

(SCAT 3), specifically the 22-item participant symptom evaluation rated on a 7-point scale. The questionnaires were harmonized and the following symptom domains emerged: Somatic, Cognitive, and Affective. Data were analyzed using linear mixed-effects models.

**Results:** We found a small to medium sized significant effect of sex, with women reporting higher symptoms overall. Mean symptom endorsement scores were higher overall on the NSI in comparison to the RPSQ and SCAT ( $p < .001$ ). Follow-up analyses revealed sex differences were largest for cognitive symptoms, followed by somatic symptoms, then affective symptoms. We also found significant main effects of population (military>sport/civilian,  $p = .003$ ) and sex (women>males,  $p < .001$ ) on the overall composite, as well as a significant population-by-sex interaction such that female service members/veterans endorsed the highest rates of symptoms ( $p < .001$ ). Similar patterns of significance and effect sizes were observed for the somatic and affective composites. Cognitive symptom composites showed a similar pattern, but with smaller effect sizes overall. Racial and ethnic diversity was also limited in the sample.

**Conclusions:** In one of the largest samples of women to date, we found a small to medium effect of sex on symptom reporting such that women reported higher levels of postconcussive symptoms than males. Notably, however, the women in military/Veteran samples endorsed the highest levels of symptoms. Despite using a large publicly available dataset to maximize the representation of women, the current sample was still predominantly male and racial and ethnic diversity among the sample was not consistent with expected broader population demographics. Dramatically more concerted efforts need to be made to engage women in all spheres of concussion research (military, civilian, and sport). Strategies to be more inclusive in concussion research will be highlighted.

**Categories:** Concussion/Mild TBI (Adult)

**Keyword 1:** concussion/ mild traumatic brain injury

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## 5 From Advantage to Disadvantage: Women's Clinical Trajectory in Early-Stage Alzheimer's Disease

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**Objective:** There are critical and perplexing sex/gender differences in Alzheimer's disease (AD). Women show a more favorable clinical profile in preclinical AD particularly with verbal memory, but a steeper decline post mild cognitive impairment (MCI) diagnosis and, ultimately, higher rates of AD. Longitudinal studies are needed to understand sex differences across the AD trajectory. Using data from the Alzheimer's Disease Neuroimaging Initiative, we identified profiles of memory trajectories among those with evidence of preclinical AD or MCI at baseline and how these trajectories differ by sex.

**Participants and Methods:** In our sample of 659 participants (age range: 55-90, mean age=72.9 [SD=7.4], 95% non-Hispanic White; mean follow-up=41.2 [SD=32.3] months), 233 were labelled "preclinical" AD (51% women) at baseline based on a cognitively normal status but positivity for either the cerebrospinal fluid p-Tau/A $\beta$ 42, Amyloid PET or Tau PET biomarkers, and 426 participants (44% women) were MCI at baseline based on Jak/Bondi criteria. We applied latent class growth curve modeling to the heterogeneous change in the Rey Auditory Verbal Learning Test (RAVLT) Immediate and Delayed Recall within preclinical and MCI groups separately. Models in MCI group included Non-Linear Spline to account for differential change rates within subgroups. Models were compared on Bayesian Information Criterion, Entropy, and Class distribution to determine a best-fitting model. Effects of sex on trajectories were the primary outcomes. All models included APOE4 carrier status and age.

**Results:** Women outperformed men on Immediate and Delayed Recall at baseline in the preclinical and MCI groups ( $p < .05$ ). Within the preclinical group, 3-class models representing stable, decline, and accelerated decline provided optimal fit for both Immediate and Delayed Recall. Whereas, on average,

preclinical women showed more stable Immediate Recall than men (beta=6.24, SE=.82,  $p<.0001$ ), they were more likely to be in the Immediate Recall accelerated decline class (23.4% vs. 16.25%; female:male; Chi-square=36.29,  $p<.00001$ ). On average, preclinical women and men did not differ in Delayed Recall trajectories (beta=.31, SE=.30,  $p=.28$ ); however, preclinical women were more likely to be in the stable Delayed Recall class (11.04% vs. 6.5%; Chi-Square=19.19,  $p<.0001$ ). Within the MCI group, 2-class models representing a stable decline group and an accelerated decline group provided optimal fit for both outcomes. Whereas, on average, MCI women showed more stable Immediate Recall than men (beta=3.55, SE=.79,  $p<.0001$ ), they were more likely to be in the Immediate Recall accelerated decline class, although not significantly. Women and men did not differ, on average, in their Delayed Recall trajectories; however, women were significantly more likely to be in the Delayed Recall accelerated decline class (Chi-square=32.24,  $p<.0001$ ).

**Conclusions:** Our findings indicate that sex is an important determinant of the variability observed in early-stage AD trajectories; however, sex differences varied by Immediate versus Delayed Recall likely due, in-part, to psychometric test properties. Our results suggest that, when looking at sex differences in AD trajectories on average, women's superior stability in verbal learning masks their higher likelihood of rapid decline. Our findings have implications for our ability to optimally diagnose and track disease progression in both sexes.

**Categories:** Dementia (Alzheimer's Disease)

**Keyword 1:** dementia - Alzheimer's disease

**Keyword 2:** mild cognitive impairment

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## Paper Session 02: Aging topics: section 1

9:00 - 10:30am

Thursday, 2nd February, 2023

Town & Country Ballroom D

Moderated by: Anna Egbert

## 1 Subjective Cognitive Concerns, Neuropsychological Test Performances, and Frontoparietal Thickness and Connectivity in High-Functioning Older Adults

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**Objective:** Neuropsychologists have difficulty detecting cognitive decline in high-functioning older adults, in whom substantially greater neurological change may need to occur before performance on cognitive tests are low enough to indicate cognitive impairment. For high-functioning older adults, subjective cognitive concerns (SCC) may indicate decline that is not detected by the presence of low cognitive test scores but may be related to the absence of high scores and the presence of latent neurological changes. We hypothesized that high-functioning older adults with SCC would have fewer high scores than those without concerns, but a comparable number of low scores. These findings would indicate that objective decline has occurred but would not be detected by a traditional focus on low scores. We also hypothesized that SCC would be associated with lower frontoparietal network volume, thickness, and connectivity, indicating latent neurological change underlying subjective cognitive concerns.

**Participants and Methods:** Participants from an imaging sub-study of an ongoing longitudinal aging study were selected if they had high estimated premorbid functioning, defined as either (a) estimated intelligence  $\geq 75$ th percentile on the North American Adult Reading Test ( $n=48$ ) or (b) having a college degree ( $n=62$ ). This resulted in 68 participants subdivided based on SCC, defined as one or more self-reported SCC on the Medical Outcomes Study Cognitive Functioning Scale (MOS-Cog). Participants with SCC ( $n=35$ ; 73.9 years-old,  $SD=9.6$ , range: 60-95; 62.9% female; 94.3% White) and without SCC ( $n=33$ ; 71.0 years-old,  $SD=7.2$ , range: 61-85, 75.8% female; 100% White) completed a neuropsychological test