LOW FREQUENCY EXTENSION FILTER AND ACTIGRAPH-CALCULATED SLEEP INTERVALS IN OLDER ADULTS

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Actigraphy has become a popular, non-invasive means of continuously monitoring physical activity and sleep. One optional setting, the low frequency extension (LFE) filter, reduces the movement threshold to capture low acceleration activity that is common in older adults. This filter significantly alters physical activity outcomes (e.g., step counts), but it is unclear if this has implications for sleep interval calculations that rely upon accurate differentiation between physical activity and sleep. We investigated the effects of the LFE filter on wrist-worn sleep estimates in older adults. Participants were 9 older adults who wore the ActiGraph GT9X on their non-dominant wrist for 7 days in a free-living environment. Raw data was processed with and without the LFE filter enabled, and sleep intervals were calculated by a proprietary ActiGraph algorithm. Paired samples t-tests demonstrated that the LFE filter generated significantly later bedtimes, fewer minutes spent in bed, shorter sleep duration, and fewer awakenings during the night compared to when the filter was disabled (all $p < .043$). Use of the LFE filter did not lead to differences in arise time, sleep latency, efficiency, or wake after sleep onset (all $p > .052$). While the LFE filter was designed to improve accuracy of physical activity estimates in more sedentary populations, these findings suggest that the LFE filter also has the potential to impact sleep estimates of older adults. Researchers using ActiGraph-calculated sleep would benefit from careful consideration of this software-dependent impact.

MULTIDIMENSIONAL SLEEP HEALTH AND PHYSICAL FUNCTIONING IN OLDER ADULTS

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Prior studies link specific sleep parameters to physical functioning in older adults. Recent work suggests the utility of examining sleep health from a multidimensional perspective, enabling consideration of an individual's experience across multiple different sleep parameters (e.g., quality, duration, timing). We examined the associations of multidimensional sleep health with objective, performance-based measures of physical functioning in older adults. We conducted a secondary analysis of 158 adults (Mage=71.8 years; 51.9% female) who participated in the Midlife in the United States (MIDUS) 2 and MIDUS Refresher studies. We used data from daily diaries, wrist actigraphy, and self-report measures to derive a composite multidimensional sleep health score ranging from 0-6, with higher scores indicating better sleep health. Physical function was assessed using gait speed during a 50-foot timed walk, lower extremity strength as measured by a chair stand test, and grip strength assessed with dynamometers. We used hierarchical regression to examine the associations between sleep health and gait speed, lower extremity strength, and grip strength. Age, sex, race, education, depression symptoms, medical comorbidity, and body mass index were covariates in each model. In adjusted analyses, better multidimensional sleep health was significantly associated with faster gait speed (B=.03, p=.01). Multidimensional sleep health was not significantly associated with lower limb strength (B=-.12, p=.89) or grip strength (B=.45, p=.40). Gait speed is a key indicator of functional capacity as well as morbidity and mortality in older adults. Multidimensional sleep health may be a therapeutic target for improving physical functioning and health in older adults.

PERSONALITY AND SLEEP HEALTH: DO LIFESTYLE HABITS PLAY A ROLE?

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The health behavior model proposes that healthy/unhealthy behaviors may play a role in the relationship between personality and health. Previous research shows that personality traits are linked to sleep, however, few studies have considered the moderating role of unhealthy behaviors in the personality—sleep relationship. The current study investigated the associations between specific personality traits and sleep and whether the associations were moderated by unhealthy behaviors. Participants were 61 oncology nurses (Mage=35.39, SDage=11.73). They responded to a background survey that assessed the big five personality traits and engagement in unhealthy behaviors (i.e., exercise, smoking, fast food and alcohol consumption). For two weeks, ecological momentary assessments captured daily variability in sleep (i.e., quality, sufficiency, onset latency, insomnia, duration). A series of multilevel models was used. After controlling for sociodemographics and work shift, higher conscientiousness was associated with greater sleep sufficiency (B=0.31, p<.05) and lower odds of having insomnia symptoms (OR=0.24, p<.05). Moreover, higher agreeableness was associated with longer sleep duration (B= 0.51, p<.05) and lower odds of insomnia symptoms (OR=0.29, p<.05). Other personality domains were not associated with sleep, however, extraversion interacted with unhealthy behaviors to be associated with sleep. Those who were more extraverted reported lower odds of insomnia and better sleep sufficiency; these associations were significant only for those with less unhealthy behaviors. Findings suggest that conscientiousness and agreeableness were associated with sleep health. The interaction between extraversion and unhealthy behaviors suggests that reducing unhealthy behaviors may be beneficial to improving sleep in individuals with certain personality traits.

POOR SLEEP HEALTH AND NEXT DAY WORK IMPAIRMENT: THE MEDIATING ROLE OF FATIGUE

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Nightly sleep impacts next-day alertness and cognitive functioning. For healthcare professions, work impairment can be life-threatening for patients. Thus, understanding how sleep affects work quality is imperative to promoting medical safety and overall health of workers. The current study investigated whether nightly sleep health is associated with next-day work impairment in nurses and whether this association