

model of sleep proposes that conditioned somatic and cognitive hyperarousal develop in response to repeated pairings of sleep-related stimuli with insomnia-related wakefulness. The purpose of this study was to examine the neurocognitive model of sleep using a novel laboratory paradigm, the Sleep Approach Avoidance Task (SAAT). It was hypothesized that individuals who report symptoms of insomnia will display a bias for negative sleep-related images from the SAAT, which is presumably a reflection of cognitive, behavioral and physiological processes associated with hyperarousal. It was also hypothesized that participants who report poor sleep would provide different subjective ratings for negative images (i.e., stronger valence and arousal) than individuals who reported better sleep.

Participants and Methods: An initial sample of 66 healthy college-aged participants completed the Insomnia Severity Index (ISI), the Pittsburgh Sleep Quality Index (PSQI) the Dysfunctional Attitudes and Beliefs about Sleep (DBAS) scale and the Epworth Sleepiness Scale (ESS). Participants also completed the SAAT. The SAAT was developed to assess sleep-related bias in adults. The SAAT is a visual, joystick controlled reaction time task that measures implicit bias for positive and negative sleep-related images. At the end of the task the participants are also asked to rate each image along three dimensions included valence, arousal and dominance.

Results: There was a positive correlation between the SAAT and the ISI [$r(61) = .30, p = .01$], indicating that symptoms of insomnia are related to negative approach-related bias for sleep-related images. No other correlations were observed between the SAAT and self-report sleep measures. With regard to rating of images, higher dominance ratings for negative images were correlated with the SAAT [$r(62) = .24, p = .03$], which indicates that the approach bias for negative images is associated with "being in control." Multiple linear regression was used to test if ISI scores and dominance ratings for negative images significantly predicted SAAT bias scores. The overall regression was statistically significant [$r^2 = .13, F(2, 58) = 4.15, p = .02$]. ISI scores significantly predicted SAAT scores ($\beta = .27, p = .04$), whereas dominance ratings for negative images did not significantly predict SAAT scores ($\beta = .20, p = .11$). Exploratory correlational analyses were also completed for ratings of images and other sleep self-report measures. Valence ratings for

positive sleep-related images were positively correlated with the ESS [$r(64) = .36, p = .01$], whereas valence ratings for negative sleep-related images were negatively correlated with the ESS [$r(64) = -.24, p = .03$].

Conclusions: Hypotheses were partially supported with the ISI being the only self-report measure associated with negative bias for sleep-related images. While ratings of dominance are associated with bias for negative sleep-related images, these ratings do not provide unique variance. These findings indicate a cognitive processing bias for sleep-related stimuli among young adult poor sleepers. Limitations, implications for assessment and intervention are discussed.

Categories: Sleep and Sleep Disorders

Keyword 1: sleep

Keyword 2: sleep disorders

Keyword 3: emotional processes

Correspondence: D. Erik Everhart, PhD East Carolina University everhardt@ecu.edu

70 Daily Routine and Psychological Resilience.

Emmett J Suckow, Kymberly Henderson-Arredondo, Lindsey Hildebrand, Samantha R Jankowski, William D.S Killgore
SCAN Lab, University of Arizona, Tucson, Az, USA

Objective: Resiliency has been shown to attenuate and even protect against cognitive impairment from mental and physical stressors. Recently, it has been demonstrated that individuals who score high in psychological resilience tend to have less impairment following a mTBI. The COVID-19 pandemic proved to be an uncertain time for many. Periods of isolation, unemployment, and of course, sickness, meant more time at home. The partial or complete breakdown of an individual's day-to-day routine paired with the stress of the pandemic has reinforced the need for psychological resilience. This analysis investigates the relationship between self-reported routine adherence and an individual's corresponding psychological resilience. We hypothesize that individuals who maintained a structured daily routine during the pandemic will have higher levels of

psychological resilience, enabling them to better handle periods of extreme stress.

Participants and Methods: 8963 English-speaking adults (18-92 years old; 59.5% female) from across the U.S. completed an online, monthly cross-sectional (~1000 participants per month), battery of questions that included the Connor-Davidson Resilience Scale (CD-RISC), and a self-reported sleep and routine rating(s) between June 2020 and April 2021. We measured the level of an individual's routine by adding the self-reported survey scores of waking at the same time and maintaining a routine throughout the day. Both questions were scored 0-4 (Likert-style) for a score range of 0 to 8; higher scores indicated a higher adherence to a daily structure. Weeknight sleep (Sun-Thurs) was a self-reported average of the hours of sleep obtained over the past 4 weeks. A two-way ANCOVA was used to analyze the effects that routine had on subsequent psychological resilience scores while controlling for average sleep duration.

Results: A significant main effect routine on psychological resilience was found $F(8,8953) = 227$, $p < .00001$ after controlling for average reported weeknight sleep. An independent t-test was performed to determine the differences between those who fall above and below the average score ($M = 5.1$) for routine adherence. Individuals who were above average in adherence ($M = 71.1$, $SD = 15.5$) had significantly higher CD-RISC scores than individuals who did not ($M = 59.2$, $SD = 16.7$); $t(9166) = 35.1$, $p < 0.001$.

Conclusions: Individuals who maintained a more structured day throughout the pandemic were more likely to score higher on psychological resilience assessments than those who did not. Chronic stress is known to contribute to the development and exacerbation of many common psychiatric conditions like anxiety and depression. These results suggest that having a regular routine may have positive effects on an individual's ability to bounce back from stressful cognitive and psychological events. This relationship should be further investigated in clinical populations as a potential intervention or adjunctive treatment for common neuropsychiatric conditions.

Categories: Sleep and Sleep Disorders

Keyword 1: sleep disorders

Keyword 2: traumatic brain injury

Correspondence: Emmett J Suckow, SCAN Lab, University of Arizona.
ejsuckow@arizona.edu

71 Sleep Quality and Measures of Attention and Learning in Middle-Aged Adults

Jennifer L Thompson, Casey J Kneissler, Jacob D Tucker, Fayeza S Ahmed
University of Maine, Orono, ME, USA

Objective: Sleep has been shown to directly impact cognitive function throughout the lifespan; good quality sleep benefits and improves cognitive function, including processing speed and attention, while poor quality sleep can contribute to negative cognitive outcomes¹. In particular, attention, learning, and memory have been demonstrated to be sensitive to sleeping changes, including fragmentation and restriction². Subjective sleeping scales are utilized in both research and clinical practice, allowing sleep to be measured via self-report on various domains, including duration and factors that can contribute to sleep disruption and disturbances³. This study aims to examine the possible relation between subjective sleep quality and cognitive function among middle-aged adults to inform future research for early interventions of modifiable behaviors that can contribute to abnormal cognitive decline.

Participants and Methods: Data for this analysis is part of the preliminary results of an ongoing pilot study. 29 middle-aged (40-65 years, inclusive), cognitively unimpaired individuals were recruited from the community. Subjective sleep quality was measured with the Pittsburgh Sleep Quality Index (PSQI). Attention and memory were measured using the California Verbal Learning Test, Third Edition (CVLT-III).

Results: Multiple hierarchical regression analyses were conducted to evaluate if aspects of sleep quality were significantly correlated to complex attention and learning performance in this sample. First, correlation analyses showed significant relationships between PSQI Component 6 (Use of Sleeping Medication) and Trials 1 to 2 Learning Slope ($R^2 = -0.56$, $p = 0.002$) and CVLT-III Trials 1 through 5 Recall Discriminability ($R^2 = -0.42$, $p = 0.02$), each with significant regression analyses outcomes ($b = -$