frequency due to their increased rates of serotonin synthesis. Consequently, we hypothesized that women would demonstrate higher prevalence of the aforementioned comorbidities during COVID than males due to higher rates of insomnia reported in women during COVID.
Participants and Methods: We surveyed a total of 13,313 adults, with 5,598 females (Mage=36.4, SD=11.9) and 7,654 males (Mage=37.81, SD=12.7) using Amazon Mechanical Turk between April 2020 and April 2021. Insomnia was measured using the Insomnia Severity Index (ISI), while levels of depression, anxiety, PTSD severity, and alcohol use, and aggression were assessed through Patient Stress Questionnaires (PSQs) and the Buss Perry Aggression Questionnaire (BPAQ).
Results: As expected, there were significant positive correlations between ISI and BPAQ ($r(13306)=0.364$, $p<0.0001$), PSQ Depression ($r(13300)=0.694$, $p<0.0001$), PSQ Anxiety ($r(13211)=0.627$, $p<0.0001$), PSQ PTSD ($r(13305)=0.444$, $p<0.0001$), and PSQ Alcohol ($r(12915)=0.218$, $p<0.001$). The strength of these associations was significantly higher in males than females in almost all categories: aggression ($z=4.27$, $p<0.0001$), depression ($z=2.41$, $p=0.016$), anxiety ($z=3.16$, $p=0.0016$), and alcohol use ($z=5.89$, $p<0.0001$) - not significant for PTSD severity ($z=1.48$, $p=0.14$).
Conclusions: We found that insomnia was more strongly correlated with comorbid emotional and behavioral problems among males than females. This stands in contrast to our initial hypothesis, as the findings suggest that men who suffer from greater insomnia are more likely to experience those four comorbidities than females. This suggests that sex may play a role in the association between sleep disturbances and other clinical presentations relevant to neuropsychology. Further work will be necessary to identify the neurobiological mechanisms that drive the sex differences in these associations. While the present findings cannot determine the causal direction of the association, it will be crucial to determine the directionality of these associations and the mechanisms that lead to differences in expression between the sexes.

Categories: Sleep and Sleep Disorders
Keyword 1: sleep disorders
Keyword 2: depression
Keyword 3: anxiety
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77 Symptoms of RBD and Cognitive Performance in Healthy Young Adults

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Objective: REM sleep behavior disorder (RBD) is a parasomnia characterized by vivid dreams and motor behavior such that people appear to “act out their dreams.” These are sudden and often violent bodily movements such as punching or kicking, or vocalizations such as laughing or shouting. RBD is mostly associated with the older adult male population. However, recent studies show that RBD and REM sleep without atonia (RSWA) also occur in other populations, including women, children, and adolescents. Given the prodromal period before an individual can develop the classic symptoms of RBD and that RBD is not just limited to older adult males, it is important to study subclinical features of RBD. RBD is a parasomnia and poor sleep is well known to affect cognitive domains. Additionally, RBD is separately shown to negatively affect cognition in older adults. Given these connections, the association between RBD symptoms and cognition among young adults warrants further study. The purpose of this study was to evaluate the association between RBD symptoms and cognitive domains, specifically attention, processing speed, executive function, and working memory.
Participants and Methods: University students from the Bronx, NY (N=50, mean age = 19.8, female = 78.4%) completed the REM Sleep Behavior Disorder Screening Questionnaire (RBDSQ). Estimated intellectual ability was assessed using the Wechsler Test of Adult Reading (WTAR). Cognitive assessment included the Delis-Kaplan Executive Function System (D-KEFS) Color-Word Interference Test (attention and executive function) and the Cogstate battery (Groton Maze Learning Test (executive function), Chase Test (processing speed), Identification Test (attention), One Back Test (attention), and Two Back Test (working memory)). Psychosocial assessment included

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the Perceived Stress Scale (PSS), Beck Depression Inventory-II (BDI-II), and Beck Anxiety Inventory (BAI).
Results: A series of general linear models were used to determine the relationship between RBD symptoms and cognition. Race/ethnicity, depressive symptoms, and estimated intellectual ability were included as covariates. Using a cutoff score of five (range: 0-13) on the RBDSQ, the ANCOVAs determined that there was no association between RBD symptoms and the cognitive domains of attention, processing speed, executive function, and working memory. However, there was a trend for attention as measured by the Identification task ($F(1,41) = 3.85$, $p = 0.057$). Interestingly, Pearson's chi-square test revealed that the relationship between depressive symptoms and RBD symptoms was significant ($\chi 2 = 6.87$, $p = 0.009$). Those who had high RBD symptoms were more likely to have high depressive symptoms.
Conclusions: Our analyses indicated that in healthy young adults, RBD symptoms are not associated with the cognitive domains of attention, processing speed, executive function, or working memory. However, there may be a trend for attention, which warrants further research with a larger sample size. Of interest, young adults with RBD symptoms were more likely to have clinically significant depressive symptoms. Given that RBD in older adults is associated with incident dementia with Lewy body and Parkinson's disease, which are associated with cognitive decline and depression, further work is necessary to explore the mechanisms of this connection as well as the development of clinical disorders.

Categories: Sleep and Sleep Disorders
Keyword 1: attention
Keyword 2: depression
Keyword 3: sleep disorders
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78 The Effects of Hypertension and Obstructive Sleep Apnea on Auditory Learning and Memory in Veterans with PTSD Symptomology

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Objective: Obstructive sleep apnea (OSA) has been associated with cognitive deficits as evidenced by neuropsychological testing in the domains of attention/working memory, verbal memory, processing speed, and executive function. OSA is often comorbid with hypertension and has been considered a risk factor for hypertension (Kareem et al., 2018; Tietjens et al., 2019). Both hypertension and OSA have been shown to be independent predictors of memory (Kinoshita et al., 2012). OSA and posttraumatic stress disorder (PTSD) are also frequently co-occurring, especially among veterans. In a group of veterans with a history of PTSD, we seek to explore the effects of sleep apnea and hypertension on cognitive functioning, particularly auditory learning/memory.
Participants and Methods: One hundred and three male and female participants with comorbid OSA and PTSD symptomology were screened as part of a larger VA Palo Alto Health Care System study. Participants (age: $\bar{x}$=56.3, σ=13.8, 24-81 years; education: $\bar{x}$=14.6, σ=2.3, 8-20 years; 9.6% female, 89.6% male) completed a neuropsychological battery, including the CVLT-II and WMS-IV Logical Memory. Presence or absence of hypertension was dichotomously coded and AHI severity was categorically coded. An auditory learning/memory composite variable was created using the z-score transformation method (Dodge et al., 2020). Variables and covariates were entered into a hierarchical regression.
Results: The initial regression model revealed hypertension and OSA severity to be independent predictors of performance on auditory learning/memory (hypertension: β= -0.71, $p<0.01$; OSA: β= -0.42, $p<0.01$), where presence of hypertension or increased severity of OSA resulted in worse performance on the auditory learning/memory composite.
Conclusions: Results suggest that hypertension and OSA may independently and negatively affect performance on measures of auditory learning/memory in veterans with PTSD symptomology and OSA. Such findings underscore the importance of assessing and treating both hypertension and OSA among veterans with PTSD to improve not only physical health, but also cognitive health. Further

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