

Sleep Challenges and ADHD in Children

CHILDREN WITH ADHD commonly experience difficulties with their sleep. Increased sleep difficulties can affect both health and daily functioning. Gaining deeper insight into what sleep difficulties look like and how they are related to various factors—such as mental health, attention, and reasoning—is a crucial step in promoting well-being in children with ADHD. What does recent research on sleep difficulties for ADHD tell us? This research update reviews two studies.

The first study looked at factors related to different types of sleep problems for children with ADHD, and found five different profiles of sleep difficulties with associated child and parent factors. Children with ADHD and co-occurring emotional and conduct problems as well as parent mental health challenges were more likely to have sleep difficulties in all areas.

The second study looked at how attention, processing, and reasoning may be related to different areas of sleep for children with ADHD. The researchers found that social jetlag (the difference in sleep between school days and free days) was related to cognitive performance.

Overall, both studies demonstrated what sleep difficulties may look like in children with ADHD. When supporting these children, focusing on consistent sleep routines and understanding an individual child's sleep profile are important when supporting these children.

What factors are related to sleep difficulties for children with ADHD?

Because sleep disturbances affect many children with ADHD, it is important to explore the different ways these problems show up in terms of sleep profiles and how they are related to various factors for these children. Participants with diagnosed ADHD were recruited from pediatric practices in Australia for this study, which included 392 children between the ages of five and thirteen; 244 of these children had moderate or severe sleep difficulties, and 148 had mild or no sleep difficulties.

Questionnaires were used to gather information, such as parent-reported sleep difficulties of their children, children's sleep habits, parent and child mental health conditions, child symptom severity, and child ADHD medication use. The results showed five different sleep profiles.

The first and most common profile was the “insomnia/delayed sleep phase” (36%), characterized by more daytime sleepiness, less duration of sleep, and delayed onset of sleep when trying to sleep. The second profile was “generalized sleep difficulties” (25%), which involved sleep difficulties in a number of areas, such as delays in sleep onset, sleep duration challenges, night awakenings, daytime sleepiness, and resistance to bed-



time. The third profile was “no sleep difficulties” (22.5%), characterized by low sleep difficulties. The fourth profile was “high anxious/bedtime resistance” difficulties (11.2%), which involved very high resistance to bedtime as well as anxiety related to sleep. The fifth and last profile was “overnight sleep difficulties” (5.4%), which involved sleep-disordered breathing, sleepiness in the daytime, night awakenings, and atypical behaviours during sleep such as sleepwalking, waking up with fear, or sleep-talking.

In terms of factors related to these types of sleep profiles, the “generalized sleep difficulties” and “high anxious/bedtime resistance” groups included 36% of participants. Compared to the “no sleep difficulties” group, children in these groups were more likely to have higher parent-rated child ADHD symptom severity, higher parent-reported conduct and emotional symptoms, higher co-occurring oppositional as well as anxiety and depression conditions, and higher parent mental health challenges. The “high anxious/bedtime resistance” group was also uniquely related to teacher-rated child emotional symptoms. For the “insomnia/delayed sleep phase” group, parent-rated conduct and emotional symptoms, parent mental health difficulties, and co-occurring child anxiety were higher for this profile, compared to children in the “no sleep difficulties” group. The “overnight sleep difficulties” group was more likely to have parent-reported child emotional and conduct symptoms, parent-reported hyperactive/impulsive symptoms, parent mental health challenges, and co-occurring child anxiety, compared to the “no sleep difficulties” group.

In general, children who had more parent-rated emotional and conduct symptoms were more likely to have sleep difficulties falling into one of the five sleep profiles. Indeed, children with higher co-occurring anxiety were more likely to be in all sleep difficulty groups. Similarly, children with greater parent mental health symptoms were more likely to be in each of the groups of sleep difficulties. Co-occurring autism diagnoses and use of ADHD medication did not differ between the “no sleep difficulties” group compared to the groups with sleep difficulties.

Overall, these results showed that most children in this sample experienced general sleep difficulties and/or high anxious/bed-time resistance, which were related to various factors. Children with more emotional and conduct problems were more likely to have sleep difficulties. As well, children having parents with more mental health difficulties were more likely to also have sleep difficulties. Overall, this study used a design that is unable to disentangle cause and effect, and more studies are needed in this area. However, overall findings show that sleep difficulties are multifaceted, with child emotional and conduct problems as well as parent mental health factors being related to sleep difficulties in all areas.

Sciberras E, Hiscock H, Cortese S, Becker SP, Fernando JW, & Mulraney M. (2023). Variation in sleep profiles in children with ADHD and associated clinical characteristics. *Journal of Child Psychology and Psychiatry*, 64, 1462-1469.

How are sleep challenges associated with cognitive performance?

Although it is known that children with ADHD experience sleep difficulties, findings on how sleep difficulties are related to cognitive performance are mixed. This study focused on three areas of sleep: amount of time in bed, sleep disturbances, and social jetlag. Time in bed referred to duration in hours between bed and wake times. Sleep disturbances involve problems with restlessness, night-time waking, sleep onset, waking, and snoring. Social jetlag refers to the difference in sleep on school days versus free days.

The researchers examined the association between these areas of sleep and cognitive performance in children with ADHD. In a study conducted in the United States, 350 children with diagnosed ADHD between the ages of five and twelve years old participated. Questionnaires assessing sleep and behavior as well as cognitive testing were completed.

The results indicated that social jetlag, which commonly occurs due to changes in rules and routines, is related to lower cognitive performance. Findings showed that the amount of social jetlag between school days and free days was one hour. In addition, half of the sample experienced at least one sleep disturbance type. The most common were problems with sleep onset, challenges with waking up in the morning, and restlessness. Neither time spent in bed nor the number of sleep disturbances were related to cognitive performance. However, those with more problems with sleep

onset performed worse on attention testing. As well, greater social jetlag was related to lower processing speed, language-based reasoning, and visually-based reasoning.

Based on these findings, social jet lag is an important area that relates to the cognitive performance of children with ADHD, although further studies are needed to test for causality. Consistent routines may lead to improvements in attention and learning.

Qu X, Kalb LG, Holingue C, Rojo-Wissar DM, Pritchard AE, Spira AP, ... & Jacobson LA. (2024). Association of time in bed, social jetlag, and sleep disturbances with cognitive performance in children with ADHD. *Journal of Attention Disorders*, 28, 99-108. 



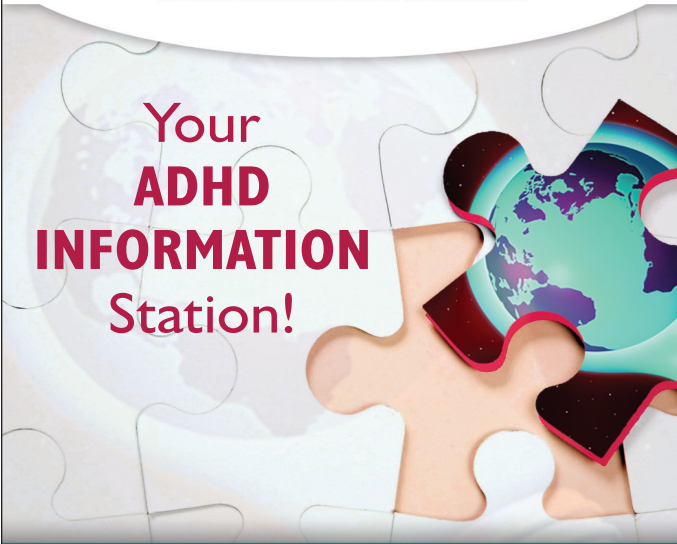
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