

significantly moderate the relationship between THC use and the other cognitive domains.

**Conclusions:** Positive symptoms moderated the relationship between cannabis use and processing speed among people with schizophrenia. The reasons for this are unclear, and require further exploration. Additional investigation is warranted to better understand the impact of THC use on other tests of neuropsychological performance and symptoms in schizophrenia.

**Categories:** Schizophrenia/Psychosis

**Keyword 1:** schizophrenia

**Keyword 2:** cannabis

**Keyword 3:** neurocognition

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### 53 Working Memory Network Load Engagement in Schizophrenia

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**Objective:** Cognitive deficits in patients diagnosed with schizophrenia are a core feature of the disorder. There are currently no treatments for these cognitive deficits. Our aim was to examine and compare patterns of increased versus decreased activity in the central executive network (CEN), salience network (SN), and default mode network (DMN) between healthy controls (HCs) and patients diagnosed with schizophrenia (SZs) as well as to explore the influence of task load on these networks between HCs and SZs.

**Participants and Methods:** Analyses focused on a secondary dataset comprising Blood Oxygen-Level Dependent (BOLD) data collected from 25 HCs and 27 SZs who completed a working memory (WM) task (N-back) with 5 load conditions while undergoing functional magnetic resonance imaging (fMRI). Region of interest (ROI) data were analyzed using linear mixed-effects models.

**Results:** Group activation differences were found in the posterior salience network (pSN), default mode network (DMN), dorsal default mode network (dDMN), and ventral default mode network (vDMN) showing greater activity

for SZs. Specifically, pSN, DMN, dDMN, and vDMN all showed increased activity in SZs compared to HCs. The curve of brain activity was consistent between HCs and SZs with the exception of the vDMN, where HCs show greater activation at modest mental workload (quadratic curve) and SZs showed greater brain activation at lower mental workload (linear). In the CEN, there were no group differences, and the response curve was the same for both groups.

**Conclusions:** These group differences demonstrate network difference between HCs and SZs and could show value in treatments targeting cognitive deficits in SZs from a large-scale brain network connectivity perspective. Future studies are needed to confirm these results with larger sample size in order to examine potential subtleties of interactions between these networks.

**Categories:** Schizophrenia/Psychosis

**Keyword 1:** working memory

**Keyword 2:** brain function

**Keyword 3:** schizophrenia

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### 54 The Influence of Sex on Cognitive Control Performance and Frontoparietal Network Integrity in First-Episode Psychosis

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**Objective:** Cognitive deficits in first-episode psychosis (FEP) are well documented, particularly aspects of cognitive control, which is one of the primary hypothesized functions of the frontoparietal network (FPN). The clinical features of psychotic disorders are known to differ between men and women, but little work has systematically studied neurobiological differences between the sexes, particularly in

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.

**Categories:** Schizophrenia/Psychosis

**Keyword 1:** neuroimaging: structural

**Keyword 2:** cognitive control

**Keyword 3:** subcortical

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

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**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