Methods: Black women at least 18years and >28 weeks pregnant were recruited from prenatal clinics. All women completed questionnaires about their sleep including the presence and timing of habitual-snoring (pre-pregnancy or pregnancy-onset), the Epworth Sleepiness Scale (ESS), and the General Sleep Disturbances Scale (GSDS) to determine poor sleep quality and poor daytime function as well as symptoms of insomnia. We also analyzed three commonly-reported sleep problems as individual question items (difficulty getting to sleep, wake up during sleep period, and wake up too early at the end of a sleep period). Demographic information and diagnoses were abstracted from medical records.

Results: Overall, 235 women enrolled; mean age was $27.6 + 6.2$ years, mean BMI $31.7 + 9.8$kg/m2, and 64% were in receipt of Medicaid. Eighty-percent of women reported >three sleep-wake disturbances, and almost half experienced a burden of >five disturbances. Women with pregnancy-onset habitual-snoring (but not those with pre-pregnancy habitual-snoring) had increased odds of poor sleep quality aOR 8.2 (95% CI 1.9, 35.9), trouble staying asleep aOR 3.6 (95% CI 1.0, 12.5), waking up too early aOR 2.7 (95% CI 1.1, 6.2), excessive daytime sleepiness aOR 2.3 (95% CI 1.1, 4.7), and poor daytime function aOR 8.7 (95% CI 2.5, 29.9). In contrast, women with pre-pregnancy habitual-snoring had increased odds for chronic hypertension, preterm delivery and fetal growth restriction; aOR 2.6 (95% CI 1.1, 6.3), aOR 2.8 (95% CI 1.1, 6.9), and aOR 5.1 (95% CI 1.7, 15.2), respectively.

Conclusion: Black women have a significant burden of sleep-wake disturbances. These findings highlight the excess risk that habitual-snoring confers to sleep-wake disturbances and perinatal outcomes in an infrequently studied yet highly vulnerable population.

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ACTIGRAPHIC SLEEP PARAMETERS AND ANXIETY SYMPTOMS AMONG COMMUNITY-DWELLING OLDER ADULTS

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Introduction: A number of cross-sectional studies have found that elevated levels of anxiety are associated with poor sleep among healthy older adults, but most have used self-reported sleep measures. We investigated the longitudinal association between objectively measured sleep (by wrist actigraphy) and subsequent change in anxiety symptoms in this population.

Methods: We studied 555 community-dwelling older adults (mean age 72.52±7.35, 77.48% white, 53.15% women) in the National Social Health and Aging Project (NSHAP) study who completed 3 nights of wrist actigraphy at wave 2 (2010–2011) and the Hospital Anxiety and Depression Scale at waves 2 and 3 (2015–2016). Actigraphic sleep parameters were averaged across nights and included: total sleep time (TST; minutes), percent sleep (%), wake after sleep onset (WASO; minutes), and sleep fragmentation. Change in anxiety was calculated as the difference between anxiety scores at wave 3 and wave 2.

Results: After adjusting for age, race, sex, education, body mass index, number of medical conditions, depression symptoms, and anxiety scores at wave 2, we found no significant associations between any actigraphic sleep parameter and subsequent change in anxiety symptoms (all p ≥ 0.390). Additional analyses revealed no significant cross-sectional associations at wave 2 (p ≥ 0.390).

Conclusion: We found no evidence for an association between actigraphic sleep and anxiety symptoms, or change in anxiety

symptoms, in community-dwelling older adults. Additional studies using clinical anxiety disorder diagnoses are needed to evaluate the extent to which objectively measured sleep disturbance predicts clinically significant anxiety in older adults.

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ASSOCIATION OF PERSONALITY TRAITS WITH NAPPING BEHAVIORS IN OLDER ADULTS

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Introduction: Greater neuroticism and lower conscientiousness are linked to poorer nighttime sleep among older adults, but little is known about the association between personality and daytime sleep. Napping increases in older adulthood, and napping has been linked to health outcomes, including cognitive impairment. Thus, it is important to extend personality and sleep research to investigate napping behavior. We examined the association between personality and napping in a nationally representative cohort of older adults.

Methods: We studied 742 adults aged ≥65 years from the National Health and Aging Trends Study (NHATS) who completed the sleep and personality modules in NHATS rounds 3 or 4 (2013–2014). Personality dimensions (neuroticism, extraversion, openness, agreeableness, conscientiousness) were assessed by the Midlife Development Inventory Personality Scales. Participants reported nap frequency over the past month (most days or everyday [nappers-frequent]; some days [nappers-infrequent]; rarely/never [non-nappers]); napping intention (intentional/unintentional); and average nap duration (coded as ≤40 minutes [short]; and >40 minutes [long], consistent with previous studies). Personality dimensions were included together in all models. Model 1 adjusted for age, sex, education, and BMI, and Model 2 further adjusted for anxiety and depression, comorbidities, sleep medications, and nighttime sleep duration. Only nappers were included in models with nap frequency, intention, or duration as outcomes (n=387).

Results: There were no personality differences between nappers and non-nappers. Among nappers, however, higher neuroticism was associated with lower odds of frequent naps (OR=0.73, 95% CI: 0.55,0.97), and higher agreeableness was associated with greater odds of unintentional napping (OR=1.95, 95% CI:1.12, 3.41) and lower odds of long nap duration (OR=0.54, 95% CI:0.33, 0.90) in Model 1. Associations remained in Model 2. Higher neuroticism was also associated with greater odds of long nap duration in Model 1 (OR=1.40, 95% CI:1.03, 1.91), but not after further adjustment in Model 2.

Conclusion: This is, to our knowledge, the first study examining the association between personality and daytime napping behaviors among a large sample of older adults, extending the literature on personality and nighttime sleep in this population. Because napping behaviors are associated with health outcomes, personality may be an important factor to consider in interventions addressing napping.

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EARLIER-LIFE SLEEP PATTERNS AND RISK FOR DELIRIUM IN ELDERLY HOSPITALIZED PATIENTS FROM A 14-YEAR LONGITUDINAL COHORT

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Introduction: Delirium is an acute decline in attention and cognition that is associated with cognitive dysfunction in elderly patients. While accumulating evidence points to associations between sleep disturbances and neurocognitive disorders, the temporal relationship between sleep patterns and delirium remains unclear. We tested whether earlier-life sleep duration, daytime dozing, insomnia, and sleep apnea predict incident delirium during hospitalization.

Methods: We studied 315,989 participants (mean age 58.3±7.9; range 37.4–73.7) from the UK Biobank with up to 14 years follow-up, and at least one hospitalization episode. Delirium diagnosis was derived using ICD-10 coding from hospitalization records. Multivariate logistic regression models examined the associations of self-reported baseline sleep duration (less than 6h/6-9h/more than 9h), daytime dozing (often/rarely), insomnia (often/rarely), and presence of prior sleep apnea (ICD-10), with incident delirium. Models were adjusted for age, sex, education, Townsend deprivation index, and major confounders (including number of hospitalizations during follow-up, BMI, neurological/cardiovascular/respiratory diseases, depression/anxiety, chronotype, and sedatives).

Results: 4,025 developed delirium (12.7/1,000). There was a U-shaped association between sleep duration and delirium, where short [17.3/1,000; OR 1.18, 95% CI: 1.05–1.33, p=0.006] and long (28.8/1,000; OR 1.49, 95% CI: 1.30–1.70, p<0.001) sleepers had elevated risk compared to regular 6-9h sleepers. Often daytime dozing (25.3/1,000; OR 1.38, 95% CI: 1.20–1.58, p<0.001) and sleep apnea (21.7/1,000; OR 1.21, 95% CI: 1.03–1.42 p=0.02) also had increased the risk for delirium, but the latter was attenuated by the inclusion of BMI and hypertension. However, we did observe further risk when two or more of the above traits were present (OR 1.59, 95% CI: 1.29–1.95 p<0.001). No effects on incident delirium were observed from insomnia.

Conclusion: Earlier-life sleep patterns, in particular longer sleep and daytime dozing, are associated with an increased risk for delirium. Sleep patterns may reflect unmeasured health status; further work is warranted to confirm the associations using objective sleep/circadian measures, examine underlying mechanisms, and test whether optimizing sleep patterns can reduce the risk of developing delirium.

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PREDICTING PERCEIVED FUNCTIONAL LIMITATION IN MIDLIFE AND OLDER ADULTHOOD: THE ROLE OF SLEEP AND PERCEIVED CONTROL

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Introduction: Functional limitations become increasingly common and debilitating as individuals age, potentially impacting several facets of well-being. As such, it is important to understand malleable factors that may potentially impact functional limitation outcomes. Both sleep and perceived control have been linked to the development of functional limitation. The current study sought to clarify the unique contributions of both sleep quality and perceived control to functional limitation status in middle-aged and older adults.

Methods: Data from the second wave of the Midlife in the United States study were used for the current study. Participants included 527 participants (59.9% female, Mage=59.83 years, SD=9.75 years) who completed measures of functional limitation levels (Functional Status Questionnaire), subjective sleep quality (Pittsburg Sleep Quality Index), and perceived control (MIDI Sense of Control Scales). A hierarchical regression analysis was conducted to examine sleep quality and perceived control as predictors in a unique model for predicting functional limitation. Demographic variables of age, gender, and race were used as covariates in study analyses.

Results: The overall model predicted 19.0% of the variance in functional limitation levels. Sleep quality was significantly associated with self-reported functional limitation (β=-.27, p<.001) over and above perceived control (β=.20, p<.001). Specifically, findings indicate that worse sleep quality is associated with increased functional limitation, while higher levels of perceived control are associated with lower levels of functional limitation.

Conclusion: Though perceived control is known to be associated with functional limitation status, the present study suggests a unique effect of sleep quality on functional limitation even after accounting for perceived control. Due to the potential for negative effects of functional limitation in middle-aged to older adults, it is important to identify and target constructs for research and intervention related to the development of these limitations. Care models for individuals who report experiencing functional limitations may benefit from targeting sleep health and control beliefs in intervention and assessment.

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ASSOCIATIONS OF BEDTIME, WAKE-TIME AND EMPLOYMENT STATUS BY GENDER AND RACE

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Introduction: Poor sleep quality has been reported in the unemployed compared with employed. How sleep varies by employment status has been rarely examined at a population level. Therefore, we investigated sleep-wake patterns among employed, unemployed but actively seeking a job, and not-in-the-labor-force participants by gender and race/ethnicity.

Methods: Methods We used data from the American Time Use Survey (ATUS), a nationally representative sample of US residents aged ≥15years, which records weekday/weekend activities in a 24-hour period (4:00am-4:00am). This sample was restricted to participants aged 25–60 years (n=130,062). This analysis utilized functional nonparametric regression based on dimension reduction and neighborhood matching. We modeled the relationship between participant-specific sleep-wake trajectories, coded by minute, and employment status. Implementing the counterfactual approach, we estimated the effects of each employment scenario on participant-level expected sleep trajectory. This approach allowed the examination of hypothetical sleep-wake trajectories for each participant if their employment status differed from the observed. We then marginalized these findings to gender and race/ethnic subpopulations, controlling for confounders and secular trends.

Results: Mean age was 42□0.01 years, nearly half (51%) of participants were women and 68% were Whites. The proportions of employed, unemployed, and not-in-the-labor-force were 79%, 16.5% and 4.5%, respectively. On average, unemployed and not-in-the-labor-force participants had a later bedtime and wake-time compared with employed. With the exception of Whites, each individual race/ethnicity group