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Introduction: Current diagnostic classifications define insomnia based on self-reported sleep difficulties. However, differences between self-reported and objectively measured sleep parameters (subjective-objective sleep discrepancy or sleep misperception) are very common. Insomnia and sleep apnea cause common impairments that overlap and have negative impacts on overall health. Previous studies have encouraged an in-depth understanding of subjective-objective sleep discrepancy to inform a role for behavioral, mind-body approaches to insomnia. In this study, utilizing patients with insomnia and comorbid sleep apnea, we aimed to understand associations between self-reported insomnia, sleep difficulties, sleep misperception and quality-of-life.

Methods: We conducted a secondary analysis using data from the Sleep Heart Health Study (a multi-site nationally representative sample) to examine the profile of subjective and objective sleep measures in people with insomnia (IS, n=73) and comorbid sleep apnea (IS+SA, n=143), compared to individuals with sleep apnea only (SA, n=296) and normal sleep controls (NSC, n=126). We also compared the magnitude of sleep misperception between these four groups and examined the corresponding impact of subjective insomnia complaints on quality-of-life.

Results: Sleep discrepancy was found in all four groups. After controlling for age, sex, mental health conditions, sleep apnea severity, and objectively measured sleep time, the presence of self-reported insomnia had the strongest association with sleep discrepancy on total sleep time (TST, β=-34.4, p<0.001) and sleep onset latency (SOL, β=14.7, p<0.001). Subjects who reported no difficulty falling asleep slightly underestimated their sleep onset latency, while those who reported difficulty substantially overestimated sleep latency. Self-reported insomnia had a significantly negative impact on the quality of life in both physical and mental components (p<0.001).

Conclusion: Sleep discrepancy exists in normal controls, insomnia, and sleep apnea. Subjects with self-reported insomnia have a higher degree of sleep misperception. Both sleep apnea and self-reported insomnia are associated with negative QOL. Those with comorbid sleep apnea report the greatest sleep discrepancy and lowest QOL. Further research is needed to better understand individual profiles of misperception and insomnia phenotypes, apnea comorbidity and quality-of-life. Behavioral, mind-body interventions may offer strategies to address mental stress, sleep misperception, and insomnia.

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AN EXPLORATORY STUDY OF BEDTIME PROCRASTINATION AND EMOTIONAL REGULATION STRATEGIES IN INSOMNIA COMPARED TO HEALTHY INDIVIDUALS

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Introduction: Bedtime Procrastination (BP) is defined as the behavior of voluntarily delaying going to bed, without having external reasons for doing so. Recent research on procrastination behavior suggests that when negative emotions are elevated, procrastination behaviors can be triggered in order to find pleasure to avoid and alleviate them. Procrastination can also occur when there is difficulty regulating emotions. In addition, the reason for bedtime procrastination may be different depending on whether the individuals present with insomnia. According to previous studies, patients with insomnia may exhibit more pronounced negative avoidance of bedtime due to prolonged sleeplessness. Therefore, this study compared the difference between of the bedtime procrastination and the emotional regulation strategies between the insomnia group and the healthy group.

Methods: This study was conducted in 582 adults (mean age 23.06 ±2.16 years), 81.6% females. Individuals scoring higher than 15 on the Insomnia Severity Index (ISI) were classified into the insomnia group (n=375), and those less than 15 were classified into the healthy group (n=207). Participants completed the Bedtime Procrastination Scale (BPS), Emotional Regulation Strategies Checklist. Data was analyzed using descriptive statistics, chi square test, and independent t tests.

Results: The insomnia group had significantly higher bedtime procrastination scores than the healthy group (t=-6.241, p<.001), and also the avoidant/distractive regulation style score was significantly higher (t=-1.969, p<.05). In addition, the score of active regulation style was significantly lower in the insomnia group than in the healthy group (t=3.050, p<.01). There was no significant difference between the two groups in the support-seeking regulation style.

Conclusion: Based on these results, it was confirmed that there was a difference in the bedtime procrastination and the emotional regulation strategies between the insomnia group and the healthy group.

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THE MODERATING EFFECT OF EMOTION REGULATION STRATEGIES IN THE RELATIONSHIP BETWEEN INSOMNIA SEVERITY AND BEDTIME PROCRASTINATION

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Introduction: Bedtime Procrastination (BP) is defined as the behavior of going to bed later than intended, despite the absence of external factors. Bedtime procrastination is also prevalent among insomnia patients, and is associated with various sleep problems. Recent studies suggest emotional regulation as a mechanism of the procrastination behavior that is the conceptual foundation of bedtime procrastination. Emotional regulation difficulties are also associated with insomnia, but there is still a lack of research on the relationship between insomnia, emotional regulation strategies and bedtime procrastination. Thus, the study assumed that severity of insomnia would affect bedtime procrastination, and examined the moderating effect of the emotional regulation strategies in this relationship.

Methods: This study was conducted in 376 adults (mean age 23.73 ±2.14 years, 84.6% females). Participants were asked to answer Bedtime procrastination scale (BPS), an emotional regulation strategy checklist, and the Insomnia severity scale (ISI).

Results: As a result, a significant positive correlation was found between insomnia severity and bedtime procrastination (r=.286, p<.01), and avoidant/distractive regulation style (r=.101, p<.05). active regulation style (r=-.172, p<.01) and support seeking regulation style (r=-.102, p<.01) showed a significant negative correlation with the severity of insomnia. Bedtime procrastination behavior showed significant negative correlation only with active regulation style (r=-.151, p<.01). Support seeking regulation style moderated the relationship between

insomnia and bedtime procrastination behavior (B=.0165, 95%, CI=.0014, .0316). The interaction effect between insomnia and support seeking regulation style was also significant (ΔR^2=.0112, p<.05), indicating that the effect of insomnia on bedtime procrastination depends on the level of use of the support seeking regulation style.

Conclusion: These findings suggest that the level of support seeking regulation style is meaningful in terms of how insomnia affects bedtime procrastination.

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FAMILIAL NATURAL SHORT SLEEPERS HAVE GREATER RESILIENCE THAN UNAFFECTED FAMILY MEMBERS

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Introduction: Resilience, a life-long trait, corresponds to the ability to bounce back from adversity. What factors influence resilience is unclear. Here we describe a cohort of individuals with familial natural short sleep (FNSS). Four genes in five families have been identified that confer this trait, DEC2, NPSR1, GRM1 and ADRB1. Individuals in this cohort share a resilience phenotype alongside this decreased sleep need.

Methods: Those reporting less than 6.5 hours of sleep when allowed to sleep ad libitum without any complaints regarding overnight sleep or daytime sleepiness were then interviewed to determine FNSS affected status from 2009 to 2020. Data on mood, depression, sleepiness and resilience were collected from participants and family members enrolled in the FNSS study.

Results: 163 individuals meeting criteria for FNSS were enrolled. Compared to 47 unaffected family members, they had significantly shorter sleep duration as measured by self report and actigraphy, significantly more resilience as measured by the Connor-Davidson Resilience Scale, significantly less sleepiness as measured by the Epworth Sleepiness Scale, and significantly fewer symptoms of depression as measured by the Beck Depression Inventory.

Conclusion: FNSS individuals appear to have a distinct phenotype including shorter sleep duration, greater resilience, less subjective sleepiness, and fewer symptoms of depression. Better understanding the genetics and characteristics of those with familial natural short sleep may provide insight into mechanisms of both restorative sleep and resilience.

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