis and households surveys. Furthermore, community engagement interventions to limit the impact of the COVID-19 pandemic upon this population have been documented to extract lessons to be learnt. In order to bring all of this evidence together, we started an umbrella project on strengthening local health systems in Syria called "Research for Health System Strengthening in Syria." We have been further exploring community participatory approaches, culturally-oriented and faith-based interventions for mental health, and system approaches for local health governance.

Individual Abstract Number: 1083
Psychosocial Factors and Telomere Length among Parents and Infants of immigrant Middle Eastern and North African (MENA) Families
Dalia Khalil, PhD, Wayne State University
Background: Immigrant Arab American families face multiple stressors related to migration and resettlement. Telomere length (TL) is an established biomarker of aging and psychosocial stress. No published studies have concurrently examined the association between maternal and paternal psychosocial factors and infants' TL. The purpose of this study was to 1) compare mother, father, and infant TLs; 2) explore the association of maternal and paternal psychosocial factors

(acculturative stress and depressive symptoms) with maternal and paternal TL, and 3) explore the association of maternal and paternal psychosocial factors with infants' TL among Arab American immigrants. **Method**: Using a cross-sectional exploratory design, a sample of 52 immigrant Arab American mother-father-infant triads were recruited from community centers. Data were collected in a single home visit when the infant was 6-24 months old. Each parent completed the study questionnaires addressing their psychosocial factors (acculturative stress, and depressive symptoms), then parents and infants provided buccal cell for TL measurement. **Results**: Maternal TL was positively correlated to infants' TL (r = .31, p = .04) and was significantly shorter (p < .001). Paternal TL was not correlated with infant TL but was significantly shorter than infant's TL (p < .001). Maternal depression was significantly correlated with mothers' TL (r = .4, p =.007). Higher levels of maternal depressive symptoms were significantly associated with shorter infant TL when controlling for background characteristics. **Conclusions**: Our pilot study is the first study to examine maternal and paternal psychosocial factors related to migration and infants' TL. More research is needed to advance our understanding of the effects of immigration on the intergenerational transfer of stress and trauma.

Symposium 829
Thursday 3/21/24 3:00-4:00

Getting the right treatments to the right patients at the right time: Biopsychsocial approaches to postsurgical pain management across the lifespan
Max Slepian, PhD, University Health Network
Background: Chronic postsurgical pain (CPSP) is a common and complex phenomenon that can significantly impact patients' recovery and overall well-being. The interplay between psychological factors and CPSP is increasingly recognised across the lifespan and several interventions have been developed.
Objective: This symposium discusses the latest findings linking CPSP with biopsychosocial factors and related interventions across the lifespan. The speakers will present recent research findings, discuss theoretical models, and explore potential clinical implications to enhance patients' pain coping and optimise surgical outcomes.
Our symposium will consist of three presentations focusing on issues specific to various age groups:
Presentation 1: The link between psychological profiles and chronic postsurgical pain in older adults - evidence and challenges.
Presentation 2: New developments and overcoming barriers in psychological and multidisciplinary management of postsurgical pain.
Presentation 3: Identification of youth at risk of developing chronic postsurgical pain and an exploration of psychological interventions for the prevention and management of pediatric perioperative pain.
Conclusion: There is a host of evidence linking biopsychosocial factors with increased vulnerability to CPSP and poor surgical outcomes across the lifespan, and several promising treatment avenues have been explored. This symposium aims to stimulate discussions among researchers, clinicians, and policymakers, fostering collaborations to improve pain management strategies and patient outcomes.

Individual Abstract Number: 1015
The link between psychological profiles and chronic postsurgical pain in older adults - evidence and challenges
Nils Niederstrasser, PhD, University of Portsmouth

Chronic postsurgical pain (CPSP) is a complex and multifaceted phenomenon influenced by a combination of biological, psychological, and social factors. Up to 30% of patients undergoing knee or hip replacement surgery develop increased pain and disability, despite objective indicators of surgical success. Several risk and protective factors have been suggested to influence individuals' experiences of CPSP. Understanding these factors is crucial when developing effective pain management strategies and improving patient outcomes.

Dr. Niederstrasser will discuss the role of presurgical psychological profiles (PSPP) in affecting the recovery process from arthroplasty. Drawing on the Fear Avoidance model, he will describe how fear-related avoidance of painful situations can lead to physical and psychological deconditioning. This decline can lead to further pain and disability, which, in turn, reinforce fear and avoidance behaviours, perpetuating the cycle. Further, Dr. Niederstrasser will focus on disentangling the considerable heterogeneity in the evidence linking PSPP with postsurgical outcomes, which may stem from selective reporting and questionable research practices.

Drawing on results from a p-curve analysis, Dr. Niederstrasser will establish the presence of evidential value for the effect of PSPP on pain intensity and function. A p-curve analysis is a statistical technique used to assess the evidential value of a set of studies by analysing the distribution of p-values from those studies. It can be used to determine whether there is genuine evidence of an effect or whether the effect is the result of questionable research practices, such as p-hacking.

Age is another risk factor for CPSP and adverse outcomes following surgery. Arthroplasty disproportionately affects older adults, who are already at increased risk of negative health outcomes, such as frailty and pain, even before surgery. Dr. Niederstrasser will present results from two longitudinal studies linking a lack of physical activity and other socioeconomic and psychological factors with an increased risk of pain and frailty among older people, suggesting that further reductions in physical activity following surgery may increase the risk of adverse surgical outcomes.

Individual Abstract Number: 1251
New developments and overcoming barriers in psychological and multidisciplinary management of postsurgical pain
Max Slepian, PhD, University Health Network
Chronic postsurgical pain (CPSP) affects more than a billion people worldwide, occurs in 10-70% of patients depending on surgical procedure, and is responsible for approximately 25% of referrals to chronic pain clinics. The adoption of the biopsychosocial model has greatly improved identification of risk factors for chronic postsurgical pain and expanded the opportunities for nonpharmacological and multidisciplinary intervention. Dr. Slepian will review evidence from two recently published longitudinal studies that identified a novel risk factor, distress over bodily symptoms, and a novel protective factor, autobiographical memory specificity. In a large prospective study of individuals undergoing cardiac and thoracic surgery, distress over bodily symptoms was associated with greater odds of severe pain and pain interference 6 months after surgery. Alternatively, individuals who were able to generate specific memories about pain prior to major surgery were less likely to have pain up to one year after major surgery. However, how does this knowledge inform development of effective interventions to prevent and mitigate chronic postsurgical pain? The current state of the evidence for psychological interventions for postsurgical pain management in adults will be reviewed and the development of novel psychological treatments to prevent CPSP based on identified risk and protective factors will be discussed. The translation of

this knowledge into practice requires the development of new models of health service delivery. The Transitional Pain Service (TPS) at Toronto General Hospital is a multidisciplinary program designed to target risk factors for CPSP using psychological, physical, and pharmacological interventions delivered during the perioperative period. Dr. Slepian will review the mechanisms of the program and evidence in support of the model. Participation in the TPS was associated with reductions in pain, pain interference, pain catastrophizing, anxiety, and depressed mood over the first six months after surgery. Moreover, half of opioid naïve and 25% of opioid experienced patients were fully weaned off opioids in the same time frame. However, significant barriers exist to the widespread adoption of the TPS model. Strategies to address these barriers, including no-contact interventions and knowledge dissemination activities, will be presented.

Individual Abstract Number: 1253
Evaluating risk factors and treatment targets of pediatric perioperative pain
Brittany Rosenbloom, PhD, Women's College Hospital
Approximately 20% of youth undergoing surgery develop chronic postsurgical pain (CPSP). Growing evidence from surgical populations identify psychosocial factors, such as anxiety and low mood, as driving forces for poor pain outcomes. Psychosocial assessment during presurgical or acute pain periods can inform early intervention and treatment to improve pain outcomes. Dr. Rosenbloom will discuss the early phases of the co-development of a presurgical screening measure for risk of pediatric CPSP. The use of a validated screening measure will identify youth at risk of developing CPSP who require intervention earlier in their surgical journey. As psychosocial factors play a role in the prediction of CPSP, psychosocial interventions are essential for the management of acute and CPSP and distress. Psychological interventions (e.g., acceptance and commitment therapy) delivered to adult patients undergoing surgery are efficacious in the prevention and treatment of perioperative pain. Dr. Rosenbloom will review the results from a meta-analysis looking at 29 trials on psychosocial pain interventions for children and adolescents undergoing surgery. Different from adult interventions, pediatric interventions to date focus on specific skill building (e.g., distraction, relaxation, hypnosis, education) rather than an evidence-based psychological treatment intervention (e.g., cognitive behavioural therapy). Distraction was the only strategy effective for reducing self-reported pain 24 hours after surgery. There were not enough studies to perform meta-analyses on psychological interventions for follow-up time points at one week, one month, or three months after surgery. For pediatric patients, parental involvement is an important consideration in youth pain outcome. Dr. Rosenbloom will discuss the interpersonal fear avoidance model of chronic pain that has been adapted for surgery and the role that caregivers and siblings play in the development and maintenance of CPSP. This is critical to consider in the development of novel, evidence-based pain psychology interventions for youth undergoing surgery. Dr. Rosenbloom will draw from a qualitative study evaluating multi-stakeholder (youth, caregivers, healthcare professionals) perspectives to discuss the development of psychological services within the context of surgery.

Symposium 780
Thursday 3/21/24 3:00-4:00

Methodological and Measurement Considerations and Innovations in Aging Biomarkers

Rebecca G. Reed, PhD, University of Pittsburgh
Psychosocial and environmental risk factors may accelerate *biological* aging, placing individuals at increased risk for age-related diseases. A greater understanding of these biological aging mechanisms may provide new insights into *how* biopsychosocial factors affect health. Critically, however, there are important yet understudied methodological and measurement issues to consider about aging biomarkers, such as their temporal stability, other reliability indicators, and validity. The **purpose** of this symposium is to advance methodology in the study of aging biomarkers by showcasing findings that illustrate key methodological and measurement considerations when examining inflammation, epigenetic aging, and mitochondrial biology in the context of biopsychosocial aging research. The **first** presentation leverages repeated measures data to examine the temporal stability and inter-relationships among basal and stimulated cytokines in older adults; findings illustrate different patterns of stability across inflammatory measures and potential implications for health. The **second** presentation showcases a method to increase the reliability of epigenetic clocks and demonstrates the added benefit of this method to assess epigenetic aging in longitudinal and interventional studies. The **third** presentation provides an expert review of five ways to quantify mitochondrial biology in biopsychosocial aging research and incorporates key methodological considerations and recommendations throughout. The **fourth** presentation highlights the reliability, validity, and participant acceptability of dried blood spot-based inflammatory markers using remote (at-home) versus in-person, lab-based collection methods in older adults. The **discussant**, a scientist with expertise in biomarkers of aging, will share her insights and discuss future directions in investigating biomarkers of accelerated aging as potential mechanisms linking psychosocial and environmental factors to health. Together, the presentations will stimulate discussion of interest to scientists who want to incorporate or interpret aging biomarkers in their research or who rely on aging biomarker research to inform hypotheses and/or translational applications.

Individual Abstract Number: 784
Inflammatory Biomarkers in Older Adults: Stability, Correlations, and Components
Christopher G. Engeland, PhD, Department of Biobehavioral Health & Center for Healthy Aging, The Pennsylvania State University, Molly A. Wright, BS, Department of Biobehavioral Health, The Pennsylvania State University, Robert L. Tennyson , PhD, Center for Healthy Aging, The Pennsylvania State University; University of Washington , Erik L. Knight, PhD, Department of Psychology and Neuroscience, University of Colorado Boulder , Jennifer E. Graham-Engeland, PhD, Department of Biobehavioral Health & Center for Healthy Aging, The Pennsylvania State University
Background. Basal and stimulated inflammatory cytokines are thought to provide important, complementary insights into immune function in older adults. However, it is unclear how stable these markers are over time, how their stability connects to healthy aging, and how these markers inter-relate. **Methods.** We examined these issues in 227 participants from the Einstein Aging Study [ages: 70-90 (Mean=76.7), 67% women] across two blood draws obtained ~2 weeks apart. Temporal stability was assessed by intra-class coefficients (ICCs) obtained from linear mixed models (controlling for days between measurements, age, gender) for basal and lipopolysaccharide (LPS)-stimulated cytokines [*ex vivo*] (interleukin [IL]-1β, IL-4, IL-6, IL-8, IL-10, tumor necrosis factor [TNF]-α). Sensitivity analyses compared ICCs across genders and individuals reporting high vs. low subjective health. **Results.** Basal cytokines did not generally correlate

with stimulated cytokines, indicating that these measures are independent and represent unique aspects of inflammation. Temporal stability across the two timepoints was assessed next. A composite measure of *basal* cytokines exhibited strong reliability (ICC: 0.854), and individual *basal* cytokines exhibited moderate (>0.5) to very high reliability (>0.9). Conversely, a composite measure of *stimulated* cytokines demonstrated moderate reliability (ICC: 0.552), with individual *stimulated* cytokines having only low (<0.5) to moderate reliability. Initial examinations of the principal components (PCs) of these measures demonstrated similar patterns: The first two PCs of *basal* cytokines showed very high (PC1) and strong (PC2) reliability across timepoints, whereas the first two PCs of *stimulated* cytokines showed low reliability. Individuals reporting low (ICC: 0.457) vs. high (ICC: 0.631) subjective health exhibited considerably lower reliability for the stimulated composite measure. No appreciable differences were observed by gender. **Conclusions.** Basal cytokines exhibited moderate to high stability, whereas stimulated cytokines had relatively low stability, across two weeks. Given that individuals reporting lower subjective health demonstrated greater variability in stimulated cytokines, higher fluctuations in inflammatory responsivity may reflect suboptimal health in older adults. Other points of consideration for biomarker analyses will be discussed.

Individual Abstract Number: 788
Adapting Epigenetic Clocks for Longitudinal and Interventional Studies
Albert Higgins-Chen, PhD, Department of Psychiatry, Yale University
Background: A variety of aging biomarkers have been proposed that change with age, predict long-term morbidity and mortality, and reflect risk factors for pathological aging. Longitudinal measurements of aging biomarkers are necessary to understand the dynamic nature of aging, determine the causes and consequences of aging biomarker changes, and assess whether aging biomarkers reflect the efficacy of geroscience interventions to promote healthy aging. Epigenetic clocks based on DNA methylation are some of the most studied and utilized aging biomarkers, as widespread data availability and standardized technology make it convenient to develop and validate epigenetic clocks across many populations. However, reliability and stability issues may limit the use of epigenetic clocks in increasingly common longitudinal studies.
Methods: Existing epigenetic clocks (Horvath pan-tissue, Horvath skin-and-blood, Hannum, PhenoAge, DNAmTL, and GrimAge) were compared to novel clocks built using principal components as input to elastic net regression, trained using similar data as the originals. DNA methylation data from technical replicates, aging cohorts, in vivo and in vitro longitudinal samples, and interventional studies were used to compare these clocks.
Results: Commonly used epigenetic clocks can differ between replicates up to 3 to 9 years depending on the clock used. Principal component (PC)-based clocks differ only up to 0.5 to 1.5 years between replicates and show improved intraclass correlation coefficients. However, they preserve the phenotypic associations of the original clocks including mortality prediction. We demonstrate that more stable longitudinal trajectories increase power for detection of intervention effects and help mitigate the possibility of false positive and false negative results due to noise. We also report that these clocks have similar associations with psychiatric conditions as the originals but are better able to detect the longitudinal effects of stress and psychiatric medications.
Conclusion: High-reliability epigenetic clocks show promise for longitudinal and interventional studies, and it is important to

assess reliability and stability for all putative aging biomarkers. New methods are needed to interpret the biological implications of a longitudinal change in an aging biomarker.

Individual Abstract Number: 967
Mapping Age-related Changes in Human Mitochondrial Psychobiology

Caroline Trumpff, PhD, Division of Behavioral Medicine, Department of Psychiatry, Columbia University Irving Medical Center, Anna S. Monzel, PhD, Division of Behavioral Medicine, Department of Psychiatry, Columbia University Irving Medical Center, Martin Picard, PhD, Division of Behavioral Medicine & Department of Neurology, Columbia University Irving Medical Center

Background. Psychosocial factors including social support and chronic stress influence health trajectories and biological aging, but the underlying processes are not fully understood. Both aging biology and psychobiological processes are directly linked to cellular energetics. In humans and other animals, energy is transformed within mitochondria, small intracellular organelles that dynamically communicate with the (epi)genome within the nucleus and release signals of adaptation throughout the organism. Here we discuss methodological and practical considerations to investigate mitochondria in psychobiology and aging research.
Methods. We provide a narrative review of the literature and an update on recent methodological and technical innovations in mitochondrial psychobiology.
Results. Unlike inert molecular markers traditionally used in biomedicine (cytokines, hormones, DNA-related measurements), mitochondria are dynamic, living micro-organisms, requiring a unique set of approaches to quantify their many functions. We outline five main ways to quantify mitochondrial "health", presented from the most complex to the simplest. First, freshly collected cells from blood or other tissues can be harvested and used for dynamic measures of mitochondrial *behaviors* and *functions*, including but not limited to respiration. Second, molecular omics-based approaches including gene expression and proteomics can be deployed to construct *mitochondrial phenotype (mitotype) profiles*, reflecting mitochondrial specialization. Third, specific cell types or tissues can be stored frozen to later measure proxies of energy transformation capacity or other enzyme activities. Fourth, specific *molecular features* (proteins, DNA damage) and context-dependent characteristics such as mitochondrial DNA copy number (mtDNAcn) can be assayed also from frozen samples. Fifth, circulating *markers of mitochondrial signaling*, such as cell-free mitochondrial DNA (cf-mtDNA), metabolites (lactate), or indirect metabolic stress markers (GDF15) can be assayed from any properly-collected, frozen biofluid.
Conclusions. Several new approaches are becoming available to profile different domains of mitochondrial biology across human cells, tissues, and biofluids, including from publicly-available omics datasets, allowing us to study the contribution of changes in mitochondrial health to aging trajectories.

Individual Abstract Number: 971
Inflammatory Cytokines in Older Adults' Dried Blood Spots: Reliability, Validity, and Acceptability of Remote vs. In-Person Data Collection
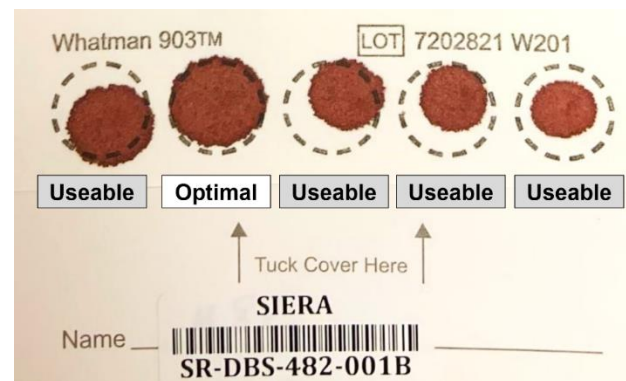
Rebecca G. Reed, PhD, Department of Psychology, University of Pittsburgh, Abby R. Hillmann, MS, Department of Psychology, University of Pittsburgh, Maegan Nation, BS, Department of Psychology, University of Nevada, Las Vegas, Shay Braksator, BS, Illinois School of Professional Psychology, Kirby Sigler, MS, Department of Psychology, University of Pittsburgh

Background: Dried blood spots (DBS) provide a minimally invasive method to assess aging biomarkers, including inflammation and DNA methylation. DBS can be collected remotely (at-home) or in-person in the lab, but there is a lack of methodological information comparing these collection methods. We investigated the reliability, validity, and acceptability of remote vs. in-person DBS collection for inflammatory cytokines.
Method: A subset of older adults (N=41, mean age=74 yrs, range=65-96, 61% male) from the Stress, Immunity, and Emotion Regulation in Aging Study completed both remote (via Zoom videoconference) and lab-based in-person DBS collection within ~1 week of each other (mean=4.5 days, SD=7.7). Participants were instructed how to collect their own DBS during the remote assessment, and a trained researcher collected participants' DBS at the in-person visit. DBS were rated for quality, i.e. number of *optimal* spots (~70uL of blood that filled the entire circle) and number of *useable* spots (~30-40uL of blood) (Fig), and assayed for CRP, IL-6, and TNF-α. The in-person visit also included a venous blood draw to assess CRP, IL-6, and TNF-α, and a survey to assess acceptability of remote vs. in-person DBS collection.
Results: Significantly fewer *optimal* DBS were obtained during the remote (M=3.05, SD=1.66) vs. in-person (M=3.83, SD=1.5) assessment, $t[40]=2.57$, $p=.013$; however, the number of *useable or better* DBS did not significantly differ between remote (M=5.07, SD=0.91) and in-person (M=5.05, SD=0.63), $t[40]=0.14$, $p=.89$. In addition, remote and in-person DBS cytokine levels were moderately to highly correlated (CRP, $r=.75$; IL-6, $r=.68$; TNF-α, $r=.45$ and $r=.71$ without two outliers). DBS cytokines also highly correlated with "gold-standard" venous blood cytokines: CRP, $r=.99$; IL-6, $r=.69$ and $r=.81$ without one outlier; TNF-α, $r=.45$ and $r=.60$ without two outliers. A slight majority of participants (54%) preferred the in-person DBS collection; the remaining preferred remote collection (10%) or had no preference (36%).
Conclusion: Older adults can remotely collect their own DBS to acquire reliable and valid inflammatory data. Acceptability of remote DBS is adequate. Remote DBS data collection is highly feasible and may allow for aging biomarkers to be assessed in larger, more representative samples than are possible with lab- or clinic-based research designs.

Symposium 799
Thursday 3/21/24 3:00-4:00

Biological, Psychosocial, and Contextual Factors Influencing the Link between Discrimination and Well-Being Across Adulthood

Carrington C. Merritt, MA, University of North Carolina at Chapel Hill

Discrimination is an established psychosocial stressor that has been shown to negatively impact multiple facets of well-being for Black Americans, including psychological functioning and physical health. However, the link between experiences of discrimination and poorer well-being does not occur in a vacuum. Rather, several risk and resilience factors may exacerbate or buffer the influence of discrimination on well-being. Examining potential risk and resilience factors can help identify relevant structural and individual intervention targets that could help reduce the burden of discriminatory experiences on the well-being of Black Americans. As such, presentations in this symposium will highlight important new findings on psychosocial, biological, and contextual factors influencing the link between discrimination and various indices of well-being (e.g., mental health symptoms, chronic disease, inflammation) among Black Americans at different stages of adulthood. The first presentation will showcase research on the role of neighborhood social capital and social support as moderators of the relationship between racial discrimination and schizotypy within a sample of young Black adults in the U.S. The second presentation will explore inflammation as a mechanism linking experiences of discrimination to chronic disease among midlife Black Americans, and whether greater perceived control may disrupt this link. The third presentation will feature findings showing how systemic lupus erythematosus, an auto-immune disease that disproportionately affects Black American women, exacerbates the link between discrimination and elevated atherosclerotic plaque, an indicator of biological aging and cardiovascular disease risk. The final presentation will investigate life course stage as a moderator of the association between gendered racial microaggressions and depression and anxiety symptoms among Black American women. The session will close with a discussion of next steps for this area of research, and implications of the work for efforts to address the adverse effects of discrimination on the well-being of Black adults. Ultimately, this symposium will expand attendees' knowledge of multiple factors that operate at varying levels (biological, psychosocial, and contextual) to shape the ways discriminatory experiences may impact the health and well-being of Black Americans.

Individual Abstract Number: 800
Managing Adversity: Do Neighborhood and Social Factors Affect the Relationship between Racial Discrimination and Multidimensional Schizotypy?
Mahogany A. Monette, MS, Indiana University-Purdue University Indianapolis, Kyle S. Minor, PhD, Indiana University–Purdue University Indianapolis, Thomas R. Kwapil, PhD, University of Illinois at Urbana-Champaign
BACKGROUND: Racial discrimination is a risk factor for a number of negative mental and physical health outcomes, including schizophrenia-spectrum disorders, for Black Americans. However, not everyone who experiences discrimination is at heightened risk for poor well-being. Indeed, prior research has shown that social support and neighborhood cohesion can buffer the impacts of discrimination on health. However, to our knowledge, no known research has investigated these contextual protective factors in the context of schizotypy. To address this gap, the current study examined the role of perceived neighborhood social capital and social support as moderators of the relationship between racial discrimination and multidimensional schizotypy among Black adults.
METHODS: Participants recruited Black adults on the Prolific platform (N = 153, M_{age} = 36.16, SD = 11.12). Perceived racial discrimination. Experiences of racial discrimination, multidimensional schizotypy, perceived social support, neighborhood cohesion, and interactions with neighbors were

assessed using self-report. The interaction effect of social support and neighborhood social interactions and discrimination on multidimensional schizotypy was assessed via linear regression, with age and gender as covariates.
RESULTS: Daily experiences of racial discrimination exhibited small, positive correlations with positive and disorganized schizotypy. Perceived social support had small to medium, negative correlations with all three dimensions of schizotypy. All other psychosocial variables were non-significant. When entered together, perceived social support did not moderate the relationship between daily racial discrimination and multidimensional schizotypy.
CONCLUSION: Although perceived social support and neighborhood perception have previously been shown to buffer against the adverse health effects of racial discrimination, our findings suggest that this relationship may not persist for the schizophrenia spectrum. This study highlights the need to examine potential protective factors in the relationship between racial discrimination and multidimensional schizotypy for Black adults.

Individual Abstract Number: 1005
Black Americans' Perceptions of Control Protect Against Inflammation-Mediated Link between Discrimination and Chronic Disease
Carrington C. Merritt, MA, University of North Carolina at Chapel Hill, Keely A. Muscatell , PhD, University of North Carolina at Chapel Hill
BACKGROUND: It is well known that discrimination can increase risk for serious health conditions that disproportionately afflict Black adults in the U.S. While it is widely proposed that inflammation is one physiological mechanism through which discrimination impacts health, few studies have provided empirical evidence for this link. Moreover, limited research has examined psychosocial factors that may protect Black Americans from the negative effects of discrimination on inflammation. Perceived control is a promising possible protective factor, given that it has been shown to moderate the relationship between other psychosocial stressors and physiological outcomes. Thus, we tested whether systemic inflammation (C-Reactive Protein, CRP and interleukin-6, IL-6) mediated the link between discrimination and chronic disease, and whether perceived control moderated this relationship.
METHODS: Data for this project were taken from the Midlife in the United States (MIDUS) study. Our sample included 347 non-Hispanic/Latinx Black adults (M_{age} = 51.64, SD =11.19). Perceived control and daily discrimination were assessed via self-report and circulating levels of CRP and IL-6 were assayed from blood plasma. Chronic disease was measured by summing participants' reports of being diagnosed with any of the following: cardiovascular disease, hypertension, high cholesterol, arthritis, depression (no = 0, yes = 1). Regression analyses controlling for relevant sociodemographic factors were conducted.
RESULTS: Results revealed that CRP, but not IL-6, mediated the link between discrimination and number of chronic diseases (b=0.005, 95% CI=[0.001; 0.009]) and that perceived control moderated the relationship between discrimination and CRP (b=-0.02, SE=0.01, p=.033). Moderated-mediation analyses found that CRP mediated the link between discrimination and chronic disease only for those who reported low levels of control (Index=-0.003, 95% CI=[-0.007; -0.0001].
CONCLUSION: These findings offer some of the first empirical evidence that inflammation is a biological mechanism linking discrimination to poor health among Black Americans, and that greater perceptions of control may act as a protective factor. Results may also indicate beliefs about control as a potential

intervention target to help reduce the negative effects of discrimination on health among Black Americans.

Individual Abstract Number: 1184
Everyday Discrimination and Astherosclerotic Plaque in African-American Women with and without Systemic Lupus Erythematosus

Tené T. Lewis, PhD, Emory University, Khadijah Abdallah, MPH, Emory University , Shivika Udaipuria, MPH, Emory University, Christy L. Erving, PhD, University of Texas at Austin, Gaobin Bao, MS, Emory University, Bianca Booker, MA, Emory University, Taylor Burey, MPH, Emory University, Kayla Moss, BA, Emory University, Charmayne Dunlap-Thomas, MS, MPH, Emory University, Raphiel Murden, PhD, Emory University, Reneé H. Moore, PhD, Drexel University, Cristina Drenkard, MD, Emory University, Sam Lim, MD, Emory University, Viola Vaccarino, MD, PhD, Emory University, Arshed Quyummi, MD, Emory University, Emma Barinas-Mitchell, PhD, University of Pittsburgh

BACKGROUND: Systemic lupus erythematosus (SLE) is a potentially debilitating multisystem, chronic, autoimmune disease that disproportionately impacts African-American women. Among women with SLE, premature cardiovascular disease (CVD) is a major cause of death, such that African-American women with SLE die from CVD-related causes almost 20 years earlier than their counterparts without SLE. This increased risk is not completely due to established contributors to CVD or SLE factors; thus, other factors may play a role. We examined whether psychosocial stress in the form of discrimination might contribute to early atherosclerosis in African-American women with and without SLE.
METHODS: Participants were 200 African-American women with SLE and 198 African-American women without SLE (overall mean age=36.4 years) recruited from similar environments in the southeastern United States and free of clinical CVD. Self-reported experiences of discrimination were measured with the everyday discrimination scale and the presence of carotid plaque (a measure of atherosclerosis) was assessed via ultrasound.
RESULTS: African-American women with and without SLE had similar plaque prevalence (15.9% vs. 16.4% respectively) and age, but reports of discrimination were lower in women with SLE (P<.0001). In age-adjusted logistic regression models stratified by SLE status (to control for differential confounding by disease status) reports of discrimination were significantly associated with plaque in African-American women with SLE (OR= 2.32, 95% CI 1.06-5.05), but not without SLE (OR= 1.56, 95% CI .72-3.38). Significant associations among women with SLE persisted after further adjustment for smoking, BMI, SBP, and depressed affect (OR= 2.88, 95% CI 1.22-6.77). In exploratory analyses, associations were not explained by SLE medications or flares, and were only partially attenuated (p=.07) by SLE organ damage.
CONCLUSION: Findings suggest that the combination of discrimination and SLE may be particularly deleterious for the development of atherosclerosis. Thus, SLE may contribute to accelerated cardiovascular aging, or more specifically, "weathering" in the presence of discrimination, in African-American women. Future research is needed to examine the potential mechanisms underlying these associations and determine whether associations persist over time.

Individual Abstract Number: 1186
Black Women's Experiences of Intersectional Discrimination Across the Lifespan and Implications for Psychological Health

Christy L. Erving, PhD, University of Texas at Austin, Tiffany R. Williams, PhD, Tennessee State University

BACKGROUND: This study leverages a novel measure assessing intersectional discrimination among Black women: gendered racial microaggressions (GRMS). Despite a growing literature examining the GRMS and mental health association, no research has examined whether life course stage influences this association. This study aims to 1) assess whether intersectional discrimination frequency differs across lifespan development (i.e., early adulthood [18-29 years], "established adulthood" [30-45 years], mid-life [46-64 years], and later life [65 years and older]) and 2) investigate whether life course stage moderates the association between GRMS and U.S. Black women's mental health.
METHODS: Four-hundred thirty Black women completed an online survey between October 2022 and March 2023. Intersectional discrimination was assessed using the gendered racial microaggressions scale (GRMS; Lewis and Neville 2015). GRMS included four subscales: Assumptions of Beauty and Sexual Objectification, Silenced and Marginalized, Strong Black Woman Stereotype, and Angry Black Woman Stereotype. Mental health was assessed by the Depression Anxiety Stress Scale-21 (DASS-21). Linear regression analyses were conducted. All regression models adjusted for region, number of household members, sexual orientation, relationship status, number of children, household income, employment, and education.
RESULTS: Black women in early adulthood reported the greatest frequency of intersectional discrimination while later life Black women reported the fewest experiences. Intersectional discrimination was positively associated with depressive symptoms (β = 2.04, p <.001), anxiety symptoms (β = 1.92, p <.001), and generalized distress (β = 1.96, p <.001). Life course stage moderated the association between specific types of intersectional discrimination and mental health. Specifically, the associations between the "Strong Black Woman Stereotype" and depressive symptoms/generalized distress were strongest in early adulthood and mid-life.
CONCLUSION: Results suggest that early adulthood and mid-life are critical periods when Black women may be most psychologically vulnerable to intersectional discrimination. However, given that older Black women reported low intersectional discrimination, GRMS may better capture intersectional discrimination among Black women in earlier life course stages.

Symposium 978
Friday 3/22/24 11:45-12:45

The body as context: Interoception in health and disease

Adrienne Bonar, MA, The University of North Carolina at Chapel Hill

Disruptions in interoception –the brain's ability to sense and perceive the internal state of the body– have been implicated in the etiology and symptomatology of many mental health disorders, including mood disorders, eating disorders, and somatic symptom disorders. Research on interoception is needed to improve our understanding of brain-body interactions and inform therapeutic interventions. This symposium brings together early-career researchers and established experts within the field of interoceptive science to present cutting-edge research on forces that shape interoception with implications for mental health across the lifespan. **Study 1** (Sahib Khalsa, M.D., Ph.D.) explores the interplay of top-down attention and bottom-up visceral inputs to primary interoceptive cortices in individuals with anxiety, depression, and/or eating disorders and healthy individuals– revealing a locus of disruption across these disorders and providing neural targets for therapeutic intervention. **Study**

2 (Katerina Fotopoulou, Ph.D.) in turn, assesses a novel psychophysiological intervention in individuals with low interoceptive awareness, stratified for subclinical disordered eating or somatization symptoms. This study provides emerging evidence for an innovative and scalable strategy to improve interoceptive clinical symptoms. **Study 3** (Mallory Feldman, M.A.) transitions our focus from health status to social identity as a context for interoception, health, and wellness. This study explores the influence of age-related shifts in functional connectivity of the large-scale allostatic interoceptive brain network on emotional reactivity–proposing an embodied pathway of emotional aging with implications for issues affecting aging populations (e.g., geriatric depression). **Study 4** (Gabriella Alvarez, Ph.D.) expands on these ideas to examine how affective context and prior racial discrimination interact to shape functional connectivity of the allostatic interoceptive network. This work suggests that changes to brain regions underlying interoception may be one pathway through which discrimination "gets under the skin" to affect health. Moderator (Hugo Critchley, Ph.D.) will conclude by highlighting how these studies deepen our understanding of the biological and social processes underlying interoception and provide opportunities to consider novel targets for intervention.

Individual Abstract Number: 1122
Neural substrates of interoceptive dysfunction in anxiety, depression, and eating disorders

Sahib Khalsa, MD, PhD, Laureate Institute for Brain Research; Oxley College of Health Sciences at the University of Tulsa, Adam Teed, PhD, Oxley College of Health Sciences at the University of Tulsa, Jason Avery, PhD, National Institute of Mental Health, Feliberto de la Cruz, PhD, Department of Psychosomatic Medicine and Psychotherapy, Jena University Hospital, Emily Adamic, MA, Laureate Institute for Brain Research; Department of Biological Sciences at University of Tulsa

Interactions between top-down attention and bottom-up visceral inputs are assumed to produce conscious perceptions of interoceptive states, and while each process has been independently associated with aberrant interoceptive symptomatology in psychiatric disorders, the neural substrates of this interface are unknown. This preregistered functional neuroimaging study of 46 individuals with anxiety, depression, and/or eating disorders (ADE) and 46 propensity-matched healthy comparisons (HC), evaluated neural activity across two interoceptive tasks differentially recruiting top-down or bottom-up processing during the same scan session. During an interoceptive attention task, top-down attention was voluntarily directed towards cardiorespiratory or visual signals, whereas during an interoceptive perturbation task, intravenous isoproterenol infusions (a peripherally-acting beta-adrenergic receptor agonist) were administered in a double-blinded and placebo-controlled fashion to drive bottom-up cardiorespiratory sensations. Across both tasks increased neural activity converged upon the insular cortex, localizing within the granular and ventral dysgranular subregions bilaterally ($p < 0.05$ corrected). However, contrasting hemispheric differences emerged, with the ADE group exhibiting (relative to HCs) an asymmetric pattern of task co-activation in the left insula, as well as increased or decreased proportions of co-activated voxels in the right or left dysgranular insula, respectively ($ps < 0.001$). The ADE group also showed lower proportional agranular anterior insula activation during periods of maximal bodily uncertainty (i.e., during saline when anticipating possible isoproterenol-induced changes that never arrived; $ps < 0.001$). Finally, pre- and post-task resting state functional connectivity showed group interactions between the convergent right dysgranular subregion and the left middle frontal gyrus ($p <$

0.05, corrected) that were associated with anxiety and depression severity. These findings confirm the dysgranular subregion of the insula as the cortical interface for interoceptive signals where higher-order brain processes such as attention and prediction intersect with real-time bodily inputs during heightened interoceptive awareness. Further, the dysgranular mid-insula may indeed be a "locus of disruption" for psychiatric disorders.

Individual Abstract Number: 1136
I can control my body even when stressed: An RCT testing the efficacy of a biofeedback-assisted psychological intervention for interoceptive awareness.

Aikaterini Fotopoulou, PhD, University College London, Michal Tanzer, PhD, University College London, Caroline Selai, PhD, University College London, Sam Norton, PhD, King's College London, Thanos Koukoutsakis, PhD, University College London, Marina Bobou, MSc, University College London, Alkistis Saramandi, MSc, University College London

Disruptions in interoception have emerged as a transdiagnostic pathogenic mechanism for several disorders at the mental-physical health interface, such as eating, functional or somatic symptom disorders. However, the interdisciplinary expertise required to identify and therapeutically target psychophysiological mechanisms has limited the efficacy of related therapeutic endeavours. Following co-design with users, we have developed and tested the efficacy and mechanisms of action of a novel, interdisciplinary (psychophysiological) therapeutic module (InMe) in 100 individuals with low interoception awareness, stratified for subclinical disordered eating or somatisation symptoms. In a two-arm parallel group randomised controlled trial (RCT) we compare the InMe intervention to an active control intervention (imagery training without biofeedback). INME uses cardiac biofeedback during guided respiration exercises to train individuals to down-regulate their own heartrate under different conditions of stress, while also enhancing related metacognitive beliefs. Results showed significantly higher changes of the trials primary measure of interoception at follow-up for INME than for the control intervention ($p<0.05$). Advanced analyses methods also revealed important mediators and moderators of this effect and the subpopulations likely to benefit. We discuss the potential of further developing and testing this interoception-intervention as an augmented-therapy module for other pharmacological and behavioural interventions targeting disorders at the mental-physical health interface.

Individual Abstract Number: 1137
Aging bodies and emotions: Testing the physiological hypothesis of emotional aging

Mallory Feldman, MA, University of North Carolina at Chapel Hill, Adrienne Bonar, MA, University of North Carolina at Chapel Hill, Gabriella Alvarez, PhD, University of Pittsburgh, Kristen Lindquist, PhD, University of North Carolina at Chapel Hill

Maturational shifts in emotional processes have been documented across adulthood. These shifts are historically attributed to age-related changes in cognitive processes like attention, memory, motivation, or self-regulation. However, every single physiological system of the body changes in structure and function during healthy aging and preliminary evidence suggests maturational changes to the afferent pathways by which autonomic reactivity is registered as interoceptive signals by the brain. These changes are likely to also shape affective experiences across the lifespan. The allostatic-interoceptive brain network (AIN), composed of the default mode and salience networks in addition to several connector hubs, subserves both interoception and

visceromotor control. Using data from the Midlife in the United States (MIDUS) study (n=122), we test the hypothesis that age-related differences in functional connectivity of the AIN contribute to decreases in emotional reactivity. Participants (1) underwent functional MRI while viewing positive, negative, and neutral images and (2) completed an affective reactivity task wherein they viewed positive, negative, and neutral images followed by eyeblink startle probes while connected with equipment for measuring corrugator and zygomaticus activity. After the reactivity task, participants also completed a free-recall of affective images before rating each image on its affective valence and arousal. We found that the negative relationship between functional connectivity in the AIN and zygomaticus activity to positive images was weaker for older participants (b = 0.53, std. beta = 0.19, p=0.04) and that the negative relationship between functional connectivity in the AIN and recall for negative images was weaker for older participants (b= 2.46, st. beta = 0.19, p = 0.04). These effects were significant when controlling for sex-assigned-at-birth, health status, waist-hip ratio, education, and motion. There were no effects of age-related differences in functional connectivity of the AIN on eyeblink startle response, corrugator activity, valence, or arousal ratings. These data provide preliminary evidence for an embodied pathway of emotional change across the lifespan to complement pre-existing cognitive frameworks and suggest future targets for interventions that target emotional difficulties in older adults.

Individual Abstract Number: 1138
Prior discrimination and current affective context modulate Black individuals' neural representations of social cues in the allostatic interoceptive network
Gabriella Alvarez, PhD, University of Pittsburgh, Kristen Lindquist, PhD, University of North Carolina at Chapel Hill, Keely Muscatell, PhD, University of North Carolina at Chapel Hill
While understanding the antecedents and consequences of racial discrimination among Black Americans has gained widespread attention, very few studies have elucidated the neurobiological pathways by which experiences of racial discrimination become embedded in the brain and influence how Black individuals navigate the social world. In this project, we utilize a predictive brain framework to examine how prior experiences of discrimination and affective context interact to influence neural responses to ambiguous social cues. We hypothesized that prior discrimination would modulate neural responses to neutral faces, depending on affective context (negative primes vs. neutral primes), especially within the allostatic interoceptive network (AIN). The AIN is a network that integrates signals from within the body with the external environment to make predictions of the world and help mobilize physiological systems to engage with it. We examined neural activity to affective images and neutral faces in an affective spillover paradigm in a sample of Black Americans (N=38; 26 female; M age 48, SD=11.7) with varying levels of exposure to discrimination. Network connectivity analyses were conducted to examine whether efficiency of the AIN differed to faces following negative primes versus faces following neutral primes, as a function of discrimination exposure. We found that higher levels of discrimination were associated with lower efficiency within the AIN when viewing faces following negative versus neutral primes (b=-0.384; t=-2.377; p=0.023) even after controlling for age, gender, and socioeconomic position. These results suggest that prior experiences of discrimination influence how Black individuals integrate affective primes to respond to social cues in the AIN, among regions implicated in detecting salience and threat, and among regions and networks suspected to help regulate and make meaning of those associations.

Experimental investigations of low-cost interventions to enhance coping: Impact on psychological and biological responses to stress
Sarah Williams, PhD, University of Birmingham
Individuals face chronic and unpredictable stress in daily life. Higher levels of psychological stress are associated with adverse health and behavioural outcomes. Laboratory studies have focused on elucidating possible mechanisms through which psychological stress impacts health. Relatively less work has focused on examining the impact of low-cost interventions on psychological stress. Two promising psychological skills that can be utilized to cope with stress are mental imagery and psychological flexibility. The present symposium will present data from three countries from researchers at varying career stages examining how these skills impact psychological and biological responses to stress. The first presentation uses an experimental study to compare the effects of positive expressive writing and guided imagery on anxiety in adults. The second presentation utilizes an experimental design examining the effects of positive and negative imagery ability on the impact of guided imagery scripts focusing on an imagined stressful scenario. The third presentation will present the results of an online imagery training intervention designed to increase imagery ability and alter stress appraisals in a student population. The fourth presentation will focus on the benefits of psychological flexibility when exposed to repeated stressors. Together, the symposium will use the latest research in the field of imagery and psychological flexibility for coping with stress to demonstrate the breadth of this research area and to demonstrate potential factors that may be beneficial for future interventions and coping with stress.

Individual Abstract Number: 1241
A Comparison of Guided Imagery and Positive Expressive Writing for Alleviating Acute Anxiety
Michael Smith, PhD, Northumbria University, Lauren Hoult, MSc, Northumbria University, Mark Wetherell, PhD, Northumbria University
Writing about positive experiences has been shown to enhance wellbeing and to alleviate stress and anxiety. Our previous research has found that positive expressive writing is particularly beneficial in terms of reducing self-reported stress, anxiety, depression and perceived stress reactivity in individuals reporting higher levels of social inhibition. Further, we observed that writing about the benefits of being in lockdown during Covid-19 was associated with reductions in anxiety. Additionally, we have been exploring whether alterations in cardiovascular reactivity is a mechanism via which psychological effects of positive expressive writing can be explained. While substantial evidence now exists to support the efficacy of positive expressive writing, many of the control activities (e.g. neutral writing) that are typically used in this research area have been criticised for not being emotionally neutral. On this basis, we conducted a preregistered study, comparing positive expressive writing to an established mindfulness activity (guided imagery) which is known to alleviate stress and anxiety. We recruited 122 adults who completed the Spielberger State Anxiety Inventory, before being randomly allocated to complete i) 20 minutes of positive expressive writing, ii) 10 minutes of guided imagery – listening to an audio clip describing a forest walk – before 10 minutes writing about the imagined experience, or iii) writing a neutral description of the previous day. State anxiety was then measured following participation in the assigned activity. The

study was conducted online, via Qualtrics. We observed a significant decrease in state anxiety across all three conditions, and a trend towards a greater increase in the guided imagery condition relative to the other conditions. These findings suggest that positive expressive writing may be less effective for reducing acute anxiety than more established stress reduction techniques, such as guided imagery.

Individual Abstract Number: 1249
Investigating Unique Profiles of Positive and Negative Imagery Ability with Psychological Responses to Stress-Inducing Imagery

Alexandra Tyra, MSc, Baylor University , Annie Ginty, PhD, Baylor University , Sarah Williams, PhD, University of Birmingham

Background: Mental imagery is a valuable tool for managing stress appraisals. Imagery scripts that emphasize feelings of confidence and control have been found to reliably induce challenge appraisals, while scripts that emphasize lack of confidence and control tend to induce threat appraisals. That said, no prior studies have explored whether the *ability* to image positive or negative content enhances challenge or threat imagery script effectiveness, respectively. Additionally, research has not yet ventured into identifying possible profiles of positive and negative imagery abilities.
Aim: Investigate the existence of distinct profiles of positive and negative imagery ability and their potential associations with psychological responses to challenge and threat imagery.
Method: In a 1-hour lab session, 271 participants (Mean (SD) age = 19.43 (1.5) years, 60% female, 59% White, 11% Hispanic) listened to three different imagery scripts (challenge, neutral, threat) counterbalanced. Scripts described the same stressful scenario, but were designed to elicit either a challenge, threat, or neutral state. After each script, participants rated their anxiety and positive and negative affect. The Ease of Imagery Questionnaire (EIQ) assessed trait positive and negative imagery ability.
Results: Multivariate cluster analysis revealed three imagery ability profiles: higher overall imagers (n = 98), higher positive/lower negative imagers (n = 69), and lower overall imagers (n = 104). A series of 3 (script) x 3 (cluster) mixed ANOVAs found significant script-cluster interactions for cognitive anxiety interpretations (p = .01), positive affect (p = .02), emotional pleasantness (p = .04), and state cognitive reappraisal (p = .01). *Post hoc* analyses revealed higher positive/lower negative imagers experienced greater facilitative effects from challenge imagery and fewer debilitative effects from threat imagery. Higher overall imagers benefitted from challenge imagery but faced greater debilitative effects from threat imagery. Lower overall imagers were the least responsive to the scripts, reporting the fewest benefits from challenge imagery.
Conclusion: This study highlights the importance of examining profiles of imagery ability and suggests that future interventions aimed at enhancing positive as well as reducing negative imagery ability may improve stress regulation.

Individual Abstract Number: 1250
Layered Stimulus Response Training Increases Imagery Ability and Alters Stress Appraisals

Sarah Williams, PhD, University of Birmingham , Charlie Mathieson, MRes, University of Birmingham , Annie Ginty, PhD, Baylor University

Background: Guided imagery can be an effective technique for stress management, however its effectiveness may depend on ability to image. Higher mastery imagery ability (i.e., ability to image overcoming stressful scenarios) has been associated with greater challenge appraisal tendencies, lower threat appraisal tendencies, and lower perceived stress levels.

However, research has yet to examine whether mastery imagery ability can be increased through imagery training and whether this is in turn accompanied by changes in appraisal tendencies and perceived stress levels.
Aim: Investigate if a novel imagery training program (Layered Stimulus Response training; LSRT) increases mastery imagery ability and whether any increase is accompanied by changes in challenge and threat appraisal tendencies and perceived stress levels.
Methods: Young adults (N = 28; Mage = 21.04, SD = 1.67 years) were recruited to complete a 2-week LSRT intervention consisting of four sessions (two per week) in which stress related content was imaged with feelings of confidence and being in control layered into the imagery scenarios across the course of the intervention. The intervention group was compared to a control group (a personality education intervention, N = 30; Mage = 19.87, SD = 0.78 years). Imagery ability, challenge and threat appraisal tendencies, and perceived stress were measured before and after both interventions.
Results: Separate 2 time (baseline, post-intervention) × 2 group (LSRT, personality) ANOVAs indicated statistically significant time by group interactions for mastery imagery ability (F[1, 47] = 23.04, p < .001, η_p^2 = .33), challenge (F[1, 47] = 19.20, p < .001, η_p^2 = .29) and threat appraisal tendencies (F[1, 47] = 15.89, p < .001, η_p^2 = .25), and perceived stress (F[1, 47] = 24.25, p < .001, η_p^2 = .34). Post-hoc analysis showed that the LSRT group experienced significant increases in mastery imagery ability and challenge appraisal tendencies, and significant decreases in threat appraisal tendencies and perceived stress. The control group experienced no changes in any variables.
Conclusions: LSRT appears to be a relatively brief and effective technique to increase mastery imagery ability and subsequently alter perceptions and appraisals of psychological stress.

Individual Abstract Number: 1252
Psychological Flexibility and Cardiovascular Stress-Response Adaptation to Recurrent Stress Demands

Siobhán Howard, PhD, University of Limerick, Stephen Gallagher , PhD, University of Limerick

Psychological flexibility is a dynamic psychological construct that describes a person who can adapt to changing demands and situations. This coping factor is associated with a range of positive psychological states and adjustment. However, its association with psychophysiological indicators of stress reactivity has yet to be established. In this study, 94 young adults completed the Paced Auditory Serial Addition Task (PASAT), which is a cognitively demanding stressor used in laboratory studies of stress reactivity. Participants completed the PASAT on two occasions in the same laboratory sitting, separated by a 8-minute inter-task interval. Continuous monitoring of blood pressure, heart rate, and the underlying hemodynamic variables of cardiac output and total peripheral resistance were assessed using Finometer. Psychological flexibility was assessed using the Psy-Flex scale. ANOVA analyses identified significant phase (baseline, task1, intertask interval, task 2) × gender (male, female) × psychological flexibility (continuous measure) quadratic effects for systolic blood pressure, F(2, 91) = 4.66, p = .012, partial η^2 = .09, and diastolic blood pressure, F(2, 91) = 6.94, p = .002, partial η^2 = .13. While women showed stable blood pressure responses regardless of psychological flexibility, men both high and low in psychological flexibility evidenced cardiovascular stress-response habituation. For women high in psychological flexibility, the underlying hemodynamic response profile during the second task exposure was markedly vascular. This study shows that approaches to coping like psychological flexibility

have a complex relationship with physiological responses to stress and warrant further attention and elucidation.

Childhood contextual antecedents of adult cardiometabolic health: Preliminary findings from a prospective study of men born into low-income circumstances

Elizabeth Votruba-Drzal, N/A, N/A

Cardiovascular disease (CVD) is the leading cause of death among US adults, with cardiometabolic risk (CMR) and subclinical disease beginning in childhood, well before the onset of clinical diagnosis. Like other diseases, CVD tracks a socioeconomic gradient, with greater lifelong risk among people born into socioeconomically disadvantaged circumstances. Thus, it is imperative to identify factors across development that contribute to emerging disparities in CVD. However, no prospective studies have carefully characterized links between early socioeconomic status and adult health beginning in early childhood and in a predominantly low-income, racially diverse sample. Guided by stress frameworks, we propose that individual, family, and neighborhood factors across development are pathways through which childhood socioeconomic disadvantage shapes adult CVD risk. This symposium discusses early findings from the ongoing Pathways to Health (PaTH) project, a comprehensive physiological assessment of men (32-34 years) who participated in the Pitt Mother & Child Project (PMCP). PMCP enrolled 310 male toddlers from low-income families and has followed them closely to early adulthood, permitting the longitudinal assessment of contextual factors collected across development (13+ waves) and potential relations to adult CMR and subclinical CVD. The symposium will provide an overview of PaTH including data on the cohort's sociodemographic characteristics and overall health. We then present 3 sets of findings based on data from the first 100 participants including the examination of
1) *prospective* and *retrospective* assessments of childhood family adversity (harsh parenting, conflict) in relation to adult CMR and the potential moderating role of race; 2) independent effects of cumulative childhood family income and neighborhood socioeconomic *advantage* and *disadvantage* on adult cardiovascular health; and 3) concurrent associations between food insecurity and adult intima-media thickness (IMT; a marker of subclinical CVD) and whether food insecurity may link childhood socioeconomic disadvantage to adult IMT. Dr. Keely Muscatell will serve as discussant. By testing novel contextual pathways at the individual, family, and neighborhood level, findings may help to identify contexts that can be targeted by programs and policies aimed at reducing socioeconomic inequalities in CVD.

Individual Abstract Number: 1099
Childhood family environment and adult cardiometabolic health: Comparing prospective and retrospective assessments

Brianna Natale, MS, University of Pittsburgh, Emily Jones, PhD, University of Pittsburgh, Justin Pickul, Project Coordinator, University of Pittsburgh, Tess Dupree, BS, University of Pittsburgh, Sydney Damon, BS, University of Pittsburgh, Elizabeth Votruba-Drzal, PhD, University of Pittsburgh, Daniel Shaw, PhD, University of Pittsburgh, Anna Marsland, PhD RN, University of Pittsburgh
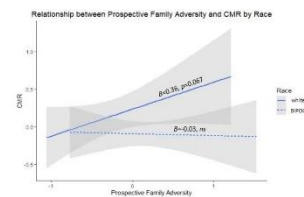
Childhood family environments associate with long-term health profiles. However, the extant literature is limited by retrospective reports of childhood family environments, and

little is known about prospective associations. The current study examines prospective and retrospective assessments of childhood family adversity, including their potential interaction, in relation to cardiometabolic risk (CMR) in a high-risk sample of young adults.

Male participants were recruited from Women, Infants, and Children Nutritional Supplement sites into the Pitt Mother & Child Project at 18 months of age based on low family income, with a current ongoing follow-up at age 32 (*n*=100, 59% BIPOC). At age 32, the Risky Families Questionnaire (RFQ) was used to measure retrospective self-reports of family adversity from birth-18 years. Prospective measures of childhood family adversity from 1.5-3.5 years were aggregated to match domains assessed by the RFQ using observational measures of nurturant and harsh parenting, organization of the home environment, and parent reports of parent conflict. The following 8 risk indices were z-scored and averaged to estimate CMR: BMI, waist circumference, systolic and diastolic blood pressure, and fasting triglycerides, HDL, glucose, and insulin.

Preliminary analyses (*n*=100) indicated no significant correlation between prospective and retrospective assessments of childhood family adversity. Furthermore, neither measure of family adversity related to CMR in linear regressions adjusted for race and cumulative family income across childhood. As the main effect of race was trending in both regressions (B(SE)=[-0.29, -0.30] (0.15), *p*=[0.049-0.057]), interactions with race were explored. In the prospective model only, the association between family adversity and CMR was trending for white men (B(SE)=0.36(0.19), *p*=0.067), and there was a significant main effect of race (B(SE)=-0.33(0.14), *p*=0.021), such that BIPOC men had *lower* CMR than white men (Figure 1). However, the interaction between family adversity and race was non-significant in both the prospective and retrospective models, as was the interaction between prospective and retrospective family adversity.

Results will be discussed in terms of prior research on exposure to family adversity and adult CMR, as well as differences based on race, biological sex, and developmental timing.

Figure 1. Relationship between Prospective Family Adversity and CMR by Race

Individual Abstract Number: 1098
Childhood Socioeconomic Circumstances at the Family and Neighborhood Level in Relation to Cardiovascular Health in Adulthood

Emily Jones, PhD, University of Pittsburgh, Portia Miller, PhD JD, University of Pittsburgh, Brianna Natale, MS, University of Pittsburgh, Anna Marsland, PhD RN, University of Pittsburgh, Daniel Shaw, PhD, University of Pittsburgh, Elizabeth Votruba-Drzal, PhD, University of Pittsburgh

Purpose. Theoretical and empirical research links childhood socioeconomic status (SES) to adult cardiovascular health (CVH). However, research in this area often focuses on retrospective reports of children's *family* SES without considering the role of the *neighborhood* context. Using prospective data, we consider relative contributions of childhood family and neighborhood SES on adult men's CVH, including the potential role of neighborhood *advantage* in addition to the more common focus on

neighborhood *risk*. **Methods.** Data are from Pathways to Health Study (PaTH), a follow-up of the Pitt Mother & Child Project (PMCP), a longitudinal cohort of 310 boys from low-income households followed since 1.5 years. Present analyses focus on family income and home addresses collected between child ages 1.5-18 (13 waves). Reports of annual income were escalated to 2022 dollars and averaged across waves to calculate mean family income. Addresses were geocoded and linked with census data to estimate neighborhood advantage (z-score; median income, % of households earning >$100k, % of adults in professional jobs & w/ 4-year degrees) and disadvantage (z-score; % below poverty level, % unemployment; % of adults w/ Results. Preliminary results of race- and adult-income adjusted regression models (n=100) suggest cumulative childhood neighborhood advantage but not neighborhood disadvantage (p=.46) or family income (p=.99) is independently related to adult CVH, with greater childhood neighborhood advantage relating to better adult CVH (β=.276, p=.045). As more participants complete PaTH, analyses will be re-run and will explore whether associations differ for childhood vs. adolescent family and neighborhood SES. **Conclusion**. While current results require replication, findings suggest the importance of living in well-resourced childhood neighborhoods to promote adult CVH.
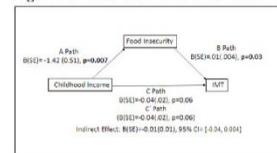
Individual Abstract Number: 1100
Childhood income, Food Insecurity, and Cardiometabolic Risk in a High-Risk Sample of Young Adults
Sydney Damon, BS, University of Pittsburgh, Tess Dupree, BS, University of Pittsburgh, Brianna Natale, MS, University of Pittsburgh, Emily Jones, PhD, University of Pittsburgh, Daniel Shaw, PhD, University of Pittsburgh, Elizabeth Votruba-Drzal, PhD, University of Pittsburgh, Anna Marsland, PhD RN, University of Pittsburgh
Background. Food Insecurity (FI) is a public health issue that has been associated with risk factors for cardiovascular disease (CVD), such as higher adiposity, consumption of ultra-processed foods, and insulin resistance. Thus, FI may contribute to socioeconomic disparities in cardiovascular health. Here, we consider the possibility that FI is a pathway linking lower childhood socioeconomic position (CSEP) to carotid intima-media thickness (cIMT), a subclinical marker of atherosclerosis that is predictive of future cardiovascular events. **Methods.** Parents with male infants (aged 6-17 months) were recruited from Women, Infants, & Children Nutritional Supplement sites into the Pitt Mother & Child Project based on low family income, with a current ongoing follow-up at age 32 (n=100, 59% BIPOC). Caregiver-reports of yearly family income were collected and aggregated across ages 1.5-18 years (13 waves) to estimate CSEP. At age 32, participants underwent an ultrasound of their carotid arteries to measure cIMT and had percent body fat measured. They also completed the Food Security Status scale and reported on current income. **Results.** Linear regression analyses of the first 72 participants with valid cIMT data showed a main effect of greater FI on increased cIMT (β=0.34, p=0.004), which was independent of percent body fat, CSEP, and adult income. Using PROCESS, exploratory analyses tested indirect effects of CSEP on adult cIMT through FI. In an unadjusted model, low CSEP was associated with increased FI and greater FI was in turn related to increased cIMT; however, the indirect effect was not significant (Figure 1). PROCESS model results withstood adjustment for race and percent body fat but were partially attenuated by adult income. Analyses will be rerun in the coming months when the sample size is expected to reach ~140 to revisit both independent and indirect effects of FI on cIMT. **Conclusion.** This study shows independent associations of FI with higher cIMT and CSEP. It is possible

that FI contributes to the association between CSEP and cIMT. If findings are sustained in the current sample and in more highly powered samples of men and women, interventions for decreasing cIMT could target reducing food insecurity as one of several factors influencing CVD.

Figure 1. Cumulative Childhood Income Mediation

Symposium 1289
Friday 3/22/24 2:00-3:00

Exploring the impact of positive psychosocial factors in diverse populations: Who benefits and how?
Farah Qureshi, ScD, Johns Hopkins Bloomberg School of Public Health
Research on positive psychosocial factors and health primarily focuses on socially homogenous samples with little consideration of how these factors function acrossdiverse populations. The goal of this symposium is to showcase research that examines how the health benefits related to positive psychosocial factors are distributed in society or explores how these factors may operate differently depending on one's social standing or experiences of social adversity.

Individual Abstract Number: 1292
Racial differences in teens' feelings of connection to school and cardiovascular health during the transition to adulthood
Farah Qureshi, ScD, Johns Hopkins Bloomberg School of Public Health, Sara Johnson, PhD, Johns Hopkins School of Medicine, Odis Johnson, PhD, Johns Hopkins School of Education, Ichiro Kawachi, PhD, Harvard T.H. Chan School of Public Health
Background: Early life exposures play an important role in shaping cardiovascular health (CVH) across the lifespan. There is growing evidence that positive psychosocial factors may serve as health assets that can help preserve CVH over time, but most prior work was conducted among samples of predominantly white, older adults. The goal of this study is to investigate links between school connectedness – a developmental strength related to better educational outcomes – and patterns in CVH over time among racially diverse youth. **Methods:** Data are from 1,927 participants (mean age=13.6y, range=8-19y) in the Child Development Supplement of the Panel Study of Income Dynamics. In 2002 & 2007, school connectedness was assessed using a 4-item scale evaluating whether youth felt happy, safe, and close to people at school (α_{2002}=0.68, α_{2007}=0.73). In 2005-2019, self-reported responses from biennial surveys completed from age 18-28y were used to construct an abridged version of the American Heart Association's ideal CVH metric using the following 6 indicators: no diabetes, no hypertension, healthy BMI, non-smoking, adequate sleep, and regular physical activity. The primary outcome was a measure of CVH maintenance defined as meeting recommendations for ≥5 indicators across the follow-up period. Logistic regression models were used to evaluate associations between school connectedness and CVH maintenance overall and stratified by race, and effect modification was evaluated using interaction.

Results: On average, youth who reported higher levels of school connectedness were 43% more likely to maintain CVH across the transition to adulthood compared to those with lower levels ($OR_{per\ 1\text{-}SD}$=1.43, 95% CI=1.03, 1.99). When considering associations stratified by race, substantial associations were observed among White youth ($OR_{per\ 1\text{-}SD}$=1.68, 95% CI=1.05, 2.69) but not Black youth ($OR_{per\ 1\text{-}SD}$=0.88, 95% CI=0.62, 1.24; $p_{Black\ vs.\ White}$=0.063).

Conclusions: Although school connectedness is robustly associated with maintaining CVH across the transition to adulthood among White youth, protective associations may not be generalizable to members of other racial and ethnic groups. Research on health assets should consider how these factors interact with structural barriers to achieving and sustaining positive CVH that may disproportionately impact members of marginalized groups.

Individual Abstract Number: 1308

Associations between positive childhood experiences and emotion regulation skills among young adults in Mainland China

Effy Yu, PhD, Johns Hopkins School of Nursing, Farah Qureshi, ScD, Johns Hopkins Bloomberg School of Public Health, Annika LImson, BA, Johns Hopkins School of Education, Laura Kubzansky, PhD, Harvard T.H. Chan School of Public Health

Over the past two decades, extensive research has documented the detrimental impacts of adverse childhood experiences on health across the life course, but less work has considered the role that positive experiences can play to support better health outcomes. Emerging evidence suggests that positive experiences like feeling safe and secure, having a supportive family or friends, and feeling a sense of belonging in school may protect young people's health over time by conferring skills and resources that may serve as a buffer against adversity, but most of this work has focused on samples in the United States. In this cross-sectional study, we use self-reported data from 9,445 university students (ages=18-35) inMainland China to investigate associations between childhood adversity, positive childhood experiences (PCEs), and emotion regulation skills in adulthood. Childhood experiences were assessed retrospectively via self-report using two separate indices: (1) the World Health Organization's Adverse Childhood Experiences International Questionnaire, and (2) the Chinese version of the PCE Scale. Emotion regulation was self-reported using Gross & John's 10-item Emotional Regulation Questionnaire, which is comprised of two subscales assessing cognitive reappraisal (α=0.85) and emotion suppression (α=0.78). We used linear regression models to test the hypothesis that PCEs would be associated with adaptive emotion regulation strategies (i.e., greater cognitive reappraisal and less emotion suppression), even after adjusting for the potential negative impact of childhood adversity. Consistent with our hypothesis, results from models adjusting for both sociodemographic covariates and childhood adversity found that PCEs were associated with greater cognitive reappraisal (B=0.21, t=17.8, p=<0.001) and less emotion suppression (B=-0.60, t=-5.2, p=<0.001). Notably, while childhood adversity was related to worse emotion regulation in unadjusted models, associations were no longer apparent after adjusting for study covariates, including PCEs ($B_{reappraisal}$=-0.01, t=-0.48, p=0.63; $B_{suppression}$=0.12, t=0.99, p=0.32). Taken together, our findings suggest that PCEs may serve a psychologically protective function over time. Future research should consider the role of emotion regulation skills as a potential mechanism linking early life experiences and physical health.

Individual Abstract Number: 1311

Same Smiles, Different Trials: Ethnicity Moderates the Association of Social Well-Being with Cardiovascular Health

Cameron Wiley, MA, University of California, Irvine

African Americans (AAs) have consistently been afflicted with disproportionately higher rates of cardiovascular disease mortality and cardiometabolic risk factors (e.g., hypertension) compared to European Americans (EAs). Social well-being, or the multifaceted appraisal of one's circumstance and functioning in society, has generally been shown to be beneficial for cardiovascular functioning and health. However, less consideration has been given to the idea that social well-being may be differentially protective based on ethnicity. Expanding this area of research is crucial, especially given growing evidence suggesting that AAs and EAs differ in the types of social norms, networks, and relationships that they value. Thus, the current study explored data from the third wave of the Midlife in the United States study (MIDUS 3) to explore the potential moderating effect of ethnicity on the association of self-reported social well-being with physiological and self-reported measures of cardiovascular health among AAs (n = 215, 146 women, M_{age}= 51.0) and EAs (n = 985, 538 women, M_{age}= 55.5). Social well-being was assessed via five subscales from a validated MIDUS scale, while cardiovascular health was measured via baseline mean arterial pressure (MAP) and self-reported heart disease diagnosis. Adjusting for demographic covariates and body mass index, analyses revealed that ethnicity significantly moderated the association of social acceptance (ΔR^2 = .004, β = -.54, SE = .25, p = .03) and social actualization (ΔR^2= .004, β = -.46, SE = .21, p = .03) with MAP. Analyses also showed that ethnicity significantly moderated the association of social coherence (χ^2 = 6.46, β = -.19, SE = .07, p= .01) and social contribution (χ^2 = 3.94, β = -.12, SE = .06, p = .05) with diagnosed heart disease. These findings generally suggest that social well-being, a dimension of positive psychological functioning that is thought to be universally salubrious, is differentially beneficial for cardiovascular health in AAs and EAs. More specifically, these findings highlight that social acceptance and social coherence appear to be cardioprotective for AAs but not for EAs, while social actualization and social contribution appear to be cardioprotective for EAs but not for AAs.

Individual Abstract Number: 1314

Purpose in life and its Association to Parkinsonism

Hayami Koga, PhD, Harvard T.H. Chan School of Public Health

Objectives: Purpose in life has been associated with diverse health outcomes, however, few studies have examined its associations with progressive motor decline, especially in diverse older populations. We tested if higher purpose would be associated with lower likelihood of incident parkinsonism as well as with lower levels and slower rates of increase in parkinsonian signs among older White and Black adults.

Methods: Participants were 2626 older adults from the Rush Memory and Aging Project and Minority Aging Research Study followed for an average of 7.2 years (SD=4.6). Purpose was measured using the purpose in life subscale of the modified Ryff's and Keyes's measure of psychological well-being. Parkinsonian signs in 4 domains (i.e., parkinsonian gait, rigidity, bradykinesia, and tremor) were assessed using the United Parkinson's Disease Rating Scale. We examined purpose with risk of developing incident parkinsonism using Cox proportional hazards models. We also used linear mixed effect models to assess the association between purpose and parkinsonian sign trajectories.

Results: After including demographics, health conditions, and health behaviors in the model, for a 1-SD increase in purpose, the hazards ratio for incident parkinsonism was 0.88 [95%CI

0.80, 0.98]. A 1-SD increase in purpose was associated with a -0.19 (95%CI -0.24, -0.14) point lower score in the global parkinsonian summary score at baseline but no differences in rate of change were evident. The associations between purpose in life and the scores were generally similar across race.

Discussion: Higher sense of purpose in life was associated with lower hazards of incident parkinsonism and lower levels of parkinsonian signs at baseline. Associations were seen even after adjustment for a wide range of covariates. Findings suggest higher purpose may contribute to maintenance of healthy physical function among older adults.

Symposium 1077
Friday 3/22/24 3:15-4:15

Climate change and health
Vera Kr. Jandackova, Ph.D., Department of Epidemiology and Public Health, Faculty of Medicine, University of Ostrava
Ongoing rapid greenhouse gas emissions have led to a 1.14°C temperature increase above pre-industrial levels, profoundly impacting the environment and public health. This symposium underscores the severity of the current climate crisis, emphasizing its profound impacts on physical and mental health, while stressing the need for immediate, coordinated action. The symposium features experts from the Lancet Countdown on Health and Climate Change, a global, interdisciplinary research collaboration monitoring our response to climate change and its impact on health. In the first session, Dr. Marina Romanello, Executive Director of the Lancet Countdown, and climate change and health researcher Maria Walawender, present latest key research findings, exploring direct and indirect effects of changing climate conditions on human health. They highlight the immediate health benefits of urgent climate action, such as cleaner air, healthier diets, and improved urban living, with the potential to transform lives everyone. Dr. Kelton Minor, a spatial data science and computational social science expert, delves into climate change-related stressors' impact on mental health through a risk pathways framework in the second talk. He calls for comprehensive biopsychosocial-ecological interventions and credible evaluation methods to address these challenges. Dr. Minor emphasizes sleep as a crucial link between nighttime heat due to climate change and mental health impacts. Dr. Shuo Zhang, a Wellcome Trust Doctoral Fellow in the department of Child Psychiatry at King´s College London, addresses climate change's unequal effects on global mental well-being. She underscores the vital role of mental health professionals in Collaborating, Advocating, Researching (and educating), and Mitigating structural mechanisms perpetuating these disparities. Dr. Zhang aligns with global calls for climate justice and resilience as central foundations for good mental and physical health. Through the insights and strategies presented by these experts, the symposium will emphasize the importance of collective responsibility and multidisciplinary collaboration. Presentations will be discussed in the context of cascading, compounding collective traumas affecting public health around the world.

Individual Abstract Number: 1078
Embracing the opportunity: Tackling climate change to enable a thriving future for all
Marina Romanello, Ph.D., University College London, Institute for Global health , Maria Walawender, MSc. , Emory University
The continued and rapid emissions of greenhouse gases (GHG) has caused 1.14°C of mean heating above pre-industrial levels, and caused profound alteration on the climate and environment on which good health depends. The 2015

Paris Agreement saw countries committing to pursue efforts to limit global mean temperature rise to 1.5°C. However, progress has been slow, and climate change now threatens the survival of individuals worldwide. Delivering the necessary mitigation and adaptation response, requires coherent transformation across all human systems. While challenging, such transformation could deliver immediate ancillary benefits to health from cleaner air, healthier diets, and more liveable cities – benefits that could vastly outweigh the cost of action. The Lancet Countdown: Tracking Progress on Health and Climate Change is an international, multi-disciplinary research collaboration drawing on the expertise of over 100 leading researchers to annually monitor the world's response to this unprecedented challenge, and the health benefits that emerge from our response. This talk will give an overview of the Lancet Countdown's latest research, outlining the key findings of its 2023 report. It will explore the myriad ways in which changing climate conditions are impacting human health, both directly and indirectly, and the latest evidence on the disproportionate impact climate change is having on the most underserved communities – often those that contributed the least to the problem. New projections will highlight the imperative to protect health by urgently limiting GHG emissions, and scaling up adaptation efforts. In addition to long-term benefits, this talk will discuss the immediate benefits to health associated with urgent climate action, and their potential to transform the lives of everyone alive today for the better. Presenting evidence of its key indicators, it will point at the critical actions needed to enable a safe, thriving future for all.

Individual Abstract Number: 1091
A Biopsychosocial-Ecological Risk Pathways Approach to Address Climate Change Mental Health Impacts
Kelton Minor, Ph.D., Columbia University
Human-induced climate change is unevenly warming the planet and differentially impacting Earth's life-support systems. Among human populations, hotter ambient temperatures are also associated with a cascade of adverse mental and behavioral outcomes spanning the mental health continuum from subclinical to catastrophic. Affect degrades, mental health falters, conflict heats up, and suicides spike during hot weather. Summarizing recent large-scale quasi-experimental studies and global-scale research for The Lancet Countdown on Health and Climate Change's Working Group I, I will highlight the current state of the science of how climate change-related stressors impact human mental health through a risk pathways framework. Given the sheer spatial extent, temporal complexity and likely multi-causal nature of these "overlooked" climate change impacts, biopsychosocial-ecological interventions are urgently needed alongside credible approaches to evaluate them in real-world settings. However, mechanistic targets for breaking the chain between climate change-exacerbated heat and adverse mental health impacts must be identified. In this regard, recent research suggests that sleep may be one plausible pathway. Rising night-time temperatures are associated with worse sleep outcomes globally, and insufficient sleep is associated with the same adverse human health outcomes separately shown to increase during periods of high ambient heat. Promoting sound and sufficient slumber through multi-level contextual sleep interventions may be a promising climate change-mental health adaptation target to reduce unevenly distributed downstream harms to humanity.

Individual Abstract Number: 1092
Unequal effects of climate change on mental health
Shuo Zhang, MA (cantab), MBBS, Msc, MRCPsych , King´s College London, Department of Child Psychiatry

Climate change is already having unequal effects on the mental health of individuals and communities. Intersections between urban health inequalities and climate change effects will increasingly compound pre-existing mental health inequalities globally. Mental Health professionals have a role to work together to Collaborate, Advocate, Research (and educate), and Mitigate (CARM) against the structural mechanisms that perpetuate these inequalities and respond to global calls for action to promote climate justice and resilience, which are central foundations for good mental and physical health.

Symposium 1211
Saturday 3/23/24 2:00-3:00

Understanding the social determinants of mental and physical health: from structural inequalities to discrimination.
Lydia Poole, PhD, University of Surrey
Disparities in health are widely recognised to result from systematic and unequal exposure to social determinants of health, which can operate at both the structural/system level (e.g. through the unfair distribution of resources such as access to healthcare and education) as well as at the individual level (e.g. through perceptions of discrimination). Understanding the impacts of unequal exposure to social determinants for both mental and physical health is increasingly important as we look for ways to implement change within our healthcare services to better address the diverse communities they serve. Part of the challenge in disentangling the impacts of the social determinants of health is to question the extent to which social advantage always equates to health benefit, and identifying the mechanisms of action which will open up opportunities for intervention.
In this symposium we present four pieces of research that investigate the links between the social determinants of health across the life course and consider the mechanisms underpinning these associations.
1. Dr Rosanna M Maletta's research links reports of discrimination between 2015-2020 in the UK population with observed increases in mental health problems over the same period.
2. Dr Danielle M Krobath focuses on a composite index of neighbourhood quality in US-based adolescents and an association between higher neighbourhood quality and greater depressive symptoms.
3. Dr Ruth Hackett investigates the influence of polygenic risk and perceived discrimination in predicting future depressive symptoms using data from the English Longitudinal Study of Ageing (ELSA).
4. Dr Lydia Poole's work focuses on the perception of weight discrimination and its longitudinal effect on cardiometabolic risk factors, in a sample of older English adults living with diabetes.

Individual Abstract Number: 1212
Changes in the prevalence of perceived discrimination and associations with probable mental health problems in the UK from 2015 to 2020: A repeated cross-sectional study.
Rosanna Maletta, MSc, University of Liverpool, Michael Daly, PhD, Maynooth University, Laura Goodwin, PhD, Lancaster University, Rob Noonan, PhD, University of Bolton, I Gusti Ngurah Edi Putra, PhD, University of Liverpool, Eric Robinson, PhD, University of Liverpool
Background Significant social and political changes occurred in the UK between 2015-2020. Few studies have examined population level trends in experiencing discrimination and mental health problems during this period. Therefore, we aim to determine prevalence trends in perceived discrimination and probable mental health problems amongst UK adults during 2015-2020.
Methods Repeated cross-sectional data from the UK Household Longitudinal Study was used to estimate nationally representative trends in perceived discrimination and probable mental health problems (GHQ-12; 4+ threshold) among adults between 2015/2016-2019/2020 (25,756 observations). Weighted logistic regression models with post-estimation margins commands determined changes between survey waves controlling for sociodemographic characteristics. Mediation models explored whether changes in perceived discrimination prevalence trends explained trends in probable mental health problems.
Results From 2015/2016 to 2019/2020 perceived discrimination and probable mental health problems increased significantly by 6·1% (95% CI: 3·4-8·8, $p <$·001) and 4·5% (95% CI: 1·3-7·7, $p =$·006), respectively. Exploratory analysis revealed no evidence of upward trends in these outcomes prior to 2015. Increased prevalence of probable mental health problems from 2015/2016 to 2019/2020 was partially explained (15·2% of association mediated) by the increase in perceived discrimination observed during the same time period.
Conclusion Amongst UK adults, the prevalence of perceived discrimination and probable mental health problems increased between 2015/2016 to 2019/2020. Increases in perceived discrimination partially explained increases in probable mental health problems. National measures designed to reduce both discrimination and mental health problems have potential to make substantial improvements to public health and should be prioritised in the UK.

Individual Abstract Number: 1214
Neighborhood Quality is Positively Associated with Depression Risk in US Adolescents
Danielle Krobath, PhD, Tufts University, Adolfo Cuevas, PhD, New York University
Previous research has found that perceived neighborhood quality is associated with greater depression risk in adult populations. However, limited research has examined the relationship between neighborhood quality and mental health in this population. This study uses a comprehensive measure of objective neighborhood quality, reflecting compounding forms of economic, housing, and health promotion resources and opportunities. We examined the association between children's place of residence and depression risk.
We conducted a cross-sectional study 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 with the Child Opportunity Index (COI) 2.0, a composite measure of 29 indicators across three domains: 1) education, 2) health/environment, 3) social/economic. COI was modeled as the nationally normed Z-score to account for the non-normalized distribution. Youth depressive symptoms were measured continuously (higher values denote more symptoms) using parent responses to the Child Behavior Checklist, a validated measure of emotional problems in children consistent with the DSM-5 criteria for youth depression. We summed responses in the CBCL "Depressive Problems" subscale to calculate the child's Depressive age-corrected T score. Unadjusted and adjusted multivariate linear regression models quantified associations between neighborhood quality and depression with the primary dependent variable, child Depressive T score. Covariates were child gender and age, parent education, and household income.
In unadjusted models, each 1-unit increase in neighborhood quality was associated with a 6.6-point decrease in the mean child's Depressive T score (p<0.001.) In adjusted models, each

1-unit increase in neighborhood quality was associated with a 5.8-point higher mean child's Depressive T score (p<0.001.) We found that higher-quality neighborhoods were associated with greater depressive symptoms when accounting for child gender, age, and socioeconomic indicators. Policies to expand mental health resources, such as school counselors, may help improve youth mental health. Additional research should examine the mediating factors in neighborhoods that impede adolescent mental health, such as school-related stress and low levels of social support.

Individual Abstract Number: 1216
The interplay between polygenic susceptibility and perceived discrimination on depressive symptoms: a prospective cohort study
Toslima Khatun, PhD, King's College London, Cathryn Lewis, PhD, King's College London, Sam Norton, PhD, King's College London, Ruth Hackett, PhD, King's College London
Background: Perceived discrimination is associated with depressive symptoms. However, not everyone who perceives discrimination develops such symptoms. It is possible that discrimination is linked to depressive symptoms when it coincides with a genetic predisposition. This study investigated the interplay between perceived discrimination and polygenic propensity to depressive symptoms (as indexed by a polygenic score; PGS) on later depressive symptoms.
Methods: Data was from 4981 participants from the English Longitudinal Study of Aging (aged >50 years). Perceived discrimination was reported in 2010-11. Depressive symptoms were assessed using the Centre for Epidemiological Studies scale in 2010-11 and 2016-2017. The depressive symptoms PGS was calculated using summary statistics from the Social Science Genetic Association Consortium. Linear regression explored the interaction between perceived discrimination and PGS depression on depressive symptoms controlling for age, sex, principal components, and baseline depressive symptoms.
Results: A total of 1889 (37.7%) participants perceived discrimination. Perceived discrimination predicted increased depressive symptoms over time (B=0.248; 95% Confidence Intervals (CI) 0.142-0.354). Similarly, those with a higher polygenic propensity to depression had increased depressive symptoms over the follow-up period (B=0.050; 95% CI 0.000-0.100). No significant interaction between perceived discrimination and the PGS on later depressive symptoms was observed (B=0.68; 95% CI -0.035-0.171).
Conclusions: Perceived discrimination and a PGS for depression separately predicted increased depressive symptoms over the 6-year follow up period. However, there was no interaction between perceived discrimination and the PGS on later depressive symptoms. This suggests that perceived discrimination and genetic risk (as indexed by a PGS) operate independently to influence depressive symptoms over time.

Individual Abstract Number: 1219
The relationship between weight discrimination and cardiometabolic risk factors in diabetes: Findings from the English Longitudinal Study of Ageing.
Lydia Poole, PhD, University of Surrey, Ruth Hackett, PhD, King's College London
Background: Weight discrimination is associated with negative psychological and physical health outcomes. However, in those living with diabetes, a high risk-group for weight discrimination, this association is not well-understood. This study examined the extent to which weight discrimination is longitudinally associated with cardiometabolic risk factors in adults with diabetes.

Methods: Participants were 724 people (aged 50 years and older) with diabetes at wave 5 (2010/2011) of the English Longitudinal Study of Ageing. Perceived weight discrimination (ever experienced versus never) was measured at wave 5. Participants provided outcome data at waves 6 (2012/2013) and 8/9 (2016/17, 2018/2019). Outcome measures included psychological (depressive symptoms), anthropometric (body mass index (BMI)), and cardiometabolic biomarkers (glycated haemoglobin (HbA1c), triglycerides, total cholesterol/high density lipoprotein (HDL) ratio, fibrinogen). Linear regressions controlled for baseline age, sex, wealth, and baseline measures of the outcome of interest. Sensitivity analyses additionally controlled for wave 4 (2008/2009) BMI. Analyses were re-run using a composite discrimination measure across all possible attributions (race, sex discrimination etc.).
Results: Weight discrimination was reported by 67 (9.3%) participants. Perceived weight discrimination was associated with greater depressive symptoms ($β$ = 0.077, p = 0.021, 95% confidence intervals [CI] 0.075, 0.927), higher triglycerides ($β$ = 0.129, p = 0.012, 95% 0.103, 0.816), poorer total cholesterol/HDL ratio ($β$ = 0.148, p = 0.002, 95% 0.192, 0.858), and greater fibrinogen ($β$ = 0.508, p <0.001, 95% 0.421, 0.621) at wave 6. Additional control for wave 4 BMI attenuated effects for depressive symptoms, and fibrinogen. All effects were attenuated at wave 8 and no longer significant. No significant findings were found for HbA1c. Findings were not replicated using a composite discrimination measure suggesting results are specific to weight discrimination.
Discussion: Findings suggest that weight discrimination has deleterious effects on a range of cardiometabolic risk factors in those living with diabetes, at least in the short-term. Interventions targeted to help individuals with diabetes adjust to the stigma associated with weight are warranted to help reduce the risk of future diabetes-related complications.

Symposium 896
Saturday 3/23/24 2:00-3:00

Pain, Stress, and War: Situating Autonomic and Interoceptive Interventions in Biopsychosocial Health Contexts
Sahib Khalsa, MD, PhD, Laureate Institute for Brain Research
A nuanced understanding of how interoceptive and autonomic systems interact with multifaceted environmental factors is increasingly recognized as pivotal for advancing both preventive and therapeutic biopsychosocial interventions. This symposium brings together four studies highlighting the intricate relationships between interoceptive abilities, autonomic signaling, and biopsychosocial health. The first study delves into blood pressure-related hypoalgesia, revealing that interoceptive abilities can modulate pain perception in normotensive and borderline hypertensive individuals. The results point to potential psychosomatic interventions aimed at enhancing interoceptive awareness to mitigate cardiovascular risk. The second study explores the clinical expression of fatigue from an interoceptive predictive coding perspective. With a sample of patients experiencing chronic pain and fatigue, it showcases how subjective measures of interoceptive experience correlate with fatigue. This aligns with a community-oriented approach to research, presenting new data on how systemic determinants like connective tissue variants and musculoskeletal features moderate this relationship. The third study uses real-time data to explore stress-induced analgesia in Ukrainian women during a period of intense societal stress—onset of the Russia-Ukraine war. This aligns with the conference's theme on historical context and health, examining how stress and the physical environment, compounded by large-scale events, can impact

pain perception and cardiovascular reactivity. The fourth study evaluates Reduced Environmental Stimulation Therapy via floatation as a non-pharmacologic intervention for psychiatric disorders, revealing unique symptom relief and autonomic activation patterns in mood and anxiety disorders but also in stimulant use disorders. This demonstrates a viable path for intervention development and emphasizes the need for a deeper understanding of the underlying autonomic and interoceptive mechanisms. Collectively, these studies advance our knowledge of the interplay between interoception, autonomic function, and the broader contextual influences affecting biopsychosocial health, presenting innovative therapeutic approaches, and outlining the way for community-oriented, multilevel research that incorporates physical, environmental, and systemic determinants of health.

Individual Abstract Number: 897
Examining the role of interoceptive abilities in blood pressure-related hypoalgesia

Cristina Ottaviani, PhD, PsyD, Sapienza University of Rome, Andrea Salaris, MS, Sapienza University of Rome, Luca Provenzano, PhD, Italian Institute of Technology, Center for Life Nano-& Neuro-Science , Hajar Al Naqshbandi, MS, Sapienza University of Rome, Rachele Grimaldi, MS, Sapienza University of Rome, Serra Yucel, BS, Sapienza University of Rome, Barbara Basile, PhD, IRCCS, Santa Lucia Foundation, Cecilia Vivarelli, MS, Italian National Institute of Health (ISS), Matteo Mancini, PhD, Italian National Institute of Health (ISS), Giuseppina Porciello, PhD, IRCCS, Santa Lucia Foundation

It is well established that pain perception is reduced during spontaneously occurring and experimentally induced episodes of high blood pressure (BP), and this is a clinically relevant phenomenon that interferes with the early detection of the chest pain that characterizes silent myocardial infarction. Two distinct pilot studies were conducted under stressful and non-stressful environmental conditions, with the overall aim of investigating whether interoceptive abilities, assessed via self-report measures and the heartbeat counting task, may modulate this phenomenon, known as BP-related hypoalgesia. The first study (n = 27 normotensive participants) showed a significant moderation effect of interoception (b = -3.94, SE = 1.81, t = -2.18, p = 0.04, 95% CI[-7.69, -0.19]), according to which individuals characterized by low-to-moderate accuracy in perceiving their own heartbeat exhibited a positive correlation between BP levels and pain thresholds, while this pattern was not observed in participants with high interoceptive abilities. The second study expanded upon these findings by examining a sample of unmedicated borderline hypertensive (n = 20) and age and sex-matched normotensive individuals (n = 20) and added a stress-inducing virtual reality paradigm which yielded a significant Group by Condition interaction (F = 12.02, p = .001). Borderline hypertensives and controls had opposite reactions to the stressor: in the first group pain threshold increased, in the second it decreased. Notably, pain threshold was significantly associated with (self-reported and behavioural) interoceptive abilities only in normotensives (ps < .03). If replicated, current results point to the possibility to reduce the additional cardiovascular risk posed by BP-related hypoalgesia by developing ad hoc interventions aimed at enhancing interoceptive awareness in hypertensive individuals.

Individual Abstract Number: 905
Fatigue as a disturbance of interoceptive prediction: How does the theoretical formulation match clinical research?

Hugo Critchley, DPhil FRCPsych, Brighton and Sussex Medical School, Harriet Sharp, MBBS, Sussex Partnership NHS Foundation Trust, Sam Sherrill, PhD, formerly BSMS , Jessica Eccles, MBBS PhD MRCPsych, Brighton and Sussex Medical School

The experience of fatigue is a constraint on physical and psychological exertion. Disproportionate fatigue is a symptom of certain medical and psychiatric disorders. Here we review the expression of fatigue from a theoretical perspective of interoceptive predictive coding, allostatic overload and decompensation) with reference to pathology (inflammation, heart failure and depression) and physical exertion[1,2,3].
New data will be presented on the clinical expression of fatigue in relation to interoception. Here we show in a sample of 70 patients with chronic pain and fatigue symptoms (vs matched controls) that subjective measures of interoceptive experience, and a computed measure of interoceptive trait prediction error, correlate with the magnitude of fatigue. Moreover, this relationship interacted with the presence of variant connective tissue, identifiable as joint hypermobility syndrome and individual differences in musculoskeletal features including arachnodactyly. Fresh insights into neural substrates and network connectivity supporting interoception in this clinical context comes from a sample of 140 patients.
The moderation of the relationship between interoception and fatigue fits within an extended theoretical predictive coding model of bodily state and its instantiation in brain systems that integrate multimodal sensory processing with action and autonomic control.

1 Stephan KE et al. Allostatic self-efficacy: A metacognitive theory of dyshomeostasis-induced fatigue and depression. *Front Hum Neurosci.* 2016 **10**:550
2 Katz AM, Rolett EL. Heart failure: when form fails to follow function. *EurHeart J* 2016 **37**:449-454.
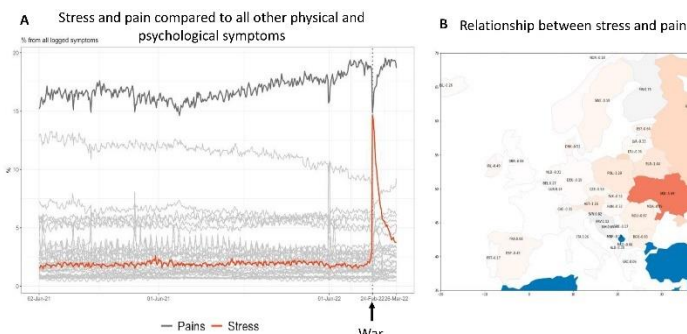3 Greenhouse-Tunnock et al. Toward the unity of pathological and exertional fatigue: A predictive processing model. Cogn Affect Behav Neurosci. 2022 **22**:215-228

Individual Abstract Number: 914
The interaction between stress and pain in Ukrainian women

Sarah Nicola Garfinkel, PhD, University College London, Aliaksandr Kazlou, MA, Flo Health, Kateryna Bornukova, PhD, BEROC, Sonia Ponzo , PhD, Flo Health

Stress is associated with changes in the autonomic nervous system and interoceptive signalling. Interoceptive signals from the heart interact with neural mechanisms to alter the processing of pain. Chronic stress can have long-term deleterious consequences for mental and physical health, while acute stress can promote adaptive processing to optimize short-term survival. Stress-induced analgesia is the attenuation of pain perception with acute stress. A phenomenon that has been naturalistically reported and subsequently characterized in the laboratory, ecological studies of stress-induced analgesia are limited due to the challenges of detailing pain in a high-stress context. Using Flo, a women's health app with a world-wide monthly active usership of more than 48 million, N= 94,814 women in Ukraine were monitored for their reporting of stress, pain and affective symptoms before, and immediately after, the onset of the Russian-Ukrainian conflict. Reports of stress markedly increased with the onset of the Ukrainian invasion, while pain reports declined. Our analysis shows that no other symptoms dynamically interacted with stress to decrease or increase pain at such a magnitude. These data are consistent with the temporary and specific phenomenon of stress-induced analgesia and the attenuation of pain processing with heightened cardiovascular reactivity. With the advent of mobile technology and the widespread usage of lifestyle apps, real-time data extraction can facilitate the ecological assessment of symptoms, furthering our understanding of the dynamic interaction between body and symptoms in real-world contexts.

A Stress and pain compared to all other physical and psychological symptoms

B Relationship between stress and pain

— Pains — Stress

War

Individual Abstract Number: 919
Beyond stress reduction: evaluating the role of floatation-REST in managing psychiatric and psychosomatic symptoms
Sahib Khalsa, MD, PhD, Laureate Institute for Brain Research, McKenna Garland, PhD, Laureate Institute for Brain Research, Justin Feinstein, PhD, Laureate Institute for Brain Research, Greg Morrissey, MD, Laureate Institute for Brain Research, Abhinita Premkumar, BS, Laureate Institute for Brain Research, Jennifer Stewart, PhD, Laureate Institute for Brain Research

Reduced Environmental Stimulation Therapy via floatation (floatation-REST) is a non-pharmacologic intervention attenuating exteroceptive input to the nervous system that is being increasingly utilized by the public as a stress reduction tool. However, there is limited information regarding the safety and feasibility of floatation-REST in modulating psychiatric disorder symptomatology. Two randomized controlled trials evaluated the feasibility and impact of floatation-REST versus an active comparator (chair-REST) on disorder-relevant symptoms in individuals with mood and/or anxiety disorders (study 1, n=75, six sessions in parallel) or individuals with stimulant use disorder (study 2, n=54, one crossover session). Linear mixed effects models were performed to evaluate group differences across treatment condition and timepoint (pre- vs. post-session). In study 1 of anxious and depressed individuals, a significant main effect of treatment condition and timepoint was accounted for by the significant interaction between these variables (F = 6.43, p < .0001, h$_p^2$ = .04). Post-hoc comparisons suggested that floatation-REST elicited greater feelings of joy/happiness, energy, ability to focus/concentrate, serenity, appreciation for life, refreshment, relaxation, pain-free existence, and feelings of empathy and compassion for others than chair-REST (ps < .05), in addition to an increased heart rate and systolic blood pressure (ps < .05). In study 2 of individuals with stimulant use disorder, both conditions elicited significant decreases in anxiety, negative affect, and stimulant craving (ps < .001), whereas floatation-REST, but not chair-REST, was associated with greater increases in positive affect (interaction p = .02, $_p^2$ = .04), systolic blood pressure (p < .01), and heart rate (p = .01). Across both studies, floatation-REST elicited higher positively-valenced ratings of cardiac and respiratory sensations than chair-REST, with no changes in gastrointestinal sensation ratings or significant study-related adverse events. These findings suggest that floatation-REST has a promising role in ameliorating symptoms related to mood and anxiety disorders, as well as stimulant use disorder. Neurobiological studies on autonomic and interoceptive pathways will be essential for a mechanistic understanding of the effects exerted by floatation-REST.

Symposium 1014
Saturday 3/23/24 2:00-3:00

The Social Nature of Physiology: Lessons from Diverse Dyads across the Adult Lifespan
Stephanie J. Wilson, PhD, Southern Methodist University
Close relationships profoundly shape the course of physiological well-being. Indeed, the known health risks of isolation underscore the need for social ties. Yet, the associations are complex: close, high-quality relationships can be a double-edged sword for health, especially as individuals age and in times of stress and illness. Only dyadic research can reveal how these intricate dynamics unfold to impact the health of close social pairs. This symposium integrates three studies that employ cutting-edge methods to address foundational questions about the dyadic context of physiology in a wide range of aging dyads.

To probe the underpinnings of interpersonal synchrony, the first study examined linkage in six physiological signals between persons with dementia and their friend or family caregiver while discussing an area of disagreement. Paired with neuroimaging data, this study's novel approach identified brain regions that may enable close dyads to synchronize their physiology during emotional conversations.

The next study extends the role of attachment in cardiovascular reactivity to older adults with early-stage dementia and their adult children. Employing eHealth technology, findings revealed that attachment security played a protective role in the cardiovascular health of both dyad members as they discussed dementia-related concerns.

To broaden the range of marital interactions that play a mechanistic role in inflammation, the final study directly compared the magnitude of inflammatory responses to marital conflict with those triggered by an understudied context: the partner's personal distress. Findings from an age-diverse sample of couples showed larger inflammatory and emotional reactivity to partner distress than marital conflict, highlighting the possible health implications of partner stress and suffering in both happy and unhappy couples.

This diverse collection of studies will stimulate discussion about the neural bases of physiological synchrony between social partners, dementia as a critical context for dyadic processes, and the roles of attachment and interaction type in physiological responses to dyadic exchanges. Integrative health implications of the findings and future directions in dyadic processes and health research will be discussed.

Individual Abstract Number: 1087
Default Mode Network Neurodegeneration in Persons with Alzheimer's Disease is Associated with Their Reduced Physiological Linkage to Family/Friend Caregivers
Kuan-Hua Chen, PhD, University of Nebraska Medical Center, Fatemeh Noohibezanjani, PhD, University of California, San Francisco, Virginia Sturm, PhD, University of California, San Francisco, Robert W. Levenson, PhD, University of California, Berkeley

Physiological linkage refers to the degree that physiological responding in two interacting individuals changes in coordinated ways. Reduced physiological linkage has been suggested as an indicator of diminished social connectedness, which may undermine interactants' health and well-being over time. Alzheimer's disease (AD) is associated both with neurodegeneration in certain large-scale brain networks and loss of social connectedness between the persons with dementia (PWDs) and their families and friends. Our previous work has observed reduced physiological linkage between PWDs and their family/friend caregivers but has not examined how damage to PWDs' brain structures contributes to this effect. Thus, we examined the neural correlates of reduced

physiological linkage in a sample of 30 persons with AD and their family/friend caregivers (26 spousal, 3 siblings, 1 friend). All dyads had a 10-minute conversation about an area of disagreement in the laboratory. Physiological linkage was computed as the averaged absolute values of second-by-second correlations (in 15-second rolling windows) between PWD's and caregiver's physiological responses (using a composite of six peripheral and somatic physiological measures, e.g., heart rate, skin conductance) during the conversation. Using a mask of default mode network regions, Voxel-Based Morphometry analyses ($p < .001$ uncorrected, $k > 10$) revealed that PWDs' lower physiological linkage with their caregivers was associated with smaller brain volumes in right precuneus, right lingual gyrus, and bilateral medial frontal gyrus. These results were robust as they remained statistically significant even when adjusting for PWD's age, sex, and disease severity. Our findings suggest that the default mode network may be critical for physiological linkage to occur between PWDs and their caregivers. Previous literature has demonstrated associations between default mode network activation and socio-emotional functioning (e.g., mentalizing and responding to other people's emotions). Thus, we expect that the relationship between default mode network degeneration and reduced physiological linkage is mediated by changes in social and emotional functioning that are supported by this network.

Individual Abstract Number: 1042
Attachment Security and Systolic Blood Pressure during Positive and Stress-inducing Conversations Among Parents Living with Early-Stage Dementia and Adult Children
Joan K. Monin, PhD, Yale School of Public Health, Kira Birdit, PhD, University of Michigan, Brooke C. Feeney, PhD, Carnegie Mellon University, Ana-Maria Vranceanu, PhD, Massachusetts General Hospital, Richard Marotolli, MD, MPH, Yale School of Medicine
Close relationship functioning has immense implications for physical health across the lifespan. Yet, little attention has been paid to interpersonal dynamics between older adults and their middle-aged children when parents are faced with the early stages of dementia, a stressful event likely to activate the attachment system in both dyad members. Attachment security has been linked to cardiovascular health in other populations (e.g., young adult romantic partners, young children). We hypothesized that attachment security (low anxiety and/or avoidance) would be associated with lower systolic blood pressure in both a positive social interaction and a stressful interaction. One hundred fifty-four dyads comprised of older adults living with early-stage dementia and an adult child completed the 9-item general version of the Experiences in Close Relationships- Short Form that assessed two dimensions: anxiety and avoidance. Two weeks later, on videoconference they (1) played "Name that Tune" (positive condition) and (2) had a conversation about their own concerns about the self/parent having dementia (stress condition) during which they each wore a CareTaker® (CT) device, a device measuring continuous non-invasive blood pressure via a pulse contour algorithm called Pulse Decomposition Analysis. We focus on systolic blood pressure (SBP) for the clinical relevance. There were no significant covariates between either the attachment or SBP variables. Results from the Actor Partner Interdependence Models using mixed models in SPSS showed that for the positive condition, for both dyad members, lower partner anxiety was marginally significantly associated with higher SBP (B=-1.83, SE=.97, t(137)=-1.91, p=.059). In the stress encounter, for both dyad members, lower actor avoidance was significantly associated with lower SBP (B=2.46, SE=1.22, t(139)=2.01, p=.046). Results suggest that

low avoidance may be particularly protective for blood pressure in stressful conversations in which the attachment system is thought to be activated for older adults experiencing the early stages of dementia and their adult children.

Individual Abstract Number: 1041
A Tale of Two Marital Stressors: Comparing Proinflammatory Responses to Partner Distress and Marital Conflict
Stephanie J. Wilson, PhD, Southern Methodist University, Iris S. Yang, BS, Southern Methodist University, Sumaiyah U. Syed, BA, Southern Methodist University, Steve Cole, PhD, University of California at Los Angeles
Marital quality shares ties to inflammatory conditions like cardiovascular disease and diabetes. For decades, research has focused on marital conflict as a primary mechanism given its potential to trigger inflammatory responses. However, longitudinal evidence suggests that marital conflict declines over time, and little attention has been paid to the inflammatory aftermath of other types of marital exchanges. A spouse's emotional distress is an important but overlooked marital context, as partners are exposed to each other's upsetting emotions throughout adulthood. Early evidence suggests that watching an emotionally upset partner can elicit changes in proinflammatory gene expression and that emotional responses to partner distress may be greater than responses to marital conflict. To directly compare inflammatory responses to these two marital stressors and to explore differences by age and marital satisfaction, 203 community adults ages 25-90 (N=102 couples) provided blood samples and rated their emotions before and after they 1) watched their partner relive an upsetting personal memory and, in a separate visit 1-2 weeks later, 2) discussed a conflictual topic in their relationship. Controlling for age, sex, race/ethnicity, BMI, comorbidities, alcohol use, and smoking, increases in proinflammatory gene expression were significantly larger after the partner's upsetting disclosure than after marital conflict (B = 0.073, SE = 0.031, p = .018). This pattern paralleled emotional reactivity to the tasks, wherein negative mood rose more in response to the partner's disclosure than to marital conflict (B = 4.305, SE = 1.468, p=.004). A non-significant moderating trend arose such that dissatisfied spouses had equally large negative mood responses to both tasks, but satisfied spouses only showed significant reactivity to the partner's distress (B = 0.115, SE = 0.062, p = .067). However, differences in proinflammatory gene expression were not further amplified by age, marital satisfaction, or emotional reactivity. In sum, proinflammatory and mood reactivity to spousal distress exceeded reactivity to marital conflict, a well-established marital stressor. Findings reveal spousal distress as a novel mechanism that may link marriage to inflammation-related diseases, and even pose risks for both happy and unhappy couples across adulthood.

Symposium 906
Saturday 3/23/24 3:15-4:15

Hypertension and autonomic reactivity to stress: Measuring and managing risk
hugo critchley, MBChB DPhil, BSMS
The symposium examines stress reactivity and risk of hypertension across the lifespan from early life stress responses, reactivity profiling of young people, through to clinical expression and management of hypertension in older individuals.
The symposium addresses different levels of understanding: Including; 1) the historical basis to measurement of arterial waveform (linked to Brighton the host city of APS 2024); 2) the

pathological (vascular mechanical) impact of hypertension on the heart; 3) physiological profiling of stress reactivity in young people to predicts hypertensive and cardiovascular risk; 4) the expression of early life stress in cardiovascular sympathetic measures of mothers and their young children; and; 5) fine-grained characterisation of individual differences in profiles of autonomic neural reactivity to experimental stress testing.

Prof. Rajkumar is a UK expert in elderly medicine, stroke and hypertension: His talk covers; a) the aetiopathological mechanisms through which hypertension and arterial stiffness increase the risk of stroke and heart failure; b) the first measurement of the arterial waveform conducted by Brighton-based physician Dr Fredrick Akbar Mohamed in the 1870s,, and; c) the optimal management of hypertension in the elderly, balancing benefits with risk.

Dr Howard will describe blood pressure and heart rate reactivity in 350+ young people. A cluster-based approach was applied to identify at-risk participants, who exhibit a distinct response profile of reactivity to recurrent stress that likely underpins the development of hypertension.

Prof Waller will present work that reveals how childhood maltreatment and early life stress is associated with insecure attachment and heightens sympathetic (re)activity, enhancing risk of essential hypertension. Moreover 'transmission' of increased sympathetic activity sis observed in healthy1 year old children of mothers who experience early life stress.

Dr Bigalke will showcase how direct recording from autonomic nerves using sympathetic microneurography in humans sheds light on mechanisms through which psychological stress is expressed in the body, and how trait-level individual differences in autonomic reactivity to stress underpin the risk of developing cardiovascular disease.

Together, we bring together perspectives of speakers from different institutions and backgrounds.

Individual Abstract Number: 908
Hypertension -- pathogenesis and optimum management in the elderly
Chakravarthi Rajkumar, MBBS, MD, PhD, FRCP, FBHS, Brighton and Sussex Medical School
As we all grow older major structural and functional changes occur in our arteries. As a consequence, the arteries get hardened and the pulsatility decreases. The left ventricle has to work harder to overcome the stiffness of the arterial tree and ensure that blood flow is maintained to all organs in the body. The pathogenesis of these changes and their effect on blood pressure is complex. When the left ventricle contracts, pulse waves generated in the aorta travel to the peripheries. Wave reflections occur at points of bifurcation. With stiffening of the arteries, the pulse waves which are reflected, arrive back at the aorta in systole and increase the systolic blood pressure, resulting in isolated systolic hypertension in the older population. Systolic hypertension is a major risk factor for stroke and heart failure.

The pathophysiology of arterial dysfunction was first described by Dr Frederick Akbar Mohamed (1849-1884) in Brighton and London. Dr Mohamed studied medicine in Brighton at the then Brighton Medical School. He was the first person to study and record the arterial wave form. This has helped the medical fraternity to understand the reasons for developing hypertension and to study the effects of drugs in its management.

Treatment of hypertension in the very elderly has been shown to be associated with decrease in strokes, heart failure, myocardial infarction and death. However, treatment of hypertension is also associated with a number of risks. Optimum management of blood pressure and setting appropriate targets for blood pressure management is very important.

This talk will focus on
1. Arterial changes which occur with ageing and the physiological consequences.
2. The role of hypertension in causing target organ damage.
3. The history of the physiological changes as described by Frederick Mohamed in Brighton.
4. Optimum management of blood pressure in the elderly population and the consequences of aggressive treatment.

Individual Abstract Number: 909
Hemodynamic profile of differing patterns of cardiovascular stress response adaptation
Siobhán Howard, PhD, SASHLab, University of Limerick, Brian M Hughes, PhD, University of Galway
Background: Patterns of cardiovascular adaptation to recurrent stress are particularly revealing when it comes to detailing the impact of psychosocial moderators of cardiovascular reactivity and adaptation to psychological stress. The underlying hemodynamic profile of adaptation patterns may further reveal important disease risk indicator, particularly with regard to hypertension. **Purpose:** The present study utilized multivariate clusters of reactivity patterns identified previously as conferring increased risk for the development of hypertension to examine the underlying hemodynamic profile of the stress response adaptation patterns. **Methods:** In a sample of 356 young adults, cardiovascular reactivity exaggerators, reactors, blunters, and at-risk individuals were identified based on their cardiovascular reactions to novel stress, with categorisation dependent on systolic blood pressure (SBP), diastolic blood pressure (DBP), and heart rate (HR) reactivity in combination. Of the 356 participants, 199 participants were uncategorised according to the predefined criteria. **Results:** Analyses identified that those in the at-risk group (those who exhibited high SBP and DBP responses to stress, paired with modest HR responses) failed to show the expected compensatory cardiac output and total peripheral response to initial or recurrent stress; in fact, on exposure to recurrent stress, at-risk individuals showed a markedly vascular hemodynamic profile. In addition, all participants, except those at-risk, showed significant HR habituation to the recurrent stress. Blunters, on the other hand, showed significant SBP and DBP sensitization to recurrent stress. **Conclusion:** These data identify that a vascular hemodynamic profile may associated with different profiles of reactivity and adaptation to recurrent stress that have been associated with development of hypertension.

Individual Abstract Number: 1039
Early life stress and attachment trauma and their roles on essential hypertension
Eva Roder, MD, Department of Psychosomatic Medicine, Medical University of Ulm, Elisabeth Balint, MD, Department of Psychosomatic Medicine, Privat institute of Meiringen, Switzerland, Franziska Köhler-Dauner, PhD, Department of Child and Adolescence Psychiatry, Medial University of Ulm, Edit Rottler, 0, Department of Psychosomatic Medicine, Paracelsus Medical University Nuremberg, Markus Müller, PD PhD , Department of Psychosomatic Medicine, Paracelsus Medical University Nuremer, Radermacher Peter , Prof. MD , Institute of Anesthesiological Pathophysiology and Process Engineering, Christiane Waller, Prof. MD , Department of Psychosomatic Medicine, Paracelsus Medical University Nuremberg
Introduction: Essential hypertension is still a disorder of unknown cause. It develops throughout the lifespan and often remains undetected for a long time, in particular during its preliminary stages. Our research group was able to show a

high prevalence of early life stress and insecure attachment representations in patients with primary hypertension (Balint et al. 2016a, 2016b). Therefore, we hypothesised that childhood maltreatment (CM) and insecure attachment patterns may be responsable for a setpoint adjustment in the biological stress axes, and could thus contribute to the development of essential hypertension.

Methods: To test this hypothesis, we derived the autonomic nervous system (ANS) activity using electrocardiography (ECG) and impedance cardiography (ICG) in healthy mothers (19-43 years old) and their healthy one-year-old child to determine heart rate (HR), blood pressure as well as respiratory sinus arrhythmia (RSA) and pre-ejection period (PEP) as parameters of parasympathetic and sympathetic tone, respectively.

Results: Mothers with CM experiences presented with significantly (p<0.01) lower PEP values than mothers without CM experiences, indicating higher sympathetic nervous system (SNS) activity. Surprisingly, PEP was also significantly (p<0.01) lower in the children of mothers with CM experiences when compared to the child of mothers without CM. Mothers with insecure attachment representation, especially with attachment trauma, also showed significantly (p<0.001) lower PEP values together with both significantly higher (p<0.001) diastolic and mean arterial blood pressure (86±9 and 99±8 mmHg, respectively) when compared to mothers with secure attachment representation (78±10 and 92±8 mmHg, respectively).

Conclusion: CM and attachment trauma lead to a set point adjustment of the ANS with chronic SNS over-activation. This may have lead to the measured increase in blood pressure at this age. Interestingly, we show a transmission effect of SNS activation in the child through ELS experiences in the mother. Further results and conclusion derived from the above studies will be presented in detail at the symposium.

Individual Abstract Number: 1043
Microneurographic Assessment of Sympathetic Nerve Reactivity to Laboratory Mental Stress
Bigalke Jeremy A, PhD, Department of Health, Human Performance, and Recreation, Baylor University, Jason Carter, PhD, Department of Health, Human Performance, and Recreation, Baylor University
Cardiovascular disease remains the leading cause of death in the United States. Psychological stress exposure mediates the development of cardiovascular risk. Laboratory mental stress tasks can be used to interrogate the acute effects of stress on cardiovascular measures; cardiovascular hypo- and hyperreactivity to mental stress can predict future cardiometabolic disorders. One mechanism underlying cardiovascular reactivity is sympathetic nervous activity. However, most studies of sympathetic stress reactivity rely on indirect measurements. Microneurography is a specialized technique, which utilizes insertion of a recording microelectrode into post-ganglionic, efferent sympathetic nerves, allowing real-time direct recording of muscle sympathetic nerve activity (MSNA). Microneurography is an important tool to further the interdisciplinary study of psychological and physiological factors underlying the impact of stress on cardiovascular disease risk. Although MSNA responses to mental stress are reproducible within an individual, they are highly variable between individuals. Reproducibility of MSNA at rest and in response to stress supports sympathetic stress reactivity as a trait characteristic that may be impacted by physiological (i.e., arterial baroreflex) and psychological (i.e., perceived stress/appraisal) parameters. The influence of these factors remains contentious, with further ambiguity introduced by the use of differing stress tasks, incomplete assessment of stress

appraisal, among other variables. Our laboratory recently characterized MSNA responses to the Trier Social Stress Test, allowing dissection of physiological and psychological characteristics at each phase of the task (i.e., speech preparation, speech, math, and recovery), highlighting the utility of anticipatory stress as a stressor devoid of external influences. We are currently building upon these findings by incorporating assessment of stress appraisal, cognitive and somatic anxiety, and self-confidence to understand the complex physiological and psychological interactions which underlie inter-individual sympathetic neural responses to stress. These findings advance our understanding of the influence of perceptual measures on objective sympathetic responses to laboratory stress, elucidating causes of inter-individual sympathetic stress responses, and subsequent cardiovascular risk.

Symposium 860
Saturday 3/23/24 3:15-4:15

Using Community-oriented and Strength-based Approaches to Address the Opioid, Pain, and Suicide Crises among American Indian and Alaska Native People
Elizabeth D'Amico, PhD, RAND
Despite significant strengths, American Indian/Alaska Native (AI/AN) people experience numerous health disparities, including high rates of opioid use, pain, and suicide. These disparities are linked to historically based trauma, including forced relocation from tribal homelands and cultural genocide, that has persisted across generations. AI/AN people have been historically under-represented in research and studies are needed to understand factors that contribute to both disparities and resilience within this population. The current symposium focuses on structural and systemic determinants of biopsychosocial health that contribute to disparities among AI/AN people, and details best practices for collaborating with communities to utilize culturally responsive, and strength based approaches to increase health equity. The first presentation discusses outcomes from a community-oriented intervention, Qungasvik (Tools for Life), developed in partnership with Yup'ik AN communities to reduce risk for suicide and alcohol use. Findings highlight how this strength based approach buffers suicide and alcohol risk for AN young people. The second talk builds on the Qungasvik model by working with these same communities to develop a brief, virtual individual intervention that addresses suicide prevention for AN young people in hospital settings through traditional teachings based on ancestral strengths and a focus on the importance of supportive social networks. Through innovative dissemination, this project reaches providers across Alaska to increase referrals to the intervention and addresses structural barriers to healthcare access in geographically remote communities. The third talk utilizes a biopsychosocial model to understand risk and protective factors that may contribute to pain among AI/AN emerging adults. Findings emphasize the importance of cultural factors in reducing risk for pain. The final talk focuses on culturally centering medication treatment for opioid use disorder, and discusses data from interviews with AI/AN patients and providers. A moderated discussion will address best practices for engaging AI/AN communities in research, historical context and structural determinants that increase health disparities, and how to work with communities to develop culturally-appropriate and strength based interventions to increase resilience among AI/AN people.

Individual Abstract Number: 891
Translating culture into effective community health interventions for Indigenous youth in rural Alaska contexts at highest global risk for suicide
Stacy Rasmus, PhD, UAF

Suicide among Alaska Native young people is a public health crisis in the US, and Alaska Native people in general experience a suicide rate that is four times higher than the US general population (47/100,000 versus 13/100,000). Rates increase significantly within certain regions of Alaska, with Yup'ik Alaska Native communities in the southwest region experiencing rates in some remote communities that average 176/100,000. Differences in rates of suicide among Alaska Native people vary by regions and communities within regions, suggesting that cultural and contextual factors may significantly drive suicide disparities among young people. If social determinants of health, including racism and discrimination, drive disparities, it can also be posited that social and community-level factors can drive solutions to eliminate inequities and facilitate collective and individual well-being. Our team has been in partnership with Yup'ik Alaska Native communities in the southwest region of the state for over 20 years to develop and test culturally-grounded and strengths-based strategies to reduce risk for suicide and alcohol misuse. We report on recent findings from a prevention trial examining the effectiveness of a community intervention, Qungasvik (Tools for Life), focused on enhancing protective factors. Qungasvik is a community-driven model that builds multi-level protective factors in young people through immersion into their cultural Yup'ik ways of living. Four communities with young people ages 12-19 were assigned to immediate intervention or dynamic wait list. Outcomes were analyzed for 239 youth (49% female, 51% male, age mean 14.92) at four timepoints over two years of community intervention. Outcomes were reasons for life and reflective processes about alcohol use, which are protective factors buffering suicide and alcohol risk. Dose dependent intervention effects promoted growth in these protective factors, buffering suicide and alcohol risk, with strongest effects for young people highly involved in intervention activities. Outcomes confirm the cultural logic of Yup'ik Alaska Native rural community contexts is key to understanding the relationship between suicide and alcohol risk and highlight that valuing one's life and connection to socioecological and cultural resources is protective and leads to well-being.

Individual Abstract Number: 899
Development and implementation of a virtual culturally appropriate suicide prevention program for Alaska Native young people
Elizabeth D'Amico, PhD, RAND
Suicide is the leading cause of death for Alaska Native (AN) young people ages 15 through 24. There is urgent need for culturally appropriate programs, yet only three studies to date have tested suicide prevention interventions among Indigenous people. The current presentation details how historical context and the legacy of structural racism has increased health disparities among AN young people, and how a community-oriented approach led to an innovative strength-based intervention to address suicide and alcohol misuse among AN young people in Alaska. Formative work with the community noted the lack of interventions to address suicide risk and that service delivery is compounded by remoteness of rural communities with limited infrastructure and resources. BeWel (Because We Love You) focuses on providing protective cultural experiences for AN young people to nurture Indigenous identity, building a healthy social network, and increasing intergenerational interconnectedness to reduce risk for suicide and alcohol misuse. Our brief, 45 minute virtual intervention addresses suicide prevention by focusing on protective factors delivered through stories by Alaska Native Elders, and draws from teachings based on ancestral strengths and survival skills. In addition, Elders address the importance of social networks using innovative pictures formed from

participants' answers to questions about network members. To date, the average age of participants in our program is 20 years old. About 40% report clinically significant levels of depression and anxiety and 60% report lifetime alcohol or cannabis use. However, most participants (44%) said they feel connected with their community, and the majority (75%) said their Elders teach them about cultural values, highlighting the important role of traditions in this population. Working closely with our Elder and Youth Advisory Boards and Tribal organizations across Alaska, we have created innovative dissemination products, including a video informing providers how to refer young people at risk for suicide to our intervention. Because of this community informed approached, we have been able to connect AN young people with resources immediately after a suicidal event, which is critical to increase well-being and resilience in the long term and help health decision makers understand how to best address suicide in Alaska.

Individual Abstract Number: 901
Pain among urban Native American emerging adults: Exploring socioeconomic and cultural factors
Anthony Rodriguez, PhD, RAND
Physical pain is highly prevalent among Native American (NA) populations and a major contributor to opioid use and misuse. Contemporary biopsychosocial models suggest a range of socio-cultural factors interact in the development and maintenance of pain, and these may drive disparities in pain among NA people. However, pain is understudied in urban-dwelling NA emerging adults, a group with a unique set of socio-cultural challenges and strengths. This study explores associations between socioeconomic disadvantage, socio-cultural risk and protective factors, and pain among urban NA emerging adults. Participants (N = 417; 84% female, ages 18-25) were recruited from across the U.S. via social media and self-reported their pain, level of socioeconomic disadvantage (i.e., income category and ability to afford healthcare), and extent to which they experienced several socio-cultural risk and protective factors (i.e., discrimination, historical loss, cultural pride and belonging, visiting tribal lands). Multiple regression models tested associations between socioeconomic disadvantage and pain and socio-cultural factors and pain. Additional regression models tested associations between socio-cultural factors and pain among two subsamples: socioeconomically disadvantaged and less disadvantaged. In the full sample, reporting lower income, being unable to afford healthcare, experiencing discrimination, and contemplating historical loss were positively associated with pain, whereas visiting tribal lands was negatively associated with pain. Among less disadvantaged individuals, discrimination and historical loss were positively associated with pain, whereas visiting tribal lands, cultural pride and belonging were negatively associated with pain. However, among socioeconomically disadvantaged individuals, only historical loss was significantly associated with pain. Results suggest that socioeconomic disadvantage may, in part, drive disparities in pain among NA emerging adults and may act as a barrier to benefitting from cultural connection and traditional practices. Our work supports a biopsychosocial approach to understanding and addressing pain in this population. In particular, this work highlights the importance of addressing structural socioeconomic challenges that NA people have long faced by focusing on strengths through culturally-informed interventions for pain.

Individual Abstract Number: 900
Perspectives of opioid use disorder treatment in American Indian and Alaska Native communities: A qualitative study
Kamilla Venner, PhD, University of New Mexico

Alaska Native/American Indian (AN/AI) communities evidence higher rates of abstaining from alcohol in the past month than non-Hispanic Whites and yet the opioid epidemic has disproportionally impacted them. Leveraging cultural strengths is a critical part of care for AN/AI patients/customer owners (e.g., incorporating AN/AI traditional practices and knowledge into healthcare delivery) that can help increase acceptability and uptake of Medications for Opioid Use Disorder (MOUD; e.g., buprenorphine, naltrexone). Effective treatments are vital, and it is important to incorporate cultural practices and values into healthcare delivery to increase engagement and adoptions of frontline evidence-based treatments such as MOUD. However, implementation of culturally centered MOUD services in AN/AI serving organizations is multifaceted and has not been comprehensively examined to determine key barriers and facilitators. The study is part of a National Institute on Drug Abuse Clinical Trials Network two-phase community-based participatory research trial to develop and evaluate an implementation intervention to culturally center MOUD delivery in AN/AI communities (N=4 sites). A Collaborative Board (CB) guided intervention development and key informant interviews that were conducted with both staff and AN/AI consumers to identify MOUD program acceptability. Two clinical sites gave permission to recruit participants for individual interviews. The semi-structured interviews lasted about one hour each. Staff (n=20) and patients/consumers (n=11) participated in the semi-structured qualitative interviews and discussed a range of topics including 1) Western and Indigenous Models of Wellness, 2) MOUD Utilization, 3) OUD Treatment Engagement, and 4) Training/Educational Needs. MOUD Opinions, Facilitators to Starting Treatment, and MOUD AN/AI Cultural Considerations emerged as major themes. Additional themes described the Role of Lived Experience, MOUD messaging, and Perspectives on Good Health and Wellbeing. Key findings and recommendations for culturally centering MOUD services in AN/AI serving healthcare organizations will be discussed (e.g., MOUD barriers and facilitators, participant recommendations). Critical elements for the assessment and cultural adaptation of interventions for AN/AI communities using a community-oriented approach are highlighted.

Symposium 825
Saturday 3/23/24 3:15-4:15

The Future of Psychosomatic Medicine: How Could our Field Become Fully Integrated into the Routine Practice of Medicine? A joint APS, EAPM and ICPM symposium
Christopher Celano, M.D., Harvard Medical School
Psychosomatic medicine has the potential to transform medical practice, reduce illness, and promote health in all areas of patients' lives. However, despite the volume and quality of our basic and clinical research, the field has not yet changed medical care in the way that we believe it could and should. In this symposium, clinical researchers from the American Psychosomatic Society (APS), European Academy of Psychosomatic Medicine (EAPM), and International College of Psychosomatic Medicine (ICPM) will consider together the ways in which we could achieve a more complete integration of the biopsychosocial perspective into routine medical care. Dr. Ben Lee (ICPM) will set the stage by discussing the origin and evolving application of the biopsychosocial model at the University of Rochester Medical Center, as well as its global dissemination, with a particular focus on its impact in Asian countries. Dr. Richard Lane (APS) will discuss the importance of mechanistic research in this evolution and the critical role that neuroscience will play in understanding how external events influence disease pathophysiology and clinical

outcomes. Dr. Michael Sharpe (EAPM) will describe the changes in health system practices, including greater team working, that have potential to deliver much more integrated biopsychosocial care for medically ill populations. Finally, Dr. Karen Weihs (APS) will describe innovative approaches to increase the reach and the precision of psychosomatic medicine interventions using examples of interventions targeting biopsychosocial mechanisms and incorporating Mobile Health technology. These presentations will be followed by an interactive discussion with attendees about future directions and inter-organizational collaborations.

Individual Abstract Number: 964
Evolving Application of the Biopsychosocial Model at University of Rochester Medical Center
Hochang Benjamin Lee, M.D., University of Rochester Medical Center
The origin of the biopsychosocial model can be traced back to the recruitment of George Engel and John Romano to the University of Rochester Medical Center (URMC) in 1946. Over the next several decades, they established the Department of Psychiatry at URMC, culminating in the influential 1977 article on the biopsychosocial model in Science. Their legacy continues to have a profound impact on medical school education and clinical training at URMC. The biopsychosocial model has now become the unifying philosophy of psychosomatic medicine practice worldwide, including in Asian countries.
This presentation will review studies that describe various efforts to integrate the biopsychosocial philosophy into clinical and educational programs at URMC. Specific examples will include innovations in health service delivery (e.g., proactive C-L model and med-psych unit) and training (e.g., physician coaching program). Additionally, it will discuss how the biopsychosocial model has been adopted internationally in the field of psychosomatic medicine beyond the United States.

Individual Abstract Number: 1461
Can team-based care deliver our goal of biopsychosocial care in the context of modern medicine?
Christoph Herrmann-Lingen, M.D., University of Göttingen Medical Center
Biopsychosocial healthcare requires a broad range of specific skills and perspectives on patients with the complexities of their illnesses, which can rarely be covered by individual professionals. However, care is often fragmented into specialties working in siloes with poor communication among each other and limited involvement of patient preferences, values, and treatment goals. Multidisciplinary and multiprofessional team approaches have therefore been recommended in order to offer truly individualized treatments by integrating the skills and perspectives of diverse team members.
This presentation will review studies describing two concepts of team-based treatment concepts to integrate biopsychosocial competences in a patient-centered way. One of these concepts has been established in German-speaking countries, where multimodal and multiprofessional in-patient or day patient care has been in use for decades in rehabilitation facilities and specialized psychosomatic hospitals or hospital wards, while the concept of (blended) collaborative care has primarily been developed in the U.S.A. for outpatient treatment of patients with mental disorders or complex physical-mental morbidity. Beyond describing the underlying concepts, data on their effectiveness and implementation will be presented, together with current treatment guidelines recommending such approaches, and practical experiences with the development and implementation of team-based treatment modalities.

Individual Abstract Number: 969
Mechanistically Targeted Approaches for Stronger, More Efficient Interventions to Prevent Disease and Advance Wellbeing Using Mobile Health
Karen Weihs, M.D., University of Arizona
Knowledge of the biopsychosocial processes that impair health outcomes is plentiful and rapidly increasing. Both psychosocial and physiologic mechanisms should be targets of intervention as they create risk for adverse outcomes such as depression, inflammation, and allostatic load. Preventive and therapeutic interventions to modify these targets hold great promise to improve the health and well-being of countless individuals, yet delivering these interventions widely remains limited. Incorporation of Mobile Health (mHealth) technologies can revolutionize the efficiency and effectiveness of existing and future interventions. Mobile devices, including tablets and smartphones are ubiquitous in the US where nearly 9 out of 10 adults have a cell phone. Smartphone ownership is close to 85% in health disparity populations. mHealth is defined by World Health Organization has defined mHealth as the "use of mobile and wireless technologies to support the achievement of health objectives" and by The National Institutes of Health (NIH) as "the use of mobile and wireless devices (cell phones, tablets, etc.) to improve health outcomes, health care services, and health research". A major strength of mHealth is that it offers the possibility of patient self-management and self-efficacy to patients at their convenience, anytime and anywhere. This presentation will include examples of successful technologies and self-administered interventions delivered online to bring these issues to life for the audience.

Individual Abstract Number: 966
The importance of neuroscience in 21st century psychosomatic science
Richard D. Lane, M.D., Ph.D., University of Arizona College of Medicine
In "the Great Debate" held at the APS Annual Meeting in 2001, two legendary scientists from APS (Neil Schneiderman and Redford Williams) debated two former editors of the New England Journal of Medicine to resolve whether various forms of emotion dysregulation such as anger, depression, or psychological stress have direct, physiologic effects on medical illnesses such as coronary heart disease. Although the editors readily accepted the existence of the mind-body connection and the importance of behavioral interventions in medical care, they concluded that the evidence regarding physiological mechanisms was weak and inconclusive. Now, 23 years later, the evidence has not improved substantially. If the biopsychosocial model is to be more universally integrated into mainstream medical care, biopsychosocial factors need to be explained and demonstrated in biomedical terms.
In this talk I will argue that "the mysterious leap" from mind to body can only be explained mechanistically by a detailed understanding of the neuroscientific instantiation of psychosocial factors and the bidirectional interactions between brain and body. While we know that social level phenomena such as social support, racial discrimination or socio-economic status have major influences on medical outcomes, the biopsychosocial model does not provide the mechanistic precision required by the biomedical model. Instead, it is important to appreciate that social phenomena "get under the skin" because they always existed in the mind and brain of the perceiver. As such, the basic science agenda includes expanding understanding of interoceptive neuroscience, the computational basis of relevant social, cognitive and affective phenomena, and bidirectional brain-body connections. These mechanisms must then be studied in different diseases and considered in relation to inter-individual differences in genetic predisposition and gene-environment interactions. Such research will enable reverse engineering of self-report risk and resilient inventories based on more precisely defined physiological mechanisms, novel diagnostic tools including functional and structural neuroimaging and the use of direct (magnetic, ultrasound) and indirect (e.g., neurofeedback) brain stimulation methods to supplement and fine-tune existing interventions to ameliorate the harmful effects of emotion dysregulation.

Abstract 1070

DIGITAL COGNITIVE BEHAVIORAL STRESS MANAGEMENT IMPROVES ANXIETY, DEPRESSION, DISTRESS SYMPTOMS AND HRQOL IN PERSONS WITH STAGE I – III CANCER: A DECENTRALIZED RANDOMIZED CONTROLLED TRIAL

Michael Antoni, PhD, Dept of Psychology / Univ of Miami, Chloe Taub, Ph.D., Blue Note Therapeutics, Sean Zion, Ph.D., Blue Note Therapeutics, Molly Ream, M.S., University of Miami, Frank Penedo, Ph.D., University of Miami, Lauren Heathcote, Ph.D., King's College, KCL, Allison Ramiller, MPH, Blue Note Therapeutics, Stacey Tinianov, MPH, Blue Note Therapeutics, Michael McKinley, JD, Blue Note Therapeutics, Geoff Eich, MBA, Blue Note Therapeutics, Dianne Shumay, Ph.D., Blue Note Therapeutics

Background. Untreated distress in persons with cancer can lead to poorer health related quality of life (HRQoL) and medical outcomes. Cognitive Behavioral Stress Management (CBSM) favorably impacts emotional distress, HRQoL, and other health outcomes in persons undergoing cancer treatment. Digitizing CBSM may improve access.
Methods. A national decentralized double-blind randomized controlled trial compared the impact of a 10-module digitized CBSM app [Attune^{TM}] vs. a visually and functionally similar health education control app [Cerena^{TM}] on anxiety, depression, distress symptoms and HRQoL in 449 patients with non-metastatic (stage I-III) solid or hematological cancers receiving or recently completed systemic treatment and reported a PROMIS ® anxiety, A) T-Score >60. The primary outcome was change in PROMIS ® -A scores over time (wk 0, 4, 8, and 12) in the intention-to-treat population analyzed using a linear mixed effects model with repeated measures. Secondary outcomes included change in depression symptoms (PROMIS ® -D), global impression of change in anxiety and depression (PGI-C), cancer-specific distress (IES-I), and HRQoL (FACT-G).
Results. Participants were 80.6% female, 76.5% white, and mean age of 52.44 (SD:11.46; 25-80) years with no differences by condition. Compared to those assigned to Cerena, Attune participants showed significantly greater reductions in anxiety (p=0.019) and depression (p=0.042) over 12-weeks. At end-of-study there was a greater proportion of Attune participants in the PROMIS-A (p=0.004) and PROMIS-D (p=0.035) mild-none symptom severity category. Attune participants were more likely to report 'much' or 'very much' improved PGI-C anxiety (p<0.001) and depression symptoms (p<0.001), and significantly greater reduction in cancer-specific distress (p=.003) and increases in emotional (p=.025), and physical (p=.041) HRQoL vs controls. Attune effects on distress measures (d = .24 - .44) were comparable to those seen with in-person CBSM in cancer patients. Attune effects on perceived stress management skills (relaxation, awareness, assertiveness, coping) were significant (p's = .018 - .001; d = .15 - .60) suggesting potential mechanisms for improvements.
Conclusion. Attune is effective, may improve access to empirically supported CBSM for persons with cancer, and awaits implementation research and integration into cancer care.

Abstract 805

A COMPREHENSIVE LIFESTYLE RANDOMIZED CLINICAL TRIAL FOR WOMEN WITH BREAST CANCER (BCA) UNDERGOING RADIOTHERAPY

Lorenzo Cohen, Ph.D., The University of Texas MD Anderson Cancer Center, Banu Arun, MD, The University of Texas MD Anderson Cancer Center, Taylor Austin, Ph.D, The University of Texas MD Anderson Cancer Center, Gildy V. Babiera, MD, The University of Texas MD Anderson Cancer Center, Karen Basen-Engquist, BA,MPH,Ph.D, The University of Texas MD Anderson Cancer Center, Cindy L. Carmack, Ph.D, The University of Texas MD Anderson Cancer Center, Alejandro Chaoul, Ph.D, Houston Jung Center, Aimee Christie, Ph.D, The University of Texas MD Anderson Cancer Center, Robin Haddad, Ph.D, Rice University, Yisheng Li, Ph.D, The University of Texas MD Anderson Cancer Center, Smitha Mallaiah, MS, The University of Texas MD Anderson Cancer Center, Raghuram Nagarathna, MD, VYASA University, Jewel Ochoa, MS, The University of Texas MD Anderson Cancer Center, Patricia A. Parker, Ph.D, Memorial Sloan Kettering Cancer Center, George H. Perkins, MD, The University of Texas MD Anderson Cancer Center, Catherine Powers-James, Ph.D, The University of Texas MD Anderson Cancer Center, Anil Sood, PhD, The University of Texas MD Anderson Cancer Center, Veronica Vallone, MS, The University of Texas MD Anderson Cancer Center, Richard Wagner, MS, The University of Texas MD Anderson Cancer Center , Peiying Yang, PhD, The University of Texas MD Anderson Cancer Center, Sai-Ching J. Yeung, Ph.D, The University of Texas MD Anderson Cancer Center

Background: We examined a Comprehensive Lifestyle Program (CLP) for women with BCa to counter the harms of excess weight, unhealthy diet, low levels of physical activity, and chronic stress.
Methods: Women with stage II/III BCa undergoing radiotherapy (XRT) were randomized to CLP or usual care (UC). Women in CLIP had two sessions a week each of diet, exercise, and yoga counseling and one session a week of behavioral counseling incorporating motivational interviewing, CBT, and psychoeducation for 6 weeks, followed by weekly behavioral counseling for 6 months and then monthly for 6 more months. Data were collected at baseline, at the end of XRT, and 3, 6, and 12 months later. Measures included body composition from DEXA (percent body fat (BF), visceral adipose tissue (VAT), and fat mass (FM)), BMI, waist circumference, and multiple patient reported outcomes. Outcomes from the 3-month timepoint are reported.
Results: 100 women were randomized to either CLP (50) or UC (50); mean age 51; BMI=31; 22% African American and 11% Hispanic. Adherence to the initial intensive 6-week portion of the intervention was high with 85% only missing 3 sessions or less out of 42 sessions. Change in body composition revealed significant reductions in CLP vs. UC: BF: -1.4 vs. +0.7, p=0.003; effect size (ES)=-1.25; VAT: -8.0 vs. +5.0, p=0.02, ES=-0.94; FM: -1 vs. +1, p=0.004, ES=-1.2; BMI: -1 vs. +0.04, p=0.01, ES=1.2; waist: -1.7 vs. +0.9, p=0.02, ES=-0.81. Fitness improved on the Godin in CLP vs. UC (31.8 vs. 16.8, p=0.01, ES=0.70). There were statistically and clinically significant improvements in QOL scores for the CLP group and little or no changes for UC. There were also significant group differences with large effects for mindfulness and medium effects for mindful eating and social support that increased in CLP and decreased in the UC group. Anecdotally, participants noted that the psychosocial support, specialized education from different counselors, and accountability to multiple people were key to their success. Nearly 100% of the women expressed feeling a benefit from the yoga practice. Exit interview themes were consistent across participants, in particular the importance of mindfulness and the Y/MB component.

Conclusions: CLP resulted in improvements in body composition and multiple PROs. Future analyses will examine the long-term effects and cancer-related outcomes.

Abstract 923

PSYCHOSOCIAL INTERVENTIONS TO IMPROVE QUALITY OF LIFE IN HISPANIC/LATINO CANCER SURVIVORS: A META-ANALYSIS

Patricia B. Pedreira, MS, University of Miami, Sara Fleszar-Pavlović, PhD, Sylvester Comprehensive Cancer Center, Malcolm Griffin, BS, University of Miami, Carlos Silvera, BA, Sylvester Comprehensive Cancer Center, Frank Penedo, PhD, University of Miami

Hispanic/Latino (H/L) cancer survivors experience significant and disproportionate cancer-related burden (e.g., advanced stage diagnosis, decreased survival rates, poorer quality of life [QOL]) compared to other ethnic groups. To promote adaptive cancer survivorship, an increasing number of psychosocial interventions have been developed, which involve techniques such as cognitive restructuring, coping skills training, emotional support provision, cancer education, and relaxation training; however, H/Ls are generally underrepresented in these studies. There is a growing number of interventions to improve H/L cancer outcomes, yet it is still unclear if interventions to improve QOL in H/L cancer survivors are efficacious. The present study is the first meta-analysis examining the efficacy of psychosocial interventions designed to improve QOL in H/L cancer survivors. Potential moderator variables (cancer type, gender, language, delivery type, culturally tailored) were examined. All methods were preregistered on PROSPERO (CRD42023393022). Five electronic databases (Web of Science, Scopus, EBSCO, PsychINFO, PubMed) were searched for English-language articles published up to July 2023. We included studies of interventions conducted with H/L adults with cancer aimed at improving QOL. A random effects meta-analytic model was employed. The results for the effect of interventions on QOL revealed a significant small-to-moderate effect size ($d = 0.24$, $k = 11$, 95% CI [0.09; 0.40], $p < .01$). Notably, the efficacy of interventions was influenced by cultural adaptation, with culturally adapted interventions showing significantly larger average effect sizes compared to non-culturally adapted interventions. Additionally, the type of intervention delivery also exerted a significant moderating effect, with larger effect sizes observed when interventions were delivered via phone as opposed to face-to-face. Overall, findings from the meta-analysis provide evidence supporting the efficacy of psychosocial interventions in increasing QOL among H/L cancer survivors. This population may particularly benefit from interventions that consider H/L cultural factors and are delivered remotely. Further research is warranted to identify the key components and adaptations of interventions that can improve the QOL of H/L cancer survivors.

Abstract 1405

HIGHER EMOTIONAL AWARENESS PREDICTS LONGER SURVIVAL AFTER BREAST CANCER DIAGNOSIS

Karen Weihs, M.D., University of Arizona, Catherine M. Crespi, Ph.D., UCLA, Annette Stanton, Ph.D., UCLA, Richard D. Lane, M.D., Ph.D., University of Arizona

Background: Randomized, controlled studies of interventions that improve cognitive, emotional, and behavioral well-being predict longer survival after breast cancer diagnosis than usual care (Speigel DL et al, 1989; Anderson BL et al 2008) or psycho-education (Stagl JM et al 2015) but mechanisms through which these interventions operate are not understood.
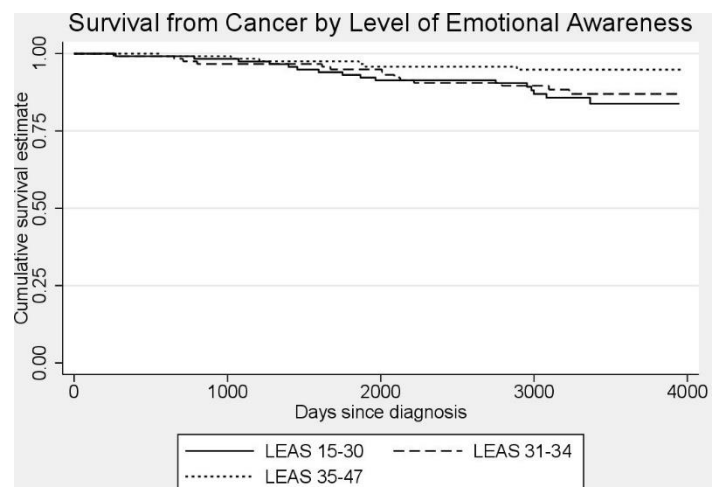
We assessed targets of these interventions: (1) processing emotions, (2) secure, supportive relationships, (3) low depression as predictors of increased survival time in breast cancer patients.

Methods: Breast cancer patients (n=460) enrolled shortly after diagnosis (2.1 +/- 0.8 mo.) between 2010 and 2014. They completed the Levels of Emotional Awareness Scale (LEAS), a performance measure of awareness of feelings in self and others, interviews for Major Depression (MINI-MDE) and Chronic Interpersonal Stress (LSI-Chr) and self-reported acceptance of emotions (AES), suppression (GERQ), avoidant and approach coping (COPEavd, COPEapp), marital support (Social Relationship Inventory; SRI), secure attachment (Social Provisions Scale; SPS) and depression (CES-D). The CDC-National Death Index provided dates of death through 2022. Cox proportional hazards regression (CoxPHR) predicted time from diagnosis to cancer mortality or censoring using individual psychosocial variables and multivariable models, adjusting for age at diagnosis, cancer stage, medical comorbidities (Groll) and education.

Results: Eight to twelve years after enrollment, 44 (10%) participants had died from cancer. CoxPHR models using individual variables to predict mortality were significant for: LEAS [HR 0.9(0.1); p=0.048]; COPEavd [HR 3.0(1), p=0.002] and SPS [HR 0.5(0.1), p=0.02], after adjustment. Cancer mortality was not significantly associated with CESD, MDE, AES, COPEapp, GERQ, SRI or LSIChr or with age, ethnicity (Latina vs non-Latina) or medical comorbidities after adjustment.

In a multivariable model including COPEavd, SPS and LEAS (n=317), only LEAS [HR 0.9(0.03), p=0.004] predicted mortality after adjusting for age (ns), cancer stage [4 vs 1 HR 9.3(5.6), p= <0.001], education (ns) and comorbidities (ns).

Conclusion: Higher emotional awareness may be protective by preventing persistent, unmentalized distress and its associated adverse effect on allostatic load, which predicts increased cancer mortality (Akinyemiju et al, 2020).

Survival from Cancer by Level of Emotional Awareness

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2 Psychosocial Factors & Cancer
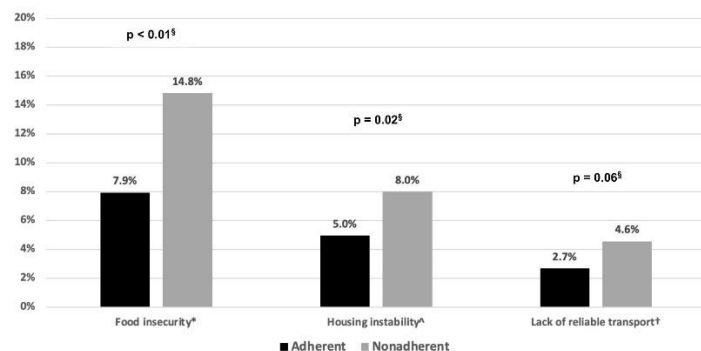**Friday 3/22/24**

Abstract 984

ASSOCIATION BETWEEN SOCIAL DETERMINANTS OF HEALTH AND SELF-REPORTED MEDICATION NONADHERENCE IN AN OUTPATIENT BREAST CANCER CLINIC

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Background: Medication adherence is a key preventive health behavior, yet many patients do not take their medications as prescribed. Unfavorable social and economic factors, or social determinants of health (SDoH), have been strongly linked to poor health outcomes. Less is known about the impact of SDoH on medication adherence. **Methods:** Patients with appointments at the breast cancer clinic of a large academic medical center in NYC were asked to complete a validated medication nonadherence questionnaire at check-in. Patients 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?* Items were answered on a 5-point scale (0=*none of the time*, 5=*every time*) with responses of *none of the time* to all three items considered adherent. Patients were also screened for various SDoH over the past 12 months, including food insecurity, housing instability, and lack of reliable transport. Logistic regression was used to estimate the association between each SDoH item and medication nonadherence. **Results:** Between Feb 2022 and Aug 2023, 1750 patients were screened (median age 60 [IQR 50-69] years, 99% female, 13% Black, 22% Hispanic, 24% non-English). One quarter of patients reported at least some degree of medication nonadherence. In addition, 9.7% reported food insecurity (i.e. running out of food, being worried food would not last), 5.7% reported housing instability (i.e. not having a steady place to live, staying in a shelter, living in ≥2 places, being unable to pay rent/mortgage), and 3.1% reported lack of reliable transport (i.e. to work or medical appointments). Food insecurity, housing instability, and lack of reliable transport were more common among patients who reported medication nonadherence **(Figure)**. After adjusting for age, race, and ethnicity, food insecurity remained significantly associated with medication nonadherence (OR 1.88, 95% CI 1.28-2.75, p<0.01). **Conclusion:** Both medication nonadherence and positive screens for SDoH were common in our population. Patients with SDoH needs were more likely to report concurrent medication nonadherence. Food insecurity in particular was strongly associated with nonadherence, even after adjusting for sociodemographic factors. Screening for and addressing SDoH may be an effective way to improve medication adherence.

Figure. Association between positive responses to social determinants of health (SDoH) screening items and self-reported medication nonadherence (n = 1750)

*Composite of running out of food or being worried food would not last over the past 12 months
^Composite of not having a steady place to live, staying in a shelter, living in ≥2 places, or being unable to pay rent/mortgage over the past 12 months
†Composite of lack of reliable transport to work or medical appointments over the past 12 months
§Unadjusted analyses using Fisher's exact, Pearson's Chi-squared, or Wilcoxon rank sum tests

Abstract 1357

THE BUFFERING EFFECT OF SOCIAL SUPPORT ON SERUM CORTISOL IN BREAST CANCER PATIENTS LIVING IN DISADVANTAGED NEIGHBORHOODS

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Background: Living in neighborhood disadvantage (ND) predicts poorer clinical outcomes and worse survival among women with breast cancer (BC). Social support is a modifiable factor that has shown protective effects on BC prognosis and survival. Research points to regulation of the hypothalamic pituitary adrenal axis response to stress as one of the mechanisms by which social support may promote better health outcomes. We evaluated the influence of ND on serum cortisol levels as a function of social support in BC patients initiating treatment
Methods: From 2006-2013, women with stage 0-III BC enrolled in a stress management clinical trial 2-10 weeks post-surgery, prior to beginning adjuvant treatment. Participants provided a baseline afternoon-evening (PM) serum cortisol sample (4:00–6:30pm) and completed the Social Provisions Scale (SPS). Home addresses were collected to determine the Area Deprivation Index (ADI), a validated metric comprising several domains of ND. Of the 183 enrolled women completing baseline procedures, 178 (97.3%) provided home addresses. Multiple regressions tested associations among ADI, total SPS and attachment (SPS-A) scores, and PM serum cortisol adjusting for age, surgery type and receptor status. Moderation analyses tested for significant interactions.
Results: Participants were mostly middle-aged (M=54.28 years), Hispanic (43.8%) with stage I (51.1%) disease. Most lived in advantaged neighborhoods (75.28%). Separate regression analyses revealed that ADI, the ADI-SPS interaction, and the ADI- SPS-A interaction, significantly predicted cortisol levels (R^2= .14, $F_{[6,122]}$ = 3.316, p= .005 and R^2= .13, $F_{[6,122]}$= 3.146, p= .007). Specifically, the conditional effect of ADI on cortisol was significant at low (M_{SPS}= - .87; p < .001; M_{SPS-A}= -.86; p < .001) and middle levels (M_{SPS}= .01; p < .05; M_{SPS-A}= -.02; p < .05) of SPS/SPS-A, but not at high levels. Thus, when SPS/SPS-A were on average or below average (-1SD), patients with high ADI (ADI 4-10) had higher cortisol levels than low ADI patients (ADI 1-3).
Conclusion: We found the association of ND with cortisol manifests primarily when social support is lacking, with the greatest impact on women with low total and emotional social support. Enhancing social support in women with BC is as a

promising strategy to mitigate the physiological effects of neighborhood-related stress.

Abstract 853

DEPRESSIVE SYMPTOMS, SOCIOECONOMIC POSITION AND MORTALITY IN OLDER PEOPLE LIVING WITH AND BEYOND CANCER
Natalie Miller, MSc, University College London, Abigail Fisher, PhD, University College London, Philipp Frank, PhD, University College London, Phillippa Lally, PhD, University of Surrey, Andrew Steptoe, DSc, University College London

Background
Evidence shows that higher depressive symptoms are associated with increased risk of mortality in people living with and beyond cancer (LWBC), but most studies have not accounted for a wider range of important confounders and competing causes of death in the context of cancer-specific mortality. There are also established socioeconomic inequalities in depression and mortality among people LWBC, but to date, no study has examined whether socioeconomic position (SEP) moderates the association between the two. This study aimed to examine (1) the association between depressive symptoms and mortality in people LWBC and (2) whether SEP moderates this association.

Methods
Participants from the English Longitudinal Study of Ageing (ELSA) who received a cancer diagnosis and reported depressive symptoms within four years following their cancer diagnosis were included. Elevated depressive symptoms were defined by a score of 3 or more on the 8-item Center for Epidemiologic Studies Depression Scale (CES-D). SEP was indexed by wealth tertiles. Mortality was ascertained via linkage to a national register. Cox regression analysis was used for all-cause mortality. Competing risk regression was used for cancer-specific mortality. Analyses were adjusted for sociodemographics, cancer-related characteristics and health factors such as antidepressant use.

Results
A total of 1352 participants were included in the main analysis (mean age = 69.6 years). Over the 16 year follow-up period, 596 deaths occurred, of which 335 were cancer-related. After adjusting for covariates, elevated depressive symptoms were associated with a 93% increased risk of all-cause mortality (95% CI: 1.52-2.45) within the first four years of follow up. Elevated depressive symptoms were associated with a 38% increased risk of cancer-specific mortality. While directionally consistent, this association did not reach statistical signifcance at conventional levels after excluding people who died within one year after baseline assessments. There were no interactions between depressive symptoms and SEP.

Conclusions
The findings suggest that elevated depressive symptoms are associated with increased risk for all-cause mortality among people LWBC within a four year follow-up. Early detection and intervention of depression in people LWBC is crucial for improving outcomes.

Abstract 839

DYADIC ASSOCIATIONS OF SELF-REGULATION WITH CARDIOVASCULAR STRESS RESPONSES AMONG PATIENTS WITH CANCER AND THEIR CAREGIVERS
Thomas Tsai, MS, University of Miami, Barry Hurwitz, PhD, University of Miami, David Spiegel, MD, Stanford University, Dayanna Ortega, BS, University of Miami, Youngmee Kim, PhD, University of Miami

Poor cardiovascular functioning is common in both patients with cancer and their partner caregivers. Individual differences in self-regulation, such as neuroticism and conscientiousness, have been differentially associated with cardiovascular health. Less known in the interpersonal context is the extent to which one's self-regulation relates to the partners' cardiovascular stress responses.
Patients diagnosed with colorectal cancer (N=158, M age=56.7 years, 32.9% female, 63.3% Hispanic) and their caregivers (M age=55.4 years, 67.7% female, 60.1% Hispanic) completed questionnaires assessing neuroticism and conscientiousness. They also underwent a relationship- and health-related laboratory stress task together, during which a marker of cardiovascular activity—the root mean square of successive differences (RMSSD) between heartbeats—was measured at baseline and after stress onset (reactivity) and offset (recovery). Each person's age, gender, relationship satisfaction, and patients' cancer stage were covariates. Participants displayed significant RMSSD reactivity and recovery in response to stress (p<.001). Actor-partner interdependence moderation models indicated that caregivers' greater neuroticism was associated with their patients' prolonged RMSSD recovery (b=-.03, p=.009), as well as their own prolonged RMSSD recovery only when their patients also reported greater neuroticism (b=-.01, p=.050). On the other hand, patients' greater conscientiousness was associated with their caregivers' lower RMSSD at baseline (b=-.05, p=.035). Additionally, caregivers' greater conscientiousness was associated with their own greater RMSSD reactivity only when their patient reported greater neuroticism (b=-.01, p=.050). Caregivers' greater conscientiousness was also associated with their own prolonged RMSSD recovery (b=-.03, p=.007). Findings revealed that patients' and caregivers' self-regulation styles independently and interdependently associated with their own and partners' cardiovascular stress responses— highlighting the complex role of psychosocial factors in cancer survivorship. Further research on potential processes underlying these relations, such as dynamic cardiovascular synchrony patterns between partners during stress, is warranted. Psycho-oncology programs may be bolstered by considering both patients' and their caregivers' self-regulatory patterns.

3 Health Impacts of COVID
Thursday 3/21/24

Abstract 855

EXPLORING THE ASSOCIATIONS BETWEEN LONG-COVID AND MENTAL HEALTH IN IRISH ADULTS
Aundria Cameron, BSc, MSc, University College Dublin, Sonya S. Deschênes, BA, Ma, PhD, University College Dublin, Finiki Nearchou, BSc, MSc, PhD, University College Dublin

Background: Long-COVID, characterized by persistent symptoms post COVID-19 infection, is a global public health concern. Research suggests that individuals experiencing long-COVID are at elevated risk of suicidal behaviour. Based on a theoretical framework of cognitive vulnerabilities, this study aimed to examine the association between depressive symptoms and suicidal behaviour through the indirect effects of hopelessness, defeat, and entrapment among individuals experiencing long-COVID. It also aimed to examine whether perceived social support moderates this association.
Methods: This cross-sectional study included 600 participants (>18), from the Republic of Ireland from April 2023 to June 2023. Self-report questionnaires assessed long-COVID symptom severity, hopelessness, defeat, entrapment,

depressive symptoms, suicidal behaviour, and perceived social support. Structural equation modeling (SEM) was applied to test the hypothesized model.

Results: The results confirmed the proposed model, with long-COVID symptom severity, hopelessness, defeat, and entrapment explaining a considerable amount of variance (62%) in depressive symptoms and suicidal behaviour (26%). Symptom severity was moderately associated with defeat, entrapment, and depressive symptoms, weakly associated with hopelessness, and not directly associated with suicidal behaviour. Long-COVID symptom severity was a strong positive predictor of defeat, entrapment, hopelessness, and depressive symptoms. Depressive symptoms significantly predicted higher levels of suicidal behaviour. SEM revealed significant indirect pathways to suicidal behaviour via depressive symptoms, hopelessness, defeat, and entrapment. Social support partially moderated this relationship.

Conclusions: Long-COVID symptom severity was negatively associated with adult mental health. In the aftermath of the COVID-19 pandemic, our findings highlight the need to implement policies that consider the specific psychological and social needs in adults experiencing long-COVID.

Abstract 1222

LONGITUDINAL INVESTIGATION OF PREDICTORS OF SYMPTOM BURDEN IN PATIENTS UNDER INVESTIGATION FOR POSTURAL TACHYCARDIA SYNDROME (POTS)

Iris Knoop, PhD, King's College London, Annie Jones, PhD, King's College London, Nicholas Gall, MD, King's College Hospital, Rona Moss-Morris, PhD, King's College London

Introduction. Postural (Orthostatic) Tachycardia Syndrome (POTS) is a debilitating chronic disorder of the autonomic nervous system characterised by an unexplained excessive increase in heartbeat upon standing without a drop in blood pressure. There is little medical consensus regarding causes, symptoms, or treatment, meaning the journey to diagnosis can be fraught with complexity. The aim of this study was to investigate psychosocial and physiological predictors of symptom severity in patients presenting with POTS-like symptoms.

Methods. Longitudinal quantitative study in patients under investigation for POTS (*n*=149). Patients completed measures of orthostatic intolerance symptoms (OGS), emotional reactivity, social support, cardiac anxiety, illness perceptions, and cognitive-behavioural responses to symptoms at one month pre-clinic appointment and 6 months later. Diagnosis, blood pressure (BP) and heart rate (HR) measures were collected from medical records. Data were analysed using hierarchical linear multiple regression.

Results. Psychosocial factors (cardiac anxiety, distress, emotional reactivity, social support, illness perceptions, and cognitive-behavioural responses to symptoms) explained a significant 48.2% (F=5.37, p< .001) of the variance in OGS symptoms at baseline. There was no significant change in symptom scores over time. When controlling for baseline OGS scores, physiological variables including HR and BP measures explained a significant 4.4% (F=3.37, p=.026) of variance of the OGS at 6 months. Longitudinal analysis showed psychosocial factors at baseline explained only an insignificant 5.1% (F=1.07, p=.407) of the variance in symptoms at 6 months. Without controlling for baseline values of the OGS, haemodynamic variables accounted for a significant 23.7% (F=2.59, p=0.029), and baseline psychosocial variables for a significant 38.8% (F=4.18, p<.001) of the variance of OGS symptoms at follow-up.

Conclusion. Symptom burden in patients with suspected POTS remained high over 6 months. Psychosocial factors explained a large amount of the variance in symptoms at baseline. As symptoms did not change/improve over time, baseline symptoms accounted for most of the variance in symptoms at 6 months. Addressing psychosocial factors alongside medical treatments may lessen symptom burden for this group.

Abstract 1328

PREVALENCE OF MENTAL HEALTH CONDITIONS AND BRAIN FOG IN PEOPLE WITH LONG COVID.

Christina Van der Feltz-Cornelis, MD PhD, University of York, Fidan Turk, PhD, University of York, Jennifer Sweetman, PhD, University of York, Kamlesh Khunti, MD PhD, University of Leicester, Mark Gabbay, MD PhD, University of Liverpool, Hugh Montgomery, MD PhD, University College London, Caroline Leigh Watkins, PhD, RN, University of Central Lancashire, Daniel J Cuthbertson, MD PhD, University of Liverpool, Nefyn Williams, MD PhD, University of Liverpool, Amitava Banerjee, MD PhD, University College London

Background: Persisting illness $\geq$ 12 weeks after acute SARS-CoV-2 infection ('long COVID') can include elements of impaired cognition commonly referred to as 'brain fog' (a term encompassing a range of symptoms) and mental health conditions. We performed a systematic review and meta-analysis to estimate their prevalence and to explore factors relevant to their manifestation. **Methods:** Data were extracted from studies published in Medline and PsycINFO (Searches:January 2022-August 2023) which reported prevalence of mental health conditions and brain fog in adults with long COVIDafter clinically-diagnosed or PCR-confirmed SARS-CoV-2 infection. PROSPERO registration:CRD42023394105. **Findings:** Of 7,451 studies identified, 17 were included, reporting 41,249 long COVID patients. Risk-of-bias was deemed low-moderate. Twelve studies (n=4,609) reported participant sex: females=2,660 (58%). Across an aggregate of all timepoints (3-24 months) and all studies taken together, the combined prevalence of mental health conditions and brain fog was 20·4% (95% CI 11·1%-34·4%), being lower amongst those previously hospitalised than in community-managed patients (19·5 vs 29·7% respectively; p=0·047). A subset of studies reporting cognitive symptoms suggested a brain fog prevalence rate of 23·3%. Meta-regression analysis revealed the odds of mental health conditions and brain fog increased over time and when validated instruments for diagnostic assessment were used. This was more marked for brain fog than for mental health conditions. Odds of brain fog, but not of mental health conditions, significantly decreased with increasing vaccination rates (p=·000). **Interpretation:** Brain fog may have different drivers than mental health conditions in long COVID. The reduced risk of brain fog associated with vaccination emphasizes the need for ongoing vaccination programs. Given the increasing prevalence of mental health conditions and brain fog over time, preventive treatments may be needed. Study limitations include a lack of healthy matched controls and of information regarding medical history. Our findings emphasize the need to provide access to integrated care to manage mental health conditions and brain fog in long COVID. **Funding:** NIHR (COV-LT2-0043) as part of the STIMULATE-ICP study.

Abstract 1320

LONG COVID IS NOT A UNIFORM SYNDROME: EVIDENCE

FROM PERSON-LEVEL SYMPTOM CLUSTERS USING LATENT CLASS ANALYSIS
Sophie van den Houdt, MSc, Tilburg University, Isabel Slurink, MSc, Tilburg University, Gaëtan Mertens, PhD, Tilburg University

Introduction – Long COVID refers to a syndrome of persistent symptoms observed in a substantial portion of people after a COVID-19 infection. Prior research indicates heterogeneity in symptom presentation, and it is currently unclear whether long COVID is a uniform condition or if it has different symptom profiles. Therefore, the current study aims to enhance insight into this heterogeneity by identifying symptom clusters of long COVID and associated socio-demographic and health determinants.
Methods – A total of 458 participants (M_{age} 36.0±11.9; 46.5% male) with persistent symptoms after COVID-19 completed an online questionnaire including a comprehensive 114-item symptom list. First, a k-means clustering analysis was performed to investigate overall clustering patterns and identify symptoms that provided meaningful distinctions between clusters. Next, a step-three latent class analysis (LCA) was performed based on these distinctive symptoms to analyze person-centered clusters. Finally, multinominal logistic models were used to identify determinants associated with the symptom clusters.
Results – From a 5-cluster solution obtained from k-means clustering, 30 distinctive symptoms were selected. Using LCA, six symptom classes were identified: moderate (20.7%) and high (20.7%) inflammatory symptoms, moderate malaise-neurocognitive symptoms (18.3%), high malaise-neurocognitive-psychosocial symptoms (17.0%), low-overall symptoms (13.3%) and high overall symptoms (9.8%). Sex, age, employment, COVID-19 suspicion, COVID-19 severity, number of acute COVID-19 symptoms, long COVID symptom duration, long COVID diagnosis, and impact of long COVID were associated with the different symptom clusters.
Conclusion – Our study found six distinct symptom clusters and predictive factors enhancing our understanding of the diversity of this condition. These findings highlight that long COVID is not a uniform syndrome and may aid the diagnosis and treatment of individuals experiencing persistent COVID symptoms and guide targeted interventions. Further validation of long COVID clusters and potential investigating their longitudinal trajectories is needed in larger populations.

4 Early Life Experiences
Saturday 3/23/24

Abstract 889

ADVERSE CHILDHOOD EXPERIENCES, FUNCTIONAL IMPAIRMENT, AND DEPRESSIVE SYMPTOMS IN OLDER ADULTS: EXAMINING LONGITUDINAL PATHWAYS IN A PROSPECTIVE COHORT STUDY
Órla Dooley, MSc, University College Dublin, Amy McInerney, MSc, University College Dublin, Sonya Deschênes, PhD, University College Dublin

Objective: This study aimed to examine the associations between adverse childhood experiences (ACEs) with functional impairment and depressive symptoms in adulthood by testing two longitudinal pathways: ACEs and functional impairment as mediated by depressive symptoms, and ACEs and depressive symptoms as mediated by functional impairment.
Methods: N = 4,359 older adults (mean age = 66 years; 55% women) from the English Longitudinal Study of Aging were included. ACEs were retrospectively assessed at wave 3 (2006-2007) and comprised of physical abuse, sexual abuse,

parental alcohol or mental health problems, frequent parental arguments, living in a foster home, parental separation/divorce, and long-term maternal separation before age 16. A sum score reflecting number of ACEs was created. Functional impairment and depressive symptoms were assessed by self-report at waves 3 (2006-2007), 4 (2008-2009), and 5 (2010-2011). A causal mediation analysis framework was used to assess natural indirect effects with two directionality hypotheses. The first of these examined the direct effects of ACEs at wave 3 on functional impairment at wave 5, and the mediation effect of depressive symptoms at wave 4. The second examined the direct effects of ACEs at wave 3 on depressive symptoms at wave 5, and the mediation effect of functional impairment at wave 4. Adjusted analyses controlled for sociodemographic and lifestyle factors.
Results: Approximately 39% of the sample reported experiencing at least one ACE. ACEs were positively associated with functional impairment and depressive symptoms at each wave. In the mediation analysis testing depressive symptoms as the mediator between ACEs and functional impairment, the natural indirect effect (NIE) was 0.06, accounting for 17.2% of the total effect (23.6% in the adjusted analysis). In the mediation analysis testing functional impairment as the mediator between ACEs and depressive symptoms, the NIE was 0.04, accounting for 19.5% of the total effect (19.8% in the adjusted analysis).
Conclusions: We found evidence supporting both directionality hypotheses: depressive symptoms significantly mediated the association between ACEs and functional impairment, and functional impairment significantly mediated the association between ACEs and depressive symptoms. This provides further evidence of the long-term impact of ACEs.

Abstract 1269

MOTHERS' PRENATAL DISTRESS ACCELERATES ADRENAL PUBERTAL DEVELOPMENT IN DAUGHTERS
Molly Fox, PhD, UCLA, Jennifer Hahn-Holbrook, PhD, UC Merced, Laura Glynn, PhD, Chapman University, Jessica Marino, MA, UC Merced, Curt Sandman, PhD, UC Irvine, Elysia Davis, PhD, University of Denver, Elysia Davis, PhD, University of Denver

Human life history schedules vary, partly, because of adaptive, plastic responses to early-life conditions. Little is known about how prenatal conditions relate to puberty timing. We hypothesized that fetal exposure to adversity may induce an adaptive response in offspring maturational tempo. In a longitudinal study of 253 mother-child dyads followed for 15 years, we investigated if fetal exposure to maternal psychological distress related to children's adrenarche and gonadarche schedules, assessed by maternal and child report and by dehydroepiandrosterone sulfate (DHEA-S) and testosterone levels. We found fetal exposure to elevated maternal prenatal psychological distress predicted earlier adrenarche and higher DHEA-S levels in girls, especially first-born girls, and that associations remained after covarying indices of postnatal adversity. No associations were observed for boys or for gonadarche in girls. Exposure to adrenarche orchestrates the social-behavioral transition from juvenility to adulthood; therefore, findings suggest that prenatal maternal distress instigates an adaptive strategy in which daughters have earlier social-behavioral maturation. The stronger effect in first-borns suggests that, in adverse conditions, it is in the mother's adaptive interest for her daughter to hasten social maturation without accelerated menarche because it would prolong the duration of the daughter allomothering younger siblings. We postulate a novel evolutionary framework that human mothers may calibrate the timing of first-born

daughters' maturation in a way that optimizes their own reproductive success.

Abstract 1267

THE ROLE OF EARLY LIFE UNPREDICTABILITY IN REWARD PROCESSING: A CROSS-SPECIES STUDY

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Increasing evidence identifies the role of unpredictability, a distinct form of early life adversity (ELA), in the development of psychopathology. Preclinical models indicate that although reward circuit dysfunction is broadly implicated, the functional disruptions associated with exposure to unpredictability may be sex dependent. Here we examine the link between unpredictability and reward processing in two species and assess the sex dependence of these relations. In Study 1, 38 mice were randomly assigned during postnatal days 0 to 10 to the limited bedding and nesting paradigm (LBN), which induces unpredictable maternal care or to a control condition. Preference for social stimuli was assessed in adulthood using a task in which the animals interact with a novel object or a peer. Compared to male controls, male mice in the LBN group showed decreased preference for social interaction (p=.01); exposure to unpredictability was not associated with preference in females (p=.41). In Study 2, parents of 79 3-year-olds completed the Questionnaire of Unpredictability in Childhood (QUIC), a measure of unpredictability in the family and home environment. Child positive affect was coded from the Lab-TAB popping bubbles task. Among boys (p=.04), but not girls (p=.66), greater unpredictability was associated with decreased pleasure responses. In Study 3, 98 adolescents ages 16-19 completed the QUIC, the Dimensional Anhedonia Rating Scale and the Alcohol and Drug Involvement Scale. Exposure to more unpredictability was associated with increased anhedonia in males (p=.01), but not females (p=.99). In addition, greater unpredictability was associated with higher probability of any substance use among girls (p=.01), but not among boys (p=.94). The results from our cross-species investigation are consistent with the premise that exposure to unpredictability in early life shapes reward processing in a sexually dimorphic way. In male rodents and humans, unpredictability portends an anhedonic phenotype, whereas in females, unpredictability is associated with increased substance use. These differences likely involve biologically-based sex differences in the organization and function of the reward circuit, and also importantly suggest that exposure to ELA may differentially affect development in males and females with implications for mental health and substance use.

Abstract 1178

ADVERSE CHILDHOOD EXPERIENCES AS PREDICTORS OF CHANGES IN DIURNAL CORTISOL SECRETION DURING ADOLESCENCE

Tamara Lorenz, MSc, Ghent University, Nathalie Michels, Ph.D., Ghent University, Matteo Giletta, Ph.D., Ghent University

Adolescents exposed to adverse childhood experiences (ACEs), such as physical abuse, emotional abuse, sexual abuse, and bullying victimization may suffer from long-term physical and mental health problems. Dysregulated cortisol activity is advocated as a biological mechanism that may channel the negative effects of ACEs; yet, existing findings are largely mixed (see Perrone et al., 2023). Notably, a major caveat of prior work is that cortisol was often sampled at only one wave, which can not reveal whether exposure to ACEs modifies diurnal cortisol patterns. Therefore, our study examined how ACEs affect changes in patterns of diurnal cortisol secretion. We investigated the influence of bullying victimization separately from other forms of ACEs, given work suggesting bullying victimization to be a uniquely powerful stressor during adolescence.
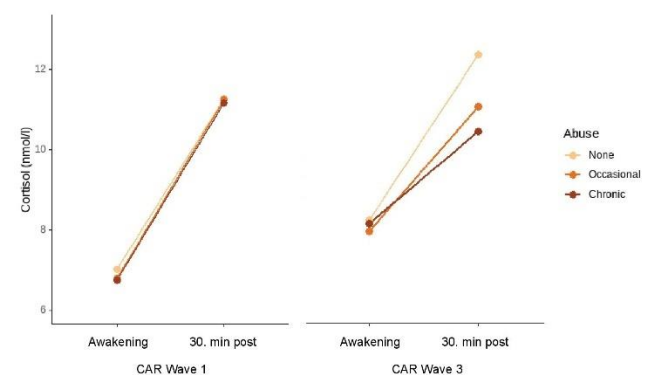
We used data from 289 first-year secondary school students in Belgium (at baseline: Mage = 12.48; SD = .40; 42% female), with repeated half-yearly assessments over the course of one year. At each of the three waves, participants reported their ACEs. Assessments over the three waves were later combined to index occasional and chronic exposure either to emotional, physical and sexual abuse or to bullying victimization. During Wave 1 and 3, participants collected passive drool saliva samples five times throughout the day (i.e., awakening, 30 min. post, 10:00, 16:00, 20:00) for four consecutive days. For each wave, we created two indices of diurnal cortisol activity, the cortisol awakening response (CAR) and diurnal slope, by combining the 4 daily cortisol assessment into a latent factor. Within-person changes in CAR and diurnal slope were then examined using a latent change score model predicted by ACEs.

Preliminary analyses revealed that chronic exposure to emotional, physical and sexual abuse was a significant predictor of changes in CAR (β = -.25, p = .05) and diurnal slope (β = -.29, p = .02). However, bullying victimization was not found to significantly predict changes in either CAR or diurnal slope.

Our results indicate that during adolescence, chronic ACEs, but not bullying victimization in particular, may shape the pattern of diurnal cortisol activity, resulting in more flattened diurnal cortisol secretion (see Figure 1) for adolescents persistently exposed to emotional, physical and sexual abuse.

Figure 1

Changes in Cortisol Awakening Response (CAR) across the Span of one Year for Adolescents

Exposed to Emotional, Physical, and Sexual Abuse

5 Biological, Psychological, Social, & Environmental Factors in Gastorintestinal Health
Thursday 3/21/24

Abstract 1188

BIOLOGICAL, ENVIRONMENTAL, AND PSYCHOLOGICAL STRESS AND THE HUMAN GUT MICROBIOME

Desiree Delgadillo, PhD, UCLA, Sarah Pressman, PhD, UC Irvine, Jessica Borelli, PhD, UC Irvine

Introduction: The gut microbiome is involved in a number of bodily processes, including stress responses. Previous research has shown that lower alpha diversity (fewer varieties of bacteria contained within the host) and increased abundances of certain bacteria (e.g., *Clostridium* and *Escherichia/Shigella*) are linked to exacerbated stress responses. However, research exploring the stress-microbiome connection in healthy humans is sparse. This work is the first to explore stress-microbiome links across three stress domains in two samples of healthy adults, specifically, psychological (perceived), environmental (stressful life events), and biological stress (cardiovascular function surrounding stress as indexed by Respiratory Sinus Arrhythmia; RSA).
Methods: The current work consists of two studies (Study 1: 62 healthy adults, 68% female, mean age=37.3; Study 2: 74 healthy women, mean age=41.6). Participants completed surveys assessing psychological and environmental stress. RSA was collected during a laboratory stressor. Fecal samples were collected and assayed to assess microbial composition.
Results: In Study 1, the low perceived stress group was higher in alpha diversity than the high perceived stress group, $F(2, 52)$ = 5.047, p = .0099. Both Study 1 ($R2$ = 0.0548, p = .024) and Study 2 ($R2$ = 0.05023, p = .013) revealed differences in microbial composition between stressful life events groups. Study 1 revealed differences in microbial composition between RSA stress reactivity groups ($R2$ = 0.0674, p = .005). Levels of *Clostridium* were negatively associated with RSA stress reactivity in Study 1, $\Delta R2$ = 0.076, b = -.484, SE = .206, p = 0.023, 95% CI = -.897 - -.070. and levels *Escherichia/Shigella* were positively associated with perceived stress in Study 2, $\Delta R2$ = 0.047, b = .158, SE = .883, p = 0.049, 95% CI = .006 - 3.53.
Discussion: These studies show that stress group membership was differentially linked to microbial composition and that objective assessments of potentially severe stressors may be more reliably linked to microbial composition than subjective evaluations of stress. This work provides a foundation for future research that should focus on experimental studies and longitudinal interventions designed to determine bidirectional links between stress types, bacterial species, and metabolic output.

Abstract 927

DISCRIMINATION EXPOSURE IMPACTS BRAIN AND GUT MICROBIOME INTERACTIONS

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Background: Experiences of discrimination are associated with adverse health outcomes, including obesity and obesity-related comorbidities. However, the underlying whole-body mechanisms remain unclear. We investigated the impact of discrimination experiences on dysregulations in the brain-gut microbiome (BGM) system and how this is related to obesity and psychological outcomes. **Methods:** Brain responses were obtained by magnetic resonance imaging in 154 male and female participants. Fecal samples were collected to measure microbial signatures and fecal metabolites. The Everyday Discrimination Scale was administered to assess perceived experiences of chronic and routine unfair treatment. Multivariate analyses were used to evaluate complex relationships between discrimination and altered bidirectional communication within the BGM system in the context of obesity and psychological symptoms. Differences in brain gut microbiome interactions were also examined by race/ethnicity (Black, Hispanic, Asian and White). **Results:** Discrimination was associated with increased food-cue reactivity in frontal-striatal regions involved in reward processing, motivation, and executive control, especially for unhealthy foods, as well as altered glutamate-pathway metabolites involved in oxidative stress and inflammation. A sparse partial least square analyses demonstrated a significant association between discrimination-related brain and gut signatures skewed towards inflammatory processes, after adjusting for key variables such as age, sex, diet, BMI, race and socioeconomic status. Key nuanced differences in the impact of discrimination on brain gut microbiome interactions were observed. **Conclusions:** Discrimination, as a stressor, may contribute to enhanced BGM system disruptions that can promote unhealthy eating behaviors, and increased psychological symptoms leading to increased risk for obesity and mental health disorders. Targeted treatments that normalize these bran gut microbiome alterations may benefit individuals with discrimination-related stress exposure.

Abstract 1238

A RANDOMIZED CONTROLLED TRIAL OF A SUPPORTED DIGITAL COGNITIVE BEHAVIOURAL SELF-MANAGEMENT PROGRAMME VERSUS CARE AS USUAL FOR SYMPTOMS OF FATIGUE, PAIN AND URGENCY/INCONTINENCE IN ADULTS WITH INFLAMMATORY BOWEL DISEASE (IBD-BOOST).

Rona Moss-Morris, PhD, King's College London, Vari Wileman, PhD, King's College London, Laura Miller, MSc, Queen Mary University of London, Ailsa Hart, MD, St Mark's Hospital & Imperial College London, Thomas Hamborg, PhD, Queen Mary University of London, Fionn Cléirigh-Büttner , PhD, Queen Mary University of London, Christine Norton, PhD, King's College London

Background: Many people with inflammatory bowel disease (IBD) live with fatigue, pain and incontinence that impacts quality of life (QoL). We developed an interactive digital self-management therapy (BOOST) based on an empirically informed logic model and cognitive behavioural techniques, to treat these symptoms. This study assessed if BOOST, alongside minimal health care professional (HCP) support, when compared to usual care (UC), is effective in providing global relief from symptoms and improving IBD-related Quality of life (QoL) in people with IBD who report symptoms of fatigue, pain and/or incontinence.
Methods: A two-arm, parallel group randomised controlled trial (RCT). Patients, completing a large national survey who rated any of the three symptoms as 4/10 for impact, were invited for eligibility screening. Consenting participants were randomised into BOOST versus UC alone using online randomisation allowing for allocation concealment until after baseline measurements were completed. Those in the BOOST arm received access to the 12-session BOOST programme, a 30-minute telephone support call with a BOOST-trained HCP after session 1 and weekly email messages from the HCP. The UK IBD Questionnaire (UK-IBDQ) and global rating of symptom relief at 6 months post-randomisation were primary outcomes. Secondary outcomes measured the three individual symptoms, remission status and health related quality of life. Assessors and statisticians were blind to treatment outcome.
Results: 780 participants were randomised. At 6 months, neither UK-IBDQ (SMD=-1.67 CI: -4.174 to 0.826) nor global symptom relief were significantly higher in the BOOST than the TAU arm (SMD = 0.438 CI:-0.555 to 1.431). Results

on Vaizey incontinence and EQ5D health-related QoL secondary outcomes were significant in favour of BOOST. There were no differences between groups in adverse event reporting and one possible serious adverse reaction to treatment.

Discussion

This trial indicates that BOOST was not effective in its primary aims of improving IBD QoL and global symptom relief in patients with IBD. BOOST participants reported improved general health related QoL and improved incontinence, but not fatigue and pain, relative to controls. Planned moderator analysis will explore if subgroups of patients benefited on primary outcomes.

Trial registration: ISRCTN71618461

Abstract 907

DO INTERVENTIONS FOR MOOD IMPROVE INFLAMMATORY BIOMARKERS IN INFLAMMATORY BOWEL DISEASE?: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background: Evidence is emerging for the role of psychoneuroimmunological mechanisms in disease activity and progression in Inflammatory Bowel Disease (IBD). A recent review showed no effect of psychological therapies on self-reported disease activity in IBD. This meta-analysis aims to establish whether interventions targeting mood outcomes (depression, anxiety and stress) impact inflammation levels in IBD and possible moderators of these effects.

Methods: The Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guideline was followed. We searched five electronic databases and included studies if they were randomised controlled trials where interventions targeted mood outcomes and assessed inflammatory outcomes both pre- and post-intervention in adults with IBD. Independent reviewers screened studies, extracted data, and assessed methodological quality. Data were pooled to estimate standardised mean differences with 95% Confidence Intervals (CIs). A random-effects robust variance estimation accounted for studies measuring multiple biomarkers. Treatment effect moderators investigated were intervention type, mood as a primary/secondary outcome, effect on mood, and IBD subtype. Where there were sufficient biomarkers, individual meta-analyses were run. Publication bias and heterogeneity were assessed (Pre-registration PROSPERO: CRD42023389401).

Findings: 27 RCTs involving 1760 participants were included. Interventions demonstrated small statistically significant effects on biomarkers (-0.34, 95%CI:-0.47, -0.21, p<0.001) and medium effects on mood outcomes (-0.51, 95%CI:-0.74, -0.28, p<0.001), without evidence of substantive heterogeneity or publication bias. Individual analyses of faecal calprotectin (-0.18, 95%CI:-0.34, -0.02, p=0.027) and C-Reactive Protein (-0.25, 95%CI:-0.43, -0.97, p=0.001) showed small effects. Effect sizes were larger for psychological therapy interventions (compared with exercise or antidepressants) and when there was an effect on mood outcomes.

Conclusion: Treatments for mood have improve both generic inflammation and disease-specific biomarkers (faecal calprotectin and C-Reactive Protein). Psychological interventions and interventions with larger treatment effects on mood accentuated the effect on biomarkers. More research is

required to understand the underlying biological or behavioural mechanisms.

Figure 1. Forest plot showing effect of psychosocial/behavioural interventions on faecal calprotectin.
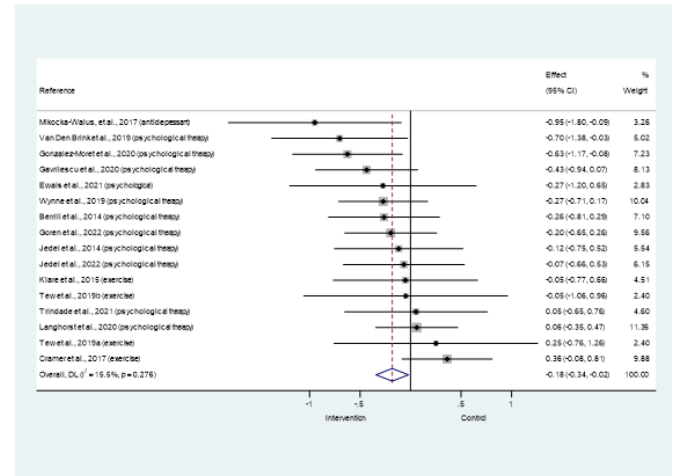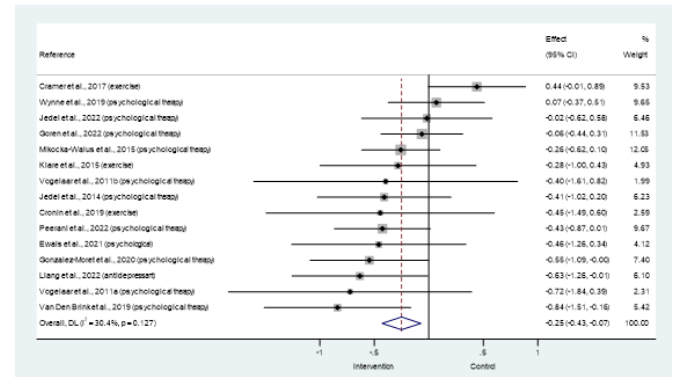

Figure 2. Forest plot showing effect of psychosocial/behavioural interventions on C-Reactive Protein.

6 Personality Factors & Health
Thursday 3/21/24

Abstract 1139

TYPE D PERSONALITY, PSYCHOSOCIAL FACTORS, AND HEALTH STATUS AS PREDICTORS FOR MAJOR ADVERSE CARDIOVASCULAR EVENTS IN NON-OBSTRUCTIVE CORONARY ARTERY DISEASE.

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Patients with non-obstructive coronary artery disease (NOCAD) are at risk for major adverse cardiovascular events (MACE). We aimed to examine whether Type D (distressed) personality, depressive symptoms, anxiety, positive mood, hostility, and fatigue and health status pose a risk for MACE in patients with NOCAD. More psychological distress and worse health status are hypothesized to be related to a higher risk for MACE, for which sex differences may be present.

After a 9.5-year follow-up period MACE was examined in 546 patients with NOCAD as part of the Tweesteden Mild Stenosis (TWIST) study. MACE included cardiac mortality, a major cardiac event, or (when absent) allcause mortality. Cox proportional hazard models were used to examine the impact of the psychosocial factors and health status on MACE while adjusting for age, sex, disease severity, and lifestyle covariates. Potential sex differences were explored.

In total 19% of the patients (Inclusion mean age 61, SD 9 years; 52% women) experienced MACE, with an annualized

event rate (AER) for MACE of 20 events per 1,000 person-years, and a lower risk for women compared to men. In covariate adjusted models positive mood (HR 0.97, 95%CI 0.95-1.00), fatigue (HR 1.03, 95%CI 1.00-1.06), and physical limitation (HR 0.99, 95%CI 0.98-1.00) remained significantly associated with MACE. This risk was more pronounced in men than in women, though no significant interactions between sex and psychosocial factors were present. Depressive symptoms were predictive of MACE in the age and sex adjusted model, but no longer after further adjustment for confounders including disease severity and lifestyle factors. Noticeable is that Type D personality, anxiety, hostility, mental health status, and angina frequency and stability were not significantly associated with MACE in this patient group.
In patients with NOCAD Type D personality, psychosocial factors, and health status were not predictive of adverse outcomes. Fatigue, low positive mood, and a lower physical limitation score were associated with MACE, without marked sex differences.

Abstract 1239

THE IMPACT OF SPEAKING DURING SOCIAL CONFLICT ON BLOOD PRESSURE IN HOSTILE INDIVIDUALS

Eli Rice, BA, University of Pittsburgh, Kristina Dickman, MS, Univerity of Pittsburgh, Stephen Manuck, PhD, University of Pittsburgh, Thomas Kamarck, PhD, University of Pittsburgh

Exposure to social conflict has been associated with an increased risk for cardiovascular disease (CVD). Initial studies utilizing laboratory measurements suggest that hostile individuals may be more sensitive to the effects of social conflict, as measured by enhanced cardiovascular reactivity, a known risk factor for CVD. There is not much work on the synergistic effects of social conflict and hostility in the natural environment, and the mechanisms that influence this association remain to be explored.
We examined the influence of social conflict and hostility on blood pressure reactivity during daily life in a healthy middle-aged employed sample (Adult Health and Behavior Study, n=472) and the moderating influence of speaking during the conflict on cardiovascular response. Participants were followed over a 4-day monitoring period. Blood pressure was assessed on an hourly basis throughout the waking day; following each blood pressure assessment, participants completed an electronic diary report with multi-item scales describing their most recent social interaction, along with mood and reports of other influences on current blood pressure (e.g., posture, activity, substance use). We used the Buss Perry Hostility scale (total scale score) to assess individual differences in hostility. Multilevel models were used to examine these effects. We found a significant three-way interaction between hostility, speaking, and social conflict (t= 2.61, p=.009). Among both high and low hostile individuals, the effects of social conflict on systolic blood pressure (SBP) were significant only when the participant was speaking, and, during speaking, the effect of social conflict on SBP was more robust among high hostile participants (t=3.24, p=.0012) than among low hostile participants (t=2.58, p=.01). Interestingly, neither high nor low hostile individuals showed an effect of social conflict when speaking was not present.
This analysis demonstrates the importance of contextual factors that may influence the detrimental effects of social conflict, especially among hostile individuals. Results may have implications for understanding how social factors influence CVD risk in the natural environment.

Abstract 1187

CAN WE USE LONELINESS, PERSONALITY TRAITS, MAJOR DEPRESSION DISORDER, AND SOCIAL DEPRIVATION POLYGENIC SCORES TO PREDICT LONELINESS RATE OF CHANGE? RESULTS FROM THE ENGLISH LONGITUDINAL STUDY OF AGEING.

Thamara Tapia-Munoz, MSc, UCL, Andrew Steptoe, Dsc, UCL

Background: Several studies have focused on environmental determinants of loneliness. However, responses to social disconnection might be influenced by genes. Genetic studies have shown common variance between loneliness, depressive symptoms, subjective well-being, and four of the big five personality traits. Recently, a polygenic architecture has been described for low socioeconomic status defined by neighbourhood deprivation, and there is a phenotypic link between social deprivation and loneliness. However, the association between social deprivation PGSs and loneliness phenotype has not yet been studied. We aim to describe the association between the PGSs for loneliness, personality traits, major depression disorder (MDD) and social deprivation with the loneliness phenotype and the loneliness rate of change.
Methods: We used Wave 5 (2010-2011) of the English Longitudinal Study of Ageing as baseline and Wave 6 (2012-2013) to Wave 9 (2018-2019) for loneliness follow-up. Blood samples were drawn at waves 2 (2004-2005) and 4 (2008-2009) for DNA assays. The genome-wide genotyping was performed in 2013-2014 at University College London (UCL) Genomics. We used cross-sectional multiple regression models and multiple linear mixed models (LMMs) with bootstrap errors.
Results: Cross-sectionally, using PGSs for the five personality traits, social deprivation and MDD, we explained the same amount of loneliness phenotype variance as using a PGS for loneliness alone (Adjusted R2=0.006). When all the PGSs were considered together, the PGSs for Extroversion, Conscientiousness, Loneliness, and Social deprivation were associated with the loneliness phenotype (Adjusted R2=0.008). Longitudinally, only the PGS for MDD was associated with the loneliness rate of decline (b=0.006; 95% CI: 0.001-0.012). Neuroticism PGSs and Loneliness PGSs were no longer associated with the loneliness rate of decline when the PGSs for social deprivation and MDD were included. But the social deprivation PGS was only associated with loneliness at baseline.
Discussion: The genetic risk for depression and social deprivation changed the relationship between the loneliness PGS and the loneliness rate of decline. Future analysis should explore the environmental mediators in this relationship, especially Major depression disorders cases and the role of the geographical social deprivation.
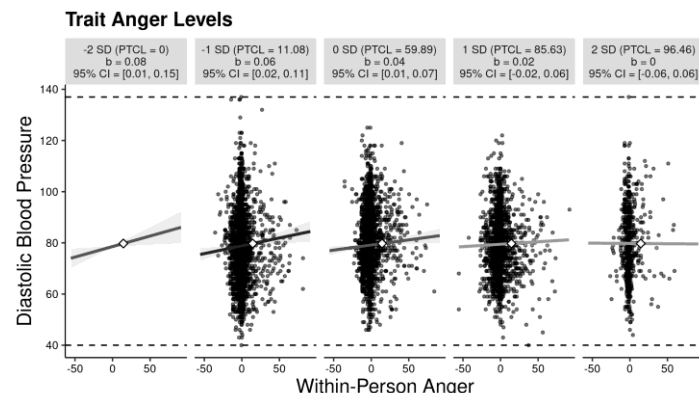
Abstract 1278

PERSONALITY MATTERS: EXAMINING HOW TRAIT ANGER MODERATES THE ASSOCIATION BETWEEN MOMENTARY ANGER AND AMBULATORY BLOOD PRESSURE

Matthew Zawadzki, PhD, University of California, Merced

Background: Research shows that experiences of anger result in elevations to blood pressure (BP). As such, anger is considered a risk factor for future cardiac events. Yet, this work often (implicitly) assumes all people are similar and show the same level of response to an anger episode. There is need to factor in one's tendency and familiarity with experiences of anger, and to test state by trait interactions when considering whether anger is a risk factor for cardiovascular disease. **Purpose:** The present study examines whether those prone to anger have differing levels of BP when actually

experiencing anger. **Method:** The sample comprised 153 participants recruited from the New York City area (52.9% female; mean age of 40.6; 56.4% Black). At baseline, participants completed a measure of trait anger. Following, participants were outfitted with a SpaceLabs ambulatory BP monitor that collected BP readings every 30 minutes during waking hours for a 24-hour period (~38 readings per participant). Accompanying each BP reading was an ecological momentary assessment of one's current anger state right before the BP reading, along with measures of activity levels and time of day that were controlled for in analyses. The within-person component of the momentary anger report was separated through person-mean centering, and used as a predictor of ambulatory BP along with trait anger and their interaction. **Results:** As expected, within-person momentary reports of anger experiences were associated with higher diastolic BP ($b = 0.03$, $SE = 0.01$, $p = .004$). Yet, these within-person anger reports were moderated by trait tendencies to experience anger ($b = -0.01$, $SE = 0.002$, $p = .043$). Specifically, those who reported levels lower levels of trait anger, -2 SD (95% CI [0.02, 0.15]), -1 SD (95% CI [0.02, 0.01]), and at mean levels (95% CI [0.01, 0.07]), all demonstrated higher diastolic BP when they reported more anger. In contrast, those who reported higher levels of trait anger, +1 SD (95% CI [-0.02, 0.06]) and +2 SD (95% CI [-0.06, 0.06]), demonstrated similar levels of BP regardless of their emotional experiences. A similar pattern emerged for systolic BP, although the interaction did not reach significance. **Discussion**: Results support the need to consider both state and trait experiences of anger and their interplay when testing for cardiovascular perturbations.
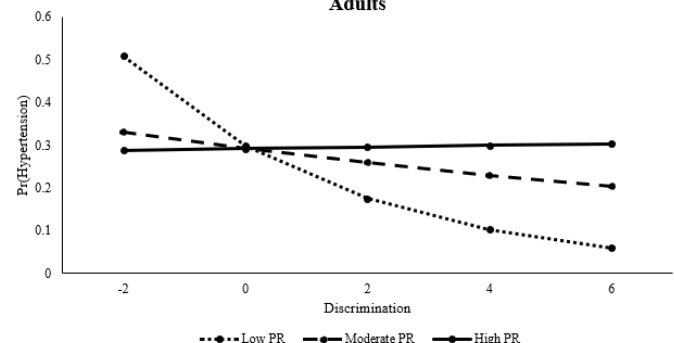
individuals positively assess and attempt to derive meaning from stressors such as discrimination. As no studies to date have examined the associations among discrimination, PR, and hypertension, the present study examines these relationships among older Black adults.

Methods: Data come from 273 Black Americans aged 50+ in the Nashville Stress and Health Study. Modified Poisson regression models were estimated to (1) examine whether discrimination and PR were independently associated with hypertension, and (2) determine whether PR moderated the association between discrimination and hypertension by testing the discrimination x PR interaction.

Results: Overall, findings indicated that discrimination was negatively associated with odds of hypertension among Black older adults (OR=0.89, 95% CI=0.79-0.99, p<0.05). While PR was not directly linked to hypertension, a significant interaction (OR=1.07, 95% CI=1.02-1.12, p<0.01) determined that the impact of discrimination on hypertension was conditional on levels of PR. Compared to individuals endorsing moderate and high levels of PR, older adults with low PR levels experienced greater odds of hypertension with low discrimination exposure; their odds of hypertension decreased significantly with greater exposure to discrimination.

Discussion: Study results suggest that this population may benefit from utilizing PR as a resource against infrequent discrimination, but this resource may be less protective against more frequent discrimination exposure. In drawing on a strengths-based perspective, the present study illuminates key nuances in the physical health significance of PR and may inform more effective interventions to promote healthy aging among older Black Americans.

Trait Anger Levels

FIGURE 1. Positive Reappraisal Moderates the Association between Discrimination and Hypertension among Older Black Adults

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7 Positive Factors in Aging Populations
Thursday 3/21/24

Abstract 835

DISCRIMINATION, POSITIVE REAPPRAISAL, AND HYPERTENSION AMONG OLDER BLACK ADULTS

Heather R. Farmer, Ph.D., University of Delaware, Courtney S. Thomas Tobin, Ph.D., University of California, Los Angeles

Introduction: Black Americans experience the highest hypertension rates in the world, with more than 50% of adults reporting the condition. Research suggests heightened exposure to discrimination is a risk factor. However, evidence is mixed, with studies demonstrating positive, negative, and even null associations between discrimination and hypertension. These inconsistencies underscore the need to identify protective psychosocial resources that may condition the impact of discrimination on hypertension among older Black adults, who face increased risk. We investigate positive reappraisal (PR), an adaptive cognitive process whereby

Abstract 1096

MAINTAINING PURPOSE IN LIFE PREDICTS LESS COGNITIVE DECLINE IN OLDER ADULTS

Elliot Friedman, PhD, HDFS - Purdue University, Patricia Thomas, PhD, Purdue University, Lisa Barnes, PhD, Rush University, Madison Sauerteig, BS, Purdue University, Kenneth Ferraro, PhD, Purdue University

Purpose in life is positively associated with cognitive function and maintenance of cognitive health over time in aging adults. However, purpose in life itself declines over time in aging adults, and these changes in purpose may be independently related to changes in cognition. The current study used three waves of data from the Health and Retirement Study (HRS; N = (9,808), a nationally representative survey of adults over 50 years of age, to examine the associations between change in purpose in life and change in cognitive function in White, Black, and Hispanic adults. Purpose in life was measured using the 7-item version of the Ryff scale (1989; 1995). Cognitive function

was assessed using a modified version of the TICS (Telephone Interview for Cognitive Status) survey (Brandt et al., 1988). All analyses adjusted for demographic characteristics, socioeconomic status, immigration status, and depressive symptoms. Growth curve models with and without interaction terms for race and ethnicity were estimated because epidemiological studies have shown that Black participants tend to have greater purpose in life and poorer cognitive function than White respondents but comparable rates of cognitive decline. Cognitive function also tends to be lower in Hispanic than White participants but equivalent to or higher than Black participants. Results showed that in the full sample purpose in life and cognitive function both declined over time, initial levels of purpose were associated with initial levels of cognitive function, and less decline in purpose was independently associated with less decline in cognitive function. Addition of interaction terms to the models showed that the positive association between initial levels of purpose in life and cognitive function was stronger in Black participants than in White or Hispanic participants, but there were no racial or ethnic differences in the longitudinal associations between change in purpose and change in cognition. These results show that maintaining higher levels of purpose in life may protect cognitive abilities in older adults from diverse racial and ethnic groups.

Abstract 1247

THE NEGATIVE AFFECT AND PAIN CONNECTION IN OLDER ADULTS: THE ROLE OF SOCIAL INTERACTIONS AND ENJOYMENT

Jennifer Graham-Engeland, PhD, Penn State University, Dakota Witzel, PhD, Penn State University, Erin Harrington, PhD, University of Wyoming, Lynn Martire, PhD, Penn State University, Karina Van Bogart, MS, Penn State University, Christopher Engeland, PhD, Penn State University

Although it is well-established that negative affect is bi-directionally linked with pain, relatively little research has examined the relationship between affect and pain in daily life, particularly with older adults. Even less is known about what social and positive emotional factors may help attenuate the connection between negative affect and pain. We examined whether social interactions and reported enjoyment in daily life were associated with an attenuated link between negative affect and two important pain outcomes (pain intensity and perceived interference from pain). This was examined among a socioeconomically and racially diverse sample of 317 older adults aged 70+ (M_{age}=77.45 ; 67% women; 40% Black; 13% Hispanic) who were recruited from the Bronx, NY as part of the Einstein Aging Study and who completed ecological momentary assessments five times daily for 14 days. Three-level (session within days within persons) multilevel models were estimated, controlling for mild cognitive impairment (MCI) status, gender, age, education, body mass index, and number of health conditions. Intraclass correlation coefficients revealed 35 and 37% of the variance for pain interference and intensity was within-persons, respectively. In given moments, higher negative affect was associated with higher pain intensity and pain interference (ps<.05); however, higher momentary enjoyment was related to lower pain interference (p<.0001) but not intensity (p=.09). Moment-level negative affect and enjoyment significantly interacted to predict both higher pain intensity (p=.04) and pain interference (p<.0001), with patterns suggesting a buffering effect of enjoyment at moments of low negative affect. In addition, a three-way interaction (p=.003) emerged such that during moments when no interactions occurred and negative affect was lower than a person's average, there was a buffering effect of momentary enjoyment

on pain intensity. Exploratory results with broader measures of positive affect will also be presented. Findings extend understanding of the contribution of negative affect to variability in pain in daily life, and the potential mitigating impact of social interactions and moments of enjoyment. Greater understanding of the dynamics between pain and affect in daily life among older adults are needed to inform and expand ongoing efforts for prevention and intervention.
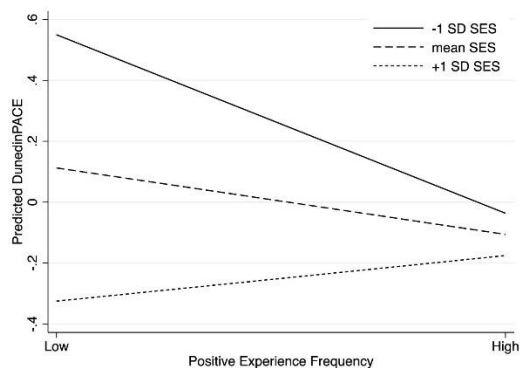
Abstract 1116

POSITIVE EXPERIENCES ARE MORE STRONGLY LINKED TO BIOLOGICAL AGING IN THE LEAST ADVANTAGED

Tara Gruenewald, PhD, MPH, Chapman University, Naomi Podber, PhD, Chapman University

Lower life course socioeconomic status (SES) is linked to poorer health and well-being, and decreased longevity. In addition to greater stress and strain associated with lower SES, lesser experience of the good life may also play a role in poorer health. A small body of evidence highlights disparities in positive experience frequency (POSFREQ) as a pathway to differential health outcomes and has found that POSFREQ may be more strongly associated with physiological well-being in those of lower SES. In the current study, we examine whether frequency of positive experiences mediates associations between SES and a measure of biological aging (DunedinPACE, a DNA methylation profile of the pace of aging), as well as whether POSFREQ might be more strongly associated with biological aging in those of lower SES. Analyses use newly-available DNA methylation data from the Midlife in the U.S. (MIDUS) Study (N=1,310, age 26–86, 55.4% female, 69.0% white). Life course SES was constructed as a composite of childhood (parents' education, subjective financial, welfare status) and adult (education level, income, subjective financial) indicators (possible score 0 – 16). POSFREQ was assessed with the Positive Events Schedule (average monthly frequency (0 - did not experience, 1 - 1 to 6 times, 2 - 7+ times) of 49 positive life experiences). DunedinPACE scores were computed as described in Belsky et al. (2022). Analytic models accounted for family clustering and included age, race, gender, and chronic disease burden covariates. POSFREQ did not mediate (Indirect effect=-.01, p=0.13) the lower DunedinPACE scores in those of higher SES (b = -.23, p = .00). POSFREQ did interact with SES to predict DunedinPACE scores, such that greater POSFREQ was linked to lower DunedinPACE scores only at low SES levels (see Figure 1). A subsequent moderated mediation model showed that POSFREQ mediated the SES-DunedinPACE association only for those at lower levels of SES (conditional indirect effect (CIE) at -1 SD of SES = -.02, p=.02; CIE at mean of SES = -.01, p=.22; CIE at +1 SD of SES = .01, p=.44). Results support previous findings that those of lower SES, who may also have less access to positive life experiences, may reap the highest biological benefit from such experiences. Positive experience engagement may be a modifiable route to better biological aging in the less advantaged.

Figure 1. Association between positive experience frequency and DunedinPACE, at -1 SD, mean, and +1 SD of socioeconomic status (SES).

8 Positive Factors & Well-Being
Thursday 3/21/24

Abstract 1284

PURPOSE IN LIFE IS POSITIVELY AND PROSPECTIVELY ASSOCIATED WITH PHYSICAL RECOVERY AFTER CARDIAC ARREST

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Background. People with more purpose in life live longer lives. Patients with coronary heart disease who have greater purpose in life have lower risk of subsequent myocardial infarction. These associations with better health seem to be independent from the effects of negative psychological factors (NPF; e.g., depression). It is unknown whether purpose in life may have beneficial health effects due in part to boosted physical functioning. We tested whether greater purpose in life was associated with physical aspects of health-related quality of life (HRQoL) in cardiac arrest (CA) survivors one month after hospital discharge while accounting for relevant demographic and clinical characteristics and NPF.
Method. CA survivors (n = 72; M_{age} = 55.4 years; 43.1% Hispanic) enrolled in a prospective longitudinal cohort study and completed baseline assessments at hospital discharge and an interview 1 month later. Separate multiple linear regression models were run for each of the following recovery outcomes at 1-month post-discharge: four physical HRQoL subscales (physical functioning, role-physical, bodily pain, and general health) and instrumental activities of daily living (IADL). For each outcome, a partially adjusted model included baseline factors of purpose in life, age, physical self-maintenance score, and minutes from CA to return of spontaneous circulation (a risk factor for poor recovery). A fully adjusted model additionally included baseline depressive and posttraumatic stress symptoms.
Results. In partially adjusted models, higher purpose was associated with higher scores for physical functioning, work limitations due to physical problems (reverse coded), general health, and IADL, all ps ≤ .03, but not bodily pain, p = .13. In fully adjusted models, higher purpose was associated with greater physical functioning, β = 8.24, 95% CI [1.84, 14.64], p = .01, and IADL, β = 0.85, 95% CI [0.30, 1.40], p < .01, independent of associations with demographic, clinical, and negative psychological factors.
Conclusion. Greater purpose in life at hospital discharge predicts substantially higher physical functioning and instrumental daily activities in CA survivors 1 month after discharge, even after accounting for NPF. Intervention research should explore whether targeting cardiac patients' purpose after acute events may improve their HRQoL and physical independence.

Abstract 1272

SOURCES OF PSYCHOLOGICAL WELL-BEING AND THEIR ASSOCIATIONS WITH CARDIOVASCULAR HEALTH: A MIXED METHODS INVESTIGATION IN THE MIDLIFE IN THE UNITED STATES STUDY

Julia Boehm, PhD, Chapman University, Monica Adams, M.A., University of Colorado, Denver, Jennifer Boylan, PhD, University of Colorado, Denver

Background
Although the presence of cardiovascular health (i.e., healthy blood pressure, cholesterol, glucose, body mass index, diet, regular physical activity, adequate sleep, and avoiding nicotine) is linked with reduced cardiovascular disease and mortality risk, few U.S. adults meet criteria for it and the factors that promote it are unclear. Drawing on past work suggesting psychological well-being is relevant for cardiovascular outcomes, we conducted a mixed methods study with data from the Midlife in the United States (MIDUS) Study to examine whether different sources of well-being were longitudinally associated with better cardiovascular health.
Methods
Data came from midlife and older adults (55.5% women, 44.5% men; 16.4% Black, 83.6% White) with biomarker data from the second and third waves of MIDUS (N = 614). At the second wave, participants wrote responses to the question "What do you do to make your life go well?" A team of judges evaluated each response for the presence of 12 sources of well-being (e.g., positive relationships, faith, enjoyment, coping). At the third wave (approximately 12 years later), participants were assessed on 8 components of cardiovascular health, which were combined based on American Heart Association guidelines (higher scores reflect better health). Linear regressions examined the association between each source of well-being in unadjusted models and models adjusted for sociodemographic factors (age, sex, education, race) and word count.
Results
Themes related to positive relationships, positive attitude, enjoyment, coping, personal finances, and planning were each positively associated with cardiovascular health in unadjusted but not fully adjusted models. Only the themes of health maintenance (ß = .098, p = .007) and productive engagement (ß = .10, p = .007) were significantly associated with better cardiovascular health when adjusting for all covariates.
Conclusions
Individuals who identified health and productive engagement (e.g., work, volunteering) as central to their well-being showed healthier cardiovascular outcomes nearly a dozen years later. Combining qualitative assessments of sources of well-being with objective measures of cardiovascular health highlights unique contributors of well-being that are relevant for health and may not be evident with conventional self-report measures.

Abstract 768

ASSOCIATION BETWEEN OPTIMISM AND INCIDENT STROKE AMONG STROKE SURVIVORS: FINDINGS FROM THE ENGLISH LONGITUDINAL STUDY OF AGEING (ELSA).

Joseph Chilcot, PhD, King's College London, Ruth Hackett, PhD, King's College London

Background: Personality has been implicated in stroke mortality. However, the role of personality in stroke incidence remains unclear. Our primary aim was to investigate associations between optimism, determination, control and the "Big Five" personality traits on incident stroke. A secondary aim was to assess the potential mediating role of health behaviours in the personality-stroke relationship. Methods: A total of 3703 stroke-free participants from the English Longitudinal Study of Ageing (ELSA) provided data on personality using the Midlife Development Inventory at wave 5 (2010/11). Self-reported incident stroke was assessed from waves 6-8 (2012-2017). Associations were modelled using discrete time survival proportional odds logistic models. A structural equation modelling approach was used to explore the potential mediating role of health behaviours. Analyses adjusted for sociodemographic factors, history of other cardiometabolic disease, depressive symptoms and health behaviours. Results: Over 6 years follow-up there were 125 incident strokes. Higher optimism (Hazard Ratio (HR=0.66; 95% Confidence Interval [CI] 0.53,0.82), openness (HR=0.72; 95% CI 0.53,0.98) and conscientiousness (HR=0.59; 95%CI 0.42,0.84), were associated with reduced incident stroke risk in unadjusted models. After adjustment for sociodemographic factors and history of cardiometabolic disease, only the association between optimism and incident stroke remained significant (HR=0.72; 95% CI 0.57, 0.92). The effect of optimism remained significant in a final model adjusting for health behaviours (HR=0.75; 95% CI 0.60,0.96). There was evidence of a small but significant mediating effect of physical activity. Conclusions: Higher trait optimism was associated with reduced stroke risk. This association was partially mediated by physical activity albeit the effect was small, and caution is warranted when inferring causality. The interplay of personality, behaviour and clinical risk factors in stroke incidence and survivorship warrants further investigation.

Abstract 941

THE LONGITUDINAL RELATIONSHIP AMONG GRATITUDE, HEALTH ANXIETY, PHYSICAL HEALTH, AND WELL-BEING DURING THE COVID-19 PANDEMIC

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The COVID-19 pandemic brought forth the rise of mental and physical health issues, such as health anxiety, alcohol use, and fatigue. Gratitude is a malleable trait that could improve both mental and physical health longitudinally for survivors of the pandemic. The aim of the current study was to investigate the effects of gratitude on health anxiety, fatigue, alcohol use, pain, and well-being across time. The current study's sample was composed of 788 U.S. MTurk workers during the COVID-19 pandemic, (3/27/2020-10/24/2020) mostly male (58.1%), and adults (M_{age} = 38.0, SD = 11.8). Longitudinal structural equation models (SEM) were used to analyze the unique effects of gratitude at baseline on health anxiety, fatigue, alcohol use, pain, and well-being approximately six months later. The model fit was good (χ^2 (df = 90) = 269.46, p < .001, RMSEA = .05, TLI = .96, CFI = .97). Gratitude at baseline had a small to medium negative relationship with health anxiety (β = -.29, 95% CI [-.37, -.21]), alcohol use (β = -.34, 95% CI [-.44, -.24]), pain (β = -.22, 95% CI [-.31, -.13]), and fatigue (β = -.05, 95% CI [-.15, .04]) approximately six months later. Gratitude at baseline had a moderate to large positive relationship with well-being (β = .54, 95% CI [.47, .61]) approximately six months later. Gratitude at baseline predicted approximately 9% of the variance in health anxiety, 12% of the variance in alcohol use, .03% of the variance in fatigue, 5% of the variance in pain, and 29% of the variance in well-being approximately six months later. Gratitude at baseline had an overall small but negative relationship with deleterious mental and physical health outcomes but a medium to large positive relationship with well-being approximately six months later. These findings indicate that gratitude acts as a buffer for negative mental and physical outcomes while simultaneously promoting positive mental health outcomes over time. Gratitude is a trait that may promote mental and physical resilience in many contexts, including a pandemic.

9 Sleep, Cognition, & Psychological Processes
Friday 3/22/24

Abstract 893

THE INTERRELATIONSHIP OF RACISM-RELATED WORRY, RACIAL DISCRIMINATION, AND SLEEP DISTURBANCE AMONG AFRICAN AMERICAN WOMEN

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Sleep disturbance is an important predictor of racial health disparities with studies showing greater sleep disturbance among African Americans compared to Whites. Chronic racism-related stress has been linked with poor sleep, and may help explain racial disparities in sleep disturbance. Whereas most studies examine actual racism stress experiences, few have investigated the links between anticipatory racism-related stress and sleep. Anticipatory stress results in a heightened state of prolonged vigilance, potentiates the stress response, and has been proposed as a critical yet understudied component of racism-related stress. African American women have previously reported a pervasive sense of vigilance in anticipation of potential racism experiences. We examined the effect of racism-related worry (one domain of anticipatory racism stress) on difficulty staying asleep and interactive effects with racial discrimination among a nationally-representative sample of African American women aged 25-64 in the US (N=615). Racism-related worry is a 5-item scale indicating the degree to which African American women worry about their race and stereotypes (α=.71). Racial discrimination was measured using the 8-item experiences of discrimination scale (α=.91). Sleep disturbance was measured using a single item asking about difficulty staying asleep. All 3 measures were assessed on a 5-point scale with higher numbers indicating higher agreement on the construct of interest. We performed a weighted multivariable regression and found a significant positive interaction between racism-related worry and lifetime experiences of racial discrimination (b=0.004, SE=0.002, p=0.005). Among African American women with greater/higher/more racial discrimination experiences, racism-related worry increased the likelihood of sleep disturbance . Our findings affirm the need to consider anticipatory racism threat as an important aspect of racial stress and its implications for health.

Abstract 1095

THE DAILY DYNAMICS OF SLEEP AND SUBJECTIVE COGNITION

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Background: Independently of behavioral cognitive performance, subjective cognitive performance has been associated with multiple well-being outcomes, such as health-related quality of life. Previous work has shown sleep duration and quality predict better cognitive performance; however, little is known about whether sleep is associated with subjective cognition in daily life. Subjective cognition reflects aspects of cognitive functioning in naturalistic contexts that are not fully captured in laboratory-based cognitive tests. Thus, this preregistered study aims to evaluate the associations between self-reported and actigraphic sleep metrics and end-of-day subjective attention and memory.
Method: Ecological momentary assessment data were collected from adults aged 25-88 across British Columbia, Canada. For 14 days, participants (N = 250) wore an actigraph sleep watch, reported on previous night's sleep duration and quality, and rated their attention and memory at the end of each day.
Results: Multilevel models evaluated self-reported sleep duration and quality, as well as actigraphic sleep duration and wake-after-sleep-onset (WASO), as predictors of subjective attention and memory, respectively. At the within-person level, longer self-reported sleep duration predicted better next-day attention (b = 0.03, $p < .05$), but not memory. Nightly sleep quality predicted both better attention (b = 0.03, $p < .01$) and memory (b = 0.02, $p < .05$). Between-persons, people with higher self-reported sleep quality had better average subjective attention (b = 0.29, $p < .001$) and memory (b = 0.29, $p < .001$). Actigraphic sleep duration and WASO did not predict subjective cognition at the within- or between-person level.
Conclusion: Longer self-reported sleep duration and higher subjective sleep quality were associated with better daily and average cognitive performance the following day, whereas actigraphic measures of sleep were not. This underscores the importance of comprehensive sleep assessment, including both subjective and behavioral measurements, when evaluating psychological outcomes. As past research has linked higher perceived sleep quality with greater REM sleep, sleep depth and how well-rested one feels upon waking may be important for subjective cognitive functioning. Further work is needed to delineate this relationship and evaluate potential mechanisms.

Abstract 1235

A MECHANISTIC LOOK AT HOW HEADSPACE IMPROVES SLEEP QUALITY THROUGH PERSEVERATIVE COGNITIONS

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Background. Research has shown that traditional and mHealth meditation improves sleep outcomes and various cognitive and emotional states, including reducing engagement in perseverative cognitions. However, a more mechanistic understanding of how meditation improves sleep is needed. Therefore, this study tested perseverative cognitions as a possible mechanism between meditation and sleep outcomes. **Method**. Employees (*n* = 132; aged *M* = 38.5, *SD* = 11.1; 76.5% female; 54.5% non-Hispanic White or 22.0% Hispanic) from a university in California's San Joaquin Valley participated in the study. Participants were randomized to complete 10 minutes of daily meditation via the Headspace app or a waitlist control. Sleep and perseverative cognitions were assessed using ecological momentary assessment (four assessments/day for perseverative cognitions, a morning diary for sleep quality and fatigue) and objective assessments of sleep duration and efficiency using a Fitbit Charge. Participants completed four-day bursts of all assessments at baseline and two, five-, and eight weeks post-randomizations. **Results**. As reported previously, significant improvements in sleep outcomes and reductions in perseverative cognitions were observed for those in the Headspace group. However, we did not consistently observe a relationship between less perseverative cognitions and improved sleep for the Headspace condition. Instead, in the Headspace group, we observed a shift in the day-to-day relationship between perseverative cognitions and sleep outcomes from deleterious at week 0 to either less negative or salubrious by the fifth week of meditating, which was not observed for the control group. Specifically, more perseverative cognitions were related to less relative tiredness from week 0 to week 5 (*b* = .25 versus *b* = .10), longer duration (*b* = -5.32 versus *b* = 4.73), and greater efficiency (*b* = -2.71 versus *b* = 1.83). **Discussion**. Results suggest the possibility that the perseverative cognition items captured thinking that shifted from a ruminative and negative framework to a more reflective and productive framework, in line with the changes that mindfulness meditation is expected to produce. Future work will examine other possible mediators, such as depression and quantification of a participant's meditative practice throughout the study.

Abstract 1052

THE QUANTITATIVE COST OF RACIAL SLEEP DISPARITIES FOR DAILY MEMORY PROCESSING

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Introduction. Racial sleep disparities are a significant public health concern. Yet, the daily consequences of sleep losses endemic to Black Americans are unclear. One of the assumed functions of sleep is memory maintenance. Here, we quantified the impact of racialized sleep differences on memory processing in Black and White Americans. **Methods.** 87 Black (N=41) and White (N=46) participants, 52 women (Black women=24, White women=28), with an average age of 30 years old (Black: 30±1.60 years, White: 30±1.74 years) participated in this study. All subjects were healthy adults who reported no history of depression, anxiety, cognitive or sleep disorders. Participants reported to a university sleep lab at 7:00PM. Shortly after, participants encoded 68-word pairs which was followed by a test 30 minutes later (Test 1). Participants completed a second memory test about 1-hr after the original encoding session and directly before preparing for bed (Test 2). Sleep was monitored with standard polysomnography. Lights out was at 11:00PM. Participants were woken up at 7:00AM the next morning and completed a final memory test 30 minutes post-awakening (Test 3). Linear mixed-effects models were used to assess the impact of sleep and race on memory performance. **Results.** A light-deep sleep tradeoff effect emerged for Black participants. Black participants spent 20 minutes less time in SWS compared to White participants (p=.004) and had lower absolute delta power (p=.004). Yet, Black participants spent 60% of the sleep

period in Stage 2 vs. 55% for the White sample (p=.032). Black participants also retained less information across all tests compared to White participants (p<.001). Importantly, longer SWS durations were associated with improved performance (p=.029). A racexSWS interaction also emerged (p<.001). After accounting for the contribution of SWS to memory, the impact of race on memory outcomes was partially attenuated. Lastly, bivariate associations between sleep and memory were pronounced for Black but not White participants. **Discussion.** Data suggest that sleep deficits experienced by Black Americans, particularly in SWS, come at a daily cost to memory. The prolonged and compounding effects of these daily sleep and memory losses are important to consider in the context of age-related cognitive declines, which are especially prominent in U.S.-born Black populations.

10 Sleep & Health
Friday 3/22/24

Abstract 830

THE EFFECTS OF DYADIC STRESS REGULATION ON DAILY SLEEP HEALTH AMONG ADULT PATIENTS WITH CANCER AND THEIR SLEEP-PARTNER CAREGIVERS

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Patients with cancer and their family caregivers are closely involved in regulating each other's illness-related stress. Dyadic regulation can be characterized as mutually calming (coregulation) and fueling (coagitation) each other's stress. We examined the extent to which stress coregulation and coagitation responses to an experimentally induced stressor are associated with individuals' daily sleep health among adult patients with cancer and their caregivers.
Patients with colorectal cancer and their sleep-partner caregivers (*n* = 72 dyads, 54.6 years old, 51% female, 60% Hispanic) participated together in an experimental session that involved inducing a close relationship- and medical-related stressor, during which their interbeat intervals (IBIs) were assessed using electrocardiogram. Individuals' stress coregulation and coagitation scores were quantified by IBIs using windowed cross-correlation analysis. Individuals also completed daily sleep logs for 14 consecutive days, from which sleep onset latency (SOL), wake after sleep onset (WASO), and sleep efficiency (SE) per day were calculated.
Participants on average displayed mutual stress regulatory patterns with their partners 45% of the time and reported normal sleep (SE = 85%). Multilevel modeling revealed that caregivers' greater stress coregulation was associated with their own shorter SOL and better SE (|*β*| > 1.134, *p* ≤ .029). In addition, patients' greater stress coagitation was associated with their caregivers' longer SOL and poorer SE ((|*β*| > 0.253, *p* ≤ .016). Patients' sleep indices were not significantly predicted by mutual stress regulatory patterns.
Findings support the applicability of employing a novel statistical approach to quantify dyadic stress regulatory patterns. Findings also suggest family caregivers' successful stress regulation with their patients is critical for the caregivers' better sleep health, whereas patients' difficulty regulating stress with their caregivers contributes to the caregivers' fragmented sleep. Future studies to identify individual and interpersonal factors related to patients' sleep health and to examine the psychobiobehavioral mechanisms of stress regulation in the family coping with medical illnesses are warranted.

Abstract 1276

EFFECTS OF SLEEP DEPRIVATION AND RECOVERY SLEEP ON SERUM BIOMARKERS OF ALZHEIMER'S DISEASE IN RETIRED ADULTS

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Introduction: Short sleep is a risk factor for Alzheimer's disease, and sleep is critical to the clearance of brain metabolites involved in Alzheimer's pathogenesis. Blood-based biomarkers of Alzheimer's disease (e.g., beta amyloid [Aβ] 42/40 ratio, phosphorylated tau181 [p-Tau181], neurofilament light chain [NfL], glial fibrillary acidic protein [GFAP]) are validated and increasingly used in clinical studies, yet the impact of sleep deprivation and recovery sleep on these markers is unclear. If sleep deprivation hinders clearance of Alzheimer's-associated metabolites, we expect serum levels to be lower after sleep deprivation but increase with recovery sleep when proteins can be cleared from the brain into the blood. This study determined the effects of sleep deprivation and recovery sleep on serum biomarkers of Alzheimer's disease.
Methods: Participants were 58 cognitively normal retired adults who completed a 60-hour laboratory study. The protocol included a baseline night of sleep, one night of total sleep deprivation, and one night of recovery sleep. Blood was collected the morning after each night. Serum samples were analyzed for Aβ40, Aβ42, p-Tau181, NfL, and GFAP using ultra-sensitive immunoassay. Linear mixed models determined effects of sleep deprivation and recovery sleep on biomarker levels adjusted for age, sex, race/ethnicity, and years of education.
Results: This was a sex-balanced (52% females), mostly White (86% non-Hispanic White), educated (mean education: 16.0 +/- 1.9 years) sample of older adults (mean age: 67.8 +/- 5.5 years). Sleep deprivation was associated with decreased levels of Aβ42/40 ratio, NfL, and GFAP. In the recovery sleep phase, the Aβ42/40 ratio remained lower than baseline, while serum NfL and GFAP concentrations increased back to baseline levels. Serum pTau-181 did not change in response to sleep deprivation, but pTau-181 levels decreased after recovery sleep.
Conclusions: In retired adults, acute sleep deprivation and recovery sleep impact levels of Alzheimer's disease biomarkers measured in serum. Sleep may therefore affect the diagnostic accuracy of serum Alzheimer's biomarker tests. More than one night of recovery sleep may be needed to restore Aβ42/40 levels to baseline following total sleep deprivation.

Abstract 1117

IMPACT OF SLEEP AND CIRCADIAN TIMING ON ANTIBODY RESPONSES TO THE COVID-19 VACCINE

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COVID-19 vaccines remain the primary tool for infection control; however, concerns about waning immunity and the emergence of new, more infectious variants underscore the fact that COVID-19 vaccines do not work equally well for all. Sleep has emerged as playing an important role in regulating

the immune system, though its impact on immunity conferred by the COVID-19 vaccine is not well understood. To address this gap in the literature we recruited 428 healthy participants aged 18-88 prior to receiving the mRNA COVID-19 vaccination series. Blood samples were obtained at baseline and 1- and 6-months following the vaccination series to quantify neutralizing antibodies (nAB) to the vaccination. Global sleep quality was measured multiple times using the Pittsburgh Sleep Quality Index (PSQI), while sleep duration, efficiency, and subjective quality were measured using 7-nights of sleep diaries at baseline and blood sampling time points. Further, a subset of participants (n=198) wore a biosensor (Oura Ring) for two months from baseline to the 1-month blood draw. Sleep metrics were averaged over the measurement time points and tested as predictors of neutralization, controlling for relevant covariates (age, sex, body mass index). Participants with evidence of prior SARS-CoV-2 infection were excluded from these analyses. Mixed effects models revealed a significant interaction: PSQI global score*Time point ($F(1,424.3)=5.3$, $p=0.02$). Simple slope analyses indicated that poorer global sleep quality was associated with lower nABs at the 6-month time point (b=-0.02, SE=0.01, $p=0.02$). Additionally, Oura Ring data indicated a trend level ($p=0.06$) interaction between Oura-based sleep duration*Time point*vaccine. A probing of the simple slopes indicated that shorter sleep duration was associated with lower nABs at the 6-month time point among those who received the Pfizer vaccine (b=0.17, SE=0.07, $p=0.009$). Sleep diary measures were not associated with nABs. These findings provide evidence that impaired sleep may have a significant impact on nAB durability, potentially leaving some individuals at elevated risk for future SARS-CoV-2 infection.

Abstract 1316

IMPACT OF SLEEP QUALITY ON PRENATAL COGNITIVE BEHAVIORAL STRESS MANAGEMENT INTERVENTION EFFECTS ON PRE- AND POSTNATAL CORTISOL PATTERNS
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Recent studies have supported cognitive behavioral stress management interventions (CBSM) to be effective in regulating altered cortisol patterns during pregnancy and the postpartum period to help improve health outcomes among mothers and their infants. Yet, few studies have examined how changes in mothers' sleep can influence CBSM effects on cortisol. The current randomized trial examined whether mother's sleep quality during pregnancy and postpartum influenced prenatal CBSM intervention effects on regulating pre- and postnatal salivary cortisol levels [e.g., cortisol awakening response (CAR), changes in diurnal cortisol] compared to a control group. Our sample consisted of 100 low-income pregnant women (mean age=27±6 years; 75% annual income<$19K; 71% Latina). Women were randomized to either an eight-week CBSM group intervention or a control group and self-reported their sleep quality (Pittsburgh Sleep Quality Index) as well as provided seven salivary cortisol samples (four morning samples, 12pm, 4pm, and 8pm samples on one collection day) at baseline (1st trimester; <16 weeks of gestation, during their third trimester, and at three months postpartum. Women in the CBSM group intervention (*n*=55) attended weekly sessions in which a clinically trained researcher taught relaxation and coping skills, whereas women in the control group (*n*=45) received weekly print-based prenatal health information by mail. Multilevel growth curve analyses showed that women receiving the CBSM intervention displayed a smaller CAR (β=0.06, *p*<.05) and a more normal diurnal cortisol pattern (i.e., steeper cortisol decline in the day; β=0.004, *p*<.05) during their

third trimester of pregnancy and at three months postpartum compared to women in the control group. Women in CBSM reported better sleep quality during their third trimester of pregnancy compared to women in the control group, with those in the control group displaying greater CAR with worse sleep quality during the third trimester (β=-6950.99, *p*=.07). These findings demonstrate that prenatal CBSM group interventions can be effective in regulating cortisol levels among low-income women but should address sleep when targeting stress outcomes.

11 PTSD Symptoms & Health
Thursday 3/21/24

Abstract 1128

ASSOCIATIONS OF POST-TRAUMATIC STRESS RELATED SYMPTOMS WITH CANNABIS USE: CROSS-SECTIONAL AND PROSPECTIVE OBSERVATIONS
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Background. A cumulative research indicates that stress can promote negative behaviors, including substance use, although research focusing on the role of stress in cannabis use is still being developed. Similarly, the role of chronic cannabis use in worsening stress-related symptoms has not been thoroughly examined, despite the possible effects of chronic cannabis use on brain functions.
Purpose. In light of the rapidly growing use of cannabis in the USA and globally, we examined the association between cannabis use and post-traumatic-stress disorder (PTSD) symptoms.
Methods. We used data from the Strengthening Psychosocial Assessment and Resilience during and post COVID-19 (SPARC) study conducted with US adults aged 18 years or older. Data about trauma exposure, PTSD related symptoms, cannabis use, and other related sociodemographic and psychosocial measures were collected and included from two data waves (baseline and at a one-year follow-up). Only participants who reported trauma exposure and who completed data about cannabis use at baseline were included in this analysis.
Results. A total of 564 trauma exposed individuals (301 male), 370 of whom reported current cannabis use were included. Cannabis use was associated with more PTSD related symptoms at baseline (r= 0.26; p<0.001). Among cannabis users, greater PTSD symptoms were associated with greater levels of cannabis use at baseline (B= 0.20; p=0.004). These symptoms were also associated with increased cannabis use at the one-year follow-up (B= 0.27; p=0.003), irrespective of baseline use and after controlling for duration of use and sociodemographic variables (age, sex, and income). Furthermore, when examining the relationship between PTSD symptoms at follow-up and self-reported change in cannabis use during the month before the follow-up assessment, we found that perceived increases in cannabis use were associated with more PTSD symptoms (B= 0.17; p=0.014), indicating that cannabis use may be linked with greater severity of PTSD symptoms.
Conclusion. Our results across multiple analyses suggest a potentially bidirectional relationship between PTSD symptoms and cannabis use. Mechanisms for this association likely involve multiple biological and psychosocial systems that should be considered in future research.

Abstract 930

POSTTRAUMATIC STRESS DISORDER, COMMUNITY DISADVANTAGE, AND CORONARY ARTERY DISEASE: A 20-YEAR RETROSPECTIVE COHORT STUDY OF YOUNGER MEN AND WOMEN VETERANS

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Introduction: Across a variety of populations, posttraumatic stress disorder (PTSD) is a well-known, significant contributor to cardiovascular disease (CVD) risk. PTSD is increasingly viewed as attributable to chronic adverse circumstances rather than exclusively resulting from acute trauma. The social and environmental factors that underlie health disparities may also contribute to the PTSD-CVD association but remain largely unexplored. Such data are critical to appropriately contextualize the design of interventions focused on PTSD, and for CVD risk reduction. Thus, the primary objective of this investigation was to determine if community-level disadvantage – expressed as rural vs. urban status – influences the association between PTSD and incident coronary artery disease (CAD) in a recent cohort of Veterans.

Methods: This retrospective cohort study included Veterans who were discharged from service between October 2001 and December 2021, accessed care in the Veterans Health Administration, and had an address with zip code in their electronic health record (EHR). Veterans' rural status was defined using national rural-urban commuting area codes, which were linked to zip codes. The EHR was used to derive demographics, lifestyle factors, and medical diagnoses, including a history of PTSD and CAD. Time-varying multivariate Cox models were computed to estimate CAD risk by PTSD and rurality status, while adjusting for demographics, lifestyle factors, and relevant comorbidities.

Results: The final analytic sample included 297,509 Veterans (mean age=29.4 [SD:9.4], 12% women, 37% non-White). Overall, 38% of Veterans had a diagnosis of PTSD and 2% had a diagnosis of CAD. In the unadjusted model, PTSD (hazard ratio [HR]: 1.39, CI: 1.31-1.47, p<.001) and rurality (HR: 1.33, CI: 1.24-1.40, p<.001) were each independently associated with a greater risk of CAD. However, in the fully adjusted model there was not a significant PTSD by rurality interaction (p=.307).

Discussion: Based on a national cohort of Veterans, those with a history of PTSD and those who lived in more rural areas each had a greater risk of incident CAD. Contrary to expectation, those with PTSD and who also reside in a rural vs. an urban area do not have a significantly greater risk of CAD. To explain the PTSD-CAD association, other aspects of social and systemic disadvantage should be investigated.

Abstract 828

QUALITATIVE ANALYSIS OF PTSD-RELATED FACTORS IN AN IN-HOSPITAL TRAUMA INTERVIEW OF PATIENTS FOLLOWING A STROKE

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Background Strokes and transient ischemic attacks (TIAs) are life-threatening medical events that can trigger the onset of posttraumatic stress disorder (PTSD). Qualitative research considering PTSD-relevant processes in the acute period post-stroke/TIA may shed light on novel risk factors.
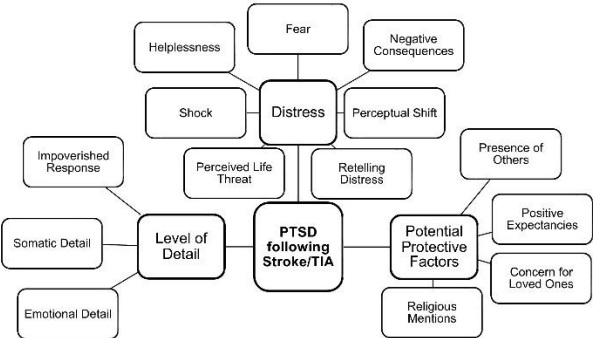
Methods A sample of patients hospitalized for suspected stroke/TIA (N=98) completed a standardized trauma interview in-hospital about the details and emotional experience of the stroke/TIA event, and responses were transcribed. The research team performed an abductive thematic analysis that considered interview responses and risk and protective factors for PTSD and developed a codebook with descriptions, examples, and scoring protocols for 8 Likert scale, 2 categorical, and 4 binary codes. Upon demonstrating sufficient interrater reliability, all narratives were scored by two raters; scores were averaged across raters to obtain final scores for each code.
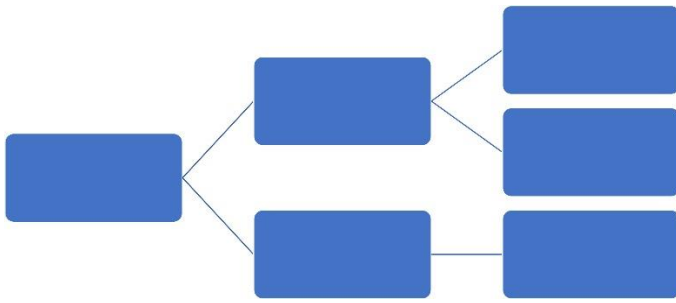
Results Three super-ordinate themes were identified in the analysis. A distress theme included codes related to perceived life threat, shock, helplessness, fear, negative consequences of the stroke, perceptual shift, and retelling distress. A potential protective factors theme included codes related to positive expectancies, religious mentions, presence of others, and concern for loved ones. A level of detail theme included codes regarding the manner in which participants responded to the interview questions (i.e., extent to which responses were detailed vs. impoverished; presence of emotional and somatic details). Example responses will be presented that show the variety in answers across themes and patterns observed in this sample. Additionally, we tested for differences in codes across select demographic characteristics relevant to stroke-induced PTSD risk and found that age was negatively correlated with scores on the fear (r=-.34, p<.001) and negative consequences (r=-.24, p=.02) codes, and was positively associated with likelihood of having positive expectancies (OR=1.05, p=.04).

Conclusion We identified a range of reactions, protective factors, and differences across age in the narratives of patients after stroke/TIA. These findings may inform future research considering the contribution of trauma narrative characteristics and acute emotional responses to a traumatic event to PTSD onset after stroke/TIA.

Figure 1. Thematic network analysis of individual thematic codes informing key themes.

Abstract 1080

CARDIAC-INDUCED PTSD SYMPTOMS PREDICT SHORTER SLEEP AND WORSE SLEEP QUALITY A MONTH AFTER ACUTE CORONARY SYNDROME EVALUATION

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Background. Self-reported sleep disturbance is a diagnostic hallmark of post-traumatic stress disorder (PTSD), but evidence about PTSD and sleep duration using behavioral measures is mixed. Critically, little is known about the relationship of PTSD symptoms after potentially traumatic acute cardiac events with sleep duration and quality in patients with cardiovascular disease (CVD), even though we know that PTSD is common after these events and that short sleep predicts elevated secondary CVD risk. We examined whether coronary artery disease (CAD) patients who reported elevated PTSD symptoms after acute coronary syndrome (ACS) evaluation experienced shorter and/or worse sleep than those with non-elevated symptoms.
Method. Patients with confirmed CAD (n = 113; M_{age} = 61.34 years) participated 1 month after emergency department evaluation for a suspected ACS event. Eligible patients had either elevated (n = 40) or non-elevated (n = 73) PTSD symptoms (≥ 20 or ≤ 5 on the PTSD Checklist for DSM-V [PCL-5]). Sleep duration was assessed with the wrist-worn ActiWatch Spectrum Pro actigraphy device for up to 14 days. Sleep quality was assessed with the Pittsburgh Sleep Quality Index (PSQI) sleep quality item ("very good" (1) to "very bad" (4)). We estimated PTSD symptom group's association with sleep duration using with multilevel linear mixed models (level-1 day nested in level-2 patient), controlling for age, sex, Charlson comorbidity score, and GRACE cardiac risk score; for sleep quality, the PSQI item was the dependent variable in a multiple linear regression model.
Results. Having elevated vs. non-elevated post-traumatic stress symptoms was associated with shorter average sleep duration, B = -0.99 hours, 95% CI [-1.65, -0.32], p < .01 and worse sleep quality, B = 1.01, 95% CI [0.56, 1.45], p < .01. No covariate was related to sleep quality or duration (all ps ≥ .23).
Conclusion. Participants with elevated PTSD symptoms averaged an hour shorter sleep duration per night and reported worse sleep quality, compared to participants with few or no PTSD symptoms, after adjusting for demographic factors, cardiac risk, and comorbid medical conditions. PTSD-related sleep disturbances may be particularly marked in CAD patients. Research should explore whether treatments that reduce PTSD symptoms after distressing cardiac events also improve sleep and secondary CVD risk.

12 Trauma Exposure & Health
Friday 3/22/24

Abstract 918

PATTERNS OF TRAUMA EXPOSURE, CONTEXTUAL STRESS, AND PTSD IN DIVERSE, LOW-INCOME WOMEN

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Racial, ethnic, and socioeconomic disparities persist in posttraumatic stress disorder (PTSD), the quintessential trauma-related mental disorder with relevance for adverse mental and physical health. This is especially concerning for minoritized women who are more likely to be trauma-exposed, while also contending with harmful sociocultural stressors; however, few studies have used analytic strategies that capture the interplay of these experiences and their relation to PTSD in communities most affected. The current study used a person-centered statistical approach to examine heterogeneity in exposure to trauma and contextual stressors, and their associations with PTSD and its underlying symptom dimensions, in a diverse sample of low-income mothers. Using a community-based sample of Black, Latina, and White postpartum women recruited from five U.S. regions (n=1577), a latent class analysis generated profiles of past-year exposure to traumatic events (e.g., victim of violent crime) and contextual stress (e.g., discrimination) at one month postpartum. A four-class solution best fit the data: High Stress class (17% of women); Injury/Illness class (23% of women); Violence Exposure class (3% of women); and Low Trauma/Stress class (58% of women). Regression analyses then examined associations between class membership and PTSD symptom severity at six months postpartum as a function of race/ethnicity, adjusting for region, education, poverty level, and age. Results showed that compared to White women, Black women in the Violence Exposure class had higher total PTSD symptom severity, as well as higher symptom severity on dimensions of Re-experiencing and Dysphoric Arousal (all ps<.05). For Latinas, however, membership in the High Stress class produced higher total PTSD symptom severity, as well as higher symptom severity on dimensions of Re-experiencing, Avoidance, and Numbing, compared to Black women (all ps<.05).
Results suggest a person-centered approach to trauma and contextual stress exposure can capture heterogeneity and constellations of experiences in diverse, low-income women. Moreover, racially and ethnically patterned links between traumatic or stressful exposures and specific PTSD symptom dimensions have implications for screening and intervention, particularly in the perinatal period.

Abstract 1113

CHILDHOOD TRAUMA AND HAIR CORTISOL RESPONSE

OVER THE YEAR FOLLOWING ONSET OF A CHRONIC LIFE EVENT STRESSOR

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Objective: It is proposed that childhood trauma contributes to lifelong health in part through programming of the HPA axis response to future life stressors. To date, empirical evidence shows an association of childhood trauma with dysregulation of the HPA axis and blunted cortisol reactivity to *acute* stressors. Here, we conduct an initial examination of childhood trauma as a moderator of HPA axis response to a major *chronic* stressor in adulthood. **Methods:** Participants were 83 mothers of children newly diagnosed with cancer who completed the Childhood Trauma Questionnaire (CTQ), and who, over the year following their child's cancer diagnosis, had hair samples collected up to 7 times for the assessment of cortisol and completed monthly measures of perceived stress. **Results:** Results showed that the total CTQ score associated with changes in perceived stress and cortisol concentration over time ($\gamma = .003$, $p = .002$; $\gamma = -.0004$, $p = .008$, respectively) independently of age, education, treatment intensity and whether the mother was randomized to receive a stress management intervention. Mothers who endorsed *lower* childhood trauma showed a steeper decline in perceived stress and a larger increase in cortisol levels across the year than mothers who recalled more childhood trauma. **Conclusions:** Findings extend animal models and studies that examine cortisol reactivity to acute stressors and suggest that childhood trauma programs a phenotype that is more psychologically reactive, but shows blunted HPA axis response to chronic stress. While adaptive in the short-term, this early life programming may incur long-term costs for health. Further work is warranted to examine this possibility.

Abstract 1268

EFFECTS OF CHILDHOOD TRAUMA ON STRESS-RELATED VULNERABILITY FACTORS: AN ECOLOGICAL MOMENTARY ASSESSMENT STUDY

Daryl O'Connor, PhD, University of Leeds, Olivia Rogerson, PhD, University of Leeds, Rory O'Connor, PhD, University of Glasgow

Background: Childhood trauma is experienced by approximately one third of young people in the United Kingdom and has been shown to confer an increased risk for mental health difficulties in adulthood. Understanding the associations between these factors before negative health outcomes manifest in adulthood is imperative to help inform the development of interventions. The aims of this study were two-fold; first, to investigate the effects of childhood trauma on daily stress-related vulnerability factors over a period of 7 days and to test whether any observed relationships were moderated by protective or risk factors. Second, to explore the indirect effects of childhood trauma on reasons for living, optimism, daily suicide ideation, defeat and entrapment through the daily stress-related vulnerability factors.
Methods: 212 participants were recruited to an ecological momentary assessment study to complete three diaries per day for a 7-day period. Participants completed daily measures of stress, hassles, executive functioning, impulsivity, sleep quality (stress-related vulnerability factors) as well as measures of reasons for living, optimism, daily thoughts of suicide, defeat and entrapment. The Childhood Trauma

Questionnaire was also completed at baseline. The main study hypotheses were preregistered at AsPredicted.
Results: Hierarchical linear modelling found that childhood trauma was significantly associated with higher scores on the daily stress-related vulnerability factors and positively related to each of the daily indicators of suicide risk. Multilevel mediation analysis also uncovered key pathways whereby trauma had indirect effects on reasons for living, optimism, daily thoughts of suicide, defeat and entrapment through executive functioning, impulsivity, sleep quality and stress.
Discussion: The findings from this study highlight the complexity of childhood trauma and its damaging impacts on stress-related vulnerability factors and poorer mental health outcomes. Greater understanding of the pathways by which trauma may impact later health outcomes is essential for development of interventions together with understanding the contextual and environmental factors that may moderate intervention effectiveness.
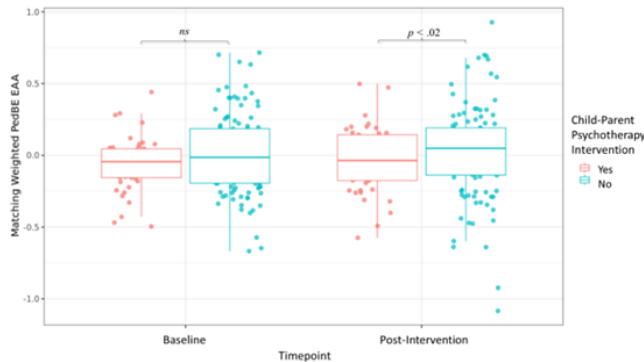
Abstract 885

INTERVENING AFTER TRAUMA TO IMPROVE CHILD HEALTH: CHILD-PARENT PSYCHOTHERAPY PARTICIPATION ASSOCIATES WITH LOWER PEDIATRIC EPIGENETIC AGE ACCELERATION AFTER TREATMENT

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BACKGROUND Early life adversity increases risk of health problems. Biological embedding of stress, potentially reflected in biological aging, such as epigenetic aging (Heim et al., 2019), may offer an explanation (Fransquet et al., 2019). Namely, those with a biological age older than their chronological age (i.e., epigenetic age acceleration [EAA]) are at higher risk for health issues (Jones et al., 2015). While evidence suggests early life adversity is associated with faster EAA in children (Wang & Zhou, 2021), despite promising previous work (e.g., Sullivan et al., In Press), it is unclear if psychosocial interventions, such as Child-Parent Psychotherapy (CPP), may attenuate this acceleration. **METHOD** Within a quasi-experimental study, we tested whether children engaged in a parent-child intervention (CPP) for women and children exposed to trauma (n=45, 2-6 years old; 76% Latino) displayed lower EAA relative to a community comparison group (n=110, 3-6 yrs old; 36% Latino). Measurement of EAA used pediatric buccal epithelial cell swabs collected at baseline and post-intervention timepoints (~10 months apart). Treatment and comparison groups were successfully matched with full matching propensity weighting with caliper restriction using logistic regression (Austin & Stuart, 2017) on age, sex, and baseline child adversity exposure. **RESULTS** Pediatric buccal epigenetic (PedBE) age was calculated using the PedBE clock (McEwen et al., 2020). We regressed PedBE age onto chronological age controlling for BEC proportions. The residuals of this model were PedBE EAA. To estimate the association of PedBE EAA and treatment, we employed a weighted ANCOVA, using propensity matching weights and controlling for all covariates matched on at both the baseline and post-intervention timepoints. At baseline, the weighted groups of CPP treatment and the comparison sample evidenced the same PedBE EAA ($F(1, 149) = 0.03$, $p = 0.854$; Cohen's $f = 0.01$, 95% CI [0.00, 1.00]). However, after treatment, ~10 months after baseline, the treatment group has less EAA than the matched

comparison group (F(1, 149) = 6.39, p = 0.013; Cohen's *f* = 0.21, 95% CI [4.90e-03, 1.00]). **SIGNIFICANCE** Findings suggest supporting healthy parent-child relationships through evidence-based psychosocial intervention may enable parents to lessen biological indicators of stress exposure in their children.

Figure 1. Boxplot of pediatric epigenetic age acceleration at baseline and post-intervention timepoints for those who received child-parent psychotherapy (Yes) and those who did not (No). Propensity weighted Pediatric Buccal Epigenetic (PedBE) epigenetic age acceleration (EAA) was equal between both the treatment and control groups at baseline. However, there was a significant, though small effect size difference between the treatment and control post-intervention. After the intervention, the PedBE EAA was faster for those children from the match community control than the children who received child-parent psychotherapy.

13 Racialized Stress & Biopsychosocial Health
Friday 3/22/24

Abstract 1263

EMOTION REGULATION EFFECTIVENESS, RACE-BASED TRAUMA, AND THE COVID-19 PANDEMIC: THE ROLE OF SOCIAL MEDIA EXPOSURE

Melissa Hagan, PhD, MPH, San Francisco State University, Emily Wu, MS, Stanford University

The years of 2020 and 2021 involved significant national and global events such as the COVID-19 pandemic, the Black Lives Matter protests, and anti-Asian hate crimes, all of which have contributed increased psychological distress which has been exacerbated by social media content focused on the pandemic and race-based violence in the U.S. There is little empirical research on the best methods for modulating recurrent negative emotion in the context of chronic exposure to potentially traumatic material in day-to-day life. Focusing on a predominantly low-income, ethnically-minoritized (n = 151; 72.5% Latinx or Asian American) sample of college students, the current investigation examined the effectiveness of 4 emotion regulation (ER) strategies (acceptance, reappraisal, distraction, and active coping) in managing negative emotion in response to two contexts: 1) pandemic-related social distancing, and 2) race-based traumatic stress. Further, we explored whether ER effectiveness varied depending on the extent to which students spent time on social media. Relative use of the different ER strategies and ER effectiveness differed across the two contexts. Negative emotion in response to pandemic-related social distancing was the same for everyone regardless of which of the 4 strategies they relied upon to manage emotion. In response to race-based traumatic stress, however, level of negative emotion intensity depended on ER strategy. Those who relied on active coping reported the most intense negative emotion, distraction was associated with lower negative emotion when contrasted with active coping,
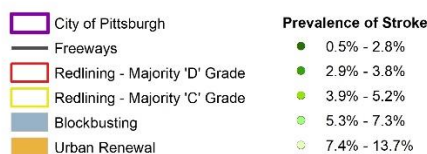
and reliance on reappraisal was associated with lower negative emotion when contrasted with acceptance or active coping. Moderation analyses were not significant; however, greater social media exposure was associated with greater negative emotion. Exploratory pairwise comparisons showed that among those using distraction, this ER strategy was more effective for those who used social media less than weekly compared to those using social media daily/weekly. Findings highlight the importance of disentangling ER effectiveness and type of global stressor.

Abstract 814

HISTORICAL STRUCTURAL RACISM IN THE BUILT ENVIRONMENT AND PHYSICAL HEALTH IN ALLEGHENY COUNTY, PENNSYLVANIA

Emily Jones, PhD, University of Pittsburgh, Brianna Natale, MS, University of Pittsburgh, Lorraine Blatt, MS, University of Pittsburgh, Elizabeth Votruba-Drzal, PhD, University of Pittsburgh, Portia Miller, PhD, University of Pittsburgh, Anna Marsland, PhD RN, University of Pittsburgh, Richard Sadler, PhD MPH, Michigan State University

Purpose. Historical structural racism in the built environment may contribute to current health inequities, but research almost exclusively focuses on redlining. To address this gap, we assess multiple forms of historical racism in relation to contemporary health. **Methods.** Archival census-tract data were used to construct measures of redlining (% of tract that was red- or yellow-lined), blockbusting (% change in the white population), urban renewal (% of tract in urban renewal zone) and freeway displacement (% of land in tract within 100 meters of a freeway). These measures were then linked to public health data for present-day residents of Allegheny County, PA, including average life expectancy and the % of residents reporting 3 cardiovascular indices (hypertension, stroke, and coronary heart disease), 3 health behaviors (smoking, insufficient sleep, and sedentary behavior), and no health insurance in each tract. Regression analyses examined separate and additive associations between the 4 structural racism and 8 health indices. **Results.** Redlining, blockbusting, and urban renewal were predominantly linked to shorter life expectancy and a higher percentage of residents with poorer cardiovascular health, risky health behaviors, and no health insurance. Blockbusting and urban renewal had the strongest, most consistent associations with all 8 indices, while freeway displacement was not reliably linked to health. For example, blockbusting related to shorter life expectancy (β=-.490) and a higher prevalence of residents reporting hypertension (β=.576), coronary heart disease (β=.386), stroke (β=.642), smoking (β=.449), sedentary behavior (β=.608), insufficient sleep (β=.703), and no health insurance (β=.604; *ps*<.001). A one standard deviation increase in blockbusting translated to a 3.05-year decrease in life expectancy, 6.02% increase in hypertension, 1.20% increase in coronary heart disease, 1.53% increase in stroke, 3.49% increase in smoking, 6.65% increase in sedentary behavior, 4.91% increase in insufficient sleep, and 3.05% increase in residents without health insurance. Notably, models including all 4 structural racism measures explained more variance in health (*range*=20.3-56.4%) than any one measure alone. **Implications.** Findings speak to the importance of considering multiple forms of historical structural racism in relation to modern health inequities.

▢ City of Pittsburgh	**Prevalence of Stroke**
▬ Freeways	● 0.5% - 2.8%
▢ Redlining - Majority 'D' Grade	● 2.9% - 3.8%
▢ Redlining - Majority 'C' Grade	● 3.9% - 5.2%
▢ Blockbusting	◐ 5.3% - 7.3%
▢ Urban Renewal	○ 7.4% - 13.7%

Abstract 1169

CENTRAL HEMODYNAMICS IN AFRICAN AMERICAN WOMEN: EXAMINING THE ROLE OF SUPERWOMAN SCHEMA ENDORSEMENT

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BACKGROUND: African American women continue to bear a disproportionate burden of cardiovascular disease and stroke due in part to altered central hemodynamics. Structural racism (e.g., mass incarceration of African American men) often results in African American women taking on numerous caretaking roles (e.g., single parenting) at the expense of self-care and makes them more likely to embrace the Strong Black Woman (i.e., Superwoman) mindset, which may be detrimental to mental and physical health. We hypothesized that greater endorsement of the Superwoman role and its Obligation to Help Others dimension would be associated with a deleterious central hemodynamics profile in African American women. **METHODS:** In African American women aged 30-46 years, we measured central systolic blood pressure (mmHg; n=397), augmentation index (%, adjusted for height and heart rate; n=397), and pulse wave velocity (m/s; n=359) via the SphygmoCor XCEL system. We used the Giscombe Superwoman Schema (SWS) questionnaire to assess endorsement of Overall SWS (range 0-105) and its five dimensions, including SWS-Obligation to Help Others (SWS-Help; range 0-3). We used multiple linear regression to model associations between Overall SWS (10-unit increments) and SWS-Help (1-unit increments) and central hemodynamic variables while controlling for age, education, income, BMI, peripheral systolic blood pressure, smoking, antihypertensive medication use, diabetes, and depression. Exploratory analyses examined associations between the four remaining SWS subscales and central hemodynamics. **RESULTS:** In fully adjusted models, central systolic blood pressure was significantly associated with Overall SWS endorsement (β=0.86, 95% CI [0.24, 1.48]) and SWS-Help endorsement (β=2.09, 95% CI [0.47, 3.71]). Similarly, augmentation index was associated with Overall SWS (β=0.75, 95% CI [0.13, 1.36]) and SWS-Help (β=2.28, 95% CI [0.69, 3.88]). Significant associations were not observed between pulse wave velocity and Overall SWS nor SWS-Help. Exploratory subscale analyses yielded mixed results and may require further targeted investigations. **CONCLUSION:** Greater endorsement of the Superwoman role and prioritizing caregiving over self-care were associated with higher central systolic blood pressure and augmentation index, which may contribute to cardiovascular health disparities among African American women.

Abstract 892

INVESTIGATING HOW REJECTION SENSITIVITY SHAPES THE LINK BETWEEN DISCRIMINATION AND TELOMERE LENGTH IN AFRICAN AMERICAN WOMEN

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Rejection sensitivity is a learned trait, formed in part from past experiences of prejudice and discrimination, that refers to the tendency of individuals to anxiously expect, readily perceive, and intensely respond to cues of rejection in social interactions. Previous research has linked higher levels of rejection sensitivity to negative health outcomes such as increased symptoms of anxiety and depression, inflammation, and higher cortisol levels. Using a nationally representative sample of 615 African American women, we examined the moderating effect of race-based and gender-based rejection sensitivity on the relationship between experiences of racial discrimination and telomere length, a marker of cellular aging and overall health. Racial discrimination was measured using the 8-item experiences of discrimination scale (α=.91). Race- and gender-based rejection sensitivity were measured using the 6 item race-based rejection sensitivity scale (α=.91) and 8 item gender-based rejection sensitivity scale (α=.94), respectively. We found that rejection sensitivity, whether race-based (β=-0.25, p=0.045) or gender-based (β=-0.21, p=0.03), moderated the relationship between experiences of discrimination and telomere length. Individuals reporting low levels of either types of rejection sensitivity, and who also reported higher vs. lower racial discrimination had the longest telomere lengths. These findings highlight the importance of considering rejection sensitivity as a factor that can exacerbate the negative effects of discrimination on health outcomes, particularly in African American women who are at a higher risk for discrimination and related health disparities.

14 Environmental Influences on Health
Friday 3/22/24

Abstract 1283

ASSOCIATION BETWEEN NEIGHBORHOOD-LEVEL SOCIOECONOMIC DISADVANTAGE AND MULTIPLE COGNITIVE DOMAINS IN A COMMUNITY SAMPLE OF OLDER ADULTS

Abby Hillmann, MS, University of Pittsburgh, Rebecca Reed, PhD, University of Pittsburgh

Background: Neighborhood level socioeconomic status (nSES) has been linked to cognitive impairment and decline, but this is typically tested in a single cognitive domain. Here, we test the association between nSES and several cognitive domains, independent of individual level SES.
Method: Participants (N=162, 50.6% female, M_{age}= 72.4) from the Stress, Immunity, and Emotion Regulation in Aging study provided addresses and completed cognitive assessments at baseline. Addresses were linked to their census block level Area Deprivation Index (ADI), which is based on income, education, employment, and housing quality. ADI values are provided in state decile rankings (1-10) and national percentile rankings (0 to 100); higher values indicate greater disadvantage. Cognitive assessments captured verbal fluency (i.e., Controlled Oral Word Association Test; COWA), verbal intelligence (i.e., North American Adult Reading Test; NAART), attentional control (i.e., Digit Span forward; DS) and working memory (i.e., DS backward/sequence, and Letter Number Sequencing; LNS).
Results: In our sample there was substantial variability in state ADI rankings (M= 4.5, range= 1-10, SD= 2.9) and national ADI rankings (M= 49.9, range=4-99, SD= 26). In regression models controlling for age and individual level education, state ADI rankings were associated with poorer cognition in terms of verbal fluency (i.e., fewer words listed in the COWA: ß=-.20, p=.013), verbal intelligence (i.e., more pronunciation errors on the NAART: ß=.30, p<.001), attentional control (i.e., fewer numbers recalled on DS forward: ß=-.19, p=.022), and working memory (i.e., fewer numbers recalled on DS backward: ß=-.19, p=.022, DS sequence: ß=-.17, p=.042, and numbers/letters on LNS: ß=-.19, p=.018). National ADI rankings had similar associations with all outcomes but were not significantly associated with Digit Span sequence performance (ß=-.16, p=.059).
Conclusion: Our results demonstrate greater neighborhood disadvantage is associated with poorer cognitive functioning across multiple cognitive domains in a community sample of older adults, with the largest effect on verbal intelligence. The current analysis is limited by cross-sectional data; longitudinal research could be used to investigate the pathways (e.g., enhanced social cohesion) that may explain the observed associations between nSES and cognition.

Abstract 1244

HEART RATE VARIABILITY AND LONG-TERM EXPOSURE TO AIR POLLUTION: A CROSS SECTIONAL ANALYSIS OF THE HEALTHY AGING IN INDUSTRIAL ENVIRONMENT (4HAIE) STUDY

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Heart rate variability(HRV), an index of cardiac vagal modulation of parasympathetic activity, can serve as an indicator of self-regulation at the cognitive, emotional and health level. Studies have shown an association between short term exposure to air pollution and impaired autonomic functioning but there is little evidence for the association between long-term exposure to air pollution (LEAP) and autonomic modulation. We aimed to assess how level of LEAP associates with cardiac vagal tone, indexed by HRV. We used data on adults aged 18-65years from the Czech study Healthy Aging in Industrial Environment (HAIE). The analytical sample included 893 participants with complete data on HRV, LEAP and selected covariates. The mean age of the sample was 37.4 years (SE±0.41). For each participant an individualized level of the lifetime exposure to air pollutants (i.e. respirable fraction of particulate matter $PM_{2.5}$ and nitrogen dioxide NO_2) was calculated. This was based on all self-reported areas of living throughout one´s life and linkage to historical estimates of concentration levels of air pollutants in the reported areas of living. ECG recording was measured 10 minutes in supine position after awakening; last 5 minutes of the recording were used for the HRV analysis conducted in Kubios. Main HRV variables of our interest were RMSSD and HF-HRV, as they both reflect vagal tone. Covariates were age, sex, socioeconomic status, level of physical activity, prevalence of chronic diseases and prescribed medication use. After controlling for all covariates, Kendall´s partial correlation indicated weak but statistically significant negative association between estimated LEAP and vagally-mediated HRV measures. Specifically higher long-term exposure to NO2 correlated both with lower RMSSD ($τ$=-0.04, p=0.038) and HF-HRV ($τ$=-0.05,p=0.035), and higher long-term exposure to PM2.5 correlated with lower RMSSD ($τ$=-0.04,p=0.043). Exposure to PM2.5 was associated with HF-HRV only marginally ($τ$=-0.04,p=0.055). We showed that independently of covariates, higher level of LEAP is associated with lower HRV measures, reflecting lower vagal tone. This suggest that vagal withdrawal may be one of the mechanisms that explain higher incidence of cardiac, as well as certain affective and psychiatric disorders including depression and dementia in areas with a relatively high air pollution.

Abstract 955

NEIGHBORHOOD, SOCIODEMOGRAPHIC, AND BIOPSYCHOLOGICAL PREDICTORS OF METABOLIC SYNDROME DEVELOPMENT AMONG MIDDLE-AGED AND OLDER ADULTS

Yanping Jiang, PhD, Rutgers University , Jennifer Boylan, PhD, University of Colorado Denver, Steven Malin, PhD, Rutgers University

Introduction: Metabolic syndrome (MetS) prevalence increases dramatically with age. Neighborhood environmental, sociodemographic, and biopsychological factors are concurrently associated with MetS. However, few studies have examined predictors of MetS across multiple ecological systems using a longitudinal design. Therefore, we aimed to identify neighborhood, sociodemographic, and biopsychological factors prospectively predicting MetS among middle-aged and older adults.
Methods: Data were drawn from a subsample of participants (N = 677, 54.9% female, 78.3% white, 34-81 years of age) who participated in the Biomarker Project of Midlife in the United States (MIDUS) study in 2005-2009 (MIDUS 2) and in 2017-2021 (MIDUS 3). The mean follow-up length was 12 years (*SD* = 1.2 years). Neighborhood socioeconomic status was derived using 2000 United States Census data at tract level. Perceived neighborhood quality was assessed from self-reported items on trust, safety, and physical condition at MIDUS 2. Sociodemographic and biopsychological factors

included: educational attainment, household income, race, marital status, depressive symptoms, and C-reactive protein. MetS was defined using ATP III criteria, i.e., 3 of 5 conditions— high blood pressure, large waist circumference, elevated triglycerides, decreased HDL cholesterol, and elevated fasting glucose. Sex, age, lifestyle, multimorbidity, and MetS-related medication use were included as covariates.

Results: The prevalence of MetS at MIDUS 2 and 3 was 27.3% and 41.5%, respectively. The 12-year incidence of MetS was 19.9%. When including all predictors and covariates assessed at MIDUS 2 in the logistic regression model, lower perceived neighborhood quality, being non-married, and higher levels of C-reactive protein uniquely predicted greater odds of developing MetS at MIDUS 3. Participants who reported lower educational attainment and had higher levels of C-reactive protein were more likely to exhibit MetS at both MIDUS 2 and 3.

Conclusion: Perceived neighborhood environment, educational attainment, marital status, and C-reactive protein appear to be critical predictors for developing MetS among middle-aged and older adults independent of age and traditional behavioral lifestyles. Interventions designed to foster a positive neighborhood environment may hold promise for promoting cardiometabolic health.

Abstract 854

UNDERSTANDING THE ROLE OF NEIGHBOURHOOD CHARACTERISTICS IN EXPLAINING SOCIOECONOMIC INEQUALITIES IN CHILD MENTAL HEALTH: EVIDENCE FROM THE GROWING UP IN IRELAND STUDY
I Gusti Ngurah Edi Putra, PhD, University of Liverpool, Amy McInerney, MSc, University College Dublin, Eric Robinson, PhD, University of Liverpool, Sonya Deschênes, PhD, University College Dublin

Background: We examined the role of neighbourhood characteristics in explaining socioeconomic inequalities in child mental health in Ireland.
Methods: Data were from Cohort '08 of Growing Up in Ireland with Wave 3 (age 5) as the baseline and Wave 5 (age 9) as the follow-up (n=8,373 for cross-sectional and n=6,360 for longitudinal analyses). Socioeconomic status (SES) indicators were caregiver education, occupation, and income. Caregiver and teacher reports of total difficulties score (TDS) from the Strength and Difficulties Questionnaire were combined with a higher score indicating more severe mental health difficulties. Neighbourhood indicators (n=20) rated by caregivers were grouped into five domains (safety, built environments, cohesion, interaction, and disorder). We used linear regression to assess the associations between SES, neighbourhood domains, and TDS, controlling for covariates. Mediation analysis informed how much (%) neighbourhood domains explained the SES-TDS associations. Network psychometric analysis was used to identify neighbourhood indicators that were most strongly linked to TDS.
Results: Lower SES was associated with a higher TDS. Favourable neighbourhood domains (more safety, cohesion, interaction, and less disorder) were linked to lower baseline and follow-up TDS. Neighbourhood safety, cohesion, and disorder domains were also associated with longitudinal changes in TDS across waves. Four domains (safety, cohesion, interaction, and disorder) explained the associations between SES and baseline and follow-up TDS by 3% to 18% in separate single mediation models, and these four domains in concert explained 12% to 23% in multiple mediation models. Built environments domain predicted TDS and mediated the associations between SES and baseline TDS (5% to 11%) in urban children only. Neighbourhood domains did not mediate

the associations between SES and longitudinal changes in TDS. Network analysis indicated that the items "people being drunk or taking drugs in public" and "this is a safe neighbourhood" may conceptually act as bridges between neighbourhood characteristics and TDS.
Conclusions: Neighbourhood characteristics may partially explain socioeconomic inequalities in child mental health. Improving the neighbourhood characteristics where lower-SES children live may be important to reduce SES-based inequalities in child mental health.

15 Mind-Body Interventions & Biopsychosocial Health
Thursday 3/21/24

Abstract 987

ADAPTED BEHAVIORAL SLEEP AND YOGA INTERVENTIONS FOR ADULTS IN LOW-INCOME AND RACIAL/ETHNIC MINORITY COMMUNITIES
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Introduction: Inadequate sleep is common among low-income and racial/ethnic minority communities. This may be related to health behaviors as well as psychological, social, and environmental demands. While sleep education and yoga interventions may be adapted to target these behaviors and reduce reactivity to contextual stressors, sparse research evaluates sleep interventions adapted for populations at increased risk of poor sleep and associated comorbidities.
Methods: Based on formative qualitative research with community members and stakeholders, we iteratively designed theory-informed sleep education and yoga interventions to equip adults residing in affordable housing communities (Boston, USA) to enact healthier sleep behaviors and reduce bedtime arousal. Here, we present the results of a 10-week randomized controlled pilot study of the adapted interventions delivered at the subsidized housing complex. Thirty-eight residents with reported sleep duration ≤6 hours/night, were randomized to group sleep education (SE) or SE plus yoga (SE+yoga). SE was comprised of two, one-hour group educational sessions. Those randomized to SE+yoga participated in weekly one-hour yoga classes with home practice for eight weeks. We assessed feasibility and acceptability and explored self-reported sleep duration, sleep-related impairment, and disturbance.
Results: Participants were 45.9 years ± 13.1; 90.9% were female; 42.4% identified as non-Hispanic Black and 39.4% as Hispanic, and 33.3% graduated college. Quantitative data and post-intervention focus groups indicated high intervention acceptability: About 90% of participants rated SE sessions as helpful/very helpful; 92.3% agreed/strongly agreed that yoga class left them feeling relaxed/less stressed; and 70% reported that yoga helped their sleep. Additionally, 86.7% attended both SE groups and 53.3% attended at least 4 of 8 yoga classes. Pre/post-intervention improvements were observed in sleep duration, PROMIS sleep-related impairment and disturbance. No between-group differences were observed.
Conclusion: Our work suggests that our community-informed adapted SE and yoga interventions were feasible and highly acceptable to multiethnic, affordable housing community residents. Future work is needed to identify the efficacy of sleep education and/or yoga to improve sleep and sleep-related health outcomes.

Abstract 760

WHITE AND BLACK PATIENTS' DIFFERENTIAL RESPONSES TO A MINDFULNESS-BASED GROUP MEDICAL VISIT INTERVENTION FOR CHRONIC PAIN

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Chronic pain is one of the most common concerns driving adults to seek medical care in the US. In fact, prevalence estimates range from 11% to 40%, with diverse populations tending to experience relatively higher rates compared to majority groups. Despite the high need for effective treatment, chronic pain remains difficult to effectively treat. Integrative approaches may be particularly promising, and mindfulness meditation, in particular, has been associated with significant improvements in pain, depression, physical and mental health, sleep, and overall quality of life. In addition, group medical visits are increasingly common and have been shown to be effective at treating myriad illnesses including chronic pain. Fusing these approaches, Integrative Medical Group Visits (IMGV) combine mindfulness techniques, evidence based integrative medicine, and medical group visits. IMGV holds promise as an adjunct to medications, especially in diverse, underserved populations with limited access to non-pharmacological therapies. However, minoritized groups are often underbenefitted from these programs. The present analysis assessed the moderating effect of race on primary patient-reported pain outcomes in a randomized clinical trial of IMGV in socially diverse, marginalized patients suffering from chronic pain and depression. It was hypothesized that participants identifying as Black would be underbenefitted by the intervention compared to White participants. These analyses identified significant race-based differences in the response to IMGV. Black subjects had increased pain severity throughout the duration of the 21-week study but were less likely to respond to the pain intervention compared to White subjects. These results may be related to differential comorbidity rates, catastrophizing, and digital health literacy among these participant groups. The nuanced interactions between pain outcomes and these psychosocial factors require further investigation to successfully interven on levels and trajectory of pain severity and to enhance the response to complimentary interventions in all populations.

Abstract 1044

DIFFERENT YOGA STYLES AND STRESS

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Objectives: Yoga has been used in the management of various mental and physical disorders, specifically for stress-related illnesses, and has shown encouraging results. However, the mechanisms of the effect of yoga on stress are not properly understood. The present study investigated the effect of a single session of two yoga styles differing in inclusion of various yoga components (poses, relaxation, pranayama, chanting and meditation) and physical intensity, on the response to and recovery from an acute psychological stressor.
Methods: Sixty-eight healthy adults took part in a counterbalanced, randomized-crossover trial, including two yoga sessions (traditional and exercise-based yoga sessions), walking (active control) and a video (passive control) as interventions. Participants completed these four sessions on four different days. After recording baseline readings, one of the four interventions was administered followed by a mental arithmetic stress task and 15 minute recovery period. Measures of stress responses included systolic and diastolic blood pressure (SBP, DBP), heart rate (HR), state anxiety (STAI) and positive and negative affect (PANAS).
Results: Repeated measures ANOVAs showed significant time by intervention interactions for SBP, HR, STAI and PANAS. For HR, the change from baseline to stress was smaller in traditional yoga compared to exercise-based yoga ($p<0.001$) and walking ($p=0.028$). For SBP, change from baseline to stress was smaller in traditional yoga compared to passive control ($p=0.018$). For anxiety, traditional yoga had significantly smaller increase compared to exercise-based yoga ($p<0.001$) and passive control ($p<0.001$) from baseline to stress. For positive affect, change from baseline to stress was greater in the traditional yoga condition compared to exercise-based yoga ($p=0.003$) and passive control ($p=0.002$) but no differences were found compared to walking. Similarly, for negative affect, traditional yoga had smaller changes from baseline to stress compared to walking ($p=0.011$) and passive control ($p=0.01$). No significant differences were found between groups during recovery.
Conclusion: Our findings suggest a traditional-style yoga session induced greater attenuation of the stress response in healthy individuals and style of yoga should be considered in future work to establish mechanisms and efficacy.

Abstract 1248

ENHANCING STRESS RECOVERY THROUGH THE INTEGRATION OF TRANSCRANIAL DIRECT CURRENT STIMULATION AND SLOW-PACED BREATHING: A MULTIMODAL INVESTIGATION

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Introduction: The recent crises have underscored the critical importance of emotion regulation and stress recovery for maintaining mental health. Considering the bidirectional interaction between the brain and heart, this study explores the potential synergy between slow-paced breathing (with working mechanisms from the heart to the brain) and transcranial Direct Current Stimulation (tDCS, with working mechanisms from the brain to the heart) to optimize stress recovery. Our hypothesis posits that this combination can strengthen brain-body connections, facilitating more effective emotion regulation.
Methods: A total of 200 participants were randomly assigned to one of four groups: (1) active tDCS paired with slow-paced breathing (5.5 breaths per minute), (2) active tDCS with control breathing, (3) sham tDCS coupled with slow-paced breathing, or (4) sham tDCS with control breathing. Each session included a baseline assessment, the intervention phase (simultaneous application of tDCS and breathing), a psychosocial stressor, and a subsequent recovery phase.

Psychophysiological stress indicators, including heart rate variability, skin conductance, blood pressure, self-reported affect, and Primary and Secondary Stress Appraisal (PASA), were recorded during the intervention, stress reactivity, and stress recovery.

Results: While slow-paced breathing significantly improved stress recovery across a range of psychological and physiological measures, the combination of active tDCS and slow-paced breathing did not yield additive benefits. The temporal dynamical between tDCS and slow-paced breathing on physiological measures were different, with immediate effects of slow-paced breathing and later effects of tDCS.

Discussion: The findings suggest that the combined application of slow-paced breathing and tDCS may not enhance stress recovery to a greater extent than slow-paced breathing alone. If anything, the combination was even detrimental for the participants. This raises important questions for future research, including considerations about the timing of the intervention, parameter adjustments, and individualized approaches to maximize its potential effectiveness.

16 Connections Between Past & Future Health
Thursday 3/21/24

Abstract 1082

A LONGITUDINAL INVESTIGATION OF WEIGHT LOSS BEHAVIORS IN EMERGING ADULTHOOD AND INFLAMMATORY HEALTH AT 14-YEAR FOLLOW-UP

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Elevated inflammation is predictive of various negative health consequences (e.g., cardiovascular disease). Individuals with eating disorders or subclinical maladaptive weight regulation behaviors may be at risk for inflammatory dysregulation. However, little is known about the influence of different weight loss behavior engagement on the inflammatory system. The aim of this study is to investigate longitudinal relationships between weight loss behavior engagement in early adulthood and the inflammatory marker C-reactive protein (CRP) at 14-year follow-up. Data were drawn from a subset of individuals (N = 1,403) who reported engaging in at least one weight-loss behavior at Waves III and V of Add Health– a national longitudinal database. In emerging adulthood, participants who reported trying to lose weight were asked which of the following behaviors they have used to lose weight in the past 7 days: diet, exercise, fast/skip meals, make yourself throw up, weight loss pills, laxatives, diuretics, food supplements, and participate in a weight loss program. Behaviors were examined as a sum, as well as individually. 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). Hierarchical linear regression ($F(3, 1402)=6.462$, $p<.001$, $R^2=0.014$) revealed that those who engaged in more weight loss behaviors in early adulthood had higher levels of CRP 14 years later ($b=0.055$, $p=0.038$) after adjusting for age and gender. However, with BMI as a covariate, the link between weight loss behaviors (total) and CRP became non-significant ($p = .138$), and higher BMI predicted higher CRP ($b=0.443$, $p<0.001$). Thus, the onset of higher BMI vs. the onset of weight loss behavior engagement in relation to inflammatory health is still in question. When examined individually, the overall regression of CRP on taking weight loss pills was significant ($F(4, 1406)=93.807$, $p<.001$, $R^2=0.014$) such that a significant positive association was detected between taking weight loss pills and inflammation ($b=0.054$, $p=0.024$) after adjusting for BMI. The relationship between other weight loss behaviors and CRP was null. Future research is necessary to parse out the timing of onset to draw more precise conclusions about the pathways from specific weight loss behaviors and higher BMIs to elevated inflammation.

Abstract 1166

CHILDHOOD FAMILY ENVIRONMENT AND LIFELONG INFLAMMATORY AND CARDIOMETABOLIC HEALTH: A SYSTEMATIC REVIEW

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Extant literature reviews have linked childhood adversities (e.g., low SES, maltreatment, ACEs) to later health. However, reviews of the literature examining the childhood family environment are lacking, despite growing empirical support for its contribution to long-term health risk. Here, we present the first systematic review to examine associations of the childhood family environment with inflammation and cardiometabolic risk (CMR) in adolescence and adulthood. Three distinct aspects of the family environment were considered: parenting (e.g., sensitivity), family environment quality (e.g., family conflict), and cumulative family adversity (i.e., parenting *and* family environment quality).

The literature search was conducted in 2021, and retrieved records were screened for eligibility per PRISMA guidelines (Fig 1). Included empirical articles (N=83) tested associations between the childhood family environment (ages 0-18) and inflammation or CMR in adolescence or adulthood (ages 10+) in non-clinical, human populations. To compare results across family environment domains, the percentage of studies with some evidence of direct associations between the family environment and later health was calculated for each sub-category.

Of the 83 studies, 38 assessed inflammation and 46 assessed CMR. For inflammation, family environment quality was more reliably associated with later inflammation (71%) than parenting (57%) and cumulative family adversity (56%). In particular, global measures of household dysfunction (100%) were most consistently linked with higher levels of inflammation, while parental psychopathology had the greatest proportion of null findings (71% null). For CMR, cumulative family adversity was most reliably associated with later CMR (83%), followed by family environment quality (74%) and parenting behaviors (60%). Differences in this pattern of results were related to age of health assessment, prospective vs. retrospective design, and study quality.

The current systematic review found some support for associations between childhood family environments and later inflammation and CMR, albeit consistency varied by family environment domain and other moderators. This variance highlights the nuanced associations between childhood family environment and later health, which will be discussed in the context of suggestions for future research.
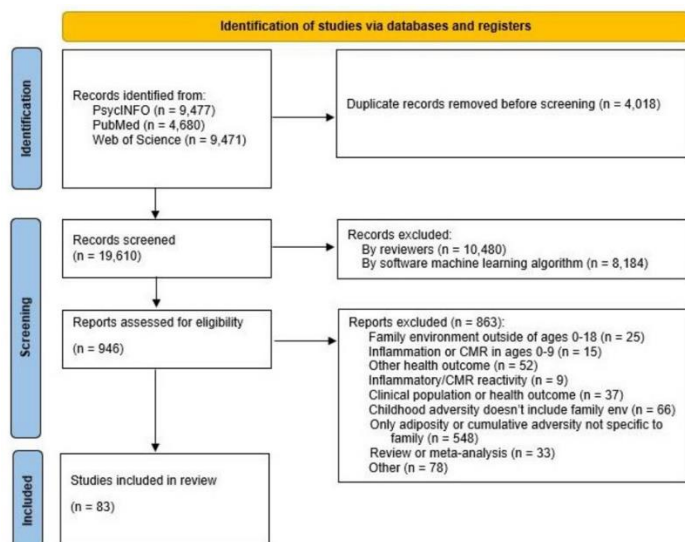
Figure 1. Flow diagram of included and excluded studies. Adapted from: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71

Abstract 959

A HISTORY OF PAST OBESITY INCREASES RISK OF FUTURE MENTAL ILL HEALTH AND EARLY MORTALITY: EVIDENCE FROM TWO LONGITUDINAL STUDIES

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Background: We test a novel 'weight scarring' hypothesis which suggests that a history of past obesity is associated with impairments in current psychological well-being and this increases risk of negative physical health outcomes associated with obesity. Across two nationally representative studies, we tested whether past obesity is associated with worse current mental health and whether this explains the association between past obesity and subsequent early mortality.
Methods: Data were from the National Health and Nutrition Examination Survey (NHANES) (n=29,047) and the Health and Retirement Study (HRS) (n=11,998). Past obesity was defined based on maximum lifetime weight in NHANES and the highest weight from past study waves in the HRS. Across both studies, current depressive symptoms were analysed. A set of 10 additional well-being measures were combined to produce an 'index of impaired well-being' in the HRS. Subsequent all-cause mortality was examined using National Deaths Index (NDI) records in NHANES and household interviews in the HRS. Linear or logistic regression, Cox-proportional hazard regression, and causal mediation models were used.
Results: We found that past obesity was associated with greater current depressive symptoms after controlling for current weight status and in analyses limited to those who were no longer classified as having obesity in NHANES (β= 0.17; 95%CI: 0.13, 0.22) and HRS (β= 0.20; 95%CI: 0.08, 0.31). In HRS, past obesity was also associated with a range of current negative psychological outcomes, including an index of impaired psychological well-being (β= 0.16; 95%CI: 0.05, 0.27). Past obesity was associated with a higher risk of early mortality in both NHANES and HRS (HR= 1.31; 95%CI: 1.16, 1.48 and HR= 1.34; 95%CI: 1.20, 1.50, respectively). Impaired psychological well-being partly mediated the association between past obesity and premature mortality by 10% (95%CI: 0.04, 0.16).
Conclusions: Our findings suggest that there may be a psychological legacy of having a past history of obesity that is associated with raised mortality risk. Ensuring people with obesity receive psychological support even after experiencing weight loss may now be important.

Abstract 864

HEART RATE VARIABILITY CHANGES DURING PERIPARTUM PREDICT DEPRESSIVE SYMPTOMS 18 MONTHS AFTER CHILDBIRTH

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Background: Chronic dysfunctional changes in the autonomic nervous system in the peripartum have been investigated in relation to psychological well-being. The present study explores the interaction between depressive symptoms during pregnancy and the change in vagally-mediated HRV from pregnancy to one month after childbirth as a predictor of postpartum depressive symptoms at 18 months. **Methods:** This longitudinal study included 74 pregnant women (age: M=31.72, SD=4.06). In the second or third trimester of pregnancy, participants completed the Edinburgh Postnatal Depression Scale (EDPS) and provided a time-domain HRV index (i.e., root mean square of successive difference between NN intervals – rMSSD) using a validated photoplethysmography smartphone application ("Pulse HRV by Camera BLE ECG"). One month postpartum, they provided another measure of rMSSD and, at 18 months, completed the EDPS. The change in peripartum rMSSD was computed as the difference between the postpartum and prepartum values, with higher scores indicating an improvement of vagally-mediated HRV. A moderation analysis was conducted to test the interaction between prepartum depressive symptoms and the change in peripartum rMSSD on postpartum depressive symptoms at 18 months, adjusting for age, education and BMI at prepartum assessment. **Results:** The overall moderation model was significant (F(6,67) = 6.40, p < .05, R² = 0.36). Prepartum depressive symptoms and the change in peripartum HRV were independently associated with 18-month postpartum depressive symptoms (b = 0.68, p < 0.001 and b = -2.71, p = 0.001, respectively). Moreover, the change in peripartum rMSSD significantly moderated the association between depressive symptoms at prepartum and 18-month postpartum (ΔR2 = .020, F(1,412) = 9.27, p = .004). In particular, depressive symptoms at prepartum were associated with higher 18-month postpartum depressive symptoms in women with a more detrimental change of peripartum rMSSD. **Conclusion:** The findings support the association between low vagally-mediated HRV and depressive symptoms, adding evidence of the prospective impact of a non-adaptive change of HRV from pre- to postpartum on postpartum depressive symptoms at 18 months. Interventions that foster regulation of parasympathetic activity could have beneficial long-term effects on the emotional and psychological health of the new mother.

17 Facilitative Factors & Weight Management
Friday 3/22/23

Abstract 1306

A MIXED METHODS STUDY OF BARRIERS AND FACILITATORS TO MINDFULNESS-BASED WEIGHT LOSS AMONG LATINA WOMEN

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Background: Latinx/o/a individuals report the highest level of stress among all racial and ethnic groups in the US. In a sample of over 5,000 participants, Latina women reported a greater number of chronic stressors lasting at least six months (e.g., health, work, and relationships), and greater perceived stress was associated with higher total energy intake and lower diet quality. Mindfulness-based interventions have been shown to affect immune, inflammatory, and stress-related biomarkers and to impact weight loss. **Methods:** In our study, we used semi-structured interviews with adult Latinas (n=20) to identify barriers and facilitators to individuals' use of mindfulness-based interventions for weight management, stress, and CVD risk factors. In addition to Body Mass Index (BMI), we collected a measure of reward-based eating (RED-13). **Results:** Common themes from interviews include prayer as a common mindfulness practice, weight gain due to stress, and a lack of time to focus on personal health. The majority of participants stated that mindfulness affected them positively and they would be open to practicing as part of a weight loss program. Those who were unfamiliar with mindfulness associated it solely with meditation or yoga. They noted that activities like yoga and meditation may not be inclusive for Latina women. Other findings included significantly higher self-reported BMI ($p < .05$) and non-significant trend for higher reward-based eating scores among Mexican-American-identified participants. **Conclusions:** This study suggests that programs should emphasize alternative mindfulness activities such as prayer over yoga or meditation, promote shorter periods for practice, and explain ways to incorporate other family members when teaching mindfulness in the context of weight loss for Latinas.

Abstract 1036

COMPARING THE PREDICTIVE UTILITY OF BARIATRIC PRESURGICAL EVALUATION COMPONENTS

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Psychological evaluations have been well-established as part of pre-operative requirements in bariatric surgery treatment pathways. These evaluations may include a number of components, including broadband measures of psychopathology, a comprehensive psychosocial assessment, and measures of eating disorder behavior. The aim of this study is to evaluate which components of presurgical assessment predict weight outcomes in the 12 months following bariatric surgery.

This retrospective study evaluated data from 197 bariatric surgery patients (86% women, 69% White, average age of 42) who participated in a comprehensive psychological assessment prior to undergoing bariatric surgery. Hierarchical linear modeling was used to predict body mass index over a 12-month period based on seven different assessment domains: Metabolic factors, medical factors, social factors, psychiatric history, dieting behavior, surgical factors, and eating disorders. Model fit statistics were compared between each of these separate models, in addition to assessing the utility of individual variables within each model.

Results showed that five of the assessment domains significantly improved prediction of 12-month postsurgical body mass index compared to a model based only on time since bariatric surgery. Models based on metabolic factors, medical factors, and surgical factors showed the best utility in predicting outcomes. Models based on psychiatric history and dieting behavior showed adequate fit. The strongest individual predictors of decreases in body mass index were the patient's expected weight loss, presurgical body mass index, and concerns about body shape. A history of arthritis and a greater number of children in the household predicted greater body mass index.

These findings suggest that psychological assessments prior to bariatric surgery could be significantly streamlined to focus on key variables directly associated with weight-related outcomes. By tailoring assessment and feedback to those variables most associated with weight change and maintenance, more specific recommendations for postsurgical patient care could improve outcomes, including the timing of follow-up and addressing comorbid medical factors that may result in behavioral complications.

Abbstract 950

PROMOTING LATINO PHYSICAL ACTIVITY AND HEALTH THROUGH COMMUNITY-LED ENVIRONMENTAL ADVOCACY

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Physical activity (PA) is strongly and prospectively linked to lower morbidity and mortality, but unequal access to safe outdoor spaces and other barriers impede PA in many communities. Just under half of Latino adults in the U.S. meet PA recommendations through leisure-time physical activity (LTPA). Culturally-tailored approaches that engage trusted institutions and target multilevel barriers may be a critical step to improve PA interventions and promote health equity among Latinos. In particular, faith-based interventions are effective in promoting Latino health but few have addressed environmental barriers. **Methods:** This study evaluates a park environmental advocacy training as part of an ongoing cluster randomized-controlled trial linking churches (n=14) with parks to promote PA among a sample of predominantly low-income, Spanish-speaking Latino adults (n=1200) in East Los Angeles, California. The training is currently being implemented with Latino participants selected to serve as Peer Leaders (3-4 per intervention church) and includes learning advocacy skills, applying the Community Park Audit Tool, and developing an advocacy action plan. Baseline surveys assessed participants' park use and concerns, neighborhood perceptions, health behaviors, and socio-demographics. Immediately following the training, qualitative interviews with Peer Leaders assess experiences with the training, changes in self-efficacy to engage in advocacy, and expected impacts (positive or negative) on their park and neighborhood. **Results:** At baseline, only 30% met PA recommendations through LTPA, 55% reported park use, and 67% reported engaging in park-based PA. The mean number of park concerns was 2.5 (out of 9; mostly related to safety) and mean scores on neighborhood perceptions were 2.4 (out of 3) for social cohesion and 2.5 (out of 4) for both aesthetics and safety. Survey findings support

the need for strategies that address environmental concerns to better support PA among Latinos. Findings from the park audit and qualitative interviews are forthcoming and will be reported. **Conclusion:** Advocacy training can empower Latinos to use their collective voices to lead changes in their neighborhoods to promote PA and prevent future health concerns. This study points to the feasibility of adding environmental strategies to faith-based multilevel interventions to promote PA equity.

Abstract 796

A WEIGHT BIAS INTERVENTION CHANGES OBESITY MEDICINE BEHAVIORS AMONG HEALTHCARE PROVIDERS

A. Janet Tomiyama, Ph.D., UCLA, Amanda Velazquez, M.D., Cedars Sinai, Karen Coleman, Ph.D., Kaiser Permanente Southern California, Robert Kushner, M.D., Northwestern University, Joseph Nadglowski, B.S., Obesity Action Coalition, Patricia Nece, J.D., Obesity Action Coalition, Jing Zhang, M.S., Kaiser Permanente Southern California

Weight bias is pervasive in healthcare and leads to worse patient outcomes. Our objective was to test the efficacy of a 4-hour continuing medical education intervention addressing weight bias among practicing healthcare professionals (HCPs) to decrease weight bias and increase rates of obesity diagnoses and referrals to obesity medicine including a healthy lifestyle program, bariatric medicine, and bariatric surgery. The intervention contained theory-based elements of changing attributions of responsibility of obesity, increasing empathy, creating self-awareness of weight bias, and creating a bias-free culture. We conducted this intervention at Kaiser Permanente, one of the largest Health Maintenance Organizations in the U.S. We used (1) a pre/post design examining only intervention participants at baseline (*n* = 218) and 3 post-intervention times (immediate, 4- and 12-months), and (2) compared practice behaviors 1 year pre/post in intervention participants vs. non-attendees (*n* = 89). Clinical practice behaviors were extracted from electronic medical records totaling 272,341 patients. For pre/post analyses, weight bias was the primary outcome. For the comparative analyses of intervention participants vs. non-attendees, the outcomes were rates of (1) obesity diagnosis, (2) referrals to the healthy lifestyle program, (3) referrals to bariatric medicine, and (4) referrals to bariatric surgery. We found that weight bias was significantly lower post-intervention, and those changes were maintained over 12 months. Although intervention participants (vs. non-attendees) had lower hazard ratios for diagnosing obesity (HR=0.89; 95% CI=0.83,0.95), they were more likely to refer to the healthy lifestyle program (HR=1.27; 95% CI=1.19,1.36), bariatric medicine (HR=1.87; 95% CI=1.63,2.14), and bariatric surgery (HR=2.12; 95% CI=1.695, 2.66), resulting in 3,511 patients receiving access to treatments for obesity that they otherwise may not have. If these results are confirmed in a randomized trial, the intervention we developed has promise for being a scalable program that goes beyond attitudinal measures to changing HCPs' clinical practice behaviors to provide obesity treatment.

18 Health Disparities
Friday 3/22/24

Abstract 917

SHORT-TERM SMOKING ABSTINENCE AFTER AN ACUTE CORONARY EVENT IN A DIVERSE SAMPLE

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Background. 400,000 people who smoke combustible cigarettes survive Acute Coronary Syndrome (ACS) in the US annually. Cessation post-ACS improves prognosis. High post-ACS abstinence rates (45-60%) have been reported in previous work and some predictors of post-ACS abstinence have been identified. However, most prior data were from samples of primarily white individuals and/or abstinence was not biochemically confirmed. We identified short-term abstinence rates and baseline predictors of abstinence post-ACS in a diverse sample. Methods. Participants (32% female; 40% non-white) were enrolled in an RCT of two treatments to maintain abstinence post-ACS from 2018-2023 (NCT03413423). Analyses are limited to 203 study participants with valid data at study entry and 7 days post-discharge. All data for this analysis were obtained pre-randomization, but all participants received cessation counseling and were offered nicotine patches while inpatient or immediately following discharge. Demographics (e.g., age, sex, race), medical history (e.g., prior ACS), and psychosocial factors (e.g., depression) were obtained at study entry. The primary dependent variable for this analysis was bio-confirmed 7-day abstinence 1 week post-discharge. Results. 73 (36%) study participants were abstinent from smoking 7 days after discharge; being white (*p*=.03), male (*p*=.04), and older (*p*=.01) predicted higher odds of abstinence in adjusted models. Prior ACS (*p*=.04) and COPD (*p*=.01) were associated with lower odds of abstinence. The difference in quit rates for whites (42%) and non-whites (27%) prompted us to conduct race-stratified analyses, which revealed several predictors among whites (e.g., sex, age, marital status, prior ACS, significant symptoms of depression, confidence in quitting, and SF-12 Mental and Physical Health Composite Scores; all *p*s < .05), but only higher cigarettes per day (*p*=.04) and higher motivation to quit (*p*=.04) predicted abstinence among non-whites. Significantly more variance in abstinence was explained by predictors in white vs. non-white participants (58% vs. 21%, *p*=.01). Conclusion. Initial cessation rates were higher in white compared to non-white participants. Traditional predictors explained more variance in cessation post-ACS among whites than non-whites. Unmeasured, race-based exposures appear to be contributing to post-ACS smoking among non-whites.

Abstract 979

SOCIAL CLASS BIAS IN PATIENT PERCEPTIONS AND INVESTMENT IN CARE

Sierra Semko Krouse, B.A., University of California, Berkeley, Jason Okonofua, PhD, University of California, Berkeley, Rodolfo Mendoza-Denton, PhD, University of California, Berkeley

Introduction. Even under circumstances of equal access to healthcare, patients of low socioeconomic status (SES) encounter worse experiences and lower quality care. One of the assumed mechanisms of disparate experiences with healthcare by patient social class is SES bias which informs how patients are perceived and treated. Here, we empirically tested the impact of patient SES on perceptions and future intentions for care.

Methods. Across five experiments, laypersons (N = 918; studies 1-4) and healthcare providers (N = 475; study 5) were randomly assigned to engage in a series of mock telehealth visits with a patient who was either low- or high-SES. The patient reported persistent back pain yet failed to follow treatment recommendations in two subsequent telehealth visits. After each noncompliance incident, participants reported their perception of the patient's honesty, laziness, and pain exaggeration. Participants also reported their intention to invest in care for the patient in the future. Linear mixed-effects models were used to assess the impacts of patient SES and repeated noncompliance on outcomes.

Results. Across all studies and outcomes, there was a main effect of repeated noncompliance such that perceptions of the patient worsened across time (ps < 0.001. η_p^2s > 0.10). Furthermore, there was a main effect of patient SES such that low-SES patients were perceived as less honest than high-SES patients exhibiting the same behavior, even among medical doctors (ps < 0.02, η_p^2 > 0.02). Amongst laypersons, there was a significant patient SES $\times$ noncompliance interaction such that after repeated noncompliance, low-SES patients are perceived as disproportionately more lazy (p = 0.03, η_p^2 = 0.008), less honest (p < 0.001, η_p^2 = 0.02), and as exaggerating their pain more p = 0.06, η_p^2 = 0.005). Furthermore, these worsened perceptions of the patient across time predicted lower intentions to invest in care for the patient in the future (ps < 0.01).

Discussion. These findings suggest that low-SES bias persists in the healthcare context and contributes to differential perceptions of patients. The prolonged and compounding effects of these negative perceptions may result in lower trust and poorer patient-healthcare provider relationships, contributing to socioeconomic health disparities downstream.

Abstract 1121

FACETS OF NEUROTICISM AND RISK OF DEMENTIA IN OLDER AFRICAN AMERICANS

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Personality traits are powerful predictors of late-life health outcomes. For example, neuroticism is related to an increased risk of Alzheimer's Disease (AD) and more rapid cognitive decline. Most studies examining the relationship between personality and AD have been conducted in primarily White populations. We reported in a biracial community that associations between neuroticism and AD were weaker in African Americans than in Whites but used only a 4-item neuroticism scale that did not examine individual facets of neuroticism. Personality influences one's ability to cope with outside stressors and this may be especially important for marginalized populations, such as African Americans, who are exposed to racial discrimination and systemic racism in the US. The purpose of this current study was to consider facets of neuroticism and test whether associations were moderated by education or sex.

This study was conducted on 1364 African Americans from 4 longitudinal studies from the Rush Alzheimer's Disease Center who were without dementia at study entry (mean age of 73.1 years; mean education of 14.9 years; 79.6% female). Neuroticism was measured using a modified 12-item NEO Five-Factor Inventory which accounted for five neuroticism facets. Participants rated each item at baseline on a five-point scale (0-4), with total scores ranging from 0 to 45. The mean score on the neuroticism scale was 14.5 (SD 6.3) and 243 persons developed dementia.

We fit Cox hazards models to study the risk of dementia adjusting for age, sex, education, and APOE e4. Neuroticism was associated with nearly a 4% increase in the hazard ratio of dementia (HR=1.037; p=0.002). When considering individual facets of neuroticism, depression (HR=1.105, p<0.001), self-consciousness (HR=1.111, p=0.023), and vulnerability (HR=1.177, p<0.001) were all significantly associated with an increased risk of developing dementia, but not anxiety or anger/hostility (both p>0.05). There were no effect modifications by education or sex for any associations (all p's>0.05).

Higher neuroticism is associated with an increased risk of incident dementia in older African Americans, particularly facets of depression, self-consciousness, and vulnerability. Future research should be designed to determine whether facets may be targets for intervention.

Abstract 1004

ASSOCIATION OF HOUSEHOLD WEALTH AND INFLAMMATION AMONG ADULTS IN THE MIDLIFE IN THE UNITED STATES (MIDUS) STUDY

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Objective: Household wealth may be an important socioeconomic indicator that can contribute to disparities in inflammation. Furthermore, wealth may change over time, and various characteristics of wealth changes may contribute differently to inflammation. This study examined the cross-sectional association between wealth and inflammation and explored the link between wealth changes and inflammation.

Method: We used data from the Midlife in the United States (MIDUS) study. For the cross-sectional analysis, data were from 1,485 participants (ages 25-90, 53% female, and 74% white) who participated in the Biomarker Projects of MIDUS Refresher (R; 2011) and wave 3 (2014). For the wealth changes analysis, we utilized data from 602 participants (ages at baseline = 43-90, 55% female, and 78% white) in the biomarker project of MIDUS 2 (2004) and the follow-up MIDUS 3 (2014). Net worth was categorized as negative, break-even, and positive after calculating household monetary resources relative to debts. We also created the wealth mobility variable by comparing the net worth status in MIDUS 2 and 3 and grouped them into four categories: stable low, downward, upward, and stable high. We included five inflammation measures: interleukin-6 (IL-6), fibrinogen (FGN), C-reactive protein (CRP), E-Selectin (ESEL), and soluble ICAM-1 (sICAM-1). Analyses were adjusted for age, sex, race, education, marital status, employment status, body mass index (BMI), and smoking status.

Result: 68.1% of the participants in the cross-sectional analysis showed positive net worth. In regression model 2, those in the break-even and negative net worth showed significantly higher IL-6, CRP, and sICAM-1 than those in the positive net worth group. However, only sICAM-1 remained significantly associated with net worth in the fully adjusted regression model. Among the longitudinal participants, 66.9% of them remained with a high stability in net worth. Those in the stable low group showed significantly higher IL-6 and CRP than those in the stable high group in model 2.

Conclusion: Household wealth may be an important indicator of SES in addition to traditional measures, including education and income. The lack of wealth may indicate uncertain financial security and pose a risk factor for inflammation. Over time, wealth scarcity may signify chronic financial stressors detrimental to inflammation.

Association of Household Wealth and Inflammation among Adults in the Midlife in the United States (MIDUS) Study

Table 1. Main Characteristics of Participants by Net Wealth

Characteristics	Missing Data (n)	Overall (N = 1,485)	Negative (N = 276)	Break-Even (N = 198)	Positive (N = 1,011)
Age (M; SD)	0	55.08(12.79)	47.84(12.02)	52.63(12.21)	57.54(12.26)
Female (%)	0	53.33	64.13	62.63	48.57
Race (%)	5				
White		74.19	44.93	63.78	84.23
Black		17.03	43.48	23.98	8.43
Other		8.78	11.59	12.24	7.34
Education (%)	0				
HS/GED or Lower		18.18	23.19	28.79	14.74
Some College		31.31	39.13	35.35	28.39
Bachelor's Degree or Higher		50.51	37.68	35.86	56.87
Work Status (%)	133				
Working		68.57	71.43	67.60	68.02
Retired		20.27	5.88	13.97	25.13
Other		11.17	22.69	18.44	6.84
Marital Status (%)	3				
Married		60.46	37.09	53.03	68.29
Other		39.54	62.91	46.97	31.71
Current Smoking (%)	0	40.67	44.57	42.42	39.27
Biomarkers (M; SD)					
BMI	0	30.11(7.14)	31.76(8.00)	31.82(7.91)	29.32(6.59)
IL-6 (Ln)	21	0.84(0.78)	0.89(0.81)	0.93(0.78)	0.82(0.78)
FGN	22	357.91(81.91)	365.16(87.46)	373.81(90.18)	352.86(78.14)
CRP (Ln)	20	0.46(1.23)	0.76(1.37)	0.70(1.17)	0.34(1.19)
ESEL	21	39.11(19.65)	43.97(21.45)	43.63(21.91)	36.91(18.25)
sICAM-1 (Ln)	21	5.44(0.39)	5.51(0.39)	5.52(0.45)	5.41(0.37)

Table 2. Main Characteristics of Participants by Wealth Mobility

Characteristics	Missing Data (n)	Overall (N = 602)	Stable Low (N = 90)	Downward (N = 65)	Upward (N = 44)	Stable High (N = 403)
Baseline Age (M; SD)	0	60.69(9.65)	57.13(8.13)	57.48(9.10)	58.18(8.38)	62.28(9.80)
Female (%)	0	54.65	71.11	67.69	47.73	49.63
Race (%)	2					
White		77.83	43.33	68.75	61.36	88.81
Black		15.33	46.67	20.31	34.09	5.47
Other		6.83	10.00	10.94	4.55	5.72
Education (%)	0					
HS/GED or Lower		20.27	27.78	32.31	29.55	15.63
Some College		33.55	50.00	32.31	43.18	29.03
Bachelor's Degree or Higher		46.18	22.22	35.38	27.27	55.33
Work Status (%)	74					
Working		69.32	68.06	73.33	64.29	69.49
Retired		21.97	12.50	11.67	21.43	25.71
Other		8.71	19.44	15.00	14.29	4.80
Marital Status (%)	0					
Married		61.79	34.44	56.92	47.73	70.22
Other		38.21	65.56	43.08	52.27	29.78
Current Smoking (%)	0	42.36	56.67	38.46	40.91	39.95
Biomarkers (M; SD)						
Baseline BMI	1	29.40(6.28)	32.31(7.93)	29.45(7.14)	30.30(6.87)	28.64(5.41)
BMI at follow-up	0	29.82(6.67)	34.05(8.22)	30.04(6.91)	30.06(6.61)	28.81(5.85)
Baseline IL-6 (Ln)	3	0.71(0.76)	1.00(0.72)	0.61(0.72)	0.79(0.79)	0.65(0.75)
IL-6 (Ln) at follow-up	9	1.02(0.74)	1.35(0.67)	0.90(0.72)	0.87(0.70)	0.98(0.74)
Baseline FGN	5	342.85(82.60)	379.46(84.90)	342.17(86.61)	341.05(90.03)	335.01(78.63)
FGN at follow-up	8	378.05(88.77)	412.99(106.33)	394.76(80.26)	386.25(86.85)	366.31(83.69)
Baseline CRP (Ln)	5	0.38(1.18)	0.97(1.16)	0.43(1.13)	0.30(1.07)	0.25(1.16)
CRP (Ln) at follow-up	6	0.61(1.27)	1.35(1.27)	0.75(1.22)	0.45(1.17)	0.45(1.22)
Baseline ESEL	3	42.43(23.07)	47.88(32.85)	43.95(23.57)	53.97(25.23)	39.70(19.24)
ESEL at follow-up	8	37.35(19.90)	44.93(22.29)	38.67(17.12)	41.00(23.93)	35.05(18.83)
Baseline sICAM-1 (Ln)	3	5.56(0.37)	5.65(0.45)	5.51(0.51)	5.52(0.43)	5.56(0.32)
sICAM-1 (Ln) at follow-up	9	5.39(0.34)	5.49(0.36)	5.37(0.32)	5.32(0.42)	5.37(0.33)

Table 3. Cross-sectional Association between Net Wealth and Inflammation

Net Worth	MODEL 1[a] Coefficient (SE)	p Value	MODEL 2[b] Coefficient (SE)	p Value	MODEL 3[c] Coefficient (SE)	p Value
IL-6 (Ln)						
Break-even	0.245(0.057)	0.000	0.152(0.060)	0.011	0.086(0.054)	0.114
Negative	0.323(0.052)	0.000	0.138(0.058)	0.017	0.096(0.053)	0.069
	$R^2 = 0.169$		$R^2 = 0.200$		$R^2 = 0.339$	
	$F_{(1,459)} = 74.25^{***}$		$F_{(1,316)} = 29.92^{***}$		$F_{(1,314)} = 51.93^{***}$	
FGN						
Break-even	26.828(6.164)	0.000	16.826(6.441)	0.009	11.993(6.191)	0.053
Negative	26.325(5.608)	0.000	10.220(6.222)	0.101	7.390(5.976)	0.216
	$R^2 = 0.102$		$R^2 = 0.134$		$R^2 = 0.206$	
	$F_{(1,458)} = 41.29^{***}$		$F_{(1,315)} = 18.55^{***}$		$F_{(1,313)} = 26.15^{***}$	
CRP (Ln)						
Breaking Even	0.374(0.095)	0.000	0.217(0.100)	0.030	0.099(0.090)	0.268
Negative Worth	0.481(0.087)	0.000	0.226(0.097)	0.020	0.151(0.087)	0.082
	$R^2 = 0.061$		$R^2 = 0.094$		$R^2 = 0.276$	
	$F_{(1,460)} = 23.61^{***}$		$F_{(1,317)} = 12.43^{***}$		$F_{(1,315)} = 38.62^{***}$	
ESEL						
Breaking Even	6.649(1.524)	0.000	3.293(1.565)	0.036	2.171(1.512)	0.151
Negative Worth	6.560(1.393)	0.000	2.053(1.519)	0.177	1.359(1.466)	0.354
	$R^2 = 0.037$		$R^2 = 0.079$		$R^2 = 0.146$	
	$F_{(1,459)} = 14.07^{***}$		$F_{(1,315)} = 10.27^{***}$		$F_{(1,313)} = 17.27^{***}$	
sICAM-1 (Ln)						
Breaking Even	0.095(0.030)	0.002	0.089(0.032)	0.006	0.081(0.032)	0.013
Negative Worth	0.076(0.028)	0.006	0.099(0.031)	0.002	0.092(0.031)	0.003
	$R^2 = 0.025$		$R^2 = 0.054$		$R^2 = 0.065$	
	$F_{(1,459)} = 9.22^{***}$		$F_{(1,315)} = 6.83^{***}$		$F_{(1,313)} = 7.07^{***}$	

Notes:
[a] Model 1: adjusted for age and sex.
[b] Model 2: adjusted for age, sex, race (reference group: white = 1), education (reference group: HS/GED or lower = 1), marital status, and employment status (reference group: working = 1).
[c] Model 3: adjusted for age, sex, race (reference group: white = 1), education (reference group: HS/GED or lower = 1), marital status, employment status (reference group: working = 1), BMI, and smoking status.

Table 4. Longitudinal Effects of Wealth Mobility on Inflammation

Wealth Mobility	MODEL 1[a] Coefficient (SE)	p Value	MODEL 2[b] Coefficient (SE)	p Value	MODEL 3[c] Coefficient (SE)	p Value
IL-6 (Ln)						
Upward	-0.100(0.095)	0.294	-0.160(0.104)	0.122	-0.152(0.100)	0.128
Downward	0.043(0.081)	0.601	0.064(0.089)	0.476	0.039(0.086)	0.653
Stable Low	0.315(0.073)	0.000	0.216(0.091)	0.017	0.113(0.088)	0.203
	$R^2 = 0.368$		$R^2 = 0.365$		$R^2 = 0.417$	
	$F_{(584)} = 56.76^{***}$		$F_{(503)} = 22.19^{***}$		$F_{(501)} = 23.89^{***}$	
FGN						
Upward	20.366(12.263)	0.097	17.889(13.316)	0.180	18.076(13.041)	0.166
Downward	27.842(10.567)	0.009	25.199(11.477)	0.029	23.617(11.247)	0.036
Stable Low	27.709(9.498)	0.004	21.870(11.807)	0.065	13.305(11.703)	0.256
	$R^2 = 0.267$		$R^2 = 0.258$		$R^2 = 0.292$	
	$F_{(583)} = 35.30^{***}$		$F_{(501)} = 13.40^{***}$		$F_{(499)} = 13.71^{***}$	
CRP (Ln)						
Upward	-0.010(0.163)	0.950	-0.108(0.173)	0.532	-0.105(0.168)	0.534
Downward	0.202(0.140)	0.151	0.129(0.149)	0.388	0.120(0.145)	0.407
Stable Low	0.485(0.126)	0.000	0.375(0.152)	0.014	0.262(0.150)	0.081
	$R^2 = 0.359$		$R^2 = 0.385$		$R^2 = 0.420$	
	$F_{(585)} = 54.67^{***}$		$F_{(503)} = 24.21^{***}$		$F_{(501)} = 24.14^{***}$	
ESEL						
Upward	-1.066(2.673)	0.690	-4.547(2.863)	0.113	-4.267(2.815)	0.130
Downward	0.709(2.261)	0.754	-1.470(2.440)	0.547	-1.712(2.400)	0.476
Stable Low	5.052(1.996)	0.012	0.144(2.461)	0.953	-1.923(2.464)	0.435
	$R^2 = 0.334$		$R^2 = 0.349$		$R^2 = 0.374$	
	$F_{(585)} = 48.89^{***}$		$F_{(503)} = 20.75^{***}$		$F_{(501)} = 19.95^{***}$	
sICAM-1 (Ln)						
Upward	-0.033(0.047)	0.475	-0.047(0.050)	0.356	-0.044(0.050)	0.380
Downward	-0.006(0.041)	0.891	0.002(0.044)	0.957	0.003(0.043)	0.946
Stable Low	0.062(0.036)	0.081	0.030(0.044)	0.496	0.002(0.045)	0.963
	$R^2 = 0.285$		$R^2 = 0.276$		$R^2 = 0.294$	
	$F_{(584)} = 38.73^{***}$		$F_{(502)} = 14.69^{***}$		$F_{(500)} = 13.91^{***}$	

Notes:
[a] Model 1: adjusted for baseline age, sex, and baseline inflammation.
[b] Model 2: adjusted for baseline age, sex, baseline inflammation, race (reference group: white = 1), education (reference group: HS/GED or lower = 1), marital status, and employment status (reference group: working = 1).

[c] Model 3: adjusted for baseline age, sex, baseline inflammation, race (reference group: whit 1), education (reference group: HS/GED or lower = 1), marital status, employment status (reference group: working = 1), BMI, and smoking status.

Abstract 1168

ANXIETY MEDIATES THE ASSOCIATION BETWEEN ADVERSE CHILDHOOD EXPERIENCES AND BLUNTED CARDIOVASCULAR REACTIVITY TO ACUTE PSYCHOLOGICAL STRESS

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Background: Cardiovascular reactivity has been proposed to be a biomarker linking childhood adversity to poorer health. Recent research has suggested that depression may be a possible mediator between childhood adversity and blunted cardiovascular reactivity. However, there is limited research on anxiety, adverse childhood experiences (ACEs), and cardiovascular reactivity. The aim of this study was to replicate the well-established relationship between ACEs, cardiovascular reactivity, and depression and to test whether this relationship exists with anxiety included as an additional mediator.
Method: Ninety-two participants (68.5% women; 52.2% non-Hispanic white; mean age 26.68, SD = 10.79 years) recruited from the local community completed a standardized laboratory stress protocol consisting of a 10-minute baseline and 10-minute stress task (Paced Auditorial Serial Addition Test; PASAT). Systolic blood pressure (SBP), diastolic blood pressure (DBP), mean arterial pressure (MAP) and heart rate (HR) were monitored throughout the protocol. Reactivity was computed as the arithmetic difference between baseline scores and stress task scores. Participants completed the 10-item Adverse Childhood Experiences Questionnaire and the 14-item Hospital Anxiety and Depression Scale. Parallel mediation analysis using SPSS Process Macro Model 4 examined whether the relationship between ACEs and cardiovascular reactivity was mediated by depression and anxiety.
Results: The association between ACEs and blunted cardiovascular reactivity was significantly mediated by anxiety, but not depression. There was a significant indirect effect of ACEs on SBP reactivity, B = -.32, [-.78, -.01] and HR reactivity, B = -.32, [-.79, -.01] through anxiety. Greater ACEs predicted greater scores on anxiety, B = .31, [.08, .54] which was associated with blunted SBP reactivity, B = -1.03, [-1.98, -.08] and HR reactivity, B = -1.01, [-1.85, -.18] on the PASAT. This withstood covarying for gender, age, race, and respective baseline.
Conclusion: These results suggest that anxiety may be a mechanism by which childhood adversity predicts blunted cardiovascular responding and therefore poorer health. Future research is warranted to determine if this relationship can be replicated across varying samples and stress tasks.

Abstract 1197

DOES CORTISOL MEDIATE THE EFFECTS OF MINORITY STRESS ON MENTAL HEALTH IN GENDER AND SEXUAL MINORITIES?

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Background
Gender and sexual minorities are at an increased risk of mental ill health, which has been traced back to increased levels of minority stress. One potential underlying mechanism are alterations in the hypothalamic-pituitary-adrenal axis. The aim of this study was to investigate, for the first time, whether LGBTIQ+ people vs. cis-gender heterosexual individuals exhibit 1) increased levels of depression and anxiety and 2) altered hair cortisol concentrations, and whether, in LGBTIQ+ people, 3) cortisol mediates the effects of minority stress on mental ill health.
Methods
A total of N=330 LGBTIQ+ people and n=284 age-matched cis-heterosexual controls from the Swiss LGBTIQ+ Panel were recruited. Both groups participated in an online survey and received video instructions on how to collect a hair sample at home. Depression and anxiety were measured by means of the Patient Health Questionnaire (PHQ-9) and by means of the Generalised Anxiety Disorder Scale (GAD-7), respectively. Minority stress was measured with the 11-item Minority Stress Scale. One centimetre of hair was used to determine cumulative cortisol of the past month using gold standard liquid chromatography with tandem mass spectrometry (LC-MS/MS).
Results
People identifying as LGBTIQ+ exhibited significantly higher levels of depression in comparison to cis-heterosexual controls. The two groups did not differ regarding levels of anxiety or hair cortisol concentrations. However, subgroup analyses indicated that gender minorities not only had significantly higher levels of depression, but also higher levels of anxiety, and lower levels of cortisol in comparison to cis-heterosexual controls. Minority stress was significantly associated with depression and anxiety, but this was not mediated by cortisol.
Conclusions
Minority stress was significantly related to the increased levels of depression (and anxiety) in gender and sexual minorities. Gender minorities also exhibited attenuated hair cortisol concentrations, a pattern associated with trauma and medically unexplained conditions. The finding that cortisol did not mediate the minority stress-mental health relationship points to distinct pathophysiological pathways. The study highlights the need for further large-scale research, and particularly in gender minorities, who currently present with the highest levels of stress and distress.

Abstract 1022

GREATER SOCIAL MEDIA USE IS ASSOCIATED WITH HIGHER LEVELS OF THE INTESTINAL PERMEABILITY ("LEAKY GUT") MARKER LIPOPOLYSACCHARIDE BINDING PROTEIN, WHICH STATISTICALLY MEDIATES THE RELATIONSHIP BETWEEN SOCIAL MEDIA USE AND THE INFLAMMATORY MARKER C-REACTIVE PROTEIN.

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Social media use has become widespread in our daily lives and increasing evidence indicates that high levels of social media use may be detrimental to mental health, particularly depression. Because intestinal permeability ("leaky gut") is a risk factor for depression, the first goal of this study was to determine if social media use was related to a marker of intestinal permeability, Lipopolysaccharide Binding Protein (LBP). Second, because intestinal permeability can trigger inflammation (which can elevate depressive symptoms), we examined if level of LBP mediated previously reported association between social media use and levels of C-Reactive Protein (CRP) in this sample.
Data collection occurred between October 2018 and February 2019. In a single session, participants (n = 207; M_age =

19.40, SD_age = 2.26) provided blood samples and completed a battery of questionnaires including self-report of average time using four most popular social media platforms (Instagram, Facebook, Snapchat, and Twitter) among college students. There was a zero order relationship between social media use and LBP ($r = .28$, $p < .001$), which remained significant in the full model ($B = .10$, $p = .01$), controlling for sex, age, education level of parents, household income, health behavior (i.e., smoking, drinking alcohol, exercise), use of birth control pill, and depressive symptoms Moreover, LBP mediated the effect of social media use on CRP. Thus, a higher level of social media use predicted a higher level of LBP ($B = .16$, 95% CI [.03, .30]), and higher LBP predicted higher CRP ($B = .42$, 95% CI [.27, .56]). There was also significant indirect effect ($B = .07$, 95% CI [.01, .14]), rendering the direct effect no longer significant ($B = .08$, 95% CI [-.07, .22]). We are currently measuring LBP levels in an already completed longitudinal study that demonstrated social media use at baseline predicted increases in CRP over time. These results will be reported at the meeting.

In conclusion, these findings suggest a candidate pathway for future study by which social media use leads to psychological distress, which triggers intestinal permeability and resulting inflammation, which, in turn, potentially leads to poor mental and physical health.

Abstract 1273

EMOTION SUPPRESSION AND LONELINESS MEDIATE THE RELATION BETWEEN INTOLERANCE OF UNCERTAINTY 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. These unpredictable and isolating conditions generated an increase in psychological distress and feelings of loneliness. Intolerance of uncertainty (IU) and high levels of loneliness have been linked to increased symptoms of depression, anxiety and substance abuse. Moreover, relying on emotional suppression (ES) in the face of difficult situations is linked to poorer adaptability and psychological functioning. This study assessed whether reliance on ES and feelings of loneliness serially mediated the relation between IU and depressive symptoms throughout the first 10 months of the 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 (126 female) at time 1, 125 (86 female) at time 2, and 103 (73 female) at time 3 completed a battery of questionnaires, including the 27-item Intolerance of Uncertainty Scale, 10-item Emotion Regulation Questionnaire, 20-item UCLA Loneliness Scale, and 21-item Beck Depression Inventory-II. Two serial mediation analyses were conducted. The first used time 1 IU (X), time 2 ES (M_1), time 2 loneliness (M_2) and time 2 depression symptoms (Y). The second used time 2 IU (X), time 3 ES (M_1), time 3 loneliness (M_2) and time 3 depression symptoms (Y). Results revealed a significant indirect effect of IU on depression scores through ES and loneliness for the first [b = .046, 95% C.I. (.004, .112)] and second [b = .034, 95% C.I. (.001, .091)] serial mediation. Therefore, individuals with higher IU at time 1 and time 2 used more ES and felt lonelier, leading them to experience more depressive symptoms by time 2 and time 3, respectively. In conclusion, these results highlight an important pathway to heightened symptoms of depression for individuals with higher intolerance to uncertainty that engaged in more maladaptive emotion regulation strategies and felt lonelier in the face of unpredictable societal disruptions and orders to self-isolate. Moreover, these data show the importance of establishing support strategies for individuals at higher risk for experiencing declines in mental health functioning during periods of extended and unpredictable societal turmoil.

20 Social Processes
Thursday 3/21/24

Abstract 1204

ANXIOUS MINDS OR BROKEN HEARTS: THE CONSEQUENCES OF WITNESS SOCIAL STRESS IN RATS ARE SEX-SPECIFIC
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Unstable social environments can be a direct source of chronic stress and favor the development of both psychiatric disorders, such as anxiety and depression, and cardiovascular disease. Notably, in humans there are important sex differences in psychophysiological responses to social stressors which may underline a sex-specific vulnerability to pathological outcomes. Rodent models serve as valuable tools for directly investigating the detrimental effects of psychosocial stressors on both behavioral responses and cardiovascular function. In this study, we employed an emerging rodent model of social stress known as "witness social defeat stress" to explore potential sex disparities in the behavioral and cardiovascular consequences of social stress exposure. Young adult male and female rats bore witness to the social defeat bout of a male conspecific from the safety of an adjacent compartment within the cage of an aggressive male rat for nine consecutive days. Behavior of witness rats was recorded during the first and last stress exposure, while arrhythmia susceptibility and cardiac contractile function were assessed at the conclusion of the stress protocol. Our findings reveal that the vicarious experience of social defeat stress induces greater amounts of anxiety-like behaviors (e.g., burying behavior) in females compared to males. Conversely, male witnesses exhibit a larger susceptibility to pharmacologically-induced arrhythmias and a more severe impairment in systolic ventricular function and myocardial performance than female witnesses. This study provides preliminary insights into sex differences in behavioral and cardiac maladaptations to social stress. Furthermore, this study highlights the utility of the witness social defeat model as an ethologically relevant social stressor for unveiling sex-specific pathophysiological processes that may be key elements of a cumulative increase in social stress-related risk.

Abstract 1220

MULTIPLE GROUP MEMBERSHIP REDUCES MORTALITY: FINDINGS FROM THE MIDUS DATA SERIES
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The 'social cure' proposes that multiple group memberships (MGM) are a platform for health. Central to this 'the more the merrier' hypothesis is that belonging to multiple social groups affords more psychological and social resources in support of health. Extending the available research which highlights the benefits to self-reported health, we use the Midlife in the United

States (MIDUS) data (N = 6118; 53% female, 20% deceased during follow-up) to determine if MGM are related to mortality risk across adulthood. Results indicated that MCM was predictive of all-cause mortality risk, such that each increase in social group membership resulted in a decrease in mortality risk. These effects were robust to a range of adjustments and sensitivity analyses. Examination of polynomial effects did not uncover significant quadratic effects. In other words, the relation between MGM and mortality risk appears to be linear and not levelling off at a certain frequency. Taken together, these results suggest that MGM is an important health determinant across adulthood, resulting in a reduced risk of death. Findings are discussed in the context of the role of MGM for health processes.

Abstract 1304

LAGGING BEHIND: EXAMINING HOW VARIATIONS IN TYPICAL CONTROLS ALTER THE ASSOCIATION BETWEEN INTERPERSONAL MISTREATMENT AND SUBSEQUENT NEGATIVE MOOD

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Background: The collection of intensive longitudinal data is common in behavioral medicine research. Among the many strengths of this type of data is the ability to test whether variables at one time point predict outcomes at a later time point. Yet, there is no consensus on how to do these lagged analyses, and different modeling decisions can dramatically affect the pattern of results observed. **Purpose:** This study examined the lagged relationships between experiencing interpersonal mistreatment and reported negative mood at a subsequent timepoint. It demonstrates how different empirical questions are tested with inclusion of different "standardized" control variables, with varying results. **Methods:** Participants (n = 565, mean age = 39.1, 51.7% male) in the New York City area completed ecological momentary assessments every 20 minutes during waking hours over a 24-hour period. At each assessment, participants reported the extent to which they experienced interpersonal mistreatment (i.e., being excluded, harassed, or treated unfairly during a social interaction) and negative mood (i.e., anger, sadness, anxiety). Multilevel models tested the lagged associations between person-mean centered interpersonal mistreatment at time $t-1$ with negative mood at time t, controlling for auto-regression, time of day, and demographics. Models varied the extent to which interpersonal mistreatment at time t and negative mood at time $t-1$ were controlled for in analyses. **Results:** As expected, greater interpersonal mistreatment at time $t-1$ predicted more negative mood at time t (b = 0.29, SE = 0.01, p < .001) when just these variables were included in the model. When the model controlled for mistreatment at time t, thus testing for additive effects, a much reduced relationships was observed (b = 0.15, SE = 0.02, p < .001). When controlling for negative mood at time $t-1$, thus testing a recovery model, there was nearly no effect of interpersonal mistreatment (b = 0.05, SE = 0.01, p < .001). Finally, when both controls are included, a flipped relationship was observed in which more negative interpersonal interactions at time $t-1$ predicted less negative mood at time t (b = -0.04, SE = 0.02, p = .033). **Conclusion:** Results indicate that the inclusion of typical controls is not arbitrary and in fact alters the research question being tested, and potentially the results observed.

21 Caregiver Health
Thursday 3/21/24

Abstract 1017

PSYCHOSOCIAL-SPIRITUAL OUTCOMES IN PARENTS OF CHILDREN WITH TYPE 1 DIABETES FROM THE MIDDLE EAST AND NORTH AFRICA REGION: A SYSTEMATIC REVIEW

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Background: Type 1 diabetes (T1D) is prevalent in the Middle East and North Africa (MENA). Parents of children or young people (CYP) with T1D experience shock, devastation, guilt, and societal blame, which impact both physical and psychosocial aspects of their lives. However, our knowledge of the breadth of these psychosocial experiences and how they are assessed is limited.
Aim: To examine diabetes-specific psychosocial experiences of parents of CYP with T1D in the MENA region and to assess psychosocial person reported outcome measures (PROMs) in this population.
Methods: The systematic review was implemented using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines and the COnsensus-based Standards for the selection of health Measurement INstruments (COSMIN) criteria. Ovid MEDLINE, Embase, APA PsycINFO, CINAHL, and Global Health were searched, and a narrative synthesis approach was used for data analysis. GRADE-CERQual were used to assess the outcomes in the included studies.
Results: Twenty-three studies were included. We identified four themes: 1) spiritual functioning, describing the parents' ability to accept and cope with their CYP's condition, 2) psychological functioning, highlighting the parents' emotional distress due to insufficient diabetes-related knowledge and skills, 3) social functioning, describing financial challenges, social support experiences, and cultural concerns faced by parents, and 4) physical functioning, focusing on parents' struggle with sleep deprivation. Results revealed methodological and conceptual limitations of the current PROMs including a lack of cultural validity and a failure to capture spirituality.
Conclusion: This population experiences psychosocial-spiritual distress and require culturally specific PROMs to assess the psychosocial-spiritual outcomes.

Abstract 1230

THE CARDIOVASCULAR EFFECTS OF CAREGIVING ON YOUNG PEOPLE: THE ROLE OF COPING

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Background: The caregiver-control model of chronic stress has confirmed that providing care to a family member suffering from physical or mental illnesses, substance abuse issues, and disabilities is associated with poor cardiovascular health. To date, older adult and parental caregivers have been the main focus of this research with no attention paid to younger caregivers (aged 17-18). The present study will examine whether younger caregivers differ from non-caring youths on resting heart rate (HR), systolic (SBP), and diastolic (DBP) blood pressure and explore the underlying psychosocial pathways.

Methods: Data on psychosocial and cardiovascular indices, including behavioural lifestyle factors will be extracted from Wave 3 of the Growing Up in Ireland Study, which is a population-based study of Irish young people. Utilizing this data, this study will investigate potential differences between 17/18-year-old Carers (N = 1,558) and Non-Carers (N = 4,240) on the cardiovascular parameters, as well as taking into account known risk factors such as smoking status, exercise habits, and BMI. Moreover, this study will explore whether coping styles influence cardiovascular outcomes in Young Carers.

Expected Results: We expect young caregivers to be at greater risk for elevated blood pressure, due to the increased demands placed on them by their caregiving role. Additionally, there may be a difference between young caregivers and non-carers on cardiovascular risk factors e.g., smoking, as well as coping styles, and these may signify underlying pathways behind the association. These findings could extend the caregiver-control model of caregiving by demonstrating that biological effects previously observed in adult carers are not age-specific and will be discussed from a lifespan perspective.

Abstract 795

PERCEIVED PARTNER RESPONSIVENESS MODERATES THE ASSOCIATION BETWEEN RELATIONSHIP DISSATISFACTION AND WELL-BEING IN DEMENTIA SPOUSAL CAREGIVERS

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Caregivers for spouses with Alzheimer's disease and related dementias (ADRD) who are dissatisfied with their marital relationship may be especially susceptible to the adverse consequences of caregiving on well-being. Perceived partner responsiveness, or feeling cared for, understood, and appreciated by one's spouse, may help mitigate these consequences. We examined the associations between relationship dissatisfaction, perceived partner responsiveness, and well-being in ADRD spousal caregivers. A sample of 169 caregivers self-reported relationship dissatisfaction, perceived partner responsiveness, and depressive symptoms and provided blood samples. Monocyte-stimulated inflammatory cytokine production, including interleukin-6 (IL-6), tumor necrosis factor-α, IL-1β, and IL-10, were measured and combined to form a composite index of chronic inflammation. Based on multiple regression analyses using full-information maximum likelihood for handling missing data, perceived partner responsiveness significantly moderated the association between relationship dissatisfaction and depressive symptoms (b = -0.13, p = .021). The association between relationship dissatisfaction and depressive symptoms was positive among those reporting -1 SD below average (b = 1.13, p < .001), average (b = 0.84, p < .001), and +1 SD above average (b = 0.55, p = .022) levels of perceived partner responsiveness. Perceived partner responsiveness also significantly moderated the association between relationship dissatisfaction and inflammation (b = -0.01, p = .024). The association between relationship dissatisfaction and inflammation was positive among those reporting -1 SD below average (b = 0.08, p = .001) and average (b = 0.04, p = .021) levels of perceived partner responsiveness. Yet, it was not significant among those reporting +1 SD above average (p = .675) levels of perceived partner responsiveness. Results supported a buffering role of perceived partner responsiveness on the association between relationship dissatisfaction and depressive symptoms and inflammation in ADRD spousal caregivers. ADRD caregivers who were dissatisfied in their relationships may benefit from feeling cared for, understood, and appreciated by their spouses. Our work contributes to the body of research looking at factors that influence the effects of caregiving on well-being.

Abstract 970

MITOCHONDRIAL FUNCTION, PHYSICAL FUNCTIONING, AND DAILY AFFECT: BIOENERGETIC MECHANISMS OF DEMENTIA CAREGIVER WELL-BEING

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Informal caregivers of Alzheimer's disease and related dementias (ADRD) experience significant burden, poorer psychological health, and lower quality of life than non-caregivers. However, health status varies among caregivers. Individual differences in ADRD caregiver well-being may be attributed to cellular bioenergetics, as mitochondrial functioning is crucial for stress regulation and brain function. The present study investigated whether mitochondrial functional capacity explains individual differences in ADRD spousal caregiver mental and physical health. **Methods:** Spousal caregivers of ADRD (N = 102, mean age = 71, 78% female, 83% White) provided peripheral blood samples for mitochondrial functional assays and completed self-report questionnaires on quality of life, caregiver burden, and daily affect (acquired across 7 days). Multiple regression was used to test the relationship between mitochondrial function and the physical and mental health component scores of the Short Form-36 Quality of Life survey; quality of life subdomains were analyzed in ancillary analyses. Multilevel modeling was used to test the relationship between mitochondrial function, caregiver burden, and daily affect. **Results:** Greater mitochondrial functioning – indexed by higher spare respiratory capacity (b = 3.03, CI [.72, 5.34], p = .010), maximum respiratory capacity (b = 1.82, CI [.59, 3.05], p = .004), and ATP production (b = 2.12, CI [.54, 3.71], p = .009) – was associated with better physical health, especially health related to physical functioning (ps < .001). There was a significant caregiver burden x mitochondrial spare respiratory capacity effect on daily positive affect (b = 5.39, CI [2.07-8.71], p = .002). Caregiver burden was negatively associated with daily positive affect for those with average and below average levels of spare respiratory capacity (ps < .01). Caregiver burden was not associated with daily positive affect for those with above average levels of spare respiratory capacity. **Conclusions:** Greater mitochondrial functional capacity predicted better physical health (especially the ability to engage in daily activities) and attenuated the negative relationship between caregiver burden and positive emotions. These findings provide some of the earliest evidence that the level of mitochondrial functioning is related to ADRD caregiver well-being.
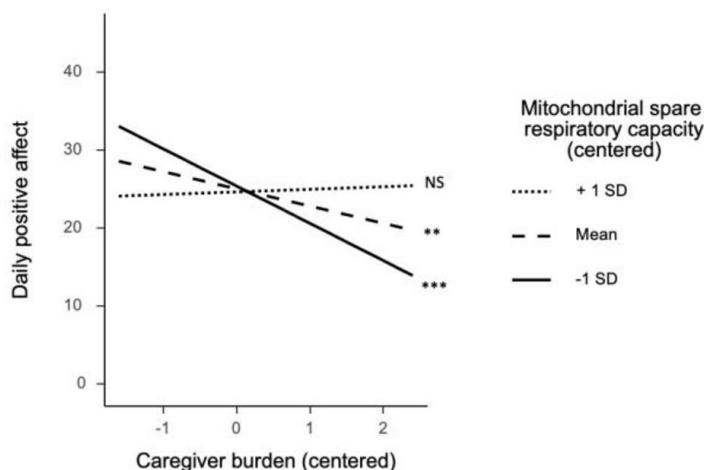
Figure 1. Daily positive affect as a function of caregiver burden and mitochondrial spare respiratory capacity. *Note: $^{***}p < .001$, $^{**}p < .01$, $^{*}p < .05$, NS = not significant*

22 Psychoneuroimmunology
Friday 3/22/24

Abstract 1007

INFLAMMATION AND REWARD PROCESSING: A META-ANALYSIS

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Background: Conceptual and empirical research highlights the role of inflammation in altered reward processing, a multi-faceted risk factor for a variety of health issues. However, there are mixed findings regarding whether inflammation is associated with blunted or elevated reward processing. Across these studies, the operationalization of reward processing varies in terms of reward construct (wanting, liking, and reward learning) and type (social and non-social reward), and it is unclear whether this methodological difference contributes to the observed mixed findings. Thus, we used a meta-analytical approach to address this question by examining whether inflammation is associated with broad vs. certain aspects of reward processing.
Method: This review, pre-registered on Open Science Framework, searched for studies via MEDLINE and PsycINFO, and identified 58 articles (N=409,003) reporting 180 effect sizes. Three-level meta-analyses were conducted to examine (1) the overall associations between inflammation and reward processing, (2) whether these associations differed by reward construct (wanting, liking, and reward learning) and type (social and non-social reward), and (3) whether associations differed by other methodological characteristics. The analyses controlled for conversion confidence and whether effect sizes were unadjusted or adjusted.
Results: We observed a small but reliable association between inflammation and reward processing, $r = 0.05$, $Z = 0.05$, $CI_{95z}[0.001, 0.101]$, $p = 0.032$, such that higher levels of inflammation were associated with more blunted reward processing, collapsing across facets of reward processing. Effect sizes did not appear to vary by reward construct, reward type, or methodological characteristics.

Conclusions: This meta-analysis adds to the literature that there is a small association between inflammation and blunted reward processing, broadly defined. More research using comprehensive measures for a full spectrum of reward processing is necessary to ascertain whether the observed association is driven by a general feature underlying reward processing, and if so, how. This line of research can help to better understand precisely where the clinical utility of interventions lies with reducing inflammation as the target for alleviating reward-related symptoms, such as anhedonia.

Abstract 922

IMMUNE-NEUROENDOCRINE PATTERNING AND RESPONSE TO STRESS. A LATENT PROFILE ANALYSIS IN ELSA

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Background. Psychosocial stress exposure can disturb communication signals between the immune, nervous, and endocrine systems that are intended to maintain homeostasis. This dysregulation can provoke a negative feedback loop between each system that has high pathological risk. Here, we explore patterns of immune-neuroendocrine activity and the role of stress.
Methods. Using data from the English Longitudinal Study of Ageing (ELSA), we identified the latent structure of immune-neuroendocrine activity within a population-based cohort using latent profile analysis (LPA). Then, we determined which of the derived profiles were most strongly associated with a composite stress score over time. We followed 4,934 male and female participants of a median age of 65 years over a four-year period (2008-2012).
Findings. A three-class LPA solution offered the most parsimonious fit to the underlying immune-neuroendocrine structure in the data, with 36%, 40%, and 24% of the population belonging to profiles 1 (*low-risk*), 2 (*moderate-risk*), and 3 (*high-risk*), respectively. After adjustment for genetic predisposition, sociodemographics, lifestyle, and health, exposure to stress was associated with a 61% greater risk of belonging to the *high-risk* profile (RRR: 1.61; 95%CI=1.23-2.12, p=0.001), but not the *moderate-risk* profile (RRR=1.10, 95%CI=0.89-1.35, p=0.401), as compared with *low-risk* profile four years later. In addition, financial stress was the strongest individual risk factor.
Discussion. Our findings extend existing knowledge on psychoneuroimmunological processes, by revealing how inflammation and neuroendocrine activity cluster in a representative sample of older adults, and how individuals exposed to high levels of stress were at greatest risk of adverse immune-neuroendocrine responses over time.

Abstract 1141

THE RELATIONSHIP BETWEEN PHYSICAL ACTIVITY INTENSITY AND LEUKOCYTE CHANGES DURING PSYCHOLOGICAL STRESS

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Research (NIHR) Leicester Biomedical Research, Malik Hamrouni, MSc, Loughborough University; National Institute for Health Research (NIHR) Leicester Biomedical Research, Nicola Paine, PhD, Loughborough University; National Institute for Health Research (NIHR) Leicester Biomedical Research

Rationale: Acute psychological stress is associated with cardiovascular disease (CVD) risk and is a possible trigger of cardiac events. Physical activity (PA) may modify this risk through alterations to stress-associated inflammatory responses. Whilst there is evidence that PA can influence the cardiovascular responses to stress, the effect of habitual PA intensity on stress immune reactivity remains unclear. Hence, this study explored the impact of different PA intensity on leukocyte counts in response to active and passive stress tasks.

Methods: 83 healthy individuals (mean±SD age = 22±2y; 57% male) wore an Actigraph for 7 days to measure daily moderate-vigorous (MVPA) and light (LPA) activity. The stress protocol composed a baseline period, 8-minute active stress task (PASAT), 6-minute passive stress task (IAPS) and 45-minute recovery after each task. Blood samples, collected at baseline, immediately post each stress task and 45-min post each stress task, were analysed using a haematology analyser to determine total and differential leukocyte counts. Age, body fat percentage, sex, device wear time, task order and sedentary time were added as covariates.

Results: Mean±SD MVPA and LPA were 97±30 and 193±46 min/day, respectively. A positive relationship between MVPA and the magnitude of increase in leukocyte counts from baseline to immediately post PASAT (B = 0.001; 95% CI = 0.000 to 0.002; p=.003) and 45-min post PASAT (B = 0.002; 95% CI = 0.001 to 0.003; p<.001) existed. MVPA was positively associated with an increase in neutrophils from baseline to post-PASAT and 45-min post PASAT (both p<.001). LPA was negatively associated with an increase in leukocytes (B = -0.001; 95% CI = -0.001 to 0.000 p=.002) and monocyte counts (B=-0.001; 95%CI= -0.002 to 0.000; p=.017) from baseline to 45-min post PASAT.

Conclusions: Engaging in more daily MVPA was associated with a greater immediate and prolonged stress-induced leukocytosis, in response to an active but not a passive stressor. Engaging in more daily LPA suppressed the increase in circulating monocyte counts from baseline to 45-min post PASAT. However, the significance of this in terms of CVD risk is unclear as the function and destination of the leukocytes is unknown. Future research should explore hormonal and circulating cytokine levels at these time points in relation to MVPA and LPA.

Abstract 1144

EXAMINING THE RELATIONSHIP BETWEEN ACUTE PSYCHOLOGICAL STRESS, HABITUAL SEDENTARY TIME AND LEUKOCYTE COUNTS

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Rationale: Psychological stress is a risk factor for cardiovascular disease (CVD) and can manifest as active or passive stress. Sedentary behaviour (SED; a sitting or lying posture with an energy expenditure of <1.5 METs), is a strong CVD risk factor, independent of physical activity. The links between these factors and increased CVD risk may be via modifications to the inflammatory milieu. Other studies have explored the impact of stress on markers of inflammation, but these have mainly been conducted using an active stressor. Hence, we explored the changes in leukocyte counts in response to different psychological stressors and their relationship to SED.

Methods: Healthy participants (n= 75; mean age±SD = 22±2y; 59% male) wore an ActivPAL for 7 days to measure habitual SED. The stress protocol comprised a baseline period, 8-min active stress task (PASAT), 6-min passive stress task (IAPS) and 45-min recovery post each task. Blood samples were collected at baseline, immediately post each task and 45-min post each stress task. A haematology analyser determined total and differential leukocyte counts. Age, body fat percentage, sex, task order, ActivPAL wear time and MVPA were added as covariates.

Results: Mean(±SD) SED was 9.5(±1.5) h/d. Significant effects of time on leukocyte (χ^2=47.208; p<.001), monocyte (χ^2=31.061; p<.001), neutrophil (χ^2=45.675; p<.001), and lymphocyte (χ^2=30.749; p<.001) counts were seen. GLM analyses showed a significant inverse relationship between habitual SED and the change in leukocyte counts from baseline to 45-min post IAPS (B = -0.033; 95%CI = -0.057 to -0.010; p=.005) and baseline to immediately post-PASAT (B = -0.018; 95%CI = -0.035 to -0.001; p=.042). Similar significant findings were observed for changes in monocyte and neutrophil counts. Changes in lymphocyte counts from baseline to post-PASAT was associated with habitual SED (B = 0.046; 95% CI = 0.013 to 0.080; p=.007).

Conclusion: Both stressors induced increases in leukocyte counts which remained after 45-min recovery periods. Higher SED was associated with smaller increases in circulating total leukocyte, monocyte and neutrophil counts, which may suggest activation of other inflammatory markers. Future research should explore hormone and cytokine changes, relative to habitual SED to investigate the effect on other stress-induced responses, which could affect CVD risk.

23 Biological Measurement Considerations
Thursday 3/21/24

Abstract 1107

HABITUATION OF CARDIOMETABOLIC UNCOUPLING DURING CONSECUTIVE MENTAL STRESS EXPOSURES

Ryan Brindle, PhD, Washington and Lee University, Annie Ginty, PhD, Baylor University, Katherine Duggan, PhD, North Dakota State University

Heart rate (HR) is tightly coupled with oxygen demand (VO2) in order to supply tissue with oxygenated blood. However, during mental stress HR and VO2 become uncoupled with HR usually being higher than metabolically appropriate. This cardiometabolic uncoupling may be one reason why large-magnitude cardiovascular stress responses are pathogenic, however, the extent to which cardiometabolic uncoupling habituates (or is corrected) across multiple stress exposures remains unknown. The current study aimed to characterize the degree to which cardiometabolic uncoupling habituates in response to sequential stress exposures. Participants (*N*=115, 69% female, 63% White, *M*(*SD*) Age=21.0(5.8) years) completed two consecutive 9-minute mental arithmetic stress tasks (each with their own baseline) before completing a

submaximal cycling task. Heart rate and VO2 were continuously measured during the entire protocol. For each participant, a regression equation was computed to characterize the relationship between HR and VO2 during exercise, and used to predict what HR *should* be during mental stress based on VO2 measured during mental stress. The difference between the predicted HR and measured HR during mental stress represented the degree of cardiometabolic uncoupling. A mixed repeated-measures ANOVA was used to analyze cardiometabolic uncoupling for each stress task on a minute-by-minute basis. A significant main effect of time, $F(9,1026)=48.2$, $p<.001$, $\eta_p^2=.30$, indicated that metabolic uncoupling occurred during each stress task; in the first and second tasks, respectively, HR was, on average, +7.3bpm and +4.5bpm above what HR was predicted to be based on stress VO2. A significant main effect of task, $F(1,114)=31.7$, $p<.001$, $\eta_p^2=.22$, revealed that significantly less uncoupling occurred in response to the second stress task. A significant interaction also emerged, $F(9,1026)=6.10$, $p<.001$, $\eta_p^2=.05$. While there was significantly less uncoupling at each time point during the second task, compared to the first task, how uncoupling changed within each exposure differed. In the first task, there appeared to be slight habituation followed by an increase in uncoupling, while in the second task uncoupling significantly increased across the task. While habituation of cardiometabolic uncoupling appeared to occur across exposure, no habituation appeared to occur within each stress exposure.

Abstract 1279

ETHICAL AND PSYCHOLOGICAL CHALLENGES WITH SMARTWATCH-BASED CARDIAC MONITORING: A SYSTEMATIC REVIEW

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Background: Out-of-hospital cardiac arrest (OHCA) is a major health problem, with a yearly incidence of approximately 40 to 100 individuals per 100,000 in the population. Since early witnesses are essential for the chances of survival, technological solutions (e.g. smartwatches) to detect and alert emergency responders are gaining momentum. Several consortia are currently developing these functionalities, but psychological and ethical challenges are often overlooked. This review aims to identify these challenges, in order to embed their solutions in the design of the smartwatch technology.
Methods: A systematic review was conducted using a search string consisting of terms related to ethics, health and wearables on PubMed, Web of Science and CINAHL resulted in a total of 4,369 articles until November 2022. 30 articles matched the selection criteria after screening. These articles were analysed on relevant ethical and psychological challenges with wearable health technology in general and specified to smartwatch-based cardiac monitoring.
Results: The following major themes were extracted: patient wellbeing, improving the healthcare system, privacy, informed consent and equity. In addition to an exploration of these challenges, the study provides an overview of design recommendations for the implementation of wearable technology in resuscitation care.
Conclusions: The use of smartwatch technology can be beneficial for increasing the chances of survival after OHCA, but various psychological and ethical considerations need to be addressed in designing an acceptable solution to implement in society. Recommendations are given to aid in the development of future wearable healthcare applications

Abstract 1229

TOWARDS A NOVEL CONTACTLESS HEALTH BIOMARKER: INVESTIGATING THE RELATIONSHIP BETWEEN HEART RATE VARIABILITY AND FACIAL TEMPERATURE

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Heart Rate Variability (HRV) - the variation in time intervals between consecutive heartbeats- is considered a valuable health-related index. It offers insights into the intricate dynamics of the autonomic nervous system, particularly the sympathetic (SNS) and parasympathetic (PNS) branches, illustrating the heart's adaptability to varying circumstances. Traditional HRV monitoring involves sensors attached to the skin, causing discomfort and inconvenience for patients. Among the non-contact tools for physiological measurements, facial infrared thermal imaging stands out as highly promising. It has the potential to gauge variations in both the SNS and PNS. Previous evidence suggests a positive correlation between nose-tip temperature and PNS activity, and between periorbital temperature and SNS activity. Here, we explored whether these physiological relations hold true during participants' resting state.
For this purpose, we recorded nose-tip and periorbital temperatures using an infrared camera during a 15-minute resting state, alongside electrocardiographic signals.
For both temperature and ECG signals, we calculated both time-varying and average indices. In the former case, we utilized 5-minute 10s-sliding-windows to compute the average periorbital and nose-tip temperatures and the parasympathetic (HRV-PNS) and sympathetic (HRV-SNS) values exported by Kubios. In the latter case, we determined the mean temperature change for the periorbital and nose-tip areas and the overall RMSSD, an HRV index associated with the PNS. We observed an initial increase and subsequent steady decrease in periorbital temperature, while the opposite trend was noted for the nose-tip. As anticipated, the HRV SNS exhibited a positive correlation with periorbital temperature (r = 0.87) and a negative correlation with nose-tip temperature (r = -0.36). Conversely, HRV PNS displayed a negative correlation with periorbital temperature (-0.84). The analyses on mean temperature change demonstrated a negative correlation between the overall RMSSD and periorbital mean change (r = -0.49).
Our findings strongly support the association between facial temperature and HRV. By leveraging facial temperature as a potential biomarker linked to health, we unlock possibilities for non-intrusive and continuous monitoring of SNS, which could have potential applications in numerous clinical settings.

Abstract 1281

EXTRACELLULAR FREE WATER CONTENT IN WHITE MATTER IS SIGNIFICANTLY CORRELATED WITH INTERINDIVIDUAL DIFFERENCES IN PERIPHERAL INFLAMMATION

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Aging is associated with low-grade inflammation which has been implicated as a mechanism of age-related disease. Extracellular free water, an MRI metric, has been utilized as a marker of neurodegeneration and, at other times, neuroinflammation. Because of the reactivating cycle between neuronal degeneration and neuroinflammation, it is difficult to discern what extracellular free water is measuring. Peripheral cytokines, TNFα and IL-6, are elevated in the periphery and the brain during an inflammatory response, although the association with extracellular free water is unclear. By investigating a cohort of healthy older adults, this study aims to characterize the role of extracellular free water before disease-related neurodegeneration. Participants were from an ongoing longitudinal aging study at the University of Kentucky. A subgroup of 79 healthy older adults (M_{age}=72.7 years, 69% female, 97% white, 77% college-educated) underwent a 3T MRI of their brain in addition to receiving blood draws twice a year for up to 13 years. Peripheral proinflammatory cytokines, TNFα and IL-6, were assayed from blood serum. Multilevel growth models with random intercepts and slopes were used to measure between-person variability using all available blood draws pre- and post-scan. Time was centered such that the intercept represents concurrent peripheral inflammation at the time of MRI scan and slope represents change in peripheral inflammation. TNFα intercepts and slopes were significantly negatively correlated (r=-.223, p=.048), likewise for IL-6 intercepts and slopes (r=-.931, p<.001). TNFα and IL-6 intercepts were significantly positively correlated (r=.268, p=.017), conversely IL-6 and TNFα slopes were significantly negatively correlated (r=-.311, p=.005). In this sample, extracellular free water content in the white matter of healthy older adults was significantly positively correlated with TNFα slopes (r=.255, p=.023) and significantly negatively correlated with IL-6 slopes (r=-.448, p<.001). Extracellular free water content was also significantly positively correlated with IL-6 levels at the time of MRI (r=.527, p<.001). These results indicate a strong relationship between extracellular free water and peripheral cytokines, TNFα and IL-6, and may indicate a nonlinear relationship between extracellular free water content in white matter and IL-6 with increasing age.

24 Treating & Addressing Psychological Distress
Saturday 3/23/24

Abstract 1288

EFFECT OF MODERNIZED COLLABORATIVE CARE FOR DEPRESSION ON INDIVIDUAL DEPRESSIVE SYMPTOMS: DATA FROM THE EIMPACT TRIAL

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Depression is comprised of cognitive, affective, and somatic symptoms. Studies on depression intervention effects primarily focus on total depression scores rather than individual symptom scores. Thus, the impact of depression interventions on individual symptoms is less clear. This is crucial in behavioral medicine, as studies suggest patients with remitted depression may experience residual symptoms that are associated with an increased risk of cardiometabolic diseases. Given this knowledge gap, we examined data from the eIMPACT trial (NCT02458690, R01HL122245) to assess depression intervention effects on individual depressive symptoms in primary care patients with depression from a safety net healthcare system (N=216; Mage=59 years, 78% women, 50% Black, 46% with income <$10,000/year). Participants were randomized to 12 months of the eIMPACT intervention (modernized collaborative care involving internet cognitive-behavioral therapy [CBT], telephonic CBT, and/or select antidepressants) or usual primary care for depression (primary care providers supported by embedded behavioral health clinicians and psychiatrists). Depressive symptoms were assessed by the Hopkins Symptom Checklist-20 (SCL-20) and the Patient Health Questionnaire-9 (PHQ-9). We ran two path-analytic regression models (one for the SCL-20 and one for the PHQ-9), employing full information maximum likelihood (FIML) to handle missing data, with treatment group as a predictor of 12-month changes in each questionnaire item. Baseline education, income, and systolic blood pressure were included as covariates given treatment group imbalance on these factors. Effects favoring the eIMPACT intervention over usual primary care were observed for all SCL-20 items, except sexual symptoms (p=0.89), suicidality (p=0.58), poor appetite (p=0.37), loneliness (p=0.62), and overeating (p=0.15). Effects favoring the eIMPACT intervention were also found for all PHQ-9 items, except psychomotor changes (p=0.07) and suicidality (p=0.09). Our findings suggest modernized collaborative care for depression is effective at alleviating most individual symptoms of depression. However, adjunctive interventions may be needed for remittance of sexual symptoms, loneliness, suicidality, poor appetite, and overeating. Notably, loneliness and overeating in depression have been linked with increased cardiometabolic disease risk.

Abstract 1266

THE ROLE OF SKIN-MEDIATED SIGNALS IN BODY AWARENESS: FROM THE LAB TO THE CLINIC

Laura Crucianelli, PhD, Department of Biological & Experimental Psychology, Queen Mary University of London, United Kingdom

In this talk, I will discuss some of the anatomical, physiological, and experimental arguments supporting the scientific study of interoception by means of skin-mediated signals (e.g., affective touch, temperature, pain). The skin, given its very nature, is a sensory organ extensively and directly exposed not only to the inside the body, but also to the external environment. As such, the skin provides both interoceptive and exteroceptive sensory information. Carefully designed and controlled experiments can allow us to manipulate only one component (i.e., the interoceptive one of interest), while keeping the other constant or absent (i.e., the exteroceptive ones). Our findings might pave the way to novel understanding of neurological disorders of body awareness associated to temperature dysregulation, such as body disownership following right hemisphere stroke as well as psychiatric disorders related to body image (e.g., anorexia nervosa), by providing further understanding of how we represent our body in a coherent and unitary manner by integrating different sensory signals. Implications for mental health conditions will also be discussed. Taken together, I will argue that the analysis of skin-based interoceptive signals can provide a complementary and deeper understanding of the relationship between mind, brain, and body.

Abstract 1032

RELATIONS BETWEEN SUBJECTIVE STRESS

MEASUREMENTS AND CORE SYMPTOMATOLOGY IN CHRONIC FATIGUE SYNDROME PATIENTS VERSUS HEALTHY CONTROLS

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Introduction Chronic fatigue syndrome (CFS) is a biopsychosocial disorder, with physical and cognitive fatigue and increased fatigability as core symptoms. The goals of this study were 1) to evaluate differences in symptom perception (physical and mental fatigue and fatigability) and stress reactivity between CFS patients and healthy controls (HC), and 2) to test the relationship between stress reactivity and symptom perception/severity.

Methods Patients with CFS (n=31) and HC (n=24) performed the Maastricht Acute Stress Test (MAST - stress), the Paced Auditory Serial Attention Task (PASAT - mental fatigue), and an arm-leg cycling task (physical fatigue). Before, during and after the three tasks, participants rated subjective stress, intensity of mental fatigue and intensity of physical fatigue, respectively. In addition, data of the Checklist Individual Strength (CIS-20), a questionnaire measuring various aspects of fatigue retrospectively over the past, was collected.

Results Patients experienced more stress (main effect of group, p=0.0008), higher mental fatigability (group*time interaction effect, p=0.0368), higher physical fatigability (group*time interaction effect, p<0.0001), and a higher score on the CIS-20 questionnaire (p<0.0001) compared to HC. Additionally, patients' fatigue recovered more slowly up to 24 hours after performing the cycling task (p<0.0001) and the PASAT (p=0.0077) compared to HC. Finally, the link between stress reactivity and fatigability was evaluated using mixed model analyses with AUCi, representing increase in stress scores during the MAST, as independent variable. Participants with a higher stress response experienced higher mental (p=0.0183) and physical fatigue (p=0.0312) during and after the PASAT and cycling task, respectively, and higher clinical daily life fatigue scores on the CIS-20 questionnaire (p=0.0029).

Conclusion In accordance with core CFS symptomatology, CFS patients experience more physical and mental fatigability and they recover more slowly from physical and mental efforts than HC. Additionally, CFS patients experience higher stress levels compared to controls during a validated stress task. Our results show that subjects who experience more stress, are also prone to experience more core CFS symptoms.
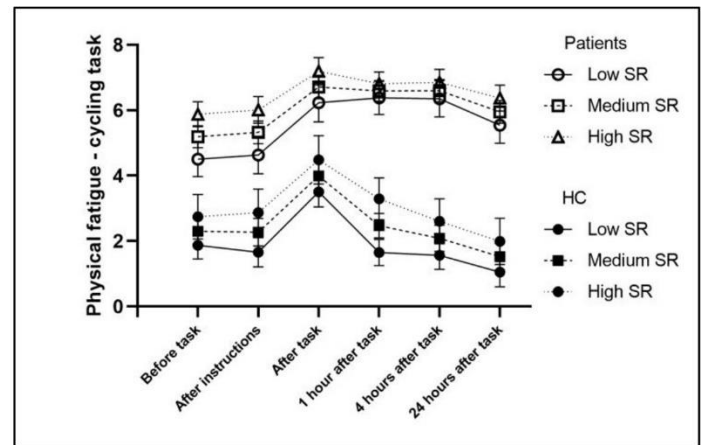
Figure 1a. Time*group interaction effect and main effect of AUCi stress during the cycling task. SR = stress reactivity, HC = healthy controls
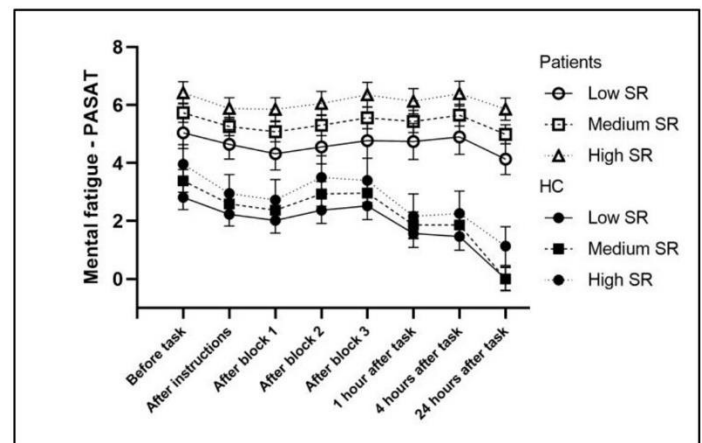

Figure 1b. Time*group interaction effect and main effect of AUCi stress during the PASAT. SR = stress reactivity, HC = healthy controls

24 Treating & Addressing Psychological Distress
Saturday 3/23/24

Abstract 1450

OPTIMIZING A SELF-DIRECTED MOBILE MINDFULNESS INTERVENTION FOR IMPROVING CRITICAL ILLNESS SURVIVORS' PSYCHOLOGICAL DISTRESS: THE LIFT 2 FACTORIAL TRIAL

Jeffrey Greeson, PhD, Rowan University, Christopher Cox, MD, MPH, Duke University, John Gallis, ScM, Duke University, Maren Olsen, PhD, Duke University, Laura Porter, PhD, Duke University, Tina Gremore, PhD, Duke University, Marc Moss, MD, University of Colorado School of Medicine, Catherine Hough, MD, MSH, Oregon Health & Science University

Objective: Persistent psychological distress is common among patients who survive a critical illness, yet few therapies are easily accessible resulting in mental health inequities. Therefore, we aimed to optimize the feasibility and effectiveness of the Lift mobile mindfulness application as a function of three key intervention components: (1) method of introduction (through the mobile app vs. a therapist call), (2) dose (standard vs. high dose of meditation), and (3) symptom management (responding to elevated distress symptoms via the mobile app vs. therapist call). **Methods:** This 2x2x2

factorial clinical trial was conducted at 3 US sites (Duke University, Oregon Health & Science University, and University of Colorado) between 2019-2023. A total of 247 survivors of critical illness with elevated symptoms of depression post-discharge were randomized. All participants (mean age, 50 yrs [SD=15], 42% female, 72% white, 14% black, and 10% Hispanic) received a self-directed, 4-wk, mobile app intervention consisting of daily audio, video, and text content. The primary outcome was depression symptoms (PHQ-9) at 1 month. Secondary outcomes included anxiety, PTSD symptoms, physical symptoms, and trait mindfulness at 1 and 3 months, plus measures of adherence and feasibility. We used GLM to compare outcomes across the intervention component main effects and interactions. **Results:** 75% of participants were retained at both 1 and 3 months. High dose was associated with significantly lower mean PHQ-9 score at 1 month (-1.2, 95% CI: -2.4, -0.04) and 3 months (-1.5, 95% CI: -2.8, -0.1). The other two intervention components had no main effects on the PHQ-9, and there were no substantive interaction effects. Secondary outcomes showed a similar pattern. On average, participants viewed 71% of expected app content (SD=65%). Nearly 90% of participants were actively using the intervention at its conclusion, and adherence was similar across groups. **Conclusions:** Among survivors of critical illness with elevated symptoms of psychological distress, the optimized version of a mobile mindfulness app intervention appeared to include a high dose of mindfulness training, an introduction via the mobile app, and an app-based method of responding to changes in distress over time. A multicenter clinical trial is needed to definitively determine the efficacy of the optimized intervention.

25 Adversity & Health
Saturday 3/23/24

Abstract 1160

ASSOCIATIONS BETWEEN DISCRIMINATION AND MARKERS OF SYSTEMIC INFLAMMATION: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Discrimination, or unfair treatment of individuals based on their social group membership, is a major public health concern. Accumulating evidence shows a link between discrimination and impaired psychological and physical health. Understanding the physiological mechanisms through which discrimination impacts health is thus critical for understanding the development of health inequities. Systemic inflammation likely serves as a physiological pathway linking discrimination and health given that (1) it is well established that stress leads to increases in inflammation, and (2) increased inflammation is implicated in a variety of chronic diseases and mental health conditions. However, estimations of the association between discrimination and inflammation vary widely across studies, and it is unclear if the magnitude of the association varies as a function of various methodological factors and sample characteristics. To address this gap, we conducted a meta-analysis of the association between discrimination and systemic inflammation in which raters identified 27 articles and 112 effects. A multilevel random effects meta-analysis with robust variance estimation revealed a significant overall association z=0.053 (95% CI [0.026, 0.081]), such that higher discrimination was associated with higher levels of inflammation in blood samples. In subgroup analyses, we found a positive association in studies that measured

racial/ethnic discrimination specifically (z=0.042, p=.049), as well as those that measured general discrimination (i.e., those not measuring discrimination on the basis of any specific characteristic; z=0.050, p=.022). Further subgroup analyses were conducted with CRP specifically given that it was the most commonly-measured inflammatory marker. Discrimination was significantly and positively associated with CRP (z=0.050, p=.001), for both racial/ethnic (z=0.025, p=.070) and general discrimination (z=0.057, p=.029). More analyses will be discussed. Overall, our results suggest that there is a significant association between discrimination and systemic inflammation in the literature, though the magnitude of the association differs as a function of key methodological choices. This review emphasizes the need for theoretical and methodological precision to advance our understanding of the mechanistic pathways by which discrimination gets under the skin.

Abstract 961

THE ASSOCIATION OF STRESS, LIFESTYLE AND ENVIRONMENTAL EXPOSURES WITH APPETITE HORMONE LEVELS IN CHILDREN AND ADOLESCENTS

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Background: Appetite hormones are a promising target in fighting obesity. Further insights in the influence of stress, lifestyle, and environmental exposures on appetite hormones are needed to optimize psychological and behavioural interventions. In this study, we investigated the associations of fasting appetite hormone levels with stress, diet, physical activity, sleep, and environmental exposures in youngsters.
Methods: A total of 534 fasting blood samples were collected from children and adolescents (4-16y, 50% boys) and appetite hormone levels (Glucagon-like peptide-1 (GLP-1), Peptide YY (PYY), pancreatic polypeptide (PP), leptin and ghrelin) were measured. Exposures included dietary quality (fiber-rich food intake and sugar and fat propensity), psychosocial stress (happiness, negative emotions, negative life events and emotional problems), sleep duration, physical activity and environmental quality (long term black carbon (BC), particulate matter <2.5 μM ($PM_{2.5}$) and nitrogen dioxide (NO_2) exposure, and residential green space). Associations were tested using linear mixed regression models adjusting for sex, age, parental education and waist-to-height ratio.
Findings: Negative associations were found for air pollution and GLP-1 (NO_2 β=-0.13, BC β=-0.15, $PM_{2.5}$ β=-0.16, all p<0.001), residential green space and leptin (β=-0.11; p<0.001) and (active and total) ghrelin and negative emotions (active ghrelin β=-0.16; p=0.04, total ghrelin β=-0.17; p=0.013). Positive associations were observed for GLP-1 and residential green space (β=-0.07; p=0.04) and (active and total) ghrelin and happiness (active ghrelin β=0.25; p<0.001, total ghrelin β=0.26; p<0.01). A totality of unhealthy exposures was associated with total ghrelin levels (β=-0.22; p=0.04).
Interpretation: We found associations for air pollution, green space and emotional well-being with appetite hormones. This fits within our recent hypothesis that nature exposure could influence eating behaviour by reducing stress and changing appetite physiology. We are now testing inflammation and gut microbiota differences by nature exposure as explanation for stress and appetite changes. We plan lab-studies, real-life food choice experiments, larger cohorts, and two canteen interventions to examine psychological, cognitive and physiological changes in eating behaviour by nature integration indoors.

Abstract 1119

ACCELERATED CELLULAR AGING AS A PATH TO GREATER MORTALITY RISK IN THOSE WITH GREATER LIFE COURSE SOCIOECONOMIC DISADVANTAGE

Tara Gruenewald, PhD, MPH, Chapman University, Naomi Podber, PhD, Chapman University

A large body of research has established that a greater experience of socioeconomic status (SES) disadvantage across the life course is a risk factor for disease morbidity and disease-specific and all-cause mortality. It has been hypothesized that such life course disadvantage can accelerate the aging, or the "weathering," of our body's cells, and enhance subsequent risk of poor health outcomes. In the current study, we examine whether a DNA methylation indicator of cellular aging is linked to levels of life course SES and whether this biological aging indicator might mediate the hypothesized greater risk of mortality in those with lower levels of life course SES. Analyses utilize newly-available DunedinPACE scores, which are a DNA methylation profile of the pace of aging, available in a subsample (N=1,310, age 26–86, 55.4% female, 69.0% white) of the national, longitudinal Midlife in the U.S. (MIDUS) Study. A life course SES score (possible score 0-16) was constructed as a composite of childhood (parents' education, welfare status, subjective financial) and adult (education level, income, subjective financial) indicators. DunedinPACE scores were computed as described in Belsky et al. (2022) from samples taken during MIDUS Biomarker Substudy exams (2004-2009 and 2012-2016). All-cause mortality occurrence (7.8%, n = 102) through 2021 was assessed using data from the National Death Index, next of kin reports, and routine cohort maintenance. All analytic models accounted for family clustering and included age, race, gender, and chronic disease burden covariates. In a Weibull proportional hazards model, greater life course SES was associated with a decreased hazard of mortality (HR = 0.77, p = .019). In a mediation model that included a linear regression and a Weibull proportional hazards regression, greater SES was associated with a lower DunedinPACE score (b = -0.24, p < .001), a higher DunedinPACE score was associated with a greater log hazard of mortality (b = 0.58 p < .001), and a bootstrap test (1,000 replications) showed that the DunedinPACE score mediated the association between SES and mortality hazard (Indirect effect=-0.14, p<.001; Total effect=-0.28, p=.017). These findings highlight accelerated cellular aging as a pathway to the greater risk of mortality in those who experience a greater level of SES disadvantage across the life course.

Late Breaking 1: Negative Life Experiences & Health
Thursday 3/21/24

Abstract 1418

DISCRIMINATION AS A MODERATOR FOR THE RELATIONSHIP BETWEEN PHYSICAL ACTIVITY AND MONOCYTE SUBSETS: DATA FROM THE STEP IT UP PHYSICAL ACTIVITY INTERVENTION

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Background: Physical activity (PA) reduces cardiovascular disease (CVD) risk. Chronic psychosocial stressors contribute to increased CVD risk and monocyte subsets (classical, intermediate, and non-classical), along with their platelet aggregates, play an important role in CVD pathogenesis. The relationship between PA, monocytes, and psychosocial stressors remains understudied. We examined the moderating role of discrimination, loneliness, and depression in the relationship between PA and monocytes in African American (AA) women at risk for CVD living in disadvantaged Washington, D.C. neighborhoods.

Methods: Participants were enrolled in Step It Up, a digital health PA intervention designed with community engagement. Baseline PA was measured as daily step counts using a FitBit Charge 2. Flow cytometry of fasting blood samples provided measures of monocyte subsets and platelet aggregates (PlAgg). Relationships between PA and monocytes were determined through multivariable linear regression, adjusting for BMI, ASCVD 10-year risk score, and household socioeconomic status (SES). Everyday discrimination (Williams scale), loneliness (UCLA scale), and depression (CESD scale) were examined as moderators of associations between PA and monocytes.

Results: The study cohort comprised of 106 AA women enrolled in Step It Up (mean age=55.7±12.8 y, BMI=36.5±6.9 kg/m2, ASCVD=8.7±7.6). Higher PA was associated with each monocyte subset, but not overall monocyte presence. Baseline PA was negatively associated with PlAgg, but the relationship was attenuated when adjusted for SES. Discrimination moderated the relationship between PA and monocytes (p-interaction for PA and discrimination =0.03), with significant associations among those experiencing less (Table). Loneliness and depression were not found to be moderators (p-interaction >0.05 for both).

Conclusion: Higher baseline PA was associated with shifts in monocyte subsets and PlAgg in AA women living in underserved communities. Notably, discrimination levels moderate the relationship between PA and monocyte subsets, suggesting that PA may not be associated with monocyte shifts in those experiencing higher levels of discrimination. Future work should further investigate the role of discrimination in monocyte distribution and examine how other chronic psychosocial stressors may impact PA and immune cell changes.

Table: Associations between Physical Activity, Monocytes, and Monocyte-Platelet Aggregates (PlAgg) for Overall Population and Stratified by Discrimination Level: Baseline Data from the Step It Up Physical Activity Intervention

	Model 1: Unadjusted (n=105)	Model 2: Adjusted for BMI and ASCVD (n=102)	Model 3: Adjusted for BMI, ASCVD, and SES (n=91)	Model 3: Low Discrimination Score (n= 52)	Model 3: High Discrimination Score (n= 38)
All Monocytes	0.42 (0.67)	0.046 (0.66)	0.050 (0.66)	0.19 (0.23)	-0.052 (0.77)
Classical monocytes	**-0.40 (p<0.001)****	**-0.40 (p<0.001)****	**-0.39 (p<0.001)****	**-0.57 (p<0.001)****	-0.15 (0.32)
Intermediate monocytes	**0.33 (0.001)****	**0.32 (0.002)***	**0.27 (0.02)***	**0.56 (p<0.001)****	0.080 (0.63)
Non-classical monocytes	**0.35 (p<0.001)****	**0.34 (0.001)****	**0.38 (0.001)****	**0.49 (0.001)****	0.18 (0.23)
PlAgg - All monocytes	**-0.23 (0.02)***	**-0.23 (0.03)***	-0.21 (0.06)	-0.16 (0.31)	-0.30 (0.06)
PlAgg - Classical monocytes	**-0.21 (0.03)***	**-0.21 (0.049)***	-0.19 (0.11)	-0.11 (0.48)	-0.29 (0.06)
PlAgg - Intermediate monocytes	**-0.25 (0.01)***	**-0.24 (0.02)***	-0.20 (0.084)	-0.17 (0.29)	-0.25 (0.11)
PlAgg - Non-classical monocytes	0.15 (0.12)	0.18 (0.09)	**0.24 (0.04)***	**0.43 (0.007)***	-0.047 (0.79)

All data are shown as standardized beta value followed by the p-value in parenthesis. Significance is indicated with asterisk (*) and highlighted in bold font.
BMI = Body Mass Index
ASCVD = Atherosclerotic cardiovascular disease 10-year risk score
SES = Household socioeconomic status
Discrimination = Everyday Discrimination Scale

Abstract 1367

STATE RUMINATION LINKS STRESSFUL LIFE EVENTS TO CORTISOL RESPONSE DURING AN ACUTE STRESSOR

Jacqueline Rodriguez-Stanley, MA, Wayne State University, Katherine Knauft, PhD, Wayne State University , Samuele Zilioli, PhD, Wayne State University

Objective. Stressful life events negatively impact health-related physiology including general hypothalamic-pituitary-adrenal (HPA) axis function, however, the mechanisms behind this relationship are unclear. It is likely that these stressful life events also alter responses to acute stressors. In line with the Perseverative Cognition Hypothesis, rumination– defined as negative, intrusive thoughts of past events– links stress to dysregulated physiological systems. This study hypothesized that state rumination about an acute stressor would mediate the link between more frequent life stressors and heightened cortisol peak, steeper reactivity, and delayed recovery slope to an acute stressor. **Methods.** Data collected between 2007 and 2011 originated from the Pittsburgh Cold Study 3 (PCS3; N = 213, M_{age} = 30.1 yrs., SD = 10.9 yrs., range 18 – 55 yrs., 42% female). In PCS3, participants reported the frequency of major life events experienced in the last year and underwent the Trier Social Stress Test (TSST). Throughout the TSST, seven saliva samples were collected, and rumination regarding TSST performance was completed following the recovery period. Cortisol was modeled using a two-piece multilevel growth curve model with landmark registration to capture participants' unique cortisol peak time and their reactivity and recovery slopes. All models included age, race, gender, education, trait depressive affect, childhood stress, and oral contraceptive use as covariates. **Results.** More frequent stressful life events were positively associated with TSST rumination but unrelated to the cortisol parameters. Greater rumination significantly predicted a heightened peak, a steeper reactivity slope, and a steeper recovery slope. Mediation analyses revealed that ruminating more about the TSST linked more frequent life stressors to heightened peak, steeper reactivity, and steeper recovery. Mediation effects remained significant when the stressful life events were separated into interpersonal and non-interpersonal stressful events. **Conclusion.** Results suggest that state rumination is one pathway through which stressful life events are associated with changes in HPA axis activity to an acute stressor. This study expands upon the downstream implications of stressful life events and provides evidence towards the Perseverative Cognition Hypothesis.

Abstract 1370

NATURAL KILLER CELL FUNCTION IS IMPAIRED AMONG AFRICAN AMERICAN WOMEN EXPERIENCING DISCRIMINATION RESIDING IN THE SOCIOECONOMICALLY UNDER-RESOURCED NEIGHBORHOOD: DATA FROM A PILOT STUDY OF THE STEP IT UP PHYSICAL ACTIVITY INTERVENTION

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Introduction: African American (AA) women residing in socioeconomically under-resourced neighborhoods are faced with chronic psychosocial and environmental stressors (cPSES). They also have a greater risk for chronic disease (i.e. cardiovascular disease-CVD). cPSES have been reported to impact Natural Killer (NK) cell distribution. Little is known about relationships between cPSES and NK cell function. **Methods**: We recruited AA women from under-resourced Washington, D.C., U.S. neighborhoods and evaluated NK cell profiles at the time of visit (baseline) and after 3 years, from cryopreserved PBMCs (8ml of blood, ~$10x10^6$ PBMCs). NK cell function was ascertained by flow cytometry as degranulation (CD107a surface expression) and cytokine presence (Granzyme B & Perforin) after exposure to a target cancer cell line (K562). cPSES were measured: neighborhood socioeconomic deprivation (NSD) from U.S. census data, discrimination, chronic stress, depression, and loneliness. We used multivariable regression analysis to examine associations between cPSES and NK cell function, adjusting for BMI and ASCVD. **Results**: 24 participants were recruited (AA women [mean age 57; 34kg /m2; ASCVD 10-year risk score 8.6]). We observed that the frequency of NK cells at baseline and post-cryopreservation correlated significantly (b=0.54, p=0.03). Granzyme B, a product of degranulation and a prominent NK cell cytokine, also correlated significantly with CD56dim/CD16+ NK cell frequencies (b=0.59, p=0.008) from cryopreserved PBMCs, suggesting survival and fitness of NK cells with killing capacity (CD56dim/CD16+). We observed that increased experiences of discrimination among AA women strongly associated with diminished degranulation potential (b= -0.58, p=0.01). Yet, no associations were found between NSD, depression, or chronic stress under baseline conditions (Table). **Conclusion**: The present study highlights that

experiences of discrimination among the AA communities residing in under-resourced environments are associated with lower NK cell function, which has further bearing on the development of CVD. Additionally, we also report an assay to determine NK cell function from cryopreserved PBMCs. Larger studies are needed to further assess the impact of various chronic psychosocial and environmental stressors on NK cell distribution and function to better understand the biology of adversity.

Table: Association Between Chronic Psychosocial and Environmental Stressors with CD107a Expression as a Measure of Natural Killer Cell Function: Data from Degranulation Assay from Cryopreserved Natural Killer Cells

cPSES stressors	CD107a
NSD	-0.07 (0.74)
Discrimination	**-0.58 (0.01)***
Perceived Stress	-0.09 (0.67)
Overall Depressive Symptoms	-0.17 (0.50)
Perceived Loneliness	0.18 (0.47)

Categorical variables expressed as number of participants followed by the percent of the total (%). Continuous variables expressed as mean ± standard deviation (SD). All data were adjusted for BMI and ASCVD 10-year-risk score.
NSD = Neighborhood socioeconomic deprivation index derived from U.S. Census data (higher score indicates more socioeconomically deprived neighborhoods)
Perceived Stress = Cohen Perceived Stress Scale
Overall Depressive Symptoms = Center for Epidemiologic Studies Depression Scale Revised
Measuring Discrimination = Everyday Discrimination Scale
Perceived Loneliness = UCLA Loneliness Scale

Late Breaking 2: Biopsychosocial Factors & Health
Friday 3/22/24

Abstract 1455

ALLOSTATIC LOAD, CORONARY HEART DISEASE AND DEMENTIA: EVIDENCE FROM A NATIONALLY REPRESENTATIVE SAMPLE

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Background Allostatic load (AL) is the cumulative burden of chronic stress and life events. It involves the interaction of different physiological systems at varying degrees of wear and tear. This work aims to evaluate the associations between allostatic load (AL), with subsequent coronary heart disease (CHD) and dementia during a 12-year follow-up in participants from the English Longitudinal Study of Ageing.
Methods Participants (N= 4,335) were aged ≥50 years at baseline. The AL index included five biomarker risk groups covering neuroendocrine (Insulin growth factor 1), cardiovascular (systolic and diastolic blood pressure, resting pulse rate, medication), metabolic (total cholesterol-to-HDL ratio, HbA1c, triglycerides), immune (C-reactive protein, fibrinogen) and anthropometric systems (waist-to-height ratio, obese) as measured at baseline. Except for obesity, the highest gender-specific quartile of the distribution for each biomarker was scored with 1, while the remaining groups with 0. The sum ranged from 0 to 12, with higher scores signifying higher AL, and was grouped into 3 categories: 0 (reference group), 1–3 and 4+. CHD events were defined as myocardial infarction and angina. Dementia was determined by the doctor's diagnosis combined with a positive score on the Informant Questionnaire on Cognitive Decline in the Elderly. Poisson regressions were used to model CHD and dementia disease rates according to postulated aetiologic mechanisms of AL exposures while controlling for covariates such as age, sex, socioeconomic status and health behaviours.
Results After adjustment for various covariates, we found that those with a higher AL index of 4+ had a 56% increased risk of CHD (Incidence Rate Ratio (IRR) 1.56 (95% Confidence Intervals (CI) 1.08–2.24), with a significant trend p=0.01), whereas the results for dementia were inconclusive (IRR=1.16 (95% CI) 0.68–1.97)).

Conclusion Our results showed that a high physiological burden was related to subsequent CHD, supporting the hypothesis that a cumulative index of 'biological dysregulation' could act as an early determinant of CHD. However, although higher levels of cortisol and increased risk for dementia, this multisystem etiological model of allostasis was not predictive of dementia in this particular study.

Abstract 1349

INVESTIGATING PROTECTIVE PATHWAYS: DO POSITIVE EXPERIENCES BUFFER GENETIC RISK FOR DEPRESSION?

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Prior studies indicate that higher positive events and emotions are linked with reduced depressive symptoms. However, little research has examined whether such positive factors can mitigate genetic susceptibility underlying depression. Using the Midlife in the United States Survey, we examined whether positive events and positive events affect influence the relationship between genetic risk for depression and depressive symptoms. Participants completed surveys on positive events, positive affect (PA), and depressive symptoms. They also provided genetic samples to ascertain polygenic risk scores for depression. Both positive events and positive affect were associated with less depression. Positive affect interacted with genetic risk for depression and was linked to less depression. Finally, when examining positive events and PA simultaneously among 1,222 participants, only positive events interacted with genetic risk (p<.05). Collectively, findings demonstrate differential effects for positive events (extrinsic) versus positive emotions (intrinsic) in buffering genetic susceptibility to depression. Results advance gene-by-environment research by unveiling protective pathways that may inform intervention targets to mitigate genetically conferred depression risk.

Special Paper Session: Stress, Sleep, and Health: Highlights from the Special Issue Honoring Martica Hall
Saturday 3/20/24

Abstract 1457

BEHAVIORAL-SOCIAL RHYTHMS AND CARDIOVASCULAR DISEASE RISK IN RETIRED NIGHT SHIFT WORKERS AND RETIRED DAY WORKERS

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Objective: Stability in the timing of key daily routine behaviors such as working/doing housework, sleeping, eating, and engaging in social interactions (i.e., behavioral–social rhythms) contributes to health. This study examined whether behavioral–social rhythms are associated with CVD risk factors in retired night shift workers and retired day workers and explored whether past night shift work exposure moderates the associations of behavioral–social rhythms and CVD risk factors.

Methods: 154 retired older adults participated in this study. Multiple logistic regression models were used to examine associations between behavioral–social rhythms and CVD risk factors. Independent variables included Social Rhythm Metric (SRM)-5 score and actigraphy rest-activity rhythm intra-daily variability (IV) and inter-daily stability (IS). Dependent variables were metabolic syndrome prevalence and its five individual components.

Results: More regular behavioral-social rhythms were associated with lower odds of prevalent metabolic syndrome (SRM: OR=0.57, 95%CI [0.35, 0.88]; IV: OR=4.00, 95%CI [1.86, 8.58]; IS: OR=0.42, 95%CI [0.24, 0.73]) and two of its individual components, body mass index (SRM: OR=0.56, 95%CI [0.37, 0.85]; IV: OR=2.84, 95%CI [1.59, 5.07];IS: OR=0.42, 95%CI [0.26, 0.68]) and high-density lipoprotein cholesterol (SRM: OR=0.49, 95%CI [0.30, 0.80]; IV: OR=2.49, 95%CI [1.25, 4.96]; IS: OR=0.35, 95%CI [0.19, 0.66]). Past shift work history did not moderate the association between behavioral–social rhythms and metabolic syndrome.

Conclusions: Behavioral–social rhythms are related to CVD risk factors in retired adults regardless of prior night shift work exposure. Older retired workers may benefit from education and interventions aiming to increase behavioral–social rhythm regularity.

Abstract 1458

FINANCIAL HARDSHIP AND SLEEP QUALITY AMONG BLACK AMERICAN WOMEN WITH AND WITHOUT SYSTEMIC LUPUS ERYTHEMATOSUS

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Objective: To compare dimensions of financial hardship and self-reported sleep quality among Black women with vs. without Systemic Lupus Erythematosus (SLE).

Methods: Participants were 402 Black women (50% with validated diagnosis of SLE) living in Georgia between 2017 and 2020. Black women with SLE were recruited from a population-based cohort established in Atlanta, and Black women without SLE were recruited to be of comparable age and from the same geographic areas as SLE women. Financial hardship was measured using three different scales: financial adjustments, financial setbacks, and financial strain. Sleep was assessed continuously using the Pittsburgh Sleep Quality Index (PSQI) scale. Each dimension of financial hardship was analyzed separately in SLE-stratified multivariable linear regression models and adjusted by sociodemographic and health status factors.

Results: Dimensions of financial hardship were similarly distributed across the two. Sleep quality was worse in Black women with, versus without, SLE (p<.001). Among Black women with SLE, financial adjustment was positively associated with a 0.40 unit increase in poor sleep quality (95% CI: 0.12, 0.67, p=0.005). When accounting for cognitive depressive symptoms, financial setbacks and strain were somewhat attenuated for Black women with SLE. Overall, no associations between financial hardships and sleep quality were observed for the women without SLE.

Conclusions: Black women with SLE who experience financial hardships may be more at risk for poor sleep quality than Black women without SLE. Economic interventions targeting this population may help improve their overall health and quality of life.

Abstract 1456

DYADIC INVESTIGATION OF POST-TRAUMATIC STRESS SYMPTOMS AND DAILY SLEEP HEALTH IN PATIENTS WITH CANCER AND THEIR CAREGIVERS

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Objective: Cancer can be a traumatic experience affecting multidimensional aspects of sleep among patients and caregivers. This study examined the differential associations of cancer-related post-traumatic stress symptoms (PTSS) with various sleep markers in this population.

Methods: Patients newly diagnosed with colorectal cancer (n=138, mean age=56.93 years, 31.88% female, 60.14% Hispanic, 6.53 months post-diagnosis) and their sleep-partner caregivers (n=138, mean age=55.32 years, 68.12% female, 57.97% Hispanic) completed questionnaires assessing the four PTSS clusters (intrusion, avoidance, alterations in arousal and reactivity, negative alterations in cognitions and mood). Participants also completed daily sleep diaries for 14 consecutive days, from which sleep onset latency (SOL), wake after sleep onset (WASO), and sleep duration were derived.

Results: Actor-partner interdependence model revealed that caregivers' greater alterations in arousal and reactivity were associated with their own longer SOL (b=14.54, p<.001) and their patients' longer sleep duration (b=0.47, p=.040), whereas patients' arousal and reactivity were associated with their caregivers' shorter SOL (b=-8.34, p=.047) and WASO (b=-8.12, p=.019). Patients' and caregivers' greater negative alterations in cognitions and mood were associated with patients' longer SOL (b=8.89, p=.016) and shorter sleep duration (b=-0.40, p=.038), respectively. Caregivers' greater intrusion was related to their own shorter SOL (b=-10.92, p=.002).

Conclusions: The four PTSS clusters, particularly arousal and reactivity and negative cognitions and mood, have distinct associations with sleep markers individually and dyadically in patients and caregivers affected by cancer. Investigations of psychosocial and biobehavioral pathways underlying these relations are warranted. Tailored trauma treatments and sleep interventions may improve the well-being of this population.

Abstract 1459

BIDIRECTIONAL ASSOCIATIONS BETWEEN LONELINESS, EMOTIONAL SUPPORT, AND SLEEP IN DAILY LIFE

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Objective: Evidence suggests a link between positive social relationship perceptions and improved sleep (e.g., quality, efficiency) across the lifespan. Less work has probed the directionality of these relationships. Here, we report findings from the first study to examine bidirectional between- and within- person associations between loneliness and emotional support with daily life measures of sleep.

Methods: Participants were 389 healthy adults aged 40-64 (61% female) who completed hourly surveys assessing loneliness and perceptions of emotional support over the course of four days. Measures of actigraphy-assessed sleep and nightly sleep quality were also assessed over seven to ten days.

Results: Individuals with lower average daily loneliness showed higher sleep quality and efficiency than individuals with higher loneliness (r = -0.19, p < .001; r = -0.14, p = .008, respectively), and greater average emotional support was likewise linked with better sleep quality (r = 0.18, p < .001). Controlling for neuroticism attenuated the effects of average loneliness on sleep. Within-person analyses showed unexpected bidirectional effects. Specifically, days in which people felt relatively lonelier were followed by nights with greater sleep efficiency (γ = 1.08, p = .015), and nights when people reported relatively poorer sleep quality were followed by days with greater emotional support (γ =- 0.04, p = .013). These unexpected findings are probed in exploratory analyses.

Conclusions: Individuals with higher loneliness and lower emotional support report poorer sleep quality and efficiency, on average. Day-to-day fluctuations in perceptions of social relationships may impact the following night's sleep, and vice versa.