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Sleep Behaviors and Parent Functioning in Young Children With Type 1 Diabetes

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Abstract

This study evaluates sleep characteristics among young children with type 1 diabetes and associations with parent sleep and emotional functioning and diabetes care. Study participants included twenty-four parents of young children with type 1 diabetes (ages 2–5) enrolled in a pilot study of a randomized-controlled trial. Child sleep characteristics were within normal limits. However, increased child bedtime resistance and behavioral insomnia were related to greater parent stress, anxiety, and depression and use of an intensive insulin regimen. Type 1 diabetes management may impact child and parent sleep as well as parent emotional functioning. Implications for practice are presented.

Introduction

Type 1 diabetes is one of the most prevalent chronic illnesses diagnosed in childhood (Search for Diabetes in Youth Study Group et al., 2006). The incidence of type 1 diabetes is on the rise (Dahlquist & Mustonen, 2000), particularly in children ages 5 and younger (Vehik et al., 2007). Parents of young children with type 1 diabetes understandably assume the majority of responsibility for diabetes care, including daily insulin injections, blood glucose (BG) checks, carbohydrate counting, and prevention of hypoglycemic and hyperglycemic episodes (Sullivan-Bolyai, Deatrick, Gruppuso, Tamborlane, & Grey, 2002). The demands of caring for a young child with type 1 diabetes can feel relentless and constant vigilance is required (Jaser, Whittemore, Ambrosino, Lindemann, & Grey, 2009; Sullivan-Bolyai, Deatrick, Gruppuso, Tamborlane, & Grey, 2003). However, although the demands of caring for young children with diabetes have been well-documented with respect to daytime management behaviors such as meals and physical activity (Sullivan-Bolyai et al., 2003), much less is known about how daily diabetes management demands impact bedtime routines and child sleep.

Exploration of sleep in relation to diabetes management is a relatively new area of study (Monaghan, Hilliard, Cogen, & Streisand, 2009). Research suggests that parental sleep is disrupted by daily diabetes care, including checking BG levels to prevent nocturnal hypoglycemia, co-sleeping, and stress and anxiety related to children's health (Haugstvedt, Wentzel-Larsen, Rokne, & Graue, 2011; Monaghan et al., 2009). Child sleep may also be directly impacted by nighttime BG monitoring and treatment of hypoglycemic or hyperglycemic episodes (Barnard, Thomas, Royle, Noyes, & Waugh, 2010; Clarke, Jones, Rewers, Dunger, & Klingensmith, 2009). In addition to nighttime caregiving, other

correlates related to sleep and diabetes care should be explored. For example, more intensive regimens (such as multiple daily injections/basal-bolus) and tighter glycemic control increase the risk for frequent and prolonged nocturnal hypoglycemia in young children and, therefore, may be associated with sleep disruption (Boland et al., 2001; Juvenile Diabetes Research Foundation Continuous Glucose Monitoring Study Group, 2010).

Sufficient sleep is critical for young children's healthy development, and chronic sleep disturbances have been associated with increased emotional, behavioral, and academic problems (El-Sheikh, Buckhalt, Cummings, & Keller, 2007; Goodlin-Jones, Tang, Liu, & Anders, 2009; Reid, Hong, & Wade, 2009). Estimates suggest that up to 40% of typically developing young children experience sleep problems (Archbold, Pituch, Panabi, & Chervin, 2002). Children with chronic illness may be at particular risk for sleep disruptions (Hysing, Sivertsen, Stormark, Elgen, & Lundervold, 2009) due to exacerbation of symptoms (e.g. epilepsy, asthma), increased pain and discomfort (e.g. atopic dermatitis), or nighttime caregiving behaviors related to illness management (e.g. ventilator-dependent; Lewandowski, Ward, & Palermo, 2011). As discussed, young children with type 1 diabetes may experience acute complications at night and parents may perform related nighttime caregiving, including checking BG levels and treating hypoglycemia; however, child sleep habits in this population have not been explored to date.

Additionally, child sleep and parent sleep are likely interrelated. In a typically developing population, child sleep disruptions are a significant predictor of maternal sleepiness (Boergers, Hart, Owens, Streisand, & Spirito, 2007) and stress (Meltzer & Mindell, 2007), and increased maternal stress is predictive of increased child sleep problems (El-Sheikh et al., 2007). However, less is known about the relationships among child sleep, parent sleep, and parent psychosocial functioning in young children with type 1 diabetes. Given the tendency for better overall parent psychosocial functioning to be related to better illness management and decreased perceived illness burden (Haugstvedt et al., 2011), exploration of child sleep characteristics and related parent functioning is warranted because it may identify an area of clinical intervention that could result in better long-term health outcomes.

The goal of this study was to descriptively assess child sleep habits in a sample of young children with type 1 diabetes. Additionally, the study evaluated associations among child and parent sleep characteristics, parent emotional functioning, and diabetes care. It was predicted that parents and their children with type 1 diabetes would experience significant sleep problems, and that more frequent child sleep problems would be associated with greater parental stress, anxiety, and depressive symptoms. It was also predicted that increased child sleep problems, including behavioral insomnia and bedtime resistance, would be related to better glycemic control (i.e., lower hemoglobin A1c) and a more intensive insulin regimen.

Method

Participants

Parents of children with type 1 diabetes were recruited from a tertiary care endocrinology service comprised of an inner city clinic and several regional outpatient centers. Primary

caregivers of children between the ages of two and five years who had been diagnosed with diabetes for at least 6 months were eligible for participation in a pilot of a phone based intervention program. Parents who were not fluent in English or whose children had been diagnosed with an additional chronic illness were excluded from participation.

Thirty-three parents were identified as eligible for the study. Of these parents, 30 were successfully contacted and 24 consented to participate. Data from baseline measures were used for the current analyses (see Monaghan, Hilliard, Cogen, & Streisand, 2011, for report of pilot findings). Parents had a mean age of 34.80 years ($SD = 6.16$) and were primarily female (88%) and married (92%). Seventy-nine percent of parents had achieved a higher education degree and 75% reported an annual income of \$50,000 or more.

Child mean age was 4.10 years ($SD = 0.80$) and 50% were male. The ethnic composition of the sample was 75% Caucasian, 17% African-American, and 4% Asian; 4% reported their ethnicity as “other.” Children had been diagnosed with type 1 diabetes for an average of 2.06 years ($SD = 0.57$). Forty-six percent of children were on a conventional split mixed insulin regimen (i.e., 2–3 injections per day); 54% were managed using a basal/bolus regimen involving multiple daily injections (MDI). No children in this sample used insulin pumps or continuous glucose monitoring systems. Average hemoglobin A1c was 7.87% ($SD = 0.88$), which is consistent with the American Diabetes Association’s recommendation of an A1c less than 8.5% for children under the age of 6 years (American Diabetes Association, 2011). Children on conventional and MDI insulin regimens had comparable A1cs ($p > .05$).

Measures

Demographic and Medical Questionnaire—Parents provided basic demographic and medical information using a 32-item questionnaire and medical record review.

Child Sleep Questionnaire—Parents rated their child’s sleep behaviors using the Child Sleep Questionnaire (CSQ), a 43-item measure derived from the International Classification of Sleep Disorders (ICSD) that was designed to assess sleep habits and common sleep disorders among healthy children ages 2 to 18 (Huntley, Campo, Dahl, & Lewin, 2007; Werthwein, Michaelidis, & Lewin, 2005). Preliminary studies demonstrate adequate internal consistency ($\alpha = .76$; Huntley et al., 2007). This study employed a modified version of the questionnaire comprised of 23 questions that address common childhood sleep concerns and parent sleep behaviors, such as child total hours of sleep, bedtime resistance, and nighttime awakenings.

There are no known measures that comprehensively assess diabetes-related child and parent sleep concerns. Therefore, consistent with research in sleep among other chronic illness populations (Meltzer & Moore, 2008), 4 additional items were included to assess parent sleep and sleep disruption due to diabetes management. Parents were asked to report the total hours of sleep they receive each night, how frequently they checked their child’s blood glucose level after their child was asleep (“never,” “only if low at bedtime,” “a few times a week,” or “most nights”), and whether or not nighttime blood glucose checks disrupt child and parent sleep.

Two composite scores were calculated from the CSQ: a behavioral insomnia composite and a behavioral sleep resistance composite. The behavioral insomnia composite included the items, “Does your child have difficulty falling asleep at night?” and “Does your child wake up in the middle of the night and take 10 or more minutes to fall back to sleep?” Scores for this composite range from 2 to 12; higher scores indicate greater concern with child behavioral insomnia. These items were significantly positively correlated in this sample, $r(24) = .65, p < .001$. The behavioral sleep resistance composite was comprised of the items, “Does your child resist going to bed?”, “After bedtime, does your child call you back to the bedroom more than two times?”, and “Are bedtime and the hour leading up to it a stressful time?” Scores range from 3 to 18. Higher scores signify greater concerns with child sleep resistance. This composite demonstrated acceptable internal consistency for this sample ($\alpha = .76$).

Pediatric Inventory for Parents—Parents self-reported their illness-related parenting stress using the Pediatric Inventory for Parents (PIP), a questionnaire that assesses parents’ perceptions of 42 stressful situations related to parenting a child with a chronic illness within the past week (Streisand, Braniecki, Tercyak, & Kazak, 2001). Two 5-point Likert scales measure the frequency and difficulty of each situation. Total scores are calculated for both the Frequency and Difficulty scales, with a possible range of 42 to 210. Higher scores indicate the parent experiences greater frequency and/or difficulty regarding the stressors. The PIP has been used extensively with parents of children with type 1 diabetes and other chronic illnesses, and has demonstrated adequate ratings of internal consistency ($\alpha = .80-.96$) and convergent validity with other anxiety measures (Hilliard, Monaghan, Cogen, & Streisand, 2011; Lewin et al., 2005; Streisand, Swift, Wickmark, Chen, & Holmes, 2005). Internal consistency was excellent for both the Frequency and Difficulty scales with the current sample as well (both α s = .96).

State-Trait Anxiety Inventory—Parents’ state anxiety was measured using the state subscale of the State-Trait Anxiety Inventory (STAI; Spielberger, 1983). Parents rate their current symptoms of anxiety for each of 20 items on a 4-point Likert scale. Scores range from 20–80 with higher scores indicating greater state anxiety. The STAI-State subscale has demonstrated acceptable internal consistency (current sample $\alpha = .92$) and validity ratings (Novy, Nelson, Goodwin, & Rowzee, 1993; Tanaka-Matsumi & Kameoko, 1986). It is widely used among parents of children with chronic illness, including type 1 diabetes (Hilliard et al., 2011; Lewin et al., 2005).

Center for Epidemiological Studies- Depression—The frequency of parents’ depressive symptoms was measured using the Center for Epidemiological Studies-Depression (CES-D) scale, a 20-item self-report measure designed to assess the frequency of depressive symptoms during the previous week (Radloff, 1977). Items are rated on a 4-point Likert scale, with a possible range of 0 to 60. Higher scores indicate greater frequency of depressive symptoms. The CES-D has demonstrated acceptable reliability and convergent validity with clinician ratings of depression (Radloff, 1977; Weissman, Sholomskas, Pottenger, Prusoff, & Locke, 1977). Internal consistency for the current sample was also acceptable ($\alpha = .91$).

Data Analysis Plan

Descriptive statistics were generated in order to assess the frequency and range of child and parent sleep characteristics and parents' psychosocial functioning. Our hypothesis that child sleep problems would be related to parents' psychosocial functioning was then tested using correlational analyses. Finally, two multivariate analyses of covariance and a series of *t*-tests were conducted to assess the relationships among child sleep disruption, parents' psychosocial functioning, glycemic control, and insulin regimen. Although these latter analyses are limited by our small sample size, we elected to conduct them in order to provide preliminary information regarding the impact of diabetes on child and parent sleep and indicate whether or not further examination of sleep-related concerns related to diabetes is warranted.

Results

Descriptive Information

Child and Parent Sleep Characteristics—Parents reported that their children took an average of 14 minutes to fall asleep ($SD = 7.73$, $Range = 5 - 30$). Children received an average of 10.42 hours of sleep per night ($SD = 1.01$, $Range = 8 - 13$) and 11.69 hours of sleep per 24 hour period when including naps ($SD = 1.53$, $Range = 9 - 15.50$). These estimates are consistent with recommendations that preschoolers should receive 9.5 to 10.5 hours of nighttime sleep and 0 to 1 hours of naps, for a total of 10 to 11.5 total hours of daily sleep, and studies that indicate children tend to fall asleep quickly (Meltzer & Mindell, 2006). Parents received an average of 6.57 hours of sleep per night ($SD = 1.11$, $Range = 3 - 8.50$), which is less than the 7 to 9 hours of sleep recommended for adults by the National Sleep Foundation (McKnight-Eily et al., 2009).

Children had an average score of 4.46 on the behavioral insomnia composite ($SD = 2.47$, $Range = 2 - 10$) and 9.30 on the behavioral resistance composite ($SD = 4.26$, $Range = 3 - 17$), indicating that, on average, children experience behavioral insomnia and exhibit behavioral resistance a few times per month. Parents indicated their children experience a variety of sleep disruptive behaviors. Fifty percent of parents reported that bedtime and the hour leading up to it are stressful at least one night a week, 38% reported their child calls them back to the bedroom more than two times at least one night a week, 33% indicated their child has difficulty falling asleep at least one night a week, and 8% reported their child wakes up in the middle of the night and takes more than 10 minutes to fall back to sleep at least one night a week. Furthermore, 29% of parents indicated their child sleeps in a caretaker's bed at least one night each week (see Table 1). Overall, parents from this sample report that these behaviors occur slightly more frequently than in the general population, where approximately 10–30% of preschoolers engage in disruptive sleep behaviors (Meltzer & Mindell, 2006).

The majority of parents indicated that they monitor their child's BG levels *after* their child has gone to sleep. Forty-two percent of parents reported monitoring BG levels most nights, 17% monitor a few nights a week, 33% only if their child is low at bedtime, and 8% never check BG levels after their child is asleep. The majority of parents (87.5%) reported that

nocturnal BG checks did not disrupt their child's sleep; yet, 79% of parents indicated that their own sleep was disrupted by these nocturnal BG checks.

Parents' Psychosocial Functioning—Parents' mean PIP-Frequency rating was 102.17 ($SD = 29.64$, $Range = 49 - 162$) and PIP-Difficulty rating was 94.71 ($SD = 31.69$, $Range = 42 - 153$). Mean state anxiety on the STAI-State subscale was 38.29 ($SD = 10.25$, $Range = 20 - 57$) and mean depressive symptoms on the CES-D was 14.75 ($SD = 10.54$, $Range = 0 - 45$). Parent ratings on these measures were significantly positively correlated (all $ps < .05$).

Child Sleep Behaviors and Parents' Psychosocial Functioning: Correlational analyses were conducted in order to investigate the relationship between child sleep behaviors and parents' psychosocial functioning. Increased child behavioral insomnia was correlated with greater difficulty with parenting stress and depressive symptoms ($ps < .05$), but not more frequent parenting stress or state anxiety ($ps > .05$). Greater behavioral sleep resistance was positively correlated with more frequent and greater difficulty with parenting stress, higher state anxiety, and more depressive symptoms ($ps < .05$; see Table 2).

Glycemic control—Contrary to our hypothesis that increased child sleep disruption (behavioral insomnia) or resistance would be related to better glycemic control (i.e., lower A1c), children's most recent A1c levels were not significantly correlated with the behavioral insomnia or sleep resistance composites ($ps > .05$). Similarly, glycemic control was not related to the number of times parents check their child's blood glucose level after the child falls asleep, or child and parent sleep disruption due to diabetes management ($ps > .05$).

Insulin Regimen—A series of chi-square analyses were conducted to examine the relationship between child's insulin regimen and disruptive sleep behaviors. Parents of children on a more intensive diabetes regimen checked BG levels after their child fell asleep more frequently and reported more sleep disruption than parents of children on a conventional regimen ($X^2 = 9.50$, $p < .05$; $X^2 = 7.70$, $p < .05$, respectively).

Two Multivariate Analysis of Covariances (MANCOVAs) using child age as a covariate were conducted to assess group differences regarding behavioral insomnia and bedtime stress. The overall behavioral insomnia model was significant; parents of children on the more intensive or MDI regimen reported more frequent symptoms of child behavioral insomnia ($adj M = 5.54$) than parents of children on conventional regimens ($adj M = 3.18$; $p < .05$). Similarly, the overall model for bedtime stress was significant. Parents of children on an MDI regimen reported significantly more frequent stress in the hour leading up to bed ($adj M = 4.06$) than parents of children on conventional regimens ($adj M = 2.42$; $p < .01$).

Finally, we also hypothesized that there would be differences in parents' psychosocial functioning between the two types of insulin regimen based on the documented differences in child and parent sleep differences between groups and the significant correlations among disruptive child sleep behaviors and parents' psychosocial functioning. Examination of means revealed that parents of children on an MDI regimen reported higher scores on measures of parenting stress, state anxiety, and depressive symptoms than parents of

children on a conventional regimen; however, *t*-test analyses indicated that these differences were not statistically significant (all *ps* > .05; see Table 3).

Discussion

To our knowledge, this is the first study to specifically explore sleep in young children with type 1 diabetes and associated parent sleep disruption and psychosocial functioning. Similar to the general population, results demonstrate that behavioral insomnia and bedtime resistance are fairly common in young children with type 1 diabetes (Meltzer & Mindell, 2006). More frequent child sleep problems are associated with greater parent stress, anxiety, and depression, and use of an intensive insulin regimen is related to more frequent child sleep problems and parental sleep disruption. The results of this study suggest that parents of young children with type 1 diabetes may benefit from interventions promoting child sleep and consistent bedtime routines. Additionally, practitioners should discuss nighttime caregiving behaviors with parents of young children with type 1 diabetes to minimize the impact of diabetes on child and parent sleep problems. For example, many parents are instructed to check their child's nighttime BG levels for several months after they are diagnosed, but parents may be uncertain if and when it is medically appropriate to discontinue nighttime BG checks, as current national standards of care do not specifically address nighttime monitoring (American Diabetes Association, 2011).

Young children in our sample received an average of 10.42 hours of sleep per night, meeting national recommendations for toddlers and young children to receive 9.5–10.5 hours of nighttime sleep (Meltzer & Mindell, 2006). Consistent with studies of typically developing children (Archbold et al., 2002), results confirm that bedtime resistance and sleep disruption are common in young children and extend the findings to a sample of children with type 1 diabetes. Sleep problems in young children are more likely to impact parent functioning than sleep problems in older children, as parents are more involved in bedtime routines and responding to nighttime awakenings (Meltzer & Montgomery-Downs, 2011). Research suggests that up to half of parents lose at least 30 minutes of sleep each time their child awakens at night (National Sleep Foundation, 2004). In our sample, 79% of parents reported disrupted sleep due to nighttime caregiving, suggesting that parents may be losing a significant number of hours of sleep across a typical week.

Findings also support the interrelatedness of child sleep and parent mood. Increased behavioral sleep resistance was significantly associated with greater parent stress, anxiety, and depressive symptoms. Increased behavioral insomnia in children was also associated with greater difficulty with parenting stress and depressive symptoms. Parents of children with type 1 diabetes are already at risk for increased anxiety and depression (Jaser et al., 2009), and child sleep disturbance may further contribute to poor parental psychosocial functioning (Meltzer & Moore, 2008). Additionally, the relationship may be bidirectional, such that increased parental stress and depression may also predict greater child sleep problems (El-Sheikh et al., 2007). Given the cross-sectional nature of this study, directionality cannot be assessed. Future research should longitudinally explore changes in child and parent sleep from the time of diagnosis of type 1 diabetes to better disentangle the relationships among child sleep, parent functioning, and chronic illness management.

In the current sample, use of an intensive insulin regimen (multiple daily injections) was significantly associated with more frequent behavioral insomnia, behavioral sleep resistance, and parental sleep disruption. Intensive insulin regimens are often used as the first line treatment for type 1 diabetes (American Diabetes Association, 2011), and research demonstrates that intensive insulin regimens are associated with improved glycemic control (Adhikari, Adams-Huet, Want, Marks, & White, 2009). However, practitioners should also be aware of the demands associated with managing type 1 diabetes in young children and the impact of intensive management on sleep. Intensive regimens often require diabetes care at bedtime, including administration of insulin, BG checks, and potentially bedtime snacks. Practitioners may recommend administration of basal insulin in the morning if insulin administration disrupts sleep routines. Additionally, parents may be anxious about nocturnal hypoglycemia and, in turn, children may feel more unsettled or anxious at bedtime (Monaghan et al., 2009; Patton, Dolan, Henry, & Powers, 2008). As increased behavioral sleep resistance is associated with intensive insulin regimens, parents may benefit from increased support and education about bedtime routines in young children. Interventions to improve sleep in young children have been successful in not only improving child sleep, but also improving maternal sleep and mood (Mindell et al., 2011). Specifically, the use of a consistent bedtime routine is integral to improving child sleep duration and quality (Hale, Berger, LeBourgeois, & Brooks-Gunn, 2011). Additionally, practitioners should discuss nighttime diabetes care with parents and create a plan for nighttime management to increase efficacy for preventing nocturnal hypoglycemia (Barnard et al., 2010; Monaghan et al., 2009).

Limitations

These data are preliminary and based on a small, largely homogenous sample ($n = 24$). Although this sample is similar to clinic populations and other samples of young children with type 1 diabetes (e.g. Jaser et al., 2009; Patton et al., 2008), results may not be generalizable to larger, more diverse populations. In particular, the participants in this study agreed to participate in a small pilot of a randomized controlled trial, and therefore, may not be representative of the general population. Given the small sample size, results are exploratory in nature and would benefit from replication with a larger sample. Parent sleep disruption was assessed through the addition of items to the CSQ and these items warrant further evaluation; future studies should include a more comprehensive, validated assessment of parent sleep disruption. Furthermore, glycemic control may not have been related to child and parent sleep disruption in our sample because most children were in good glycemic control. A sample that includes children with a wider range of A1c levels may reveal a different pattern of results.

The data collected for this study are cross-sectional and, therefore, causation cannot be determined. Use of a comparison group of children without chronic illness would provide increased understanding of the specific impact of diabetes management on child and parent sleep (Meltzer & Moore, 2008). Finally, sleep data are based on parent-report and our measure of parent sleep quality was limited. Future research should include a broader measure of parent sleep and utilize objective assessment of parent and child sleep using

actigraphy or videosomnography to better assess sleep and sleep disruption in this population (Sitnick, Goodlin-Jones, & Anders, 2008).

Implications for Practice

Improving child and parent sleep may also improve parents' mood, perception of parenting stress, and disease management skills. Practitioners should be aware of the potential for sleep disruption in young children with type 1 diabetes, including increased bedtime resistance and behavioral insomnia, and routinely address sleep habits during clinic visits. Additionally, parents may be sacrificing sleep to perform nighttime monitoring of young children, and clearer guidelines about the necessity of nighttime monitoring are needed. As technology advances, the use of continuous glucose monitors may decrease parental stress and improve sleep; however, the alarms associated with continuous glucose monitors may also heighten stress and increase sleep disruption (Wadwa et al., 2009). As the interrelatedness of child and parent sleep quality becomes increasingly documented, especially within the context of childhood chronic illness, it will continue to be important for medical and mental health professionals to assess child and parent sleep in order to allow for the timely implementation of interventions that may improve child health outcomes.

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Table 1

Child Sleep Behaviors

CSQ Item	Frequency					
	Never	Not during the past 3 weeks	Less than once a week	Once or twice a week	3 or 4 times a week	5 or more times a week
Bedtime and the hour leading up to is are stressful	25.0 %	16.7%	8.3%	12.5%	25.0%	12.5%
Child calls parent back to the bedroom > 2 times	37.5%	8.3%	12.5%	25.0%	12.5%	0.0%
Child has difficulty falling asleep at night	41.7%	12.5%	12.5%	16.7%	12.5%	4.2%
Child wakes up in the middle of the night and takes > 10 min to fall back asleep	50.0 %	20.8%	20.8%	8.3%	0.0%	0.0%
Child sleeps in a caretakers bed	37.5%	20.8%	12.5%	4.2%	8.3%	16.7%

Table 2

Correlations between Parents' Psychosocial Functioning and Children's Sleep Behaviors

Child Sleep Composite	Parents' Psychosocial Functioning			
	PIP- Frequency	PIP- Difficulty	STAI- State	CES-D
Behavioral Insomnia	.33	.51 *	.31	.40 *
Sleep Resistance	.52 *	.66 *	.41 *	.45 *

*
 $ps < .05$.

Table 3

Parents' Psychosocial Functioning Based on Child's Type of Diabetes Regimen (n = 24)

Psychosocial measure	Conventional Regimen (n = 11)		MDI Regimen (n = 13)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
PIP- Frequency	93.63	28.75	109.38	29.52
PIP- Difficulty	86.81	29.57	101.38	32.87
STAI- State	35.72	10.48	40.46	9.93
CES-D	11.81	8.81	17.23	11.56