FEP. The current study aimed to examine sexual dimorphisms in structural integrity of the frontoparietal network (FPN) and its role in cognitive control in FEP.

Participants and Methods: A total of 111 FEP patients (68 male, 43 female) and 55 healthy control participants (35 male, 20 female) from the Human Connectome Project for Early Psychosis underwent T1-weighted magnetic resonance imaging and neuropsychological testing were included in the study. Regions of interest (ROIs) included: left and right superior frontal gyrus, left and right middle frontal gyrus, left inferior frontal gyrus, left and right inferior parietal gyrus, right caudate and left thalamus. Using high-dimensional brain mapping procedures, surface shape of the caudate and thalamus was characterized using Large Deformation Diffeomorphic Metric Mapping, and cortical thickness of frontal and parietal regions was estimated using the FreeSurfer toolkit. Cognitive control was assessed using the Fluid Cognition Composite score from the NIH Toolbox Cognition Battery. Multivariate ANOVA models tested group differences, separated by sex, in cortical thickness ROIs, in addition to a whole-brain vertex-wise analysis. Vertex-wise statistical surface t-maps evaluated differences in subcortical surface shape, and Pearson correlations tested relationships between brain regions and Fluid Cognition performance.

Results: Results of deep brain region comparisons between schizophrenia males (SCZM) and schizophrenia females (SCZF) groups revealed significant outward deformation at the tail of the right caudate and significant inward deformation along the dorsal aspects of the right caudate. Additionally, significant inward deformation in multiple nuclei of the left thalamus were revealed. Significant negative relationships between Fluid Cognition and the left superior/middle frontal gyrus (r = -0.24, p = 0.05) in the male FEP group were observed. Additionally, significant positive relationships between Fluid Cognition and left inferior frontal gyrus (r = 0.35, p = 0.02) and left inferior parietal gyrus (r = 0.35, p = 0.02) in the female FEP group were found.

Conclusions: Overall, findings revealed significant brain differences of the FPN in deep-brain structures only, including abnormal caudal and thalamic shape, in male FEP compared to female FEP, providing evidence of the importance to examine sex differences in deep-brain regions at the first episode. Differential brain relationships with cognitive control also highlight sex-specific presentations that may aid in clinical management and further characterization of the illness in early stages.

---

55 Sleep Quality, Tau Burden, and Memory in Older Women with Higher Alzheimer's Disease Risk

Kitty K Lui[1], Alyx L Shepherd[2], Xin Wang[2], Rachel A Bernier[2], Tasnuva Chowdhury[3], Naa-Oye Bosompra[4], Pamela DeYoung[4], Atul Malhotra[4], Erin E Sundermann[3], Sarah J Banks[2,3]
[1]San Diego State University/University of California San Diego Joint Doctoral Program in Clinical Psychology, San Diego, CA, USA.
[2]Department of Neurosciences, University of California San Diego, La Jolla, CA, USA.
[3]Department of Psychiatry, University of California San Diego, La Jolla, CA, USA.
[4]Department of Medicine, Pulmonary, Critical Care and Sleep Division, University of California San Diego, La Jolla, CA, USA

Objective: Compared to older men, Alzheimer's Disease (AD) is more common in older women, who present with higher levels of pathological tau and accelerated memory decline, although it is unclear why. Furthermore, sleep complaints increase with age, with older women reporting worse sleep quality than older men, and past studies have linked sleep disturbances to tau. Because of the life-long "verbal memory advantage" in women over men, nonverbal memory may more accurately reflect tau burden in women since sex differences are not as apparent. Here, in a sample of older women in the Women Inflammation Tau Study (WITS), we examined the associations between subjective sleep quality, tau in temporal regions, and memory, and whether tau would be more strongly related to nonverbal memory than verbal memory.

Participants and Methods: In WITS, women have elevated AD polygenic hazard scores and

have mild cognitive impairment as indicated by the telephone Montreal Cognitive Assessment (range:13-20). This preliminary sample of 20 women (aged 72.0±3.7) completed the Pittsburgh Sleep Quality Index (PSQI) to assess sleep quality in 7 domains of sleep health over the past month. A global score (range:0-21) is calculated, with a score >5 indicative of being a poor sleeper. Participants also underwent positron emission tomography (PET) with the 18F-MK6240 tracer and T1-weighted magnetic resonance imagining (MRI) to determine tau deposition. Standardized uptake value ratio (SUVR) was calculated using the inferior cerebellum grey matter as the reference region, which was created from Automated Anatomic Labeling atlas in native T1 space. The region of interest (ROI) was a composite meta-temporal region. The Rey Auditory Verbal Learning Test (RAVLT) and Logical Memory (LM) Story A and B were administered to assess verbal memory. The Brief Visuospatial Memory Test-Revised (BVMT-R) was administered to assess nonverbal memory. Analysis focused on the delayed recall scores from the memory tests. Partial correlation was used to analyze the associations between PSQI global score, tau-PET SUVR in meta-temporal ROI, and memory delayed recall scores, while adjusting for age and education years.

Results: 8 women were poor sleepers indicated by the PSQI global score (mean:4.9±2). Worse subjective sleep quality was associated with greater tau in meta-temporal ROI (r=0.63, p=0.005) and lower BVMT-R delayed recall (r=-0.46, p=0.05). Sleep quality was not significantly related to either RAVLT or LM delayed recall (all p's>0.40). Tau in meta-temporal ROI was not significantly associated with nonverbal (p=0.23) or verbal memory (all p's>0.40) delayed recall.

Conclusions: In this preliminary analysis, subjective sleep quality was linked to temporal tau deposition and nonverbal memory delayed recall, which may suggest that poor sleep exacerbates pathogenesis of tau that leads to memory difficulties in older women at increased risk for AD. Although tau was not significantly related to any memory measures, we will explore whether tau will mediate or moderate the relationship between sleep quality and nonverbal memory once we are powered to do so. Continual evaluation and treatment of sleep may be imperative in mitigating AD risk, especially for older women, however, future longitudinal studies will be necessary to investigate this.

---

56 Outcome Probability Task: Association with Safety Behaviors and Avenues for Future Imaging Research

Madeline A. Rech, Page L. Anderson
Georgia State University, Atlanta, Georgia, USA

Objective: Probability bias—overestimation of the likelihood that feared social outcomes will occur—is a mechanism targeted for symptom reduction in cognitive behavioral therapy for social anxiety. Safety behaviors (i.e., the conscious and unconscious actions taken to reduce discomfort in feared social situations) are related to cognitive biases and can be manipulated to reduce probability bias. The purpose of this research was to test the hypothesis that scores from a newly developed computer task to measure probability bias, the Outcome Probability Task (OPT; Draheim & Anderson, 2022) would be associated with self-reported safety behaviors during a speech task.

Participants and Methods: Participants (N=90) included diverse students from a university in a southern, metropolitan area. Individuals reported an average age of 20.74 (SD=3.57) and self-identified as 'Woman' (69%), 'Man' (30%), 'Transgender' (1%), or 'Non-binary/Agender' (1%), and 'African American or Black' (52%), 'Asian or Asian American' (19%), 'White' (16%), 'Multi-racial' (7%), 'Hispanic or Latine' (5%), or 'Middle Eastern' (1%). Participants viewed social images and imagined themselves in the scenarios, then rated the likelihood that they would be negatively evaluated on a 0-100% scale (higher ratings indicate greater probability bias), gave a speech, and completed a standardized self-report measure of safety behaviors to rate how often they engaged in avoidant safety behaviors during the speech.

Results: Results from a linear regression indicated that OPT scores (β=.43) were positively associated with self-reported safety behaviors during a speech task, R^2 = .19, $F(1, 88)$ = 20.02, p < .001, 95% CI [0.170, 0.443].