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invasive mechanical ventilation (IMV) (0.508 [0.240]). Furthermore, poor sleep quality was associated with other sequelae such as depression ( $r = 0.58$ ) and anxiety ( $r = 0.49$ ).

**Conclusions:** Our findings demonstrate a remarkable prevalence of sleep and circadian alterations in COVID-19 survivors who developed ARDS and were admitted to the ICU. In this context, baseline characteristics such as BMI, time spent at the ICU, and IMV could be useful in predicting adverse outcomes. Altogether, our findings highlight the importance of considering sleep and circadian health of critical patients in the long-term.

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## SLEEP AND MENTAL HEALTH IN CHILEAN YOUNG ADULTS

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**Introduction:** Sleep and mental health are intrinsically related. Evidence showed that poor sleep contributes to the onset and maintenance of mental health alterations, regardless of their severity. Most studies, however, are linked to insomnia, depression or anxiety. This study aimed to assess the relation of sleep quality and daytime sleepiness with behavioral and emotional problems in young adults.

**Methods:** Participants were part of a cohort follow-up study since infancy. The following questionnaires were applied face-to-face by trained health personnel at INTA: Pittsburgh sleep quality index (PSQI), Epworth sleepiness scale (ESS), and Adult self-report scale (ASR). The global scores of PSQI and ESS were categorized: (a) PSQI: <5 good sleep quality and  $\geq 5$  poor sleep quality, and (b) ESS: <10 lower amount of daytime sleepiness and  $\geq 10$  excessive amount of daytime sleepiness. The ASR comprised eight syndrome scales (anxious/depressed, withdrawn, somatic complaints, thought problems, attention problems, aggressive behavior, rule-breaking behavior, and intrusive) and six Diagnostic and statistical manual of mental disorders (DSM)-oriented scales (depressive, anxiety, somatic, avoidant personality, antisocial personality problems, and attention deficit/hyperactivity [ADH: inattention and hyperactivity/impulsivity subscales] problems). For ASR, we used T-scores norm-based on age and gender. General linear models were conducted and the interaction with sex was assessed using Stata/SE 13.1.

**Results:** Ninety-four participants (46.8% female and  $21.4 \pm 0.3$  y) were assessed: 62.8% had poor sleep quality and 29.8% excessive daytime sleepiness. Participants with poor sleep quality showed higher scores in withdrawn (59.0 vs 54.4,  $p < 0.001$ ), somatic complaints (60.2 vs 55.3,  $p < 0.001$ ), attention (58.9 vs 54.2,  $p < 0.001$ ), aggressive behavior (55.3 vs 52.8,  $p < 0.01$ ), depressive (59.6 vs 53.6,  $p < 0.001$ ), anxiety (59.8 vs 56.8,  $p < 0.05$ ), avoidant personality (59.8 vs 54.1,  $p < 0.001$ ), and ADH problems (59.0 vs 54.0,  $p < 0.001$ ) compared to participants with good sleep quality. Those with excessive daytime sleepiness presented higher scores in attention (59.5 vs 56.2,  $p < 0.05$ ), intrusive (56.6 vs 53.2,  $p < 0.01$ ), and ADH problems (59.8 vs 56.1,  $p < 0.01$ ) relative to those with lower daytime sleepiness. Further, females with excessive daytime sleepiness showed increased scores in intrusive than females with less daytime sleepiness (59.5 vs 55.8,  $p < 0.01$ ), which was also the case in ADH problems compared to females (61.3 vs 54.9,  $p < 0.001$ ) and males (61.3 vs 57.0,  $p < 0.05$ ) with less daytime sleepiness. Males with higher daytime sleepiness presented greater scores in intrusive with respect to males (60.0 vs 56.3,  $p < 0.01$ ) and females (60.0 vs 55.8,  $p < 0.05$ ) with lower daytime sleepiness.

**Conclusion:** Our results show a relation between sleep quality and daytime sleepiness with emotional and behavioral characteristics in a group of Chilean young adults. Participants with poor sleep quality or greater daytime sleepiness presented higher score in scales of withdrawn, somatic complaints, attention, intrusive, aggressive behavior, and depressive, anxiety, avoidant personality, and ADH problems.

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## SLEEP AS PROTECTIVE FACTOR OF CHILDREN'S EXECUTIVE FUNCTIONS: A STUDY DURING COVID CONFINEMENT

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**Introduction:** The abruptly enforced COVID-19 confinement affects sleep and mental health of adults, adolescents and children. Already young children experience worsened sleep quality during confinement, yet potential consequences thereof concerning their maturation of Executive Functions (EFs) remain unexplored. Longitudinal research demonstrates that sleep behavior predicts later behavioral and cognitive development. Accordingly, we propose young children's sleep quality as protective umbrella, preventing negative developmental outcomes from influences of contextual stress. Through the lens of the confinement being an observational-experimental intervention, we tested whether worsening of young children's sleep is tied to EFs outcomes 6 months downstream confinement. We hypothesized that acutely increased night awakenings and prolonged sleep latency relate to lower later EFs scores.

**Materials and Methods:** First, we assessed sleep behavior during the acute confinement phase (April 2020) with an online survey (Children's Sleep Habits Questionnaire) and analyzed the following 4 core sleep behaviors: bedtimes, sleep latency, nighttime sleep duration, and number of nighttime awakenings. A retrospective sleep assessment referred to the time before confinement (pre-CONFINEMENT), and an assessment referred to the time of survey completion (during-CONFINEMENT). A second survey assessed EFs 6 months later (November 2020, FOLLOW-UP) parent-completed Behavior-Rating-Inventory-of-Executive-Function®-Preschool-Version, (BRIEF-P). This standard behavior-rating scale quantifies EFs for ages 24-71 months. Data on 412 preschool children were collected, and complete data were available for analysis for a total of 45 children aged 36-72 months ( $53.3 \pm 4.4$  months; 27 females). Wilcoxon signed-rank tests were used to quantify differences in sleep behavior from pre- to during-CONFINEMENT. We applied linear mixed models with the difference in the 4 sleep behaviors, age, and sex as fixed factors and subject-ID as a random effect accounting for inter-individual differences. For each standard EFs subscale (Inhibit, Shifting, Emotional-Control, Working-Memory, Planning/Organizing), index (*Inhibitory Self-control, Flexibility, and Emergent Metacognition*) and the Global-Composite-Score, the best fitting model was identified separately (backward selection, Akaike Information Criterion).

**Results:** We demonstrate that young children's sleep acutely changed during confinement (more regular bedtimes  $p = 0.003$ ; shorter sleep latency  $p = 0.002$ ). Further, sleep quality and EFs at FOLLOW-UP were associated, including that acutely increased nocturnal awakenings predicted lower inhibitory self-control indices at FOLLOW-UP ( $p = 0.021$ ). Also, acutely increased nocturnal awakenings predicted lower subscales Inhibit and Emotional-Control downstream ( $p = 0.036$ ;  $p = 0.032$ ). Finally, associations were specific to the confinement-induced sleep-change, as demonstrated by the lack of prediction of EFs outcomes through sleep behaviors at pre-CONFINEMENT.

**Conclusions:** These findings highlight mid-term (i.e., 6 months downstream) behavioral consequences of confinement in young children, related to their acute changes in sleep. These findings transfer the concept formerly evidenced in animals to humans, that inducing poor sleep during developmental periods affects later brain function, thereby supporting the protective sleep-umbrella model.

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## SLEEP CHARACTERISTICS OF IRANIAN PEOPLE AND THEIR EFFECTS ON DAYTIME FUNCTIONING: A POPULATION-BASED STUDY

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