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“Tell Me More About Your Child’s Sleep”: A Qualitative Investigation Of Sleep Problems In Children With ADHD

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ABSTRACT

Objective: To investigate parental experiences and perceptions of sleep problems in their children with Attention Deficit Hyperactivity Disorder (ADHD), the perceived impacts of sleep problems and coping strategies deployed by parents.

Methods: Semi-structured interviews with twenty-six parents of pre-adolescent children with a diagnosis of ADHD, followed by thematic analysis of the interview transcripts.


Results: Three themes were generated from the data: Children’s Sleep Difficulties; Impacts of Children’s Sleep; and Improving Children’s Sleep. Sleep initiation problems in children with ADHD were commonly reported by parents, were perceived to be linked in a bidirectional manner with executive and emotional problems, and were reported as being disruptive to parental sleep. Some parents reported that their children’s sleep problems were the initial prompt that lead to a diagnosis of ADHD. Parents reported utilizing a range of coping strategies to mitigate sleep problems, such as controlling the bedroom sensory environment and using emotional “wind down” as part of the bedtime routine. Some parents endorsed a beneficial effect of melatonin on their children’s sleep.

Conclusions: Sleep problems in children with ADHD were perceived as important issues by parents. Equipping parents with evidence-based strategies for the management of their children’s sleep may lead to benefits for the children, parents and wider household.

Introduction

Attention Deficit Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder characterized by inattention, hyperactivity and impulsivity, and is associated with social, occupational, and functional impairments (DSM, 2013). ADHD is consistently associated with subjectively-reported sleep disturbances; core symptoms of ADHD may negatively impact sleep, whilst poor quality sleep may worsen ADHD symptoms (Raman & Coogan, 2019). Further, ADHD medication may contribute to sleep problems in ADHD (Clavenna and Bonati, 2017). The nature and significance of sleep problems in ADHD are not precisely defined, but are reported to include decreased sleep quality, longer sleep onset latencies, greater bedtime resistance and more nighttime awakening, and such sleep problems may be predictors of subsequent ADHD trajectories (Bondopadhyay et al., 2022). It is not clear whether sleep disturbance in ADHD has specific features or is similar to sleep problems that occur trans-diagnostically in young people (Arns et al., 2021). Sleep disturbances in ADHD may also have wider impacts, such as on parental sleep and mental health (Martin et al.,

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2021; Matsuoka et al., 2014), and an intervention for sleep problems in children with ADHD has been reported to decrease parental anxiety (Sciberras et al., 2011).

Most studies of sleep in ADHD in children rely on subjective parental-report through psychometric instruments (Larsson et al., 2023; Bondopadhyay et al., 2022); whilst these approaches are well-established they may lack the contextual richness required to gain nuanced understanding of the experiences of both children and caregivers of sleep problems in ADHD. For example, quantitative instruments do not routinely collect data on details such as bedroom arrangements (shared or single bedrooms between siblings, bedroom environmental features), family-life schedules and the household bedtime routine, and differences in children's sleep behaviors between school days and non-school days. Further, parental perceptions, experiences and coping strategies related to their children's sleep may not be well captured using psychometric approaches. To address such issues, qualitative approaches may be of utility in developing holistic insights into sleep in ADHD and identifying clinical needs regarding sleep problems in ADHD (Larsson et al., 2023). Currently, there are few published studies using qualitative approaches to examine sleep in ADHD (Harris et al., 2022; Larsson et al., 2021). In brief, these studies indicate that sleep problems in children with ADHD are perceived by parents as impacting children's daytime function and self-esteem, and that the perceived improvement of children's sleep through the use of weighted-blankets was associated with perceptions of improvement in the children's energy and wellbeing.

In this study we investigated sleep in children with ADHD through semi-structured interviews with their parents and thematic analysis of transcripts to gain new contextualized insights regarding the children's sleep problems and their impacts, and parents' perceptions, attitudes and coping strategies toward their children's sleep.

Method

26 parents of children (6–12 years old; mean age 9.8 years) were purposively sampled from the membership of ADHD Ireland (a charity organization; $N=16$) and the ADMiRE ADHD service at Linn Dara Child and Adolescent Mental Health Services, Dublin ($N=10$) according to the inclusion criteria of being a parent of a child aged between 5 and 12 years old with a formal diagnosis of ADHD as reported by the parents (not confirmed with clinical interview). Information Power model components were used to inform sample size (Malterud et al., 2016); considering the study aims, recruitment approach, sample specificity and clinical heterogeneity, and analysis strategy, it was established that the sample size should not be less than 20 in order to provide new insight. However, given that the study was based on established theory and empirical results a large sample would not be required. The study approved by the Maynooth University Research Ethics Committee and the Research Ethics Committee of Linn Dara Child and Adolescent Mental Health Services, Dublin.

Upon informed consent, demographic information was gathered (children's age, gender, medication use, number of siblings, known co-occurring conditions, parent's gender), and a semi structured on-line interview was conducted by UB with the parents alone via Zoom. A set of interview questions was constructed based on our recent systematic review of sleep in pediatric ADHD (Bondopadhyay et al., 2022; Table 1). Interviews were audio recorded for transcription and analysis, with all transcribed data irreversibly anonymized. Reflexive Thematic Analysis (TA) was used to generate themes and sub-themes from the interview data (Braun & Clarke, 2006, 2019). As TA can be used with different, or combinations of, theoretical frameworks, themes could be generated and interpreted for both parents' and children's sleep issues, and the interaction between these (a detailed description of the data analysis is in the Supplementary Material). A deductive analytical approach was used as there was a preexisting partial conceptual framework within which to explore features of sleep and ADHD (in brief, sleep problems are common in ADHD as they are partially a consequence of "core" ADHD cognitive and behavioral symptoms, such sleep problems also feedback to exacerbate "core" ADHD symptoms, and there is shared genetic liability between ADHD and sleep problems; Supplementary Figure S1). Reflexivity was realized through the researchers' active engagement with the data and analysis that allowed for themes to be

Table 1. Interview questions as presented in chronological order.

- (1) Tell me more about what makes a good night's sleep for you child?
- (2) Tell me more about what makes a not so good night's sleep for your child?
- (3) How do you think your child feels when they wake up in the morning?
- (4) Tell me more about your child's sleep quality? (Prompts to elaborate on sleep duration and other parameters of sleep that the participant might skip such as, snoring, limb movements during sleep, breathing difficulty and the emotional reactions the person has due to these?)
- (5) Tell me about your child's sleep duration through the week (weekends and weekdays)
- (6) Speaking of bedtime routines for your child, what comes to your mind and why?
- (7) Can you describe the activities your child prefers before bedtime?
- (8) How do you feel ADHD medication might/or might not be affecting your child's sleep/wake cycles?
- (9) Can you describe your child's sleep and wake patterns? (Following probes on why and how they affect their functioning)
- (10) Tell me more about your child's sleeping arrangements.
- (11) Can you describe your child's bedroom? (Probes about lighting, bed, curtains, bedding if not mentioned already after primary question)
- (12) How important do you think sleep is for your child and how important is it do you think for you?

generated and interpreted in a non-pre-defined manner. Throughout the design and implementation of the study, UB maintained a self-critical stance to identify and acknowledge her own epistemological standpoint and biases, particularly in the context of UB's professional background as a psychologist working with children with ADHD. This mental set was acknowledged as potential leading to over-emphasizing children's sleep problems and their impacts. The above was discussed and acknowledged during the co-analysis process with AC, who in turn recognized his biases and perspectives from a background in quantitative studies of sleep in ADHD. All authors, consisting of a clinical psychologist working with children with ADHD (UB), a sleep scientist (AC) and a consultant child and adolescent psychiatrist running a specialized ADHD service (JMcG), reviewed the themes and subthemes for conceptual coherence, credibility and clinical relevance. Participants were not re-contacted to review the data analysis due to a need to irreversibly anonymize responses at the point of completion of data collection. Trustworthiness of the analysis was enabled through the detailed description of the methodology as per the CORE EQUATOR checklist (Tong et al., 2007).

Results

Characteristics of the 26 children with ADHD whose caregivers were interviewed are presented in Table 2. In 88% of cases the informant was the mother and 77% of the children were male. Table 3 describes the codes that were generated from the analysis of interview transcripts, and using code clouds (Supplementary Figure S3) and document portraits (Supplementary Figure S4), common trends were generated and structured to form three themes of "Children's Sleep Difficulties", "Impacts of the Children's Sleep Problems" and "Improving Children's Sleep". In addition to the below, further illustrative quotes are in the Supplementary Materials.

Table 2. Child and parent demographics ($N = 26$ dyads).

Mean Child age (year) at interview (SD)	9.8 (1.77)
Male, n (%)	20 (77%)
Mother as informant, n (%)	23 (88%)
Children with siblings, n (%)	18 (69%)
Medication use, n (%)	
Children on ADHD medication	19 (73%)
Children on ADHD medication and Melatonin	8 (30%)
Children on Melatonin only	1 (3.84%)
Known co-occurring conditions, n (%)	
Autism Spectrum Disorder	5 (19%)
Obsessive Compulsive Disorder	2 (7%)
Epilepsy	1 (3.84%)
Migraine	1 (3.84%)
History of Sleep Apnoea	2 (7%)

Table 3. List of codes generated.

Code	Description
Factors helping sleep	This code describes all information relating to parents' efforts to help their child sleep at night. This code includes information on sleep environments deliberately formed by parents, pre-sleep activities, pre-sleep dialogs, planned day-time activities, medication/interventions as well as parent's own behaviors to promote the children's sleep.
Night-time behaviors of the child	This code describes all information provided by parents about the child's activities after dinner/evening supper, leading up to bedtime and sleep onset. Here, information such as nighttime routines and schedules, parental observed behavior patterns and the psychological state of the child is included. This code includes two sub-codes: "Behavioural concerns at night" and "Effects on parents".
Child's bedroom details	This code describes all information provided about the child's sleeping environment, including their bed, sleeping arrangements, bedroom details, toys/items they take to bed, types of bed sheets/duvets/blankets. This code includes two sub-codes "Lighting in the bedroom" and "Distractions in the bedroom"
Sleep Quality	This code relates to information about disrupted sleep, nightmares, frequent awakenings, breathing difficulties, body movements, bed wetting or any other detail. This code includes a detailing sub code "Body movements and breathing difficulties"
Sleep duration	This code describes the children's sleep schedules, including when they generally go to bed and fall asleep, and when they wake up in the morning, and transitions between sleep and wake. This code includes a detailing sub code "Weekend/weekday sleep duration"
After-wakening morning behaviors	This code captures all after-wakening morning behaviors of the child, including their psychomotor speed, temperament, verbal dialogs, activities they engage in and their consequences. This code contained the detailing sub code "Difficulties during morning"
Sleep/wake patterns	This code encapsulates parents' perspective on whether their child is more active/engaging during the morning or evening time (chronotype) and perceived reasons for these preferences.
Medication	This code related to information about children's ongoing or previous medications, how it has affected their sleep and functioning; details of ADHD medications and sleep medication is included. This code includes a detailing sub code "Effects of medication on sleep"
How important is sleep	This code covers parental perceptions on how important sleep is for their child's functioning and how important is sleep for their own functioning. Typically parents were asked to rate the importance on a scale of 1–10 (10 being highest), however some parents have also chosen to describe the importance rather than present a numerical value.
General thoughts about child's sleep	This code covers information capturing parents' overarching thought about their child's sleep; for example, whether sleep has been an issue always, or sleep is a matter of schedules, or if sleep is not a problem in the household. This code includes a detailing sub code "Sleep's role in the diagnostic process, capturing information on how difficulties with sleep initially led to the assessment process and subsequent interventions for ADHD."

Theme 1: children's sleep difficulties (endorsed in 19/26 transcripts)

This theme related to children's difficulties in initiating and/or maintaining sleep, and incorporated three sub-themes relating to specific manifestations of these issues.

Sub-theme 1: difficulty initiating sleep (17/26 transcripts).

This sub-theme related to children's difficulties around bedtime and sleep onset, including children's need to communicate and other non-sleep related behaviors at bedtimes, children becoming overactive and/or wanting to complete or plan tasks at night and children needing parent's presence in the bedroom to fall asleep.

'What happens is a lot of in and out of bed and up and down the stairs, 'I have something to tell you', 'I need to drink', 'I need to whatever' he's afraid of missing out on things'. (Male, 8 years)

Sub-theme 2: emotional distress affecting sleep (8/26 transcripts).

This sub-theme related to bidirectional relationships between emotional distress and sleep problems at bedtime, including how children's unresolved emotions made it difficult to settle down for sleep and how emotional distress that arose from not being able to sleep was identified as a barrier to sleep.

And I think, like 90% of it is anxiety. And I think everybody has had one of those nights where you just can't go to sleep, and just stare and that is his norm. (Male, 10 years)

Sub-theme 3: waking early despite late sleep onset (6/26 transcripts).

This sub-theme included elements reflecting that delayed sleep onset times often did not result in later sleep offset, children's behavioral rigidity of early waking time, and how on early waking the children attempted to engage with others in the household.

And she would wake up often at five o'clock . . . she would rarely sleep in even if she'd been up late the night before. So she would wake up full of energy like ready to go for the day, even if we weren't done and that was very difficult. (Female, 12 years)

Theme 2: impacts of children's sleep problems (endorsed in 17/26 transcripts)

This theme related to the consequences of children's sleep problems, including daytime function, the family context and how sleep problems contributed to initial engagement with clinical services.

Sub-theme 4: behavioral and emotional consequences of sleep problems (9/26 transcripts).

This sub-theme related to daytime behavioral and emotional problems exacerbated following poor sleep, and the perceived emotional and behavioral benefits of catch-up sleep.

He wouldn't go on like, right (without sleep). No, he wouldn't like it because he wasn't functioning. He wasn't concentrating . . . It keeps coming back. He explodes basically screaming, shouting, kicking the walls . . . he starts to cry. (Male, 7 years)

Sub-theme 5: influence of children's sleep on parents' sleep/evening schedule (8/26 transcripts).

This sub-theme related to impacts of children's sleep problems on their parents' sleep, including how parents had to spend more evening time with the child at their bedtime, in turn impacting on the adult's evening schedules, and parents' own sleep being disrupted by the child's sleep problems and the need to check on the child during the night.

. . . it's something that we're constantly talking about, it affects our lives every day, you know, that I'm telling her that I (mummy) haven't got any sleep . . . and ask her to do little things that might help me (mummy) to get a bit more sleep . . . I'm talking to my husband that I get no sleep. (Female, 11 years)

Sub-theme 6: sleep problems as a motivation for ADHD assessment (6/26 transcripts).

Elements of this sub-theme pertained to the role that sleep problems played in the children's diagnosis with ADHD, how sleep difficulties led to children being prescribed medication, and increased parental awareness of the clinical features of ADHD leading to improved functional outcomes for the children. Notably, 5 of the 6 children in question were reported as having co-morbid diagnoses (1 OCD, 2 ASD, 1 dyspraxia, 1 Migraine).

So this is before we obviously hadn't really explored the ADHD diagnosis. His eyes were really heavy. He'd be moaning an awful lot at night time . . . bedwetting was maybe twice a night. Was really tired . . . I decided maybe it was a sleep issue . . . so then we went down the road of being assessed by a psychiatrist, and he also had a psychology assessment . . . she said that he was ADHD. (Male, 11 years)

Theme 3: improving children's sleep (endorsed in 24/26 transcripts)

This theme related to actions parents described taking to aid their children's sleep, including bedroom and bed features, features of the bedtime routine and how medication impacts on their children's sleep.

Sub-theme 7: bedtime routine (20/26 transcripts).

This sub-theme related to steps parents took in the run-up to bedtime, including using consistent evening time routines, restricting certain activities such as screen time and food items such as carbonated drinks. This theme also captured the perceived positive impact of children's exercise on sleep.

And then just generally the routine at bedtime . . . And we do the same thing every night. (Male, 10 years)

We don't give her carbonated drinks . . . she has like milk or water, or you know, she doesn't get coke or anything like that. (Female, 12 years).

Sub-theme 8: improving children's emotional state to help sleep (7/26 transcripts).

This sub-theme related to how parents took steps to avoid upsetting the child before bedtime, reassuring children with their presence and talking about unsettled emotions to help calm the child before sleep.

If she had a very stressful day . . . her sleep is mostly affected by things that have happened and overthinking . . . when she feels like she's had a chance to kind get those thoughts out, that makes her sleep a bit better. (Female, 10 years)

Sub-theme 9: bedroom features (10/26 transcripts).

This sub-theme related to the use of items such as play dough, stuffed toys or a familiar blanket to aid bedtime routines, and particular bedroom features such as specific duvets/bed sheets, bedroom lighting, sounds and temperature to facilitate the children's sleep.

Temperature is the biggest factor: it completely affects her sleep . . . she'll wake up exhausted because she'd be so hot. (Female, 10 years)

I used to play kind of relaxing music. Oh, yeah, it's smart to wind him down. I suppose just to make him relax. . . (Male, 10 years)

Sub-theme 10: medication effects on children's sleep (12/26 transcripts)

This sub-theme related to perceived impacts of ADHD medication on sleep as well as the perceived benefits of melatonin; parents reported that psychostimulants were perceived to increase sleep onset latency, whilst melatonin was perceived as being helpful.

I wasn't really thinking that we will be dealing with a medication that will take him longer to unwind. And he was increased to an extra five milligrams, which didn't help taking in the afternoon, so he stayed up . . . I think he was just a little bit overstimulated. . . his eyes were dilated, and he was just kind of wide-awake running around the house. (Male, 11 years)

So we've tried to, to see what it's like without the melatonin and he can't sleep at all. He'll stay awake until maybe half one in the morning . . . So, it really does have a massive benefit. (Male, 10 years)

Discussion

ADHD is associated with sleep disturbances across the lifecourse (Bondopadhyay et al., 2022; Coogan & McGowan, 2017). However, low granularity of quantitative studies has limited understanding of the nature and consequences of sleep disturbances in ADHD. Qualitative approaches are under-utilized in sleep research, given their potential to reveal rich details relating to the contexts, precipitators, consequences, and management of sleep disturbances.

Manifestation of sleep problems in children with ADHD

Sleep problems in their children were commonly reported by parents. Bedtime and sleep-onset difficulties were perceived by parents as the main difficulty; sleep maintenance issues were not identified as a sub-theme. Parents reported aspects of executive dysfunction and emotional dysregulation as important factors in sleep onset problems. Previous reports using polysomnography, actigraphy and quantitative parental-report indicate that sleep onset insomnia occurs in ADHD and is linked to externalizing symptoms (Aronen et al., 2014; Miano et al., 2019). As executive dysfunction is central to poor functional and psychosocial outcomes in ADHD (Brown, 2017), it is important to understand the interplay between sleep and executive function. The current data suggests that executive

dysfunction contributes to children's poor communication and planning around bedtime, which in turn prolongs winding down time and sleep onset latency. Emotional distress affecting sleep was also generated as a sub-theme, with children's distress resulting from difficulties falling asleep further increasing sleep onset latency. Negative effects of emotional distress on sleep in ADHD has been previously reported in quantitative studies and linked to executive dysfunction (Becker et al., 2016); however, the current findings also indicate the presence of a problematic feedback loop between sleep onset problems and distress, which we are not aware of being previously reported. Rigid adherence to sleep routines by children was also reported by parents to be associated with longer sleep onset latency and emotional problems at bedtime, and early waking time habits may result in short sleep when combined with sleep onset difficulties. Co-occurring autism-related rigid behavioral patterns may be important contributors to sleep problems in ADHD (Spruyt & Gozal, 2011), and indicate a need to better understand the role of co-occurring conditions in sleep problems in ADHD.

Impacts of sleep problems in children with ADHD

The emotional and behavioral consequences of sleep problems in children was identified as a theme in our analysis. Shorter sleep time was perceived by parents to be associated with behavioral/emotional outbursts, and accordingly catch-up sleep was reported to lead to improved emotional regulation. Associations of short sleep with attentional, impulsivity and behavioral problems echo and extend previous findings (Eyuboglu & Eyuboglu, 2018; Hiscock et al., 2015), and a recent qualitative study also noted the association of poor sleep with subsequent emotional and behavioral difficulties for children with ADHD (Harris et al., 2022).

The impact of the children's sleep problems on parents' sleep and routines was identified as a subtheme, with children's erratic bedtime routine reported to affect other family member's evening and sleep schedules. Parents reported a desire to avoid these household disruptions, which may in turn motivate them to apply consistent bedtime routines for their children with ADHD to mitigate these negative household impacts. Previous studies have linked children's sleep problems in ADHD with parental sleep and mental health and family relationships (eg. Matsuoka et al., 2014). As such, we suggest explicit examination of sleep as a whole-household issue for future ADHD studies.

Further, children's sleep problems acting as a trigger for engagement with clinical services ultimately leading to diagnosis of ADHD was identified a sub-theme from 6 out of 26 transcripts. Interestingly 5 out of 6 of the above mentioned children had a co-occurring condition which may have exacerbated sleep problems. Sleep problems may be an antecedent of ADHD, or may represent an early-presenting ADHD symptom or may represent a co-occurring condition (Gosling et al., 2023), and may also represent symptoms that parents can more easily identify than other ADHD symptoms, and as such may be an important prompt for engagement with clinical services. We suggest this topic speaks to the importance of assessment of sleep in clinical encounters and warrants further focused investigation.

Coping strategies to improve children's sleep

Parents described taking steps to improve their children's sleep and mitigate the negative consequences of the sleep difficulties. These included calming children's emotions before bedtime, including avoiding children becoming upset, providing reassurance with their presence, and discussing unsettled emotions. It is striking that this sub-theme was only generated in 7 of the 26 interviews, indicating a potential opportunity to enhance sleep psychoeducation for parents of children with ADHD to further emphasize the role of emotional regulation in the hours leading up to bedtime, and the potential for a virtuous circles whereby better sleep results in better emotional self-regulation for the child which then facilitates better sleep.

The importance of executive and emotional regulation problems in ADHD suggest potential for sleep hygiene to improve sleep in children with ADHD, and parents reported using a number of

sleep hygiene features; Hiscock et al. (2015) previously reported that sleep hygiene improves sleep duration and daytime function in children with ADHD. It is not clear if parental application of sleep hygiene practices has been informed by psychoeducation from clinical services, by other publically-accessible sources, or had been arrived at as “common sense”. Parents also reported using bedroom features to facilitate sleep. Many children with ADHD also have sensory processing difficulties, and such techniques might target these (Ghanizadeh, 2011). Hvolby and Bilenberg (2011) reported that use of a weighted ball blanket reduces sleep onset latency in ADHD children. Larsson et al. (2021) report that a trial of weighted blanket use in ADHD was qualitatively associated with better sleep, improved daytime function and reduced anxiety. Again, it is not obvious from the current data where parents sourced information on the use of items such as weighted blankets and other bedroom features for their children. Bedroom features for children with ADHD will also be influenced by the household status (eg. whether bedrooms are shared or single), and such considerations may constrain the extent to which parents can optimize bedroom features to aid their children’s sleep.

In terms of medication, twelve parents mentioned use of methylphenidate formulations which was perceived as increasing sleep onset latency. Previous studies have reported methylphenidate’s associations with greater sleep complaints (Becker et al., 2016), no effects (Ashkenasi, 2011) or positive sleep outcomes (Chin et al., 2018). Melatonin may be used widely in pediatrics (Kimland et al, 2020), although clinical guidelines for its use are not well developed (Esposito et al., 2019). Parents reported that melatonin was perceived as helpful in managing their children’s sleep, although some reported that sleep problems rebounded following melatonin withdrawal.

Strengths and weaknesses

The current study has some important strengths: thematic analysis reveals a richness of detail that is not available in the current literature, such as perceptions of the bidirectional interplay between ADHD symptoms and sleep problems, impacts of children’s sleep problems on parents and strategies employed by parents to mitigate their children’s sleep problems. We also identify clinically-relevant facets, such as sleep disturbances as triggers for ADHD assessment that have not been previously well described in the literature. A weakness is the limited clinical information that was available about the children’s ADHD, so that it is not possible to explore sleep differences between different subtypes or severity of ADHD. Further, the study was based on interviews with parents and as such did not directly assess children’s sleep experiences. The current study only concerned pre-adolescent children; adolescence is understood as a period of profound change for young people, including sleep needs and habits (Roenneberg et al., 2004), and as such the findings may not extrapolate to adolescents. Qualitative approach may be at risk of bias, and we acknowledge such risk in the current study although the methodology was applied systematically to reduce the risk of such bias (Tong et al., 2007). Finally, our study had a male bias (77%), perhaps reflective of a roughly two-fold greater frequency of ADHD diagnoses in boys versus girls (Hinshaw et al., 2022).

Conclusion

The current results reinforce the utility of qualitative approaches in studies of ADHD and sleep, and highlight the need to understand the contexts and consequences of sleep problems in children with ADHD in greater detail.

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