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Multi-Method Assessment of Sleep in School-Aged Children: The Role of Parent Behaviors and Parent-Child Interactions

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INTRODUCTION

Research has consistently highlighted relationships between sleep, parental behaviors, and parent-child interactions, but few studies have examined correlations based on multi-method assessments of sleep. Further, few studies have utilized validated measures of parent-behaviors and parent-child interactions related to sleep. In examining these relationships, the role of development is important to consider, because kids need different types of sleep-support at different stages of life (i.e. preschool, school-aged, adolescent).

The current study assessed child sleep patterns/behaviors in relation to parental behaviors and parent-child interactions using self-reported and objective data. Among our school-aged sample of children, we expected better sleep quality to be associated with less parental involvement and greater child autonomy surrounding sleep.

METHODS

- Thirty-three children comprised the sample. Children were 7-11 years old. All children were free of psychiatric or sleep problems and were medically healthy.

The sample makeup included 15 (45.5%) boys, 19 (57.6%) Caucasian, 5 (15.2%) African American, 3 (9.1%) Hispanic, 1 (3.0%) Asian, and 5 (15.2%) children of "Other" racial/ethnic characteristics were included.

- **Exclusions:** Participants were excluded based on 1) diagnosis, symptoms or indicators of sleep disordered breathing (e.g., snoring, gasping during sleep); 2) taking medication/s that could impact sleep; 3) Full Scale IQ < 80; and/or 4) English speaking child and parent.

PROCEDURE

Data was collected as part of a larger, NIH-funded study at UH (PI: C. Alfano) focused on sleep and anxiety in children approved by the UH Institutional Review Board. Each parent-child dyad provided informed consent and completed a comprehensive assessment including parent (mostly mothers) and child diagnostic interviews and self-report measures. Seven consecutive nights of sleep were collected after the clinical assessment. Families were called nightly to ensure protocol adherence.

MEASURES

Structured Interviews

- The Anxiety Disorders Interview Schedule for Children (ADIS – C/P; Silverman & Albano, 1996) is a semi-structured diagnostic interview with strong reliability and validity for the diagnosis of psychiatric disorders in youth.

Assessment of Sleep

- The Children's Sleep Habits Questionnaire (CSHQ; Owens et al., 2000) is a validated parent report questionnaire yielding a total sleep problems score as well as 8 subscale scores related to specific types of sleep problems.

- The Sleep Self-Report (SSR; Owens et al., 2000) is a 26-item, validated, child-report questionnaire ford children 7-12 years. It yields a total score based on 13 items relate to the same sleep domains assessed by the CSHQ.

- Actigraphy - Children wore a Micro Sleepwatch (Ambulatory Monitoring Inc.) on their wrist for seven consecutive nights. Actigraphy data (including event markers) were used to measure objective sleep parameters. Total sleep minutes, sleep onset latency, bedtime consistency, and sleep efficiency were examined based on computerized scoring using the Sadeh algorithm. Families completed sleep logs in conjunction with actigraphy.

Parenting Behaviors and Pre-sleep Parent-Child Interactions

- The Child-Report of Parenting Behavior Inventory (CRPBI; Schluderman & Schluderman, 1970) is a 30-item, validated questionnaire designed to assess children's perceptions of parent' behaviors toward the child. Subscales pertain to Psychological Control, Acceptance, and Firm Control.

- The Parent-Child Sleep Interactions Scale (PSIS; Alfano et al., 2013) is a parent report measure developed to assess sleep-related behaviors and parent-child

interactions related to sleep that may give rise to and/or maintain child sleep problems. Subscales include Sleep Dependence, Sleep Conflict and Sleep Reinforcement. Reliability in the current sample was adequate (Cronbach's alpha=.73).

RESULTS

Using SPSS software, Pearson's correlation coefficients were examined among subscales of the Parental Behaviors (CRPBI), Parent-Child Interactions (PSIS), and Sleep measures (CSHQ, SSR). The relationship between these subscales and objective data obtained from actigraphy were examined as well (presented in Tables 1 and 2).

A positive association between parent-report of Sleep Onset Delay (i.e., sleep onset latency; SOL) and actigraphy-based bedtime inconsistency as well as a negative association between parent-report of SOL and CRPBI Acceptance were statistically significant ($p<.05$). Significant positive correlations were also found between child-reported SOL and PSIS Sleep Dependence, and between parent-report of Sleep Duration and actigraphy-based Sleep Inconsistency ($p<.01$).

Table 1. Correlations among Child-reported Sleep (SSR), Objective Bedtime Inconsistency, and Parent-Child Sleep Interactions (PSIS)

	PSIS Sleep Dependence	PSIS Sleep Conflict	PSIS Sleep Reinforcement	Bedtime Inconsistency
SSR Sleep Onset Delay	**.627****	.002	-.204	.011
SSR Sleep Duration	-.140	-.131	-.120	.152
SSR Sleep Anxiety	-.103	**.406***	.007	-.051
SSR Bedtime Resistance	.032	.002	-.054	.068
* p < .05, **p < .01,				

Table 2. Correlations among Parent-reported sleep (CSHQ), Parenting Behaviors (CRPBI) and Objective Bedtime Inconsistency

	Acceptance	Psych Control	Firm Control	Bedtime Inconsistency
CSHQ Sleep Onset Delay	**-.398***	-.348	-.088	**.494***
CSHQ Sleep Duration	-.264	.195	.273	**.513****
CSHQ Sleep Anxiety	-.124	-.331	-.095	-.034
CSHQ Bedtime Resistance	-.146	.079	.276	.118

* p < .05, **p < .01,

DISCUSSION

- Significant correlations found in this study suggest important relationships between parenting behaviors and children's sleep.

- A negative correlation between parent-reported SOL and child-report of parental acceptance (shown in Table 2) indicates lower levels of parental acceptance to be associated with an increased amount of time needed for children to fall asleep. One possible explanation is that perceived lack of acceptance from a parent overlaps with parent-child conflict at home which could affect children's sleep behaviors/habits.

- As shown in Table 1, a positive correlation between child-reported SOL and parent-report of their child's dependence on the parent to fall asleep (Sleep Dependence) suggests that high levels of parental involvement related to sleep may not be beneficial for school-aged children. High levels of Sleep Dependence may lead to a lack of child control of sleep behaviors, including increased time

taken to fall asleep. This relationship shows that too much dependence on parents for sleeping may negatively impact child's sleep.

- Although greater parental involvement might be expected to correlate with better child sleep, the need for parental sleep-support changes over the course of development. The amount of parental involvement needed among preschoolers may be greater than older children. School-age children (7-11 years) are at a point in their development where less parental involvement/more control of their sleep habits seems to be more beneficial.

- Interestingly, there were correlations found between actigraphy data and parent-report of child sleep habits (shown in Table 2). A relationship between inconsistency of child's bedtimes and longer SOL suggests that the body needs a consistent sleep pattern to have the most optimal sleep. With an increase in sleep inconsistency, there is greater delay in the amount of time it takes a child to fall asleep. This same reasoning can be used in understanding the positive correlation between Sleep Inconsistency and parent-report of Sleep Duration (where higher sleep duration scores indicate less adequate sleep). Greater sleep inconsistency suggests the lack of a regular child bedtime which affects the amount of time a child spends sleeping.

LIMITATIONS/DIRECTIONS FOR FUTURE RESEARCH

- The sample size for the study was small and lacked sufficient statistical power to detect anything other than large correlations.

- The PSIS measure used in this study was originally validated in pre-school aged sample of children (ages 3-5 years) and requires validation in the age range (7-11) examined.

REFERENCES

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