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Behavioral Parent Training for ADHD and Sleep: A Dream Pair

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Introduction

- For school-aged children, behavioral parent training (BPT) and medication management are the evidence-based interventions for children diagnosed with attention-deficit/hyperactivity disorder (ADHD).
- Current estimates of children with ADHD and comorbid sleep disorders range from 25-75%.[1,2,3]
- At Children's Mercy Kansas City, the ADHD Clinic has services that include a virtual, BPT group using a standardized, evidence-based curriculum developed by Cincinnati Children's Hospital to reduce ADHD-related impairments for school-aged children.[4]
- Due to the high prevalence of sleep problems present in children with ADHD, specifically behavioral sleep problems, a brief behavioral parent training sleep intervention was developed and woven into the current ADHD BPT curriculum.
- The objective was to target sleep problems by adding brief sleep BPT to existing BPT for ADHD.

Methods

- Sleep education was adapted from existing resources, reviewed, and approved by a board certified sleep physician, and integrated into the current ADHD BPT curriculum for parents/guardians of children ages 6-12 years.
- Consecutive families in ADHD BPT were enrolled in the enhanced intervention from May 2021-December 2021.
- The ADHD BPT was eight 90-minute sessions with three of those sessions including sleep educational content:
    - Healthy sleep duration
    - Sleep hygiene
    - Behavioral sleep interventions (visual schedules, extinction of parental presence, positive reinforcement, bedtime fading).
- BPT was led by licensed psychologists or Board Certified Behavior Analysts.
- Questionnaires (administered at baseline and post-intervention):
    - Short Form-Child Sleep Habits Questionnaire (SF-CSHQ) with an additional sleep duration question
    - Impairment Rating Scale (IRS)

Results

- 77 participants were enrolled. 54 patients completed both the pre- and post- SF-CSHQ survey and were included in the analysis.
- Following BPT, there were no significant changes in the SF-CSHQ total or subscale score or sleep duration. (Table 1).
- Child Impairment in ADHD symptoms significantly decreased over the intervention (Table 1).
- Adherence: 52/54 participants attended ≥75% attendance of ADHD BPT and ≥66.7% sleep sessions.
- The majority of families were present during the sessions with sleep education, but the majority of families did not do the sleep interventions (please see Table 2 below).
- The majority of families endorsed that the sleep education was helpful and that their child was sleeping better (Table 2 below).

Table 1. Primary Outcome Measures

Outcome Measure	Pre [SD]	Post [SD]	Difference (CI)	Significance
SF-CSHQ Total	30.8 [6.4]	30.2 [7.0]	-0.63 (-1.98, 0.72)	0.355
Sleep Duration	9.60 [1.12]	9.63 [1.11]	0.03 (-0.19, 0.25)	0.780
IRS	3.3 [1.4]	2.3 [1.5]	-1.02 (0.59, 1.45)	<0.001

Table 2. Secondary Outcome Measures and Adherence

Subjective Outcomes	Percentage
Guardian endorsed sleep education was helpful	85.2%
Guardian endorsed their child is sleeping better	63.0%
Adherence	**Percentage**
Guardian with sleep goal of 10-11 hours	75.9 % (No Response 18.5%)
Guardian that made a visual sleep schedule	13.0 % (No response 18.5%)
Guardian who tried sleep intervention strategies	31.5% (No response 18.5%)

Discussion

- Consistent with previous studies, the intervention maintained its impact on decreasing impairment in ADHD symptoms. Adding a brief sleep intervention did not interfere with the effectiveness of the BPT for ADHD.
- There could be many reasons why there were no clinically significant changes in children's sleep after the brief sleep intervention. Many families did not have the chance to implement the sleep intervention strategies during the course of the study. They may have been busy with other aspects of the behavioral intervention. Families may not have been as motivated to implement sleep strategies during summer or holiday breaks.
- Families reported that the sleep intervention was beneficial; however, they noted it was difficult to implement due to vacations or other disruptions in their routines.

Conclusion

- This brief, targeted intervention did not appear to be a sufficient dose to improve sleep disturbances in children with clinically significant sleep disturbances and ADHD.
- Further study of why there was such low uptake of behavioral sleep interventions is needed, despite high levels of baseline sleep problems and high endorsement of the helpfulness of the sleep intervention.

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