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Children's Sleep Problems are Associated with Poorer Student-Teacher Relationship Quality

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Abstract

Objective—Children's sleep problems are associated with poorer student functioning in the school environment, including impairment in peer relationships, yet no studies have examined sleep functioning in relation to the student-teacher relationship. The objective of this study was to examine whether child-rated total sleep problems or specific sleep problem domains (bedtime problems, nighttime problems, or daytime sleepiness) were associated with teacher-rated student-teacher closeness and conflict after controlling for student mental health symptoms known to be associated with both greater sleep problems and poorer student-teacher relationship quality. The study also examined whether age moderated the relation between sleep problems and student-teacher relationship quality.

Participants—Participants were 175 children (81 boys, 94 girls) in 1st-6th grades (ages 6-13) and their teachers.

Methods—Children completed the *Sleep Self-Report*. Teachers completed a measure of student mental health symptoms (i.e., attention-deficit/hyperactivity disorder, oppositional defiant disorder, conduct disorder, anxiety/depression) and a measure of their relational closeness and conflict with each student.

Results—Total sleep problems were associated with greater student-teacher conflict, after controlling for child mental health symptoms and demographic factors. This association was moderated by age such that sleep problems were associated with conflict for younger children but not older children. In addition, daytime sleepiness specifically was associated with less student-teacher closeness.

Conclusions—This is the first study to demonstrate a relation between student sleep functioning and the student-teacher relationship. Results of the study suggest that sleep may be an important component of school-based screening and evaluation efforts, as sleep is an important malleable factor related to school success.

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Keywords

daytime sleepiness; student-teacher relationship; school; mental health

Sleep is critical for healthy child and adolescent development. However, children frequently experience sleep problems, including inconsistent and maladaptive bedtime routines, nightmares, nighttime waking, insomnia, and daytime sleepiness (Liu et al., 2000; Owens, Spirito, McGuinn & Nobile, 2000; Spilsbury et al., 2004). Sleep problems are associated with children having poorer scholastic (Dewald, Meijer, Oord, Kerkhof, & Bogels, 2010; Meijer, Habekoth, & Den Wittenboer, 2000) and socioemotional functioning (Becker, 2014; McMakin et al., 2016), both acutely and throughout development (Gregory, Van Der Ende, Willis, & Verhulst, 2008; Kouros & El-Sheikh, 2015). However, extant research on the association of sleep problems and school success is limited to student's academic outcomes and social and emotional functioning among peers. Ecological systems and attachment theories indicate that the relationship between students and their teachers is also an important facet of school functioning and significant empirical work validates the importance of this relationship (Myers & Pianta, 2008; O'Connor, Dearing, & Collins, 2011). Yet no studies have examined the associations between child sleep problems and the student-teacher relationship.

The student-teacher relationship is defined by student-teacher closeness (e.g., feelings of warmth and care) and conflict (e.g., feelings of frustration or annoyance), with optimal relationships being characterized by high closeness and low conflict (Hamre & Pianta, 2001). A large body of literature demonstrates the importance of the student-teacher relationship in students' social functioning (Ladd, Birch, & Buhs, 1999), behavior problems (Graziano, Reavis, Keane, & Calkins, 2007), and academic achievement and engagement (see Roorda, Koomen, Spilt & Oort, 2011 for a review). Due to the value of the student-teacher relationship as a context for positive child development, research that elucidates factors that may place children at higher risk for poorer student-teacher quality is important and the literature examining sleep and children's psychosocial context suggest there is reason to believe that children's sleep functioning may be associated with student-teacher relationship quality.

Over the past decade, substantial research has demonstrated that children's sleep functioning can impact relationships with, and among, adults in the psychosocial contexts in which children reside (e.g., El-Sheikh, Buckhalt, Mize, & Acebo, 2006; El-Sheikh, Buckhalt, Cummings & Keller, 2007; El-Sheikh & Kelly, 2017; Liu et al., 2000; Keller, El-Sheikh, & Buckhalt, 2008; Meltzer & Mindell, 2007). For example, Meltzer and Mindell (2007) found child sleep problems were significantly associated with maternal sleep problems, which subsequently were associated with maternal fatigue, parenting stress, and feelings of "overload". In another study, Kelly and El-Sheikh (2011) demonstrated reciprocal, longitudinal effects of child sleep disruptions and marital conflict. Authors hypothesized that children's sleep/wake problems may not only have a direct effect on parents (e.g., requiring parents to also have disrupted sleep to attend to the child or struggle to help the child fall asleep) but also may have an indirect effect whereby greater sleep problems are associated

with greater child mood and behavior difficulties, which in turn affect marital conflict. Similarly, though child bedtime problems or sleep behaviors may not directly affect teachers, potential for greater mood and behavior difficulties due to sleep problems, as well as increased difficulty with alertness and attention may be associated with the student-teacher relationship (Dewald et al., 2010). Behavioral (e.g., participation, impulse control) and concentration demands in the school setting may result in problems different from those at home (Aronen, Paavonen, Jallberg, Soininen, & Torronen, 2000). Further, different types of sleep problems may be differentially associated with student-teacher closeness and conflict, as seen in previous work (Dewald et al., 2010; Kelly & El-Sheikh, 2011). For example, Dewald and colleagues (2010) found daytime sleepiness to be more strongly associated with school performance than sleep quality or sleep duration. This finding makes conceptual sense in that daytime sleepiness is (a) readily observable in the classroom setting (Amschler & McKenzie, 2005) and (b) may directly impact attention, perseverance, and participation/initiative in the classroom (Beebe, Rose & Amin, 2010; Fallone, Acebo, Seifer, & Carskadon, 2005).

Child characteristics associated with increased conflict and reduced closeness in the student-teacher relationship that have previously been identified including both externalizing (e.g., attention-deficit/hyperactivity disorder [ADHD], oppositional defiant disorder [ODD], conduct disorder [CD]) and internalizing (anxiety, depression) symptoms (Arbeau, Coplan, & Weeks, 2010; Henricsson & Rydell, 2004; Murray & Murray, 2004). Although mental health symptoms may be improved through pharmacological or psychosocial treatment efforts, sleep problems may be more easily malleable with evidence-based hygiene interventions and modification of the nighttime environment. Therefore, should sleep be found to be associated with the student-teacher relationship, this information could be highly useful for clinical efforts by schools and medical providers. Yet assessment of sleep problems is not a component of routine school-based screenings or evaluations. Research that continues to examine the role of sleep in children's school functioning is needed.

Student age is another factor to consider when examining the relationship between sleep problems and the student-teacher relationship among youth. Specifically, younger students demonstrate greater neurobehavioral deficits (i.e., attention, working memory) and behavior problems in the presence of sleep problems (Sadeh, Gruber, & Raviv, 2002) and children's ability to regulate their mood and behavior increases as they age (King, Lengua & Monahan, 2013). Therefore, younger children may demonstrate more effects of sleep problems in school than older children. Further, teachers of younger students may experience greater exposure to children's sleep problems due to the nature of interactions in classrooms of young children (e.g., circle time, interactive learning) as compared to classrooms of older children who may complete work that requires less teacher interaction (e.g., independent seat work, projects with peers). As such, the student-teacher relationship may be differentially affected by sleep problems across different age groups of children.

In sum, the current study tested the hypothesis that children's sleep problems would be significantly associated with less student-teacher closeness and more student-teacher conflict after controlling for student demographics and teacher-report of child psychopathology. Further, the study tested the hypothesis that daytime sleepiness would be more strongly

associated with student-teacher conflict and closeness than bedtime behavior or sleep behavior, as previous research has indicated that daytime sleepiness is more strongly associated with school performance than are other sleep problems (Dewald et al., 2010) and sleepiness may have a more direct impact on inattention and initiative that are readily observed by teachers (Beebe et al., 2010; Fallone et al., 2005). Finally, we examined whether age moderated the associations between sleep problems and student-teacher conflict, as previous studies have found younger children to be more susceptible to the effects of poor or disrupted sleep (Dewald et al., 2010).

Methods

Participants

The current study included 175 students and their teachers ($N = 12$) attending an elementary school in the Midwestern United States. Students were in first through sixth grades (ages 6-13, $M = 9.61$, $SD = 1.88$) and approximately equally split between boys ($n = 81$; 46%) and girls ($n = 94$; 54%). The majority of participants in this study were White ($n = 163$; 93%) with remaining participants African American ($n = 9$; 5%) or Asian ($n = 3$; 2%). Fifty-two percent ($n = 91$) of the students included in this study received free or reduced lunch.

Procedures

All study procedures were approved by the university Institutional Review Board (IRB) and are described in more detail elsewhere (Becker, 2014). Measures included in the current study were collected in April of a single school year as a part of a larger study (Becker, 2014). Participating students from each grade completed the surveys in a group setting. Items were read aloud to students in 1st-3rd grades. Students in 4th-6th grades completed measures on their own, although study staff were available to answer any questions. Students were given a grade-appropriate book for their participation. Teachers were compensated \$7 for each packet of measures they completed.

Measures

Child demographic variables—Official school records were used to gather age, sex, race, and free or reduced lunch status data for each student.

Sleep functioning—Children completed the Sleep Self-Report (SSR; Owens, Maxim, Nobile, McGuinn & Msall, 2000; Owens, Spirito, McGuinn, & Nobile, 2000), which is an 18-item self-report measure that asks about sleep in the previous week. The SSR is a general measure of sleep functioning that yields a total sleep problems scale, as well as subscales corresponding to bedtime behavior (12 items; e.g., consistent bedtimes), sleep behavior (7 items; e.g., nightmares), and daytime sleepiness (4 items; e.g., drowsiness) (Pirinen, Kolho, Simola, Ashorn, & Aronen, 2010). Each item is rated on a three-point scale: rarely/never, sometimes, and usually. Items are scored such that higher scores indicate greater sleep problems in each domain. The SSR was developed for use with children aged 7 and above, though it has been used in previous research with children as young as 6 (Becker, 2014; Ward et al., 2008). The SSR has demonstrated convergent and external validity with parent reported sleep problems and educational functioning (Becker, 2014; Owens, Spirito, et al.,

2000) and is considered “approaching well-established” in assessing subjective measure of sleep functioning (Lewandowski, Toliver-Sokol & Palermo, 2011). In the current sample, Total Sleep Problems $\alpha = .87$, Bedtime Behavior Problems $\alpha = .67$, Sleep Behavior Problems $\alpha = .51$, and Daytime Sleepiness $\alpha = .39$.

ADHD, ODD/CD, and internalizing behaviors—Teachers completed the 35-item *Vanderbilt ADHD Diagnostic Teacher Rating Scale* (VADTRS; Wolraich et al., 1998, 2013), a well-validated teacher-report measure of child mental health symptoms. The VADTRS includes 18 items that correspond to the *DSM-IV* symptoms of ADHD in addition to 10 items assessing ODD/CD problems and 7 items assessing internalizing (anxiety/depression) problems. Each item is rated on a four-point scale (0 = *never*; 1 = *occasionally*; 2 = *often*; 3 = *very often*). Construct and convergent validity of the VADTRS have been established and the VADTRS subscales demonstrate acceptable internal consistency and test-retest reliability (Wolraich et al., 1998, 2013). In the present study, internal consistencies of the mean scale scores were acceptable: ADHD $\alpha = .96$, ODD/CD $\alpha = .89$, internalizing $\alpha = .83$.

Student-teacher relationship quality—Teachers completed the *Student-Teacher Relationship Scale: Short Form* (STRS; Pianta, 2001). Comprised of 15 items, the STRS assesses both relationship closeness (7 items; e.g., “It is easy to be in tune with what this child is feeling”) and conflict (8 items; e.g., “This child and I always seem to be struggling with each other”) rated on a five-point scale (1 = *definitely does not apply*; 5 = *definitely applies*).

Psychometric validity and reliability of the measure is well-documented (Hamre & Pianta, 2001). In the present study, α s = .87 and .89 for closeness and conflict, respectively.

Statistical analyses

First, zero-order correlations were examined to test the hypothesis that sleep problems would be associated with poorer student-teacher relationship quality. A correlation of .10 is considered a small effect, .30 is considered a medium effect, and .50 is considered a large effect (Cohen, Cohen, West, & Aiken, 2003). It was decided a priori that if any of these variables were significantly ($p < .05$) correlated with the relationship outcome of interest (i.e., closeness and/or conflict), it was retained for inclusion as a covariate in the regression analyses pertaining to that outcome.

Second, hierarchical regression analyses were conducted to examine whether sleep problems remained associated with student-teacher relationship quality above and beyond covariates identified in the correlation analyses. Separate regression models were conducted for sleep problems total score and sleep problems subscales in relation to student-teacher relationship quality. All VIF values were below 3 (values >10 are typically considered problematic), and all tolerance values were above 0.40 (values $<.10$ are typically considered problematic) (Cohen et al., 2003), indicating that the regression models did not suffer from problems with multicollinearity. The regression analyses were also used to explore whether the association between sleep problems and student-teacher relationship quality was moderated by age. Age (mean-centered as a continuous variable) and sleep problems (mean-centered as a continuous variable) were entered at Step 1 along with any covariates, and then the

interaction of age and sleep problems was entered at Step 2. Significant interactions were plotted using PROCESS for SPSS, version 2.16.3 (Hayes, 2013).

Results

Correlation Analyses

As summarized in Table 1, male sex was significantly correlated with more ADHD and ODD symptoms. Male sex was also significantly associated with increased conflict ($r = .24$, $p = .002$) and less closeness ($r = -.16$, $p = .04$). Child age was positively associated with more ODD and internalizing symptoms and negatively associated with all sleep problem domains aside from daytime sleepiness. Age was also positively associated with closeness ($r = .16$, $p = .03$) and conflict ($r = .15$, $p = .05$). Lunch status was unassociated with either closeness or conflict ($ps > .05$) and was therefore not included as a covariate in the subsequent regression analyses.

All mental health symptom dimensions were significantly correlated with increased student-teacher conflict, with effects generally in the medium-to-large range ($rs = .40$ to $.71$; all $ps < .001$). No mental health domain was significantly bivariate correlated with student-teacher closeness. However, child-rated sleep problems total ($r = -.19$, $p = .01$), sleep behavior ($r = -.22$, $p = .003$), and daytime sleepiness ($r = -.23$, $p = .002$) were all negatively related to student-teacher closeness. All sleep problem domains were significantly positively associated with student-teacher conflict ($rs = .17$ - $.21$, all $ps < .05$).

Sleep Problems in Relation to Student-Teacher Closeness

Regression analyses were conducted in order to examine whether sleep remained associated with closeness above and beyond child sex and age (which were significantly correlated with closeness), as well as to explore whether age moderated the association between sleep problems and lower closeness. Controlling for sex and age, total sleep problems were not associated with lower student-teacher closeness ($p > .05$) (See Table 2). The association between total sleep problems and student-teacher closeness was not moderated by age ($p > .05$).

In a separate model examining specific sleep domains, controlling for sex and age, child ratings of daytime sleepiness were significantly associated with less student-teacher closeness ($\beta = -0.17$, $p = .03$; see Table 2). Bedtime behavior and sleep behavior were not associated with student-teacher closeness ($ps > .05$). The associations between bedtime behavior, sleep behavior, daytime sleepiness and student-teacher closeness were not moderated by age ($ps > .05$).

Sleep Problems in Relation to Student-Teacher Conflict

As summarized in Table 3, both ODD and ADHD symptoms were significantly associated with greater student-teacher conflict above and beyond sex, age, and other mental health domains. However, even after accounting for the strong association between these mental health domains and student-teacher conflict, total child-rated sleep problems remained significantly associated with greater student-teacher conflict ($\beta = 0.12$, $p < .05$). In addition,

a significant Age $\times$ Total Sleep Problems interaction emerged in predicting student-teacher conflict. As displayed in Figure 1, total sleep problems were not significantly associated with student-teacher conflict for older children ($\beta = -.02, p = .93$), or children at the mean sample age ($\beta = .29, p = .08$), but total sleep problems were significantly associated with greater student-teacher conflict for children younger than the mean by one standard deviation ($\beta = .61, p = .005$).

In the model examining specific sleep domains in relation to student-teacher conflict, none of the specific sleep domains were independent predictors of student-teacher conflict (see Table 3). In addition, no interaction of the specific sleep domains with age emerged in predicting student-teacher conflict ($ps > .05$).

Discussion

This study examined the association between child self-reported sleep functioning and teacher-reported student-teacher relationship quality. This study is the first to document a relation between children's sleep and student-teacher relationship quality. Findings are particularly compelling because associations were found after controlling for child demographic variables and mental health symptoms that are linked with both sleep difficulties and reductions in the quality of the student-teacher relationship (Becker, 2014; Murray & Murray, 2004). Further, this study adds to the literature by examining child age as a moderator of the relation between sleep problems and the student-teacher relationship and finding that sleep problems are associated with student-teacher conflict in younger, but not older, children. Our findings are particularly compelling since we used a multi-informant design whereby children provided self-report ratings of sleep and teachers provided ratings of student-teacher relationship quality.

Daytime sleepiness was associated with reduced student-teacher closeness above and beyond student age and sex. In the conceptual model of the student-teacher relationship described by Myers and Pianta (2008), one of the child factors noted to contribute to the relationship is student's positive and negative social reactivity. In the classroom, daytime sleepiness may serve as a social suppression variable such that students who feel sleepier are less likely to be positively socially reactive and may be less motivated to engage in social interactions or to volunteer to participate in class than their alert peers. Additionally, Meijer and colleagues (2000) found feeling rested to be positively associated with student's perceptions of the teacher in the classroom. It is possible that children who experience more daytime sleepiness hold less positive perceptions of their teachers and interact with their teachers in a more muted way. Further, of potential sleep-related problems, daytime sleepiness is the problem most observable by teachers and most proximal to school functioning, as it may be conceptualized as an outcome of other sleep problems that may result in daytime sleepiness in the school setting. Future research should further clarify how daytime sleepiness contributes to less closeness in the student-teacher relationship.

Consistent with previous research, children's mental health symptoms were significantly associated with student-teacher conflict (Henricsson & Rydell, 2004; Murray & Murray, 2004) and, as expected, teacher-rated ODD and ADHD symptoms were most strongly

associated with student-teacher conflict. Still, after controlling for these symptoms, total sleep problems remained significantly positively associated with student-teacher conflict. As no significant associations were found in the current study between bedtime behavior, nighttime behavior, or daytime sleepiness and student-teacher conflict, we cannot answer what aspects of sleep may drive this association. It is possible that global sleep difficulties contribute to emotional and behavior dysregulation that was not fully captured by our mental health measure, as the relationship between sleep problems and negative affect on a day-to-day (Kouros & El Sheikh, 2014; McMakin et al., 2016) and longitudinal basis (Gregory et al., 2008) is well established. In addition, the limited sample size may have made it difficult to detect whether specific sleep functioning domains are most clearly associated with increased student-teacher conflict.

Child age was found to moderate the relationship between total child-reported sleep problems and student-teacher conflict. Specifically, the relationship between total sleep problems and student-teacher conflict was positive and significant for younger students but nonsignificant for older students. This finding is consistent with previous research that found sleep problems to be more strongly associated with impaired academics (DeWald et al., 2010) and impaired neurobehavioral functioning (Sadeh et al., 2002) in younger children as compared to older children. This differential impact may be due to greater sensitivity to sleep problems among younger children (Sadeh et al., 2002), increased capacity for self-regulation among older children and adolescents (King et al., 2013), or differences in the exposure to child sleepiness among teachers of younger children as compared to older children. As the current study did not find a significant moderation effect for age and specific facets of sleep problems, future research should continue to probe the developmental course of sleep problems and the relationship between sleep problems and student-teacher conflict.

Findings point to the importance of assessing sleep problems in children and adolescents. Especially given the association of sleep with school success in addition to the student-teacher relationship such as academics, learning, and socioemotional functioning, sleep is an important facet in students' functioning that is under-assessed. Given the recent movement to better incorporate assessment of social, emotional, and behavioral concerns in the school environment (National Conference of State Legislatures, 2014) and recommendations for educators and school-based mental health providers to be educated about the associations between sleep and child functioning (Owens et al., 2000) it may make sense for schools to incorporate screening for child sleep problems within their ongoing screening and progress monitoring efforts. This is clearly an area ripe for important research.

Limitations of the current study include a sample drawn from a single elementary school of almost exclusively non-Hispanic White students, reliance on rating scale data, and a cross-sectional design. Though we did not have sufficient variability in child ethnicity to examine whether ethnicity moderated the association between sleep and student-teacher relationship quality, previous research has identified different patterns of sleep functioning among children of different ethnic groups (Spilsbury et al., 2004), which may point to important differences in the prevalence of student-teacher relationship problems. As previous research has found different associations with outcomes based on objective sleep ratings and self- or

parent-report (Dewald et al., 2010), future research that examines the student-teacher relationship and sleep measured by other sources will be important. It will be important for future studies to explore the concordance between children's self-reported sleep problems and objective measures of sleep and replicate findings using these methods, though there is reason to believe children can be valid reporters of many sleep behaviors (Gaina, Sekine, Chen, Hamanishi, & Kagamimori, 2004; Tremaine, Dorrian, & Blunden, 2010). Further, future studies should utilize longitudinal designs to be able to better determine causality of effects and to examine the bidirectional association between sleep functioning and student-teacher relationship, as previous researchers have found significant bidirectional effects of sleep functioning and marital conflict among parents (Kelly & El-Sheikh, 2011). Despite these limitations, our study provides important preliminary evidence of an association between children's sleep functioning and the student-teacher relationship, suggesting that children's sleep functioning not only impacts relationships in the home environment but may extend to the school environment as well.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Highlights

- The first study to examine child sleep and the student-teacher relationship
- Total sleep problems were associated with greater student-teacher conflict
- Child age moderated the relationship between sleep and student-teacher conflict
- Daytime sleepiness was associated with lower student-teacher closeness
- Sleep may be important to include in school-based screening and assessment

Figure 1. Child Age Moderates the Relationship between Self-Reported Total Sleep Problems and Student-Teacher Conflict in Children. $**p < .01$.

Table 1
Means, Standard Deviations, and Intercorrelations of Study Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Sex	--												
2. Age	.03	--											
3. Lunch Status	.14	.00	--										
4. ADHD	-.25***	.13	.18*	--									
5. ODD	-.18*	.22**	.13	.55***	--								
6. CD	-.11	.12	.13	.49***	.81***	--							
7. Internalizing	-.08	.28***	.14	.56***	.45***	.32***	--						
8. Sleep Problems Total	-.07	-.29***	.05	.15*	.13	.09	.19*	--					
9. Bedtime Behavior	-.06	-.31***	.06	.13	.10	.07	.11	.83***	--				
10. Sleep Behavior	-.06	-.31***	.03	.11	.11	.05	.18*	.83***	.57***	----			
11. Daytime Sleepiness	-.12	-.12	.00	.13	.10	.03	.23**	.55***	.46***	.45***	--		
12. Closeness	.16*	.16*	.08	-.05	-.12	-.08	-.10	-.19*	-.14	-.22**	-.23**	--	
13. Conflict	-.24**	.15*	.09	.57***	.71***	.61***	.40***	.21**	.17*	.19*	.19*	-.35***	--
Mean	--	9.61	--	0.61	0.22	0.13	0.37	1.55	1.59	1.57	1.74	3.79	1.66
SD	--	1.88	--	0.67	0.48	0.27	.43	0.32	0.34	0.36	0.43	.74	.80

Note. For sex, 0 = female, 1 = male. For free/reduced lunch status, 0 = student does not receive a free or reduced lunch, 1 = student receives free or reduced lunch. ADHD = attention-deficit/hyperactivity disorder. ODD = oppositional defiant disorder. CD = Conduct Disorder.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 2
Regression Analyses Examining Sleep Problems in Relation to Student-Teacher Closeness

	Step1				Step2			
	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>B</i>	<i>SE</i>	β	<i>t</i>
Models Examining Sleep Problems in Relation to Student-Teacher Closeness								
	$F(2,172)=4.55^*, R^2=.05$				$F(1,171)=3.60, R^2=.07, R^2=.02$			
Sex	.23	.11	.15	2.08*	.21	.11	.15	1.96
Age	.06	.03	.16	2.12*	.05	.03	.12	1.50
Sleep Problems Total	--	--	--	--	-.34	.18	-.15	-1.90
	$F(2,172)=4.55^*, R^2=.05$				$F(3,169)=3.23^*, R^2=.10, R^2=.05$			
Sex	.23	.11	.15	2.08*	.19	.11	.13	1.79
Age	.06	.03	.16	2.12*	.04	.03	.11	1.46
Bedtime Behavior	--	--	--	--	.14	.20	.06	.67
Sleep Behavior	--	--	--	--	-.29	.19	-.14	-1.49
Daytime Sleepiness	--	--	--	--	-.29	.15	-.17	-1.98*

Note. $N=175$. For sex, 0 = female, 1 = male.

* $p < .05$.

** $p < .01$.

Table 3
Regression Analyses Examining Sleep Problems in Relation to Student-Teacher Conflict

	Step 1				Step 2			
	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>B</i>	<i>SE</i>	β	<i>t</i>
Models Examining Sleep Problems in Relation to Student-Teacher Conflict								
	$F(7,167) = 32.14^{***}, R^2 = .57$				$F(1,166) = 3.76^*, R^2 = .09, R^2 = .01$			
Sex	-.12	.08	-.08	-1.46	-.14	.08	-.09	-1.70
Age	.02	.02	.05	.84	.03	.02	.07	1.23
ADHD	.28	.08	.24	3.42**	.32	.08	.27	3.91***
ODD	.81	.16	.49	5.16***	.85	.16	.51	5.47***
CD	.25	.26	.08	.96	.15	.26	.05	.59
Internalizing	-.04	.12	-.02	-.34	-.04	.12	-.02	-.32
Sleep Problems Total	.29	.14	.12	2.08*	.29	.14	.12	1.82*
Sleep Problems Total $\times$ Age	--	--	--	--	-.17	.07	-.13	-2.40*
	$F(6,168) = 36.06^{***}, R^2 = .56$				$F(3,165) = 1.95, R^2 = .58, R^2 = .02$			
Sex	-.13	.09	-.08	-1.49	-.12	.08	-.07	-1.38
Age	.00	.02	.00	.07	.02	.03	.06	.98
ADHD	.28	.08	.24	3.40***	.29	.08	.24	3.46***
ODD	.84	.16	.50	5.32***	.79	.16	.48	5.01***
CD	.23	.26	.08	.86	.29	.26	.10	1.10
Internalizing	.01	.12	.01	.09	-.06	.12	-.04	-.53
Bedtime Behavior	--	--	--	--	.07	.15	.03	.44
Sleep Behavior	--	--	--	--	.17	.15	.07	1.13
Daytime Sleepiness	--	--	--	--	.12	.11	.06	1.05

Note. $N = 175$. For sex, 0 = female, 1 = male. ADHD = attention-deficit/hyperactivity disorder. ODD = oppositional defiant disorder. CD = conduct disorder.

$p < .05$.

**
 $p < .01$.

 $p < .001$.