The Relationship Between Parental Accommodation and Sleep-Related Problems in Children with Anxiety

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ABSTRACT: ***Objective:*** **Sleep-related problems, defined as sleep patterns atypical for the child's developmental stage, are common in children with elevated anxiety symptoms and linked to significant mental and physical health consequences. Despite the consequences of sleep-related problems, it remains unclear how these problems are initiated and maintained in children with elevated anxiety symptoms. The current study examines the relationship between sleep-related problems and parental accommodation (e.g., co-sleeping) to determine whether higher levels of accommodation are associated with more frequent sleep-related problems in a sample of children with elevated anxiety symptoms.** ***Methods:*** **Participants were 122 children aged 8 to 17 years old (M = 11.97, SD = 2.68; 57% female) and their parents who presented to a university-based anxiety specialty clinic for assessment and treatment. Children completed the Multidimensional Anxiety Scale for Children, and their parents completed the Children's Sleep Habits Questionnaire and Family Accommodation Checklist and Interference Scale. Multiple regression analyses were performed to examine variance in sleep-related problems explained by parental accommodation.** ***Results:*** **Parental accommodation accounted for a significant amount of variance in sleep-related problems over and above child anxiety and age for both mother report (19%) and father report (15%). When individual accommodation items were examined, parental sleep accommodations (e.g., slept in my child's bed) and nonsleep accommodations (e.g., came home early) were significant predictors for mother-reported sleep-related problems, but only sleep accommodations (e.g., let my child sleep with the lights on) were significant for father-reported sleep-related problems.** ***Conclusion:*** **Parents of children with elevated anxiety symptoms and sleep-related problems engage in accommodation related to their child's sleep (e.g., co-sleeping). Future research elucidating the potential bidirectional and causal links between parental accommodation and sleep-related problems is a necessary step in adapting sleep treatments for this population.**

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Sleep-related problems, defined as sleep patterns atypical for the child's developmental stage, are common in childhood[1] and particularly prevalent in children with elevated anxiety symptoms, as approximately 85% of this population demonstrate significant sleep disturbances.[2] Sleep-related problems in children with elevated anxiety symptoms consist of behaviors related to sleep anxiety (e.g., reassurance seeking) and sleep dependence (e.g., needing a parent present to fall asleep), as well as longer sleep onset latencies.[2,3] Sleep-related problems are a major public health concern because they can have wide-ranging detrimental effects on children's daily functioning in addition to far-reaching mental and physical health consequences.[4]

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There are many professional societies (e.g., Society of Behavioral Sleep Medicine) and a strong body of literature supporting the efficacy of behavioral treatments for sleep-related problems in youth.[5–7] These behavioral treatments often consist of components such as sleep hygiene, age-appropriate bed and wake times, consistent bedtime routines, and strategies to improve sleep onset associations and sleep efficiency.[7,8] Behavioral treatments also often include skills such as extinction, stimulus control, and bedtime fading to address nighttime fears (e.g., separating from parents at bedtime); these interventions have been found to reduce both anxiety and sleep-related problems in children with nighttime fears, but the mechanisms of treatment success remain unclear.[7] Many of these interventions involve parents because parents are critically important to helping children get sufficient sleep and are involved in sleep routines to varying degrees across childhood.[7,9] For example, as children reach school age (6–12 years) and adolescence, it is developmentally appropriate for children to shift to more independent sleep, so treatment may assist parents in providing scaffolding (e.g., reminding children to start getting ready for bed at a certain time).

In contrast to parents providing appropriate support and scaffolding around sleep, other parent behaviors such as parental accommodation may potentially act as mechanisms maintaining sleep-related problems in children with elevated anxiety symptoms. Defined as when parents change their behavior in an attempt to prevent or reduce child distress and in doing so reinforce avoidance,[10–12] parental accommodation may take a variety of forms such as leaving the overhead light on at night for a child afraid of sleeping in the dark or ordering at a restaurant for an adolescent with social anxiety disorder. Although parental accommodation is a natural response of caring parents, in children with elevated anxiety symptoms, these behaviors may unintentionally reinforce avoidance and increase anxiety in the long term.[10,11] In fact, although causal data are limited in children with elevated anxiety symptoms, 1 study found that reductions in parental accommodation preceded improvements in obsessive-compulsive disorder (OCD) during a family-based treatment.[13] This suggests that parental accommodation may maintain anxiety and be an important target of treatment because accommodation seems to play a similar role in pediatric anxiety and OCDs.[10]

In the case of sleep-related problems, when children are anxious about separating from parents at night or worry about their ability to fall asleep, parents may begin to shift their behaviors in an attempt to prevent or reduce their child's distress (i.e., accommodate).[11] Parental accommodation around sleep, such as the parent co-sleeping to address child fears of sleeping alone, often initially reduces a child's anxiety but, in the long run, may exacerbate sleep-related problems.[11] By removing the immediate aversive situation (e.g., fear of separating from parents at night), parents may create a negative reinforcement cycle through which maintaining healthy sleep habits becomes increasingly more anxiety provoking, and the child's belief that they cannot handle anxiety related to sleep on their own is reinforced.[11] Positive reinforcement related to parental accommodation also potentially plays a role in maintaining sleep-related problems in this population. Because parental accommodation often involves extra time with parents, avoidance may be unintentionally rewarded (e.g., when a child resists going to bed, parent spends extra one-on-one time with the child). Negative and positive reinforcement of avoidance associated with parental accommodation could affect all children with sleep-related problems to some degree. However, the high prevalence of long-standing sleep dependence (e.g., co-sleeping) in children with elevated anxiety symptoms[2,3] and research demonstrating that anxiety increases with reinforcement of avoidance suggests that parental accommodation may be particularly relevant to this population.[10,11]

Because both sleep-related problems and parental accommodation are prevalent in children with elevated anxiety symptoms, this population provides an ideal sample in which to examine whether parents of children with comorbid sleep-related problems and anxiety accommodate indiscriminately to reduce child distress or whether the accommodations are more narrowly focused on the issue of sleep. For example, co-sleeping may directly reinforce sleep dependence, whereas staying home with a child too anxious to separate from parents for school may indirectly increase sleep dependence by reinforcing separation anxiety. Understanding this distinction will help to elucidate factors maintaining sleep-related problems in children with elevated anxiety symptoms and could inform the tailoring of existing interventions to this population. For example, for a child with separation anxiety that is present throughout the day, treatment may need to address this larger issue first before addressing the child's difficulty separating at night. It may be that working on separation during the day first is easier for the child and may build the confidence necessary to practice separating from parents at night. In addition, engaging in exposures related to separation during the day is also likely to generalize and reduce some of the anxiety around separating from parents at night.

Despite the established tie between anxiety and sleep-related problems[2] and anxiety and parental accommodation,[10,12] to our knowledge, these constructs have not been examined in concert outside of 1 study that examined only co-sleeping.[14] In addition, although sleep-related problems, accommodation, and anxiety vary by age,[12] there has been little research examining these factors across the developmental trajectory. The current study aims to describe the rates of sleep-related problems and accommodation in a sample of children with clinically significant anxiety, examine how accommodation differs between parents of children with elevated anxiety symptoms and those with comorbid anxiety and clinically significant sleep-related problems, and elucidate the relationship that general and sleep-specific accommodation has to sleep-related problems. We hypothesize that (1) consistent with the previous literature, the rates of sleep-related problems and parental accommodation will be high in this sample of children with clinically significant anxiety symptoms[12]; (2) parental accommodation (e.g., co-sleeping) and sleep-related problems (e.g., child fear of sleeping alone) will demonstrate significant overlap but remain distinct constructs; (3) overall rates of accommodation will be significantly associated with sleep-related problems in this sample when controlling for anxiety and age; and (4) when individual accommodation items are explored, sleep-specific accommodations (e.g., co-sleeping) will be associated with sleep-related problems more significantly than nonsleep accommodations (e.g., ordering for a child at a restaurant).

METHODS

Participants

Participants were 122 children aged 8 to 17 years old (M = 11.97, SD = 2.68; 57% female) and their parents who presented to a university-based anxiety specialty

clinic for assessment and treatment. Based on parent report, most youth were White (84%). All youth met the criteria for a primary anxiety disorder based on the Anxiety Disorders Interview Schedule Child/Parent Version (ADIS-IV-C/P[15]): 42% of youth met the criteria for a primary diagnosis of generalized anxiety disorder (GAD), 14% for obsessive-compulsive disorder, 13% for specific phobia, 9% for social phobia, and 17% for another anxiety disorder (e.g., separation anxiety disorder); 5% had coprimary anxiety diagnoses (e.g., GAD and specific phobia). Most parents were married (80%) and had a household income of $100,000 or greater (66%). Most of the sample had a mother and father participate in the initial assessment (n = 82, 67%), although some had only mother report (n = 32, 26%) or only father report (n = 8, 7%). There were no significant differences in variables of interest between participants with both parents reporting and participants with only 1 parent report.

Measures

Anxiety Disorders Interview Schedule Child/Parent Version

The ADIS-IV-C/P is a semistructured interview that elicits both parent report and child report and is designed for assessing anxiety disorders, mood disorders, and externalizing disorders in children and adolescents.[15] The ADIS-IV-CP is reliable for diagnosing anxiety disorders in a specialized anxiety outpatient clinic.[15]

Multidimensional Anxiety Scale for Children

The Multidimensional Anxiety Scale for Children (MASC) is a self-report child questionnaire that assesses anxiety in children for behavioral, emotional, cognitive, and physical symptoms.[16] It contains 39 self-report items such as "I get dizzy or faint" that are rated on a 4-point scale (0 = "never true about me" and 3 = "often true about me"). The MASC produces a total score, which was used in this study as a marker of child anxiety level. The MASC has been found to effectively predict anxiety disorders, has good internal consistency (Cronbach's alpha = 0.87), has high test-retest reliability (0.79), and has good convergent and divergent ability.[16] Internal consistency for the current sample was excellent (0.90).

Children's Sleep Habits Questionnaire

The Children's Sleep Habits Questionnaire (CSHQ) is a 45-item parent questionnaire designed to evaluate sleep behaviors in children on a scale of rarely (0–1 times a week) to typically (5–7 times a week).[3] The measure yields an overall total sleep score that was used in this study as a measure of sleep-related problems, with higher scores indicating greater sleep disturbance and a cutoff of 41 used to delineate clinical sleep disturbance. The CSHQ includes items about a variety of sleep-related problems such as sleep anxiety (e.g., "afraid of sleeping in the dark") and sleep onset delay (e.g., "falls asleep in 20 minutes"). The CSHQ has been found to be a reliable and valid instrument for assessing sleep in clinical and nonclinical samples.[3] Internal consistency for the total CSHQ score in the current study was good for mother report (0.82) and acceptable for father report (0.76).

Family Accommodation Checklist and Interference Scale

The Family Accommodation Checklist and Interference Scale (FACLIS) is a 20-item parent questionnaire designed to measure the scope of parental accommodation in parents of children with elevated anxiety symptoms.[12] Parents were asked if they had completed specific accommodations in the past 2 weeks. Three items on this scale were directly related to sleep (i.e., "let my child sleep in parent's bed," "slept in my child's bed with him/her," and "let my child sleep with the lights on"), whereas the other remaining items were related to other areas of anxiety (e.g., "let my child avoid social engagements"). This allowed for the examination of parental accommodation specifically related to sleep and more general types of accommodation. For each reported accommodation, parents were asked to rate the interference associated with performing the accommodation (0 as "no interference" to 8 as "extreme interference"). Analyses used the individual accommodation items and the 2 traditional FACLIS scores: the total number of different accommodations performed and the average interference associated with accommodation. The FACLIS has been found to be valid and reliable in a sample of treatment-seeking children with elevated anxiety symptoms and has acceptable or good internal consistency for mother report (Cronbach's alpha = 0.70) and father report (0.86).[12] Internal consistency for the full scale in the current sample was questionable for mother report (0.68) and father report (0.66).

Procedures

All procedures in this study were part of routine clinical care at an outpatient university-based anxiety specialty clinic, and the data were gathered from retrospective chart and data review; parents agreed to have data gathered as part of the clinic consent but did not opt in specifically for this study. All procedures were approved by the Boston University institutional review board. Parents initially contacted the clinic, and children were brought in for an assessment if a brief phone screen deemed them eligible for care (i.e., likely anxiety or related disorder and no serious risk concerns). Children and parents completed a variety of self-report and parent-report measures, including those described above. A clinician then conducted the ADIS-IV-C/P. When children had 2 parents present for the assessment, parents completed the ADIS-IV Parent Interview together and completed questionnaires concurrently but separately. Clinical diagnoses were assigned after case presentation and structured discussion with clinic staff (e.g., clinic director, supervisors, and clinicians).

Analytic Plan

We conducted preliminary analyses to ensure that there were no violations of assumptions of normality,

homoscedasticity, or nonmulticollinearity. We identified and removed 4 univariate outlying data points by examining the distribution of each variable and removing those data points with z-scores above 3.29 or below −3.29. To account for item-level missing data, mean item scores were imputed for any scale with at least 80% of the data present. Sample sizes of individual analyses vary based on the scale involved (e.g., mother-reported total sleep vs father-reported total sleep). We ran descriptive statistics, correlations, chi-squared tests, and hierarchical multiple regression analyses to examine connections between variables of interest. Because 6 of the items on the CSHQ (e.g., "child is afraid of sleeping alone") may overlap with 3 items on the FACLIS (e.g., "slept in my child's bed"), regressions were run between similar CSHQ items and FACLIS items to explore these relationships.

In the first set of regression models to measure the overall impact of total accommodation on sleep disturbances, child age and anxiety (i.e., total child-reported MASC score) were simultaneously entered as covariates at step 1, and the number of accommodations and average interference of accommodations were entered in step 2. Entering these variables in the first step allowed for the examination of the predictive value of accommodation above and beyond age and anxiety severity. Owing to the overlap between 3 accommodation items (e.g., "let my child sleep with lights on") and 6 of the CSHQ items (e.g., "child is afraid of sleeping in the dark," Table 2), hierarchical regressions were also run with these 6 CSHQ items removed from the total CSHQ scores (i.e., adjusted CSHQ scores). To further elucidate the impact of specific accommodations on sleep disturbance, a set of stepwise regressions were run with the individual accommodation items (e.g., "let my child sleep in parent's bed") used to predict the overall mother- and father-reported total CHSQ scores. Holm-Bonferroni corrections were used in all analyses to account for multiple hypothesis testing.[17]

RESULTS

Rates of Sleep-Related Problems and Parental Accommodation

In this sample of children with elevated anxiety symptoms (Multidimensional Anxiety Scale for Children M = 53.08, SD = 17.71), descriptive analyses showed high rates of sleep-related problems as evidenced by high total Children's Sleep Habits Questionnaire (CSHQ) scores for both mother report (M = 45.25, SD = 7.11) and father report (M = 44.32, SD = 6.63). Most of the mothers (65%) and fathers (69%) reported clinically significant levels of sleep-related problems (i.e., above the clinical cutoff of 41 on the total CSHQ score[3]). The mother-reported total CSHQ score was strongly positively correlated with the father-reported total CSHQ score (r [80] = 0.74, $p < 0.001$), and there was no significant difference between the mother- and father-reported total CSHQ scores (t [1, 79] = 1.82, p = 0.07, d = 0.20) according to a paired samples t test. There was a significant moderate positive correlation between mother report and father report on a number of accommodations (r [86] = 0.60, $p < 0.001$) and interference of accommodations (r [69] = 0.39, p = 0.001). Using a paired samples t test, mothers reported significantly more accommodations (M = 3.09, SD = 2.42) than fathers (M = 2.53, SD = 2.31; t [1, 85] = 2.36, p = 0.021, d = 0.26), and mothers (M = 3.36, SD = 2.05) reported significantly higher average levels of accommodation interference than fathers (M = 2.74, SD = 1.76; t [1, 68] = 2.41, p = 0.019, d = 0.29).

Point-biserial correlations were used to compare participants with clinical sleep-related problems with those with nonclinical sleep-related problems on accommodation scores, age, and anxiety scores. Using a Holm-Bonferroni correction, children with clinical sleep-related problems differed from those with nonclinical sleep-related problems on accommodation, but not on age or the level of child-reported anxiety. There were significant positive correlations between sleep-related problems and the number of accommodations for mother report (r_{pb} = 0.37, n = 106, $p < 0.001$) and father report (r_{pb} = 0.33, n = 84, p = 0.002). There were also significant positive correlations between sleep-related problems and average interference of accommodations for mother report (r_{pb} = 0.28, n = 93, p = 0.007), but not for father report (r_{pb} = 0.26, n = 74, p = 0.023). Phi-coefficient correlations were used to compare participants with clinical and nonclinical sleep-related problems for gender; the relationship was nonsignificant for mother- and father-reported sleep-related problems.

The most common sleep-related accommodations reported by mothers and fathers of children with clinical sleep-related problems was letting children sleep with the light on. After using a Holm-Bonferroni correction, fathers of children with clinical sleep-related problems were significantly more likely to report this accommodation (40%) than fathers of children with nonclinical sleep-related problems (11%; χ^2 [1, n = 83] = 7.03, p = 0.008); there was no significant difference for mothers between clinical (34%) and nonclinical sleep-related problems (30%; χ^2 [1, n = 108] = 0.18, p = 0.668). Letting the child sleep in the parent's bed was also commonly reported, with approximately 40% of parents of children with clinical sleep-related problems reporting this accommodation as opposed to approximately 10% of parents of children with nonclinical sleep-related problems. Mothers (χ^2 [1, n = 108] = 6.74, p = 0.009) and fathers (χ^2 [1, n = 84] = 8.04, p = 0.005) of children with clinical sleep-related problems were significantly more likely to report this accommodation than parents of children with nonclinical sleep-related problems after using a Holm-Bonferroni correction. Parent sleeping in the child's bed was reported by roughly 25% of parents of children with clinical sleep-related problems but never reported by parents of children with

nonclinical sleep-related problems. Mothers (χ^2 [1, n = 108] = 12.02, $p = 0.001$) and fathers (χ^2 [1, n = 83] = 7.03, $p = 0.008$) of children with clinical sleep-related problems were significantly more likely to report this accommodation than parents of children with nonclinical sleep-related problems after using a Holm-Bonferroni correction to account for multiple comparisons.

Overlap of Sleep-Related Problems and Parental Accommodation

Regression analyses were conducted with individual Family Accommodation Checklist and Interference Scale (FACLIS) accommodation items and similar items on the CSHQ to ensure that related, but not identical, constructs were being measured by each questionnaire (i.e., child fear/behaviors on the CSHQ vs parent accommodation behaviors on the FACLIS). For example, a regression was run to determine the amount of variance in the FACLIS item "slept in my child's bed" that could be explained by the CSHQ item "child is afraid of sleeping alone." In regressions that were significant using a Holm-Bonferroni correction, individual CSHQ items accounted for 8% to 40% of the variance in individual mother-reported FACLIS items and 13% to 40% of the variance in individual father-reported FACLIS items, suggesting that most of the variance is unique to the FACLIS items. For example, the CSHQ item "child is afraid of sleeping in the dark" was significantly positively correlated with the accommodation item "let my child sleep with the lights on" but only accounted for 40% of the variance for both mother report and father report. See Tables 1 and 2 for correlations between all potentially related accommodation (FACLIS) and sleep/behavior (CSHQ) items.

Relationship Between General Parental Accommodation and Sleep-Related Problems

Hierarchical multiple regression analyses (Table 3) were performed to examine the variance in sleep-related problems explained by the total number of parental accommodations and average interference of parental accommodations. For mother-reported CSHQ scores, the regression model including child age and child-reported anxiety was not statistically significant, F (2, 84) = 2.43, $p = 0.095$. The addition of mother-reported accommodation variables (i.e., the number of accommodations and average accommodation interference score) contributed a significant amount of variance to the model, Δ F (2, 82) = 10.41, $p < 0.001$, $\Delta R^2 = 0.19$. Using a Holm-Bonferroni correction, only the number of accommodations was a significant predictor in the final model ($\beta = 0.34$, $p = 0.002$). For the father-reported CSHQ score, the regression model including child age and child-reported anxiety was statistically significant, F (2, 66) = 4.80, $p = 0.011$. Using a Holm-Bonferroni correction, only age was a significant predictor in this model ($\beta = -0.28$, $p = 0.017$). The addition of father-reported accommodation variables (i.e., the number of accommodations and average accommodation interference score) contributed a significant amount of variance to the model, Δ F (2, 64) = 6.74, $p = 0.002$, $\Delta R^2 = 0.15$. Using a Holm-Bonferroni correction, only average accommodation interference score was a significant predictor in the final model ($\beta = 0.31$, $p = 0.005$).

For the mother-reported adjusted CSHQ score (i.e., with CSHQ items removed that overlapped with accommodation items), the regression model including child age and child-reported anxiety was not statistically significant, F (2, 86) = 0.47, $p = 0.630$. The addition of mother-reported accommodation variables (i.e., the number of accommodations and average accommodation interference score) contributed a significant amount of variance to the model, Δ F (2, 84) = 6.47, $p = 0.002$, $\Delta R^2 = 0.13$. Only the number of accommodations was a significant predictor in the final model ($B = 0.31$, $p = 0.006$). Neither the model with child age and child-reported anxiety (F [2, 65]) = 0.67, $p = 0.514$) nor the final model with age, anxiety, and accommodation was significant for the father-reported adjusted CSHQ score (F [4, 63] = 1.24, $p = 0.302$).

Relationship Between Sleep Accommodation and Sleep-Related Problems

To explore the effects of individual accommodations, all variables on the FACLIS accommodation scale were entered into a stepwise regression one by one in order of how significantly they contributed to the model predicting the total CSHQ score. A final significant model was arrived at when the addition of variables no longer improved the model.[18] Stepwise regression was used in this analysis to balance exploring the effects of individual accommodations while keeping the model as parsimonious as possible. In the final significant model for the mother-reported CSHQ score (F [5, 93] = 9.70, $p < 0.001$), 5 predictors contributed a significant amount to the total variance ($R^2 = 0.34$). Using a Holm-Bonferroni correction, only mother-reported "slept in my child's bed" ($\beta = 0.30$, $p = 0.001$), "ordered for my child" ($\beta = 0.31$, $p = 0.002$), and "came home early" ($\beta = 0.25$, $p = 0.005$) made significant unique contributions to the model. In the final significant model for the father-reported CSHQ score (F [4, 77] = 9.34, $p < 0.001$), 4 predictors contributed a significant amount to the total variance ($R^2 = 0.33$). Using a Holm-Bonferroni correction, only the items "slept in my child's bed" ($\beta = 0.28$, $p = 0.006$) and "let my child sleep with the lights on" ($\beta = 0.27$, $p = 0.009$) made significant unique contributions to the model.

DISCUSSION

This study builds on previous research[19] by examining the relationship between parental accommodation and sleep-related problems in a sample of children with elevated anxiety symptoms. As hypothesized, accommodations related to sleep (e.g., parent sleeping in the

Table 1. Mother-Reported FACLIS and CSHQ Item Correlations

	FACLIS Accommodation Items		
CSHQ Items	**"Let My Child Sleep with Lights On"**	**"Slept in My Child's Bed"**	**"Let My Child Sleep in Parent's Bed"**
"Child falls asleep when alone in own bed"	−0.08	−0.45[a]	−0.46[a]
"Child falls asleep in parent's or sibling's bed"	0.17	0.24	0.51[a]
"Child needs parent in the room to fall asleep"	0.13	0.60[a]	0.41[a]
"Child is afraid of sleeping in the dark"	0.63[a]	0.32[a]	0.35[a]
"Child is afraid of sleeping alone"	0.28[a]	0.51[a]	0.52[a]
"Child moves to someone else's bed during the night"	0.20	0.35[a]	0.46[a]

Values represent Pearson correlations between FACLIS and CSHQ items. [a]Significant using Holm-Bonferroni cutoff, Ns ranging from 109 to 112. CSHQ, Children's Sleep Habits Questionnaire; FACLIS, Family Accommodation Checklist and Interference Scale.

child's bed) significantly contributed to the variance in mother- and father-reported sleep-related problems. Although the current study cannot determine directionality or causality, previous research suggests that children with higher levels of sleep disturbance may be more likely to elicit accommodations[20] and that continuing accommodations may maintain sleep disturbances in children with elevated anxiety symptoms.[10,11] For example, leaving the overhead light on at night for a child who is scared of the dark may initially reduce anxiety and improve sleep initiation but, over time, may reinforce the child's anxious belief that the dark is dangerous and that he is incapable of sleeping without the light on. A more complicated bidirectional relationship may also be possible in which parental accommodation leads to sleep difficulties, which then in turn lead to increased accommodation. For example, if a parent continually leaves the light on at night for a child who is *not* afraid of the dark because an older sibling required the light on to sleep, the child may develop the belief that she is unable to sleep with the light on, leading to anxiety at night and continued accommodation.

Consistent with a previous study,[14] approximately one-third of parents in this sample of children with elevated anxiety symptoms reported co-sleeping, and parents sleeping in their child's bed was a particularly significant predictor of sleep-related problems by both mother report and father report. Co-sleeping remains controversial in pediatric psychology.[21] In populations in which co-sleeping is a cultural norm, it is an intentional parent behavior applied to all children rather than a direct response to anxiety and does not interfere with sleep.[21] However, in children with elevated anxiety symptoms, co-sleeping may function like other types of anxiety accommodation and reinforce anxiety and avoidance.[10,11,21] For example, a child may become so distressed because of worries about separating from parents at bedtime that her mother decides that co-sleeping is the only way to get her to sleep. This behavior is successful in the short term, but over time the child may have increased anxiety and difficulty falling asleep without her mother present.

In addition to establishing the link between sleep-related problems and parental accommodations, our research also demonstrates that they are distinct constructs. Specifically, our finding that measures of child sleep anxiety/behaviors (Children's Sleep Habits Questionnaire) and parental accommodation behaviors (Family Accommodation Checklist and Interference Scale [FACLIS]) are related, but not completely overlapping, begins to shed light on the relationship between children's sleep anxiety and parents' accommodating behaviors. For example, a child's fear of sleeping alone only accounted for approximately 28% of the variance in the accommodation of sleeping in the child's bed or allowing the child to sleep in the parents' bed for both mothers and fathers. This suggests that there are other factors involved in whether parents engage in these accommodations. Some parents may be setting limits around accommodation based on their own sleep needs (e.g., worse sleep quality when

Table 2. Father-Reported FACLIS and CSHQ Item Correlations

	FACLIS Accommodation Items		
CSHQ Items	**"Let My Child Sleep with Lights On"**	**"Slept in My Child's Bed"**	**"Let My Child Sleep in Parent's Bed"**
"Child falls asleep when alone in own bed"	−0.17	−0.44[a]	0.52[a]
"Child falls asleep in parent's or sibling's bed"	0.19	0.20	0.44[a]
"Child needs parent in the room to fall asleep"	0.11	0.36[a]	0.55[a]
"Child is afraid of sleeping in the dark"	0.63[a]	0.05	0.25
"Child is afraid of sleeping alone"	0.39[a]	0.52[a]	0.56[a]
"Child moves to someone else's bed during the night"	0.23	0.50[a]	0.62[a]

Values represent Pearson correlations between FACLIS and CSHQ items. [a]Significant using Holm-Bonferroni cutoff, Ns ranging from 86 to 92. CSHQ, Children's Sleep Habits Questionnaire; FACLIS, Family Accommodation Checklist and Interference Scale.

Table 3. Hierarchical Regressions for Sleep-Related Problems

	Mother Report			Father Report		
	B (SE)	95% CI	β	B (SE)	95% CI	β
Step 1						
MASC total	0.04 (0.04)	−0.05 to 0.13	0.10	0.08 (0.04)	−0.00 to 0.16	0.22
Age	−0.65 (0.31)	−1.27 to −0.04	−0.23	−0.80 (0.33)	−1.46 to −0.15	−0.28[a]
R^2		0.06			0.1	
F		2.43			4.80[a]	
Step 2						
MASC total	0.05 (0.04)	−0.03 to 0.13	0.12	0.06 (0.04)	−0.02 to 0.14	0.17
Age	−0.37 (0.29)	−0.94 to 0.20	−0.13	−0.65 (0.31)	−1.26 to −0.03	−0.23
No. of accommodations	1.08 (0.33)	0.42 to 1.75	0.34[a]	0.62 (0.38)	−0.13 to 1.37	0.18
Mean interference	0.88 (0.42)	0.05 to 1.70	0.21	1.19 (0.42)	0.36 to 2.02	0.31[a]
R^2		0.25			0.28	
F		6.69[a]			6.19[a]	

[a]Significant using Holm-Bonferroni cutoff. CI, confidence interval; MASC, Multidimensional Anxiety Scale for Children; SE, standard error.

sleeping in child's bed), their values (e.g., children should sleep independently), or knowledge about sleep (e.g., pediatrician explained that co-sleeping can reinforce anxiety). Alternatively, parents may continue to engage in accommodation even though children are no longer anxious. This may explain why mothers of children with clinically significant and nonsignificant sleep-related problems allowed children to sleep with the light on at similar rates; some may have been responding to current child anxiety, and others may have been accommodating in the absence of fear. Understanding why parents do or do not accommodate around sleep in response to child anxiety may be an important next step in developing interventions to help parents most effectively respond to their child's needs and improve child sleep. Once this factor is understood, clinicians can help parents meet their child where they are (e.g., too anxious to sleep without the overhead light on) and slowly reduce accommodation (e.g., sleep with a lamp on and sleep with a night light) to address sleep-related problems.

More general types of accommodation may also play a role in reinforcing sleep-related problems because, contrary to hypotheses, nonsleep accommodations (e.g., came home early) also significantly contributed to the variance in mother-reported sleep-related problems. In addition, parents of children with clinically significant sleep-related problems reported higher levels of overall accommodation, and accommodation predicted total sleep disturbance above and beyond child age and anxiety. Although this study did not examine causality, it is possible that these accommodations relate to specific types of anxiety that are linked to both accommodation and sleep. For example, a child with separation anxiety may elicit the accommodation of a parent coming home early and also have difficulty separating at night for sleep. When parents co-sleep to address separation anxiety at bedtime and come home early to address separation during the day, they may inadvertently reinforce overall separation anxiety, making these accommodations more likely in the future. More research is necessary to understand whether general and/or sleep-specific parental accommodation maintains sleep-related problems in children with elevated anxiety symptoms.

It is also important for further research to clarify which aspects of parental accommodation may play a role and for whom. One strength of this research is the inclusion of fathers in analyses because they are rarely included in pediatric research,[22] and very little is known about the role of paternal involvement in child sleep, especially after infancy.[23] Interestingly, only the number of accommodations was predictive for mother-reported sleep disturbance, but only average interference of accommodations was significant for father report. In addition, mothers reported significantly more accommodations and interference than fathers in paired *t* tests. This is particularly noteworthy because the questionnaire asked parents to report on accommodation performed by either themselves or their spouse, suggesting that mothers and fathers had different perceptions of the amount and consequences of accommodation in the family. These discrepancies may be related to the fact that mothers are generally more likely to be regularly involved in bedtime routines[23] and are therefore better able to comment directly on accommodations. If future research confirms that the number of accommodations for mothers and the interference of accommodations for fathers are most closely tied to sleep-related problems, this may inform interventions (e.g., specifically targeting accommodation interference for fathers).

Limitations

Although this study provides important information about the links between anxiety, sleep, and accommodation, it has several limitations. First, child sleep was

measured by parent report rather than child report or objective measures. Because there are often differences between parent report, child report, and objective measures of sleep,[24] future studies should aim to assess sleep using a range of methods (e.g., actigraphy and sleep diaries) for the most accurate information. In addition, because the measure for child sleep includes items that overlap with the accommodation items, it may confound findings. We demonstrated that these items are related but distinct, but future studies should include a measure of sleep-specific accommodations and an objective measure of sleep (e.g., actigraphy) to explore connections between accommodation and sleep (e.g., whether children with elevated anxiety fall asleep more quickly when co-sleeping).

Another limitation is the modest reliability of the accommodation measure (FACLIS) in this sample, which suggests that accommodation may be a multifaceted construct. To address these concerns, one set of regression analyses was run using the individual items on the scale, and another set was run with the traditionally used full scale despite the limitations because we believe that the full scale represents a broad range of potential parental accommodations. The limited socioeconomic and racial/ethnic diversity in this sample also reduces generalizability because many parenting behaviors vary widely across cultures. For example, previous research has demonstrated that co-sleeping is often seen as normative in some cultural groups and thus does not cause interference or reinforce sleep avoidance.[21] Finally, because this study was cross-sectional, causality cannot be addressed. To determine directionality and explore potential mechanisms, longitudinal data should be collected on both accommodation and sleep and ideally across treatment for sleep-related problems.

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