

Chronobiology, insomnia and sleep health

O028

EFFECTIVENESS OF DIGITAL BRIEF BEHAVIOURAL THERAPY FOR INSOMNIA WITH WEARABLE TECHNOLOGY: PILOT RANDOMIZED CONTROLLED TRIAL

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Objective: This pilot trial aimed to test the effectiveness of integration of a wearable device with digital brief behavioural therapy for insomnia (dBBTi) on insomnia symptom severity, sleep metrics and therapy engagement.

Participants and Methods: One hundred and twenty-eight participants with insomnia symptoms were randomised to a 3-week dBBTi program with a wearable device enabling sleep data synchronization (dBBTi+wearable group; n = 62) or dBBTi alone (n = 66). We assessed the Insomnia Severity Index (ISI) and modified Pittsburgh Sleep Quality Index (PSQI; wake-after-sleep-onset (WASO), sleep-onset-latency (SOL), and total sleep time (TST)) at baseline and weeks 1, 2, 3, 6 and 12. Engagement was measured by the number of daily sleep diaries.

Results: There was no significant difference in ISI scores between the groups (d = 0.7, p = 0.061). The dBBTi+wearable group showed greater improvements in WASO (d = 0.8, p = 0.005) and TST (d = 0.3, p = 0.049) compared to the dBBTi group after 6 weeks. There was significantly greater engagement in the dBBTi+wearable group compared to the dBTi group (d = 0.7, p = 0.010).

Conclusions: This pilot trial found that wearable device integration with a digital insomnia therapy led to improvements in WASO and TST and enhanced user engagement. We suggest that incorporation of adjunctive wearable technologies may improve digital insomnia therapy.

O029

PREDICTORS OF ACUTE INSOMNIA DURING THE COVID-19 PANDEMIC BEYOND PERCEIVED STRESS

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Introduction: Stress is a common precipitant of acute insomnia and likely contributed to increased reports of sleep disturbances during the COVID-19 pandemic. However, many other sleep and lifestyle changes may have also precipitated acute insomnia. This study aimed to clarify which factors, beyond perceived stress, contributed to the development of acute insomnia during the COVID-19 pandemic.

Methods: The study consisted of 578 participants with acute insomnia and 741 good sleepers. Participants completed an online survey assessing insomnia symptoms, sleep, lifestyle changes and mental health during the COVID-19 pandemic. Logistic regression analyses were conducted to identify contributing factors to acute insomnia when controlling for demographic differences between groups.

Results: Perceived stress was a significant predictor of acute insomnia during the pandemic (p<.001). However, after adjusting

for stress, individuals who altered their sleep timing (p<.001) or increased their use of technology before bed (p=.037) during the pandemic were at a 3-fold increased risk of acute insomnia. Other sleep factors associated with acute insomnia included dream changes (p=.001), sleep effort (p<.001), and cognitive pre-sleep arousal (p<.001). For pandemic factors, being very worried about contracting COVID-19 (p<.002) and more stringent COVID-19 government restrictions (p<.001) increased the risk. Anxiety (p<.001) and depressive (p<.001) symptoms, as well as the personality trait of agreeableness (p=.010), also contributed to acute insomnia.

Discussion: To reduce acute insomnia during the COVID-19 pandemic, public health messaging should promote stress reduction and mental health care, but also modifiable behaviours such as keeping consistent sleep patterns and reducing technology use before bed.

O030

CHANGES IN SLEEP-WAKE PATTERNS, CIRCADIAN TIMING, AND MOOD IN AUSTRALIAN TEENS DURING THE COVID-19 PANDEMIC

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During the COVID-19 pandemic, schools rapidly transitioned from in-person to remote learning. We examined sleep- and mood-related changes in early adolescents, before and after this transition to assess the impact of in-person vs. remote learning. Sleep-wake timing was measured using wrist-actigraphy and sleep diaries over 1–2 weeks in Year 7 students (age M±SD = 12.79±0.42 years) during in-person learning (n=28) and remote learning (n=58; n=27 were studied in both conditions). Circadian timing was measured under a single condition in each individual using salivary melatonin (Dim Light Melatonin Onset; DLMO). Online surveys assessed mood (PROMIS Pediatric Anxiety and Depressive Symptoms) and sleepiness (Epworth Sleepiness Scale – Child and Adolescent) in each condition. During remote vs. in-person learning: (i) on school days, students went to sleep 26 min later and woke 49 min later, resulting in 22 min longer sleep duration (all p<0.0001); (ii) DLMO time did not differ significantly between conditions, although participants woke at a later relative circadian phase (43 minutes, p=0.03) during remote learning; (iii) participants reported significantly lower sleepiness (p=0.048) and lower anxiety symptoms (p=0.006). Depressive symptoms did not differ between conditions. Changes in mood symptoms were not mediated by changes in sleep timing. Although remote learning had the same school start times as in-person learning, removing morning commutes likely enabled adolescents to sleep longer, wake later, and to wake at a later circadian phase. These results indicate that remote learning, or later school start times, may extend sleep duration and improve some subjective symptoms in adolescents.