



Published in final edited form as:

*Sleep Health*. 2016 March ; 2(1): 19–24. doi:10.1016/j.sleh.2015.12.002.

## Sleep health literacy in head start families and staff: exploratory study of knowledge, motivation, and competencies to promote healthy sleep

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### Abstract

**Context**—Healthy child development requires sufficient, quality sleep. Sleep problems in early childhood impair social-emotional and cognitive function and increase obesity risk. From a health literacy framework, “sleep health literacy” denotes the knowledge, motivation, and competencies to promote healthy sleep and to recognize a sleep problem.

**Design**—To explore the untapped potential of early childhood education (ECE) programs to promote sleep health literacy, we surveyed staff (n=63) and parents (n=196) in Head Start about sleep-related knowledge, attitudes/beliefs, sleep hygiene, and sleep problems. Head Start is the largest ECE program in the United States.

**Results**—Most parents believed that their child had healthy sleep habits (81%); few believed that he or she had a sleep problem (10%). Yet, unhealthy bedtime practices and insufficient sleep for age were reported in 50% and 33% of children, respectively. Between 10% and 12% of children had 1 or more sleep onset or awakening problems. Every unhealthy bedtime practice but one was associated with a sleep problem; parental presence at bedtime was associated with the most problems. Insufficient sleep was significantly associated with unhealthy sleep practices. More children with late vs early bedtimes (48% vs 14%,  $P < .01$ ) and frequent vs less frequent parental presence at bedtime (50% vs 26%-30%,  $P < .02$ ) failed to obtain sufficient sleep. Staff members are more comfortable *discussing* healthy sleep with parents (87%) than *counseling* them (45%).

**Conclusion**—Among parents, there is a “disconnect” between actual and perceived sleep hygiene. Similarly, staff perceived a gap between their competencies to promote healthy sleep in families and their capacity to address sleep problems. US health literacy goals include the need to embed accurate, accessible, and actionable health information in ECE programs. Study findings strongly support the need to work toward sleep health literacy in ECE programs.

### Keywords

Sleep; Health literacy; Early childhood education; Sleep problems; Sleep health literacy

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**Disclosure** None of the authors have any conflicts of interest.

## Introduction

Healthy child development requires sufficient, quality sleep. Insufficient sleep, behavioral sleep problems (BSPs), and sleep-disordered breathing (SDB) are prevalent in preschool-age children (3-5 years). At these ages, 25%–50% of children do not sleep enough,<sup>1</sup> 25% have a BSP,<sup>2</sup> and up to 20% have SDB.<sup>3</sup> Behavioral sleep problems are difficulties falling or staying asleep. In young children, the etiologies of insufficient sleep and BSPs are often related and are rooted in parent-child interactions. This is because parents are the external regulators of their young child's sleep, which then affect the child's biological rhythms and capacity for self-regulation.<sup>4</sup> Sleep-disordered breathing ranges from snoring to obstructive sleep apnea. Sleep-disordered breathing arises in part from adenotonsillar hypertrophy and obesity.<sup>5</sup> Sleep problems are associated with impaired social-emotional and cognitive function<sup>6,7</sup> and increased risk for childhood obesity.<sup>8</sup> Healthy sleep habits (ie, sleep hygiene) are associated with increased sleep duration and may prevent BSPs.<sup>9</sup> Timely treatment can reduce or eliminate SDB<sup>5</sup> and improve function.<sup>10</sup>

Early childhood is an important time period for promoting healthy sleep. This is when sleep habits are established, parents still control their child's sleep schedule, and the effects of neuronal insults from poor sleep may be irremediable.<sup>11</sup> Healthy sleep habits include a regular sleep schedule, an early and stable bedtime routine, falling asleep alone, and eliminating evening media use and TV from the bedroom.<sup>12–14</sup> Approximately 40%–50% of US families with 1- to 5-year-olds have an irregular bedtime, a late bedtime, and/or an inability to fall asleep without a parent present<sup>15</sup>; each of these practices is viewed as a cause of insufficient sleep.<sup>15,16</sup> Insufficient sleep and irregular bedtimes, in turn, are associated with impaired behavioral, cognitive, and physical function.<sup>17</sup> A routine bedtime is associated with improved behavior.<sup>17,18,7,19</sup> Increasingly, these observational findings are supported by experimental data.<sup>20,21</sup>

Despite the importance of adequate and sufficient sleep, public health promotion of sleep as a *health* behavior—in contrast to a focus on sleep problems<sup>22</sup>—has been minimal.<sup>14</sup> Knowledge about healthy sleep tends to be limited among parents,<sup>16,23–25</sup> 50% of whom believe snoring is healthy.<sup>23</sup> Ethnic and economic disparities are great. Among low-income, racial-ethnic minority 5- to 6-year-olds, 94% screen positive for sleep problems.<sup>26</sup> Disadvantaged families are less likely to use parent-child interactive and optimal bedtime routines,<sup>27,28</sup> have a higher prevalence and risk of SDB, and are least likely to receive SDB treatment.<sup>29</sup> Neighborhood disadvantage exacerbates disparities.<sup>30</sup>

In addition to parents, early childhood education programs can play a role in promoting healthy child sleep. Early childhood education (ECE) programs, which serve millions of US children in full-day programs, have untapped potential to promote sleep health. To explore the educational needs and capacity of ECE programs to do so, we conducted a study in Head Start. The federally funded Head Start program is the largest ECE provider in the United States. Head Start serves nearly 1 million low-income young children and their families. Most children it serves are low-income or racial/ethnic minority, and thus bear a high burden of sleep problems. Head Start embraces a “whole-child” approach to school readiness

through its provision of health, nutrition, social, and other services to children and their families. Head Start sets the health standards for the nation's ECE programs.<sup>31</sup>

The goals of this study were to: (a) assess parent-reported Knowledge, Attitudes/Beliefs, Sleep Hygiene Practices, and Sleep Problems relevant to their child; (b) analyze Attitude/Belief associations with Sleep Hygiene and Sleep Patterns; and (c) assess staff Attitudes, experiences, and preparedness pertaining to promoting healthy sleep. This is the first study to assess Knowledge and Attitudes/Beliefs of parents in Head Start toward their child's sleep. Regarding Head Start staff, we sought to determine their receptivity and capacity to implement a future sleep health education program.

The study is set within the framework of health literacy. Health literacy is the capacity to obtain, process, and understand basic health information needed to make appropriate health decisions.<sup>32</sup> Low health literacy among parents correlates with less health knowledge, less healthy behavior in terms of child health, and worse child health outcomes.<sup>33</sup> National standards for child health promotion require the delivery of actionable information that is understood by children and families.<sup>34</sup> The study will provide a baseline measure of 'sleep health literacy' among low-income young families in the largest ECE program in the United States.

## Method

We surveyed parents and staff from 2 affiliated Head Start sites in New York City, both of which include Early Head Start. Flyers were posted at the sites and sent home in children's backpacks 1 week before recruitment. A research assistant approached parents at each site's morning drop-off for a 1-week period in July 2013. Parents were invited to complete a survey if they were: (a) a parent or guardian of a child aged 0–5 years enrolled at the site; and (b) able to communicate in English. If a parent had 2 children enrolled in the program, they were asked to complete the survey with reference to their oldest ("index") child. Surveys did not include identifying information.

Staff completed surveys at the agency's monthly in-service. A range of administrative, managerial, and direct-services staff attends these meetings: teaching, family service, health, mental health, nutrition, and disabilities. Both parents and staff were orally consented using templates approved by the Albert Einstein College of Medicine Committee on Clinical Investigation. Parents and staff were asked to sign or initial their receipt of a gift card after completing the survey.

Parent survey items were adapted from the 2004 National Sleep Foundation Poll<sup>1</sup> and the literature.<sup>15,24,25,35,16</sup> Drafts were reviewed with Head Start agency staff and with the Parent Advisory Board to elicit their understanding of the meaning of questions. Based on this feedback, the survey was revised with clearer language, although essential content remained constant. Both parents and staff then reviewed this new version of the survey. Any remaining comments were incorporated into the final version. A copy of the survey is attached in the appendix and described below.

## Parent survey

Demographic items pertained to the respondent (hereafter “parent”), the child about whom he or she was responding, and that child’s sleep setting. *Knowledge* items (n = 10) consisted of statements supportable as true or false based on the extant literature, for example, “Children who don’t get enough sleep have an increased chance of being overweight” and “Snoring in a child indicates that he or she is sleeping well.” *Attitude/Belief* items (n = 4) ascertained parent opinions/perceptions about their child’s sleep and sleep habits, wanting advice, and their ability to improve their child’s sleep. Parents were also asked, “Does your child have a sleep problem at the present time? (Yes/No).” Except for this last item, response options were “Agree,” “Disagree,” or “Don’t Know.”

Parents were queried about *Sleep Hygiene*, that is, the variety of practices that are needed to obtain sufficient quality sleep. These items (n = 6) included: having a bedtime routine (Yes/No); having a bedtime after 9:00 PM (Yes/No); frequency of having a usual bedtime (0-1/2-4, or 5-7 nights a week+); frequency of needing adult in room to fall asleep (0-1, 2-4, or 5-7 nights a week); and daily caffeine consumption (Yes/No). Those with a daily routine were asked if it included reading, TV/computer, bath, or talking/singing (“check all that apply.”). Responses were recoded as “Interactive Only,” “Media Only,” or “Both” depending upon whether or not they included TV/computer (the only “Media” activity).

Three bedtime and nighttime behaviors were classified as *Sleep Problems* as per published cut-offs.<sup>36</sup> These were 30 minutes to fall asleep once in bed or crib (“sleep onset”), waking 3 times a night (“night-waking”), and being awake 60 minutes during the night. For sleep duration, parents reported their child’s usual bedtime and wake-time over the past 2 weeks. This sleep duration outcome is based on weeknight sleep: Sunday-Thursday bedtimes and Monday-Friday wake-times. Weeknight sleep was selected as the duration measure because it varies less than on weekends, is pertinent for school, and cannot be compensated for by daytime naps. We classified insufficient weeknight sleep duration as <10 hours for 3-5 year olds and <11 hours for birth-2 year olds. We based this on recommended 24 sleep durations of 11–13 hours and 12–14 hours for 3-5 year olds and 1–3 year olds, respectively.<sup>37</sup> We subtracted 1 hour from the recommendations’ lower bounds—as per local rest period guidelines for full-day preschool—to define insufficient weeknight sleep duration.

## Staff survey

Staff survey items focused upon *Attitudes/Beliefs*, *Practices*, and *Preparedness* to address sleep health. We modeled them on surveys used to query staff before and after implementing obesity, asthma, and oral health initiatives in Head Start.<sup>38–41</sup> *Attitudes/Beliefs* questions (6 items) assessed staff perceptions of sleep health education as being within the mission of Head Start, and sleep impacts on teaching and learning. Responses were categorized as “Agree,” “Neither,” or “Disagree.” There were 10 items related to *Practices* and *Preparedness*. *Practices* items assessed how often staff discussed children’s sleep with parents or other staff. Response categories were “Never,” “Rarely,” “Sometimes,” or “Often.” *Preparedness* items assessed how comfortable staff were in educating parents about sleep and whether this fit within their scope of work. We analyzed all responses combined, as well as by staff function (eg, teacher vs managerial).

## Analysis

Descriptive statistics for all items are presented as proportions (n) and means (SD). We used *t* tests and  $\chi^2$  statistics to assess the significance of associations for bivariate analyses of parent data. We assessed the reliability of parent survey *Attitude/Beliefs* and *Sleep Hygiene* items with the Cronbach alpha test for internal consistency, which yielded the following results: Attitude/Beliefs = 0.74 and Sleep Hygiene = 0.64. Cronbach alphas for *Attitudes/Beliefs* (0.74) and *Sleep Hygiene* (0.64) fall into the acceptable range ( $>0.60$ )<sup>42</sup>; Knowledge items are reported as a score based upon the percentage correct.

## Results

Valid, complete surveys were received from n=196 parents n=63 staff members from both sites. This represents 59% of families enrolled at the sites and 73% of staff.<sup>43</sup>

### Parent survey results

As shown in Table 1, index children were primarily Asian American (42%) and/or African American (32%), aged 3-5 years (82%), and male (57%). Just more than half of respondents (55%) had at least some college. Aside from the high proportion of Asian Americans, reflective of one site's location in New York City's Chinatown neighborhood, the sample was demographically similar to the national Head Start population.

Univariate sleep measures (other than Knowledge) are presented in Table 2. More than half the children shared a bedroom, and more than half of children had a screen in their bedroom (computers, TV). Few parents (10%) believed that their child had a Sleep Problem. Whereas most (81%) believed that he or she had healthy sleep habits, half (49%) desired advice about their child's sleep. Most (69%) believed that they could improve the quality of their child's sleep. Roughly 10% endorsed their child as having each of the 3 Sleep Problems (sleep onset, night-waking, and awake at night). In addition, 33% of children did not obtain sufficient sleep, although the mean sleep duration of 3- to 5-year-olds was 10.10 hours (SD = 0.93), which is sufficient. In terms of Sleep Hygiene, most families reported having a usual bedtime routine (84%) involving an interactive activity (80%), and few children consumed caffeine. On the other hand, more than half of the children had a late bedtime and needed a parent in the room to fall asleep 2 days per week.

The proportion of parents answering each *Knowledge* question correctly ranged from 30% to 80% (Table 3). Most knew that children need consistent sleep schedules (81%). However, parents were less knowledgeable about the need for a bedtime routine (59%), signs of a well-rested child (44%–55%), and appropriateness of screen time before bed (58%). Between 50% and 60% of parents knew that sleep problems had long-term effects upon child development.

We examined *Sleep Hygiene* practice associations with parent *Knowledge* and *Attitudes/Beliefs* (Table 4). *Knowledge* scores were unrelated to *Sleep Hygiene*. Three of 6 *Sleep Hygiene* practices did not differ by any *Attitudes/Beliefs*: bedtime routine (yes/no), type of routine, and late bedtime. In contrast, the frequency of parental presence (needed) at bedtime differed by whether or not the parent reported that the child had a sleep problem, the child

had healthy sleep habits, he or she wanted sleep advice, and that he or she can change the quality of their child's sleep. More frequent usual bedtimes and no daily caffeine use were significantly associated with endorsing the statement "my child has healthy sleep habits" but not with other *Attitudes/Beliefs*.

Next, we examined associations between *Sleep Hygiene* and *Sleep Problems* (Table 5). Five of the 6 *Sleep Hygiene* practices were associated with at least 1 *Sleep Problem*. Insufficient sleep was significantly associated both with late vs early bedtimes (48% vs 14%) and with more vs less frequent parental presence at bedtime (50% vs 26%-30%). Being awake for 60 minutes at night occurred significantly more often with "media-only" bedtime routines and daily caffeine use. Sleep onset 30 minutes was associated with more vs less frequent parental presence (15% vs 11%). Several nonlinear significant trends were found.

### Staff survey results

We collected brief demographic data on staff respondents (not shown). A range of staff completed surveys: teacher/teacher aides (n = 46), director/therapist (n = 8), family worker (n = 6), and other (n = 3). Two-thirds had worked in their position for 2 years. Most (86%) had completed at least some college, and 33% had a Master's degree.

As shown in Table 6, there was strong agreement that Head Start should train staff to educate parents about healthy sleep (89%) and sleep problems (73%), and that screening for sleep problems was an appropriate function of Head Start (61%). Just less than half agreed that counseling was within their scope of work (45%). The classroom impact of sleep problems was reported to be acute: 77% of teaching staff agreed that sleep problems interfere with their work. It was common for staff to discuss sleep, sleep routines, and sleepiness with parents (63%–82%). Nearly all were comfortable discussing children's needs for healthy sleep and bedtime routines with parents (87%).

Responses varied by job classification (not shown). Relatively few teacher/teacher aide respondents endorsed counseling as being within their scope of work (20/45; 44%). Conversely, most director/therapist respondents (75%) were comfortable in this counseling role.

### Discussion

This study explored the educational needs and capacity of Head Start to promote healthy sleep. Results find limited "sleep health literacy" among parents but overall readiness to promote healthy sleep among staff. Poor sleep hygiene was associated with a range of sleep problems in children, including not obtaining sufficient sleep for age. There was a "disconnect" between practices and perceptions. Most parents believed that their child had healthy sleep habits (81%), and few identified her/him as having a sleep problem (10%). Yet, unhealthy bedtime practices (late, not usual, parental presence) and insufficient sleep for age were reported in 50% and 33% of children, respectively. Nearly all staff agreed that promoting healthy sleep is an appropriate Head Start function and falls within their scope of work, and that sleep problems impact their work.

Nearly all poor sleep hygiene practices were associated with a sleep problem. Frequent parental presence at bedtime was associated with multiple sleep problems, including insufficient sleep for age. It is noteworthy that several practices (bedtime routine [yes/no], night-time media use, and early vs late bedtime) were unrelated to attitudes/beliefs. For example, parents of children with late bedtimes were as likely to feel that their child had healthy sleep habits and did not have a sleep problem as those reporting early bedtimes. This suggests a limited understanding of sleep and sleep hygiene and indicates a need for parent education. An important exception was parent presence at bedtime: parents who were “needed” on all/most nights for their child to fall asleep acknowledged that their child's sleep was problematic and would welcome advice. From this finding, it appears that this practice is perceived as a burden by these parents. The prevalence of unhealthy sleep practices, sleep problems, and associations between the two is comparable to findings from an at-risk primary care sample<sup>16</sup> and a national study.<sup>15</sup>

Staff were surprisingly comfortable *discussing* why children need sleep and best practices for attaining it. On the other hand, just more than half did not believe that *counseling* parents about their child's sleep was part of their job. Teaching staff were less likely to report comfort counseling compared with managers. All Head Start agencies have Master's-level trained directors (ie, managers) of education, health, mental health, nutrition, disabilities, and family services. Our findings suggest that these staff be the focus of any training in how to counsel parents about sleep for their child.

This study has several strengths. It contributes to the scant research on sleep knowledge and practices among families in Head Start<sup>44</sup> and provides the first data on staff experiences and readiness to promote healthy sleep in Head Start. Findings are timely, as Strong Start for America's Children legislation is moving through Congress.<sup>45</sup> The legislation seeks to expand preschool programs that, like Head Start, include health promotion and family engagement. Prior health literacy interventions in Head Start have shown successes—decreased emergency department use,<sup>46</sup> improved nutrition literacy,<sup>47</sup> and reduced body mass index in parents and children.<sup>48</sup> Thus, Head Start appears to be a fitting setting for health literacy interventions. As an exploratory study, the limitations include a small convenience sample, nonrepresentativeness in terms of race, variable age range of children, parent report of sleep duration (vs objective measures, eg, actigraphy), and relatively moderate psychometric properties of the Sleep Hygiene items.

We propose use of the term *sleep health literacy* to denote the knowledge, motivation, and competencies to promote healthy sleep and to recognize the signs of a sleep problem. This conceptualization derives from a review of health literacy frameworks in which knowledge, motivation, and competence are at the core of health literacy.<sup>49</sup> Sleep health literacy would thus parallel established notions of literacy pertaining to oral health,<sup>50</sup> mental health,<sup>51</sup> and nutrition.<sup>47,52</sup> We note that prior use of the term *sleep literacy* in a recent study refers more narrowly to sleep knowledge obtained via didactic curricula.<sup>53</sup>

Our study underscores the need to promote sleep health in disadvantaged populations during early childhood.<sup>22</sup> We note recent promising results from a randomized controlled trial of the Early Childhood Sleep Education Program (ECSEP), an integrated program that

educates teachers, parents, and children in Head Start about sleep hygiene. Children in the ECSEP group slept 30 minutes longer per night compared with controls.<sup>44</sup> The ECSEP aligns with national literacy goals, which cite the need to “embed accurate, accessible and actionable health information in all early childhood programs, such as Head Start.”<sup>32</sup> The ECSEP meets the Institute of Medicine's goal for building ECE program capacity to “build age-appropriate sleep durations among children.” Specifically, the IOM recommends that ECE professionals be trained “to counsel parents about their children's age-appropriate sleep durations.”<sup>54</sup> Thus far, the ECSEP has reached 2500 Head Start families in metro Detroit. To sustain and grow this promising program and to promote sleep health literacy on a wider scale, wraparound community- and policy-level interventions are needed. Integrating sleep health literacy into ECE programs in the United States could affect the health and developmental potential of millions of children.

## Acknowledgment

This work was supported by a grant to Dr. Karen Bonuck from the Eunice Kennedy Shriver National Institute on Child Health and Human Development (1R01HD082129-01A1).

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**Table 1**

Demographics of sample vs national Head Start program.

	Study Head Start sites	National Head Start
Child age	0–2 y	36 (18%) 17%
	3–5 y	160 (82%) 83%
Child sex	Boy	107 (57%) ≈50%
Child race	Asian	79 (42%) 2%
	Black/African American	61 (32%) 29%
	Other/missing	56 (26%) 69%
	Hispanic	53 (27%) 37%
Respondent	Mother	132 (69%) –
	Father	39 (20%) –
	Other	25 (11%) –
Highest grade	>High school	155 (75%) 68%

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**Table 2**

Parent report of sleep setting, attitudes, problems and practices.

	n (%)
Sleep setting (child)	
Has own room (Y)	86 (45%)
Screens in room (Y)	99 (53%)
Beliefs/attitudes (parent)	
Child has sleep problem (Y)	19 (10%)
Child has healthy sleep habits (Y)	156 (81%)
Could improve quality of child's sleep (Y)	131 (69%)
Would like advice re child sleep (Y)	91 (49%)
Sleep problems (child)	
Sleep onset > 30 min <sup>a</sup>	23 (12%)
Night-waking, 3 times/night <sup>a</sup>	19 (10%)
Awake 60 min during night <sup>a</sup>	22 (11%)
Inadequate sleep for age <sup>b</sup>	63 (33%)
Sleep duration (child)	
<3 y, mean (SD)	10.39 (0.86)
3 y, mean (SD)	10.10 (0.93)
Sleep hygiene practices (parent-child)	
Usual routine: child has usual bedtime routine	156 (84%)
Late bedtime: after 9:00 PM on school night	99 (54%)
Usual bedtime frequency	
0-1 d/wk	38 (21%)
2-4 d/wk	49 (27%)
5-7 d/wk	98 (53%)
Parent at bedtime: need in room to fall asleep	
0-1 d/wk	92 (49%)
2-4 d/wk	48 (26%)
5-7 d/wk	47 (25%)
Bedtime routine includes <sup>c</sup>	
Interactive only	111 (58%)
Media only	15 (8%)
Both	41 (22%)
Neither	25 (13%)
Caffeine: at least daily (Y)	15 (8%)

<sup>a</sup>Taking >30 minutes to fall asleep (sleep onset), waking >3 times per night, and being awake >60 minutes per night are all considered indicators of a sleep problem<sup>36</sup>

<sup>b</sup>*Inadequate sleep* is defined as <10 hours a night for 3- to 5-year-olds and <11 hours a night for children younger than 3 years.

<sup>c</sup>Interactive="Reading/being read to," "Bath," AND/OR "Singing/Talking." Media="Watching TV/Computer Play."

**Table 3**

Parental knowledge: child sleep patterns, routines and effects.

	Correct response, % (n) <sup>a</sup>
Children should have similar bed- and wake-times on weekdays and weekends (T) <sup>b</sup>	81% (158)
Long-term sleep problems in young children affect their brain development (T)	62% (121)
Children only need a bedtime routine if they have trouble falling asleep (F)	59% (115)
“Screen time” before bed relaxes children so they fall asleep more easily (F)	58% (111)
Well-rested children don't need an alarm clock or parent to wake them (T)	55% (107)
Snoring in a child indicates that he or she is sleeping well (F)	51% (98)
Sleep problems are unlikely to affect a child's socialemotional development (F)	47% (91)
Both under- and overactivity can mean that a child is not sleeping enough (T)	44% (85)
Children who don't sleep enough have a greater chance of being overweight (T)	43% (83)
Children with developmental delays/disabilities tend to have regular sleep schedules (T)	29% (56)

<sup>a</sup>Indicates % (n) of the 196 parent respondents who answered the item correctly.

<sup>b</sup>Indicates whether the statement is true (T) or false (F).

**Table 4**

Sleep hygiene associations with parental knowledge and attitudes/beliefs.

	<u>Knowledge</u>		<u>Attitudes &amp; beliefs</u>		
	<u>Percentage with each hygiene practice who...<sup>a</sup></u>				
	Score, 1–10, mean (SD)	Believe child has sleep problem	Believe child has healthy sleep habits	Believe can improve quality of child sleep	Would like advice about child's sleep
Bedtime routine					
Yes	6.7 (2.3)	11%	83%	67%	48%
No	6.1 (2.5)	7%	72%	85%	56%
<i>P</i>	.16	.50	.26	.11	.22
Late bedtime (>9:00 PM)					
Yes	6.8 (2.2)	11%	80%	73%	57%
No	6.4 (2.5)	7%	84%	68%	41%
<i>P</i>	.30	.39	.75	.10	.12
Has usual bedtime					
0–1/wk	6.4 (2.3)	11%	<b>79%</b>	71%	53%
2–4/wk	6.4 (2.4)	15%	<b>66%</b>	79%	64%
5–7/wk	6.8 (2.3)	8%	<b>90%</b>	66%	42%
<i>P</i>	.49	.51	<b>.01</b>	.55	.15
Parent at bedtime					
0–1/wk	6.5 (2.3)	<b>2%</b>	<b>91%</b>	<b>58%</b>	<b>40%</b>
2–4/wk	6.5 (2.6)	<b>11%</b>	<b>69%</b>	<b>83%</b>	<b>60%</b>
5–7/wk	6.9 (2.2)	<b>25%</b>	<b>76%</b>	<b>81%</b>	<b>60%</b>
<i>P</i>	.63	<b>.01</b>	<b>.01</b>	<b>.01</b>	<b>.04</b>
Routine includes <sup>b</sup>					
Interactive only	6.8 (2.2)	11%	80%	65%	45%
Media only	5.8 (2.2)	13%	67%	80%	62%
Both	6.5 (2.5)	10%	90%	70%	50%
Neither	6.3 (2.7)	4%	79%	86%	61%
<i>P</i>	.41	.72	.12	.49	.18
Caffeine daily					
Yes	5.6 (3.2)	20%	<b>57%</b>	86%	64%
No	6.7 (2.2)	9%	<b>83%</b>	69%	48%
<i>P</i>	.10	.18	<b>.03</b>	.33	.29

<sup>a</sup>As an example: Among parents whose child has a bedtime routine, 11% identify their child as having a sleep problem.

<sup>b</sup>Interactive="Reading/being read to," "Bath," AND/OR "Singing/Talking." Media="Watching TV/Computer Play."

**Table 5**

Sleep hygiene association with sleep problems.

	<b>% with each hygiene practice reporting each sleep problem</b>				
	<b>Onset</b>	<b>30 min</b>	<b>Wake &gt;3 times</b>	<b>Awake &gt;60 min</b>	<b>Insufficient sleep<sup>a</sup></b>
Bedtime routine					
Yes	13%	8%	13%	13%	34%
No	7%	17%	3%	3%	27%
<i>P</i>	.81	.14	.14	.14	.47
Late bedtime (>9:00 PM)					
Yes	13%	8%	14%	14%	<b>48%</b>
No	10%	10%	7%	7%	<b>14%</b>
<i>P</i>	.86	.69	.15	.15	<b>.01</b>
Has usual bedtime					
0–1/wk	11%	<b>3%</b>	<b>13%</b>	<b>13%</b>	40%
2–4/wk	20%	<b>20%</b>	<b>20%</b>	<b>20%</b>	33%
5–7/wk	8%	<b>6%</b>	<b>6%</b>	<b>6%</b>	31%
<i>P</i>	.31	<b>.01</b>	<b>.04</b>	<b>.04</b>	.64
Parent at bedtime					
0–1/wk	<b>11%</b>	<b>4%</b>	11%	11%	<b>26%</b>
2–4/wk	<b>11%</b>	<b>17%</b>	8%	8%	<b>30%</b>
5–7/wk	<b>15%</b>	<b>11%</b>	15%	15%	<b>50%</b>
<i>P</i>	<b>.01</b>	<b>.05</b>	.57	.57	<b>.02</b>
Routine includes <sup>b</sup>					
Interactive only	11%	10%	<b>10%</b>	<b>10%</b>	30%
Media only	14%	21%	<b>36%</b>	<b>36%</b>	43%
Both	15%	8%	<b>13%</b>	<b>13%</b>	33%
Neither	8%	4%	<b>0%</b>	<b>0%</b>	33%
<i>P</i>	.79	.33	<b>.01</b>	<b>.01</b>	.82
Caffeine daily					
Yes	20%	20%	<b>27%</b>	<b>27%</b>	43%
No	11%	9%	<b>10%</b>	<b>10%</b>	32%
<i>P</i>	.33	.15	<b>.04</b>	<b>.04</b>	.38

<sup>a</sup> *Insufficient sleep* is defined as <10 hours for 3- to 5-year-olds and <11 hours for children younger than 3 years. It is based on reported nighttime sleep during the school week.

<sup>b</sup> Interactive="Reading/being read to," "Bath," AND/OR "Singing/Talking." Media="Watching TV/Computer Play."

**Table 6**

## Head Start staff attitudes, practices and preparedness.

Staff indication of whether they believe that ... (Attitudes)	Agree
Sleep problems often interfere with children's ability to learn	92% (58)
Educating parents about healthy sleep patterns and routines should be part of staff training	89% (56)
Sleep problems often interfere with my ability to teach	77% (36) <sup>a</sup>
Counseling parents about how behavioral sleep problems should be part of staff training	73% (46)
Screening for sleep problem is an appropriate function of Head Start	61% (36)
It is within my scope of work to counsel parents about child sleep	45% (28)
How often have you ... (Practices)	Sometimes/often
Asked parent about child sleep patterns	82% (49)
Reported if child often seems sleepy	68% (42)
Talked with parents about healthy sleep routines and amounts	63% (40)
Told parent about a child's breathing at naptime	47% (30)
Reported napping issues to a Health Manager of other Head Start staff	38% (24)
Been asked by parent to keep child up at naptime, so he or she will sleep at night	35% (22) <sup>a</sup>
How comfortable are you ... (Preparedness)	Somewhat/very
Explaining to parents why children need enough healthy sleep	87% (56)
Discussing best practices bedtime routines	87% (56)
In understanding cultural values in sleep practices	81% (51)
Offering parents methods to help their child get to/stay asleep	62% (39)

<sup>a</sup>For teaching staff only, 33% indicated "Sometimes" or "Often."