

risk, independent of mean total sleep time and mean sleep midpoint. Similarly, a ~31-minute increase in sleep onset time irregularity was associated with a 29% increased risk of hypertension (1.29 [1.18, 1.42]).

Conclusion: These novel findings provide insight into the potential important impact of sleep irregularity on cardiovascular health. Further assessment of day-to-day fluctuations in sleep duration and timing for potential effects on next-day blood pressure and other cardiovascular health outcomes are warranted.

Support (If Any): This was an unfunded investigator-initiated study. De-identified data were provided by Withings for unrestricted investigator-led analysis. PE serves as a consultant for Withings.

0205

SLEEP NEED: MORE INFLUENTIAL ON HEALTH AND DAYTIME FUNCTION THAN SLEEP DURATION?

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Introduction: Most prior research into relationships between sleep and health and daytime functioning have focused on average sleep duration or efficiency and ignored individual differences in sleep need. This study tested if sleep need is more strongly correlated with self-rated health and daytime function than sleep duration.

Methods: Data were drawn from the 2019 Sleep Health Foundation online survey of adult Australians (N=2,044, aged 18-90 years). Hierarchical multiple regressions assessed variance explained (R2 and R2 change) by demographics (Model 1: age, sex, BMI), self-reported sleep duration (Model 2: Model 1 + weighted variable of typical weekday/weekend sleep duration), and individual sleep need (Model 3: Model 2+ rating on a 5-point scale to 'how often you get enough sleep to feel your best the next day') on daytime function items for fatigue, concentration, motivation, and overall self-rated health (visual-analog scale from 0-100).

Results: Sleep need explained an additional 17.5–18.7% of the variance in fatigue, concentration, motivation, and health rating (all $p < 0.001$ for R2 change) in Model 3. In contrast, Model 2 showed that sleep duration alone only explained an additional 2.0–4.1% variance in these outcomes after accounting for demographic variables. Findings were similar when stratified by sex. Sleep need also explained greater variance for older adults than for younger and middle-aged adults, especially on health rating (Model 3: R2 change = 0.11 for ages 18-24y, 0.14 for 45-54y, 0.27 for 75y+).

Conclusion: Sleep need appears to explain considerably more variance in daytime function and self-rated health than sleep duration. The effect of sleep need on other daytime consequences, and in clinical populations, needs further exploration. Validated assessments of sleep need are also needed to elucidate its importance for understanding the effect of sleep on health and functioning.

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0206

REST-ACTIVITY RHYTHMS ARE ASSOCIATED WITH SLEEP CHARACTERISTICS AND COGNITIVE FUNCTIONS IN PEOPLE WITH HEART FAILURE OVER 6 MONTHS

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Introduction: People with Heart failure (HF) often suffer from sleep deprivation and poor cognitive function. The purpose of this study was to examine the extent to which repeatedly measured rest-activity rhythms (RARs) measured with wrist actigraphy predict sleep characteristics and cognitive function in people with HF.

Methods: We measured insomnia severity (ISI), sleep quality (Pittsburgh sleep quality index: PSQI), sleepiness (Epworth sleepiness scale: ESS), psychomotor vigilance (Psychomotor vigilance test: PVT), and quality of life (Euroqol 5D) among people with HF patients who participated in a randomized controlled trial of cognitive behavioral therapy for insomnia vs. HF self-management education at baseline, 3-, and 6-months post-intervention. We performed cosinor analysis with 24-hour rest-activity counts obtained with 7 days of wrist actigraphy at each time point and calculated the circadian quotient, which represents the strength of RARs. We used the Generalized Linear Mixed Model with random intercepts to examine the association between the circadian quotient, sleep characteristics, cognitive function, and quality of life after adjusting for time-group interactions over 6 months. Statistical significance for standardized coefficients was accepted at 5% type I error.

Results: The analysis included 162 participants with HF and insomnia (Insomnia severity index >7) who completed actigraph monitoring for at least 7 days at baseline. There was no significant change in the mean circadian quotient (Mean=0.78, SD=0.16) over 6 months. After adjusting for significant intervention effects, a greater circadian quotient was statistically associated with lower insomnia severity (-0.11±0.05), sleepiness (-0.12±0.05), sleep quality (-0.15±0.05), longer sleep duration (0.33±0.04) and better sleep efficiency (0.13±0.05). The circadian quotient was positively associated with cognitive function measured by fewer PVT lapses (-0.11±0.05) and quality of life (0.12±0.05).

Conclusion: In addition to the significant intervention effects for insomnia, HF patients may benefited from strengthening RAR to improve sleep characteristics, cognitive function, and quality of life. Further research to assess the contributions of RAR in people who received the intervention for insomnia and the HF self-education separately is recommended.

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0207

MOTHERS' ADVERSE CHILDHOOD EXPERIENCES AND PROTECTIVE FACTORS ARE ASSOCIATED WITH REST-ACTIVITY RHYTHMS IN THEIR CHILDREN

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Introduction: Mothers' history of adverse childhood experiences (ACEs; e.g. maltreatment, household dysfunction) are associated with poor health outcomes in their children, but mechanisms underlying this intergenerational transmission are poorly understood. Given links between circadian rhythm and the stress-response system, we test the hypothesis that maternal ACEs influence child