Parent Perspectives on Sleep and Sleep Habits Among Young Children Living With Economic Adversity

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ABSTRACT

Objective: To examine the perspectives of ethnically diverse, low-income parents of young children regarding sleep, sleep habits, and preferences for sleep promotion for themselves and their children.

Method: We recruited a sample of mothers who had a 15- to 60-month-old child enrolled in the Special Supplemental Nutritional Program for Women, Infants and Children in a Northeastern U.S. city. We used a convergent mixed-methods design to conduct semi-structured interviews and questionnaires to measure parent sleep quality (Pittsburgh Sleep Quality Index), sleep apnea (Berlin Apnea Questionnaire), mood (Centers for Epidemiological Studies of Depression), children's sleep (Children's Sleep Habits Questionnaire), and behavior (Child Behavior Checklist).

Results: Thirty-two mothers (*M* age = 30.97 [SD 6.34] years; *n* = 21 [65%] African American) and children (*N* = 14 [44% female]; *M* age =38 [SD 12.63] months) participated. Children's average sleep duration was 10 hr, which is below the recommendation for this age group; overall sleep difficulty was high despite most mothers reporting that their children had normal sleep. Five children had abnormal Child Behavior Checklist scores, suggesting internalizing and externalizing behaviors. More than half of the mothers had poor sleep quality and 24 (75%) were at high risk for sleep apnea. Mothers viewed sleep as important for themselves and their children and identified both effective and ineffective practices to promote sleep, including practices learned from their own families.

Conclusions: Ethnically diverse mothers who are living with economic adversity value sleep for themselves and their children. The high value placed on sleep, despite misconceptions about normal sleep, suggest opportunities to promote sleep interventions. The content and delivery methods should be tailored to their knowledge, preferences, and cultural practices. J Pediatr Health Care. (2020) *34*, 10−22

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Family, sleep, stress

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INTRODUCTION

Good sleep quality, including adequate sleep duration and regular timing, is critical to children's health, growth, and development (Galland, Taylor, Elder, & Herbison, 2012). However, sleep difficulty occurs in more than 30% of young children (Byars, Yolton, Rausch, Lanphear, & Beebe, 2012),

begins early in life, and contributes to externalizing behavior (Scharf, Demmer, Silver, & Stein, 2013), mental health problems (Reid, Hong, & Wade, 2009), obesity (Boles et al., 2017; Spruyt & Gozal, 2012), injury (Owens, Fernando, & McGuinn, 2005), and poor school performance, among other outcomes. Children in economically stressed urban environments are especially vulnerable to sleep difficulty (El-Sheikh et al., 2013; Nevarez, Rifas-Shiman, Kleinman, Gillman, & Taveras, 2010), and this problem is likely multifactorial.

The Social-Ecologic Model (SEM; Bronfenbrenner, 1986; Rosa & Tudge, 2013) describes the contributions of individual, family, community, social, and cultural influences on health behavior. SEM can also be used to frame the context for understanding sleep and sleep difficulties in community-residing families. The individual (e.g., the young child) is at the center of the SEM, surrounded by the family, society, and culture (Rosa & Tudge, 2013).

Empirical evidence supports the contributions of the elements of the SEM to children's sleep. For example, children's sleep occurs within the family (Henry, Knutson, & Orzech, 2013; Sadeh, Tikotzky, & Scher, 2010), with reciprocal relationships between parents' and children's sleep (Boergers, Hart, Owens, Streisand, & Spirito, 2007; Sadeh et al., 2010). The parent−child relationship influences bedtimes (Kelly, Marks, & El-Sheikh, 2014), sleep routines (Sadeh et al., 2010), and sleep efficiency (Vaughn et al., 2011); mothers' daytime sleepiness (Boergers et al., 2007), psychological distress, insomnia, and marital conflict (Caldwell & Redeker, 2015; Kelly & El-Sheikh, 2011; Kelly & El-Sheikh, 2013; Troxel, Trentacosta, Forbes, & Campbell, 2013) play a role in children's sleep. Although not often addressed in sleep interventions, cultural beliefs and rituals influence sleep habits (Giannotti & Cortesi, 2009; Jenni & O'Connor, 2005), with both possible beneficial and detrimental effects, and may provide a foundation upon which to build sleep interventions. These practices may be transmitted through family generations. For example, cultural beliefs may influence the practice of co-sleeping in which family members share the same bed, and co-sleeping may have both positive and negative consequences (Mileva-Seitz et al., 2017).

Environmental influences within the home, such as noisy and brightly lit sleep environments (Wilson, Miller, Bonuck, Lumeng, & Chervin, 2014), televisions (TVs) in the bedroom (Cespedes et al., 2014; Owens & Jones, 2011), security concerns, irregular work schedules, and inadequate or overcrowded living arrangements (El-Sheikh et al., 2013; Hale et al., 2013; Spruyt, Alaribe, & Nwabara, 2015) may contribute to sleep difficulty, especially in families living with economic adversity. Environmental characteristics of the community (e.g., economic adversity, discrimination, neighborhood safety, and environmental factors) also contribute to sleep problems (El-Sheikh et al., 2013; Hale, Berger, LeBourgeois, & Brooks-Gunn, 2009; Nevarez et al., 2010; Spruyt et al., 2015), and children living in these environments may be especially prone to sleep difficulty.

Despite an improved understanding of factors that contribute to sleep and sleep difficulty from an empirical perspective, little is known about the perspectives of families who live with economic adversity regarding sleep, factors that contribute it, or strategies they used to address sleep. Although efficacious strategies are available (Meltzer, Plaufcan, Thomas, & Mindell, 2014; Mindell, Kuhn, Lewin, Meltzer, & Sadeh, 2006; Morgenthaler, et al., 2006), few of these interventions have been tested in culturally or ethnically diverse families who may live with economic adversity. Before implementing sleep interventions in settings that serve these communities, there is a need to understand the perspectives of families (Henry et al., 2013; Sadeh et al., 2010) regarding the importance of sleep, factors that they believe influence sleep, and how they address sleep in everyday life within the environmental context in which they live.

The purpose of this convergent mixed-methods study was to inform future research and clinical and community health practice by increasing the understanding of sleep among young children and mothers who live with economic adversity from the perspectives of mothers who represent these families. We examined (1) mothers' perceptions, beliefs, values, and cultural norms about the quality of their own sleep; (2) barriers to adequate sleep for mothers; (3) mothers' perceptions, beliefs, values, and cultural norms regarding sleep patterns of their young children; (4) barriers to adequate sleep and good sleep habits in young children; (5) the correspondence between mothers' perceptions, obtained in interviews and quantitative assessments of mothers' and children's sleep; and (6) mothers' perspectives on the need for and preferred ways of delivering sleep-promoting interventions for parents and young children.

METHODS

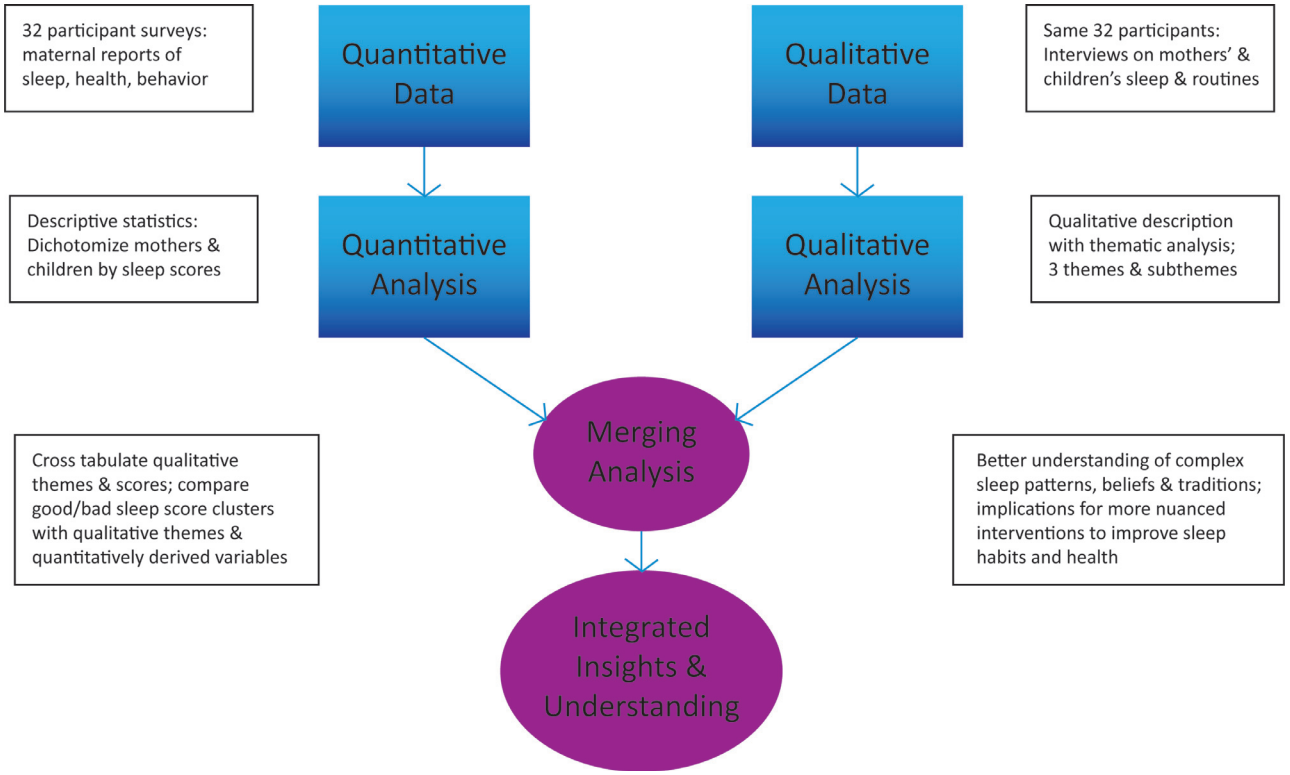
Design

We conducted a convergent mixed-methods study (Creswell & Clark, 2011; Curry & Nunez-Smith, 2015) in which we collected qualitative and quantitative data, including interviews with mothers (qualitative strand) and questionnaires (quantitative strand) to measure sleep and related factors. We used a descriptive qualitative approach (Sandelowski, 2000; Sandelowski, 2010). The convergent approach (see Figure) allowed for the separate analysis of each strand and merging of findings in the integration phase (Creswell & Clark, 2011; Ivankova, 2015). This approach provided a more nuanced and detailed perspective than would have been available through separate qualitative or quantitative approaches.

Setting and Participants

We recruited mothers who had one or more children between the ages of 15−60 months and were enrolled in the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) in a Northeastern U.S. city. We included mothers because they were most often the primary caregivers and were the most likely parents to present at the WIC site. Families with gross incomes at or below 185% of the U.S. Federal Poverty Guidelines (United States Department of Agriculture, 2015) are eligible for WIC. Mothers

FIGURE. Convergent Mixed Method Approach.



(This figure appears in color online at www.jpedhc.org)

were excluded if their children were born prematurely (gestational age < 37 weeks of age), had serious medical condition(s) at birth, were not discharged with the mother after birth, required early intervention for developmental delays, or if the family was homeless or lived outside of the county in which the study was conducted. We used purposive sampling to assure inclusion of families from diverse cultural backgrounds that represented the community.

We used the principle of data saturation to determine sample size (Polit & Beck, 2012) for the qualitative data. We conducted interviews concurrent with data analysis and continued interviewing until there was redundancy within the codes and themes derived from the narrative data. The sample size for the quantitative data was determined by the number of available participants for the qualitative data and was adequate for descriptive purposes.

Procedures

We obtained institutional review board approval and distributed flyers to promote the study. The WIC staff introduced the study, and the research assistant explained the study to the mothers who expressed interest. We obtained written informed consent, conducted semistructured interviews, and collected questionnaires on maternal and child sleep, maternal depressive symptoms, parenting stress, and child behavior from each mother in a private room at the WIC office. We referred children who scored in the clinical range on internalizing–externalizing behaviors and mothers who scored in the clinical range for clinical depression and suspected sleep apnea for clinical evaluation and possible treatment.

Qualitative Interviews

The first author conducted the qualitative interviews with a semistructured interview schedule, which was initially developed from the literature, modified as the study progressed, and reviewed by all authors (see Table 1). The interviews focused on the characteristics of mothers' and children's sleep, factors contributing to sleep, cultural and environmental factors associated with sleep, and preferences for possible sleep health promotion programs. This took approximately 45 min. We provided snacks and an age-appropriate bedtime book for the children and provided mothers with $50.

Quantitative Variables and Measures

Quantitative variables and measures included demographic variables, self-reported maternal and child sleep characteristics, maternal depressive symptoms, and parenting stress. Because children's behavior is closely linked with sleep, we included a maternally reported survey of child behavior.

Demographic Information

We obtained data on maternal age, education, ethnicity, race, marital status, number of children, height, weight, and medical conditions by self-report. Mothers also reported their children's ages, gender, and health status.

TABLE 1. Interview schedule

Content area	Interview questions and probes
Mothers' perception and importance of sleep	Please tell me how important sleep is in your daily life?
	What helps you to get a good night sleep?
	Tell me about the sleep routine you learned from your family when you were growing up? Probes: Go to bed time? Get up time? Bedtime rituals?
	Which one of those traditions (learned sleep practices) are you currently using to go to sleep? (keeping with tradition)
	Where did you learn your sleep habits, if not from your family?
Mothers' barriers to sleep	What are the things that make sleep difficult for you?
	Can you tell me about some of the things that you think cause some of your sleep problems? Probes: Environmental (e.g., noise, privacy, too hot, too cold, bed not comfortable, etc.).
Mothers' perception and importance of sleep for child	Can you tell me what you think about your child's sleep?
	How important do you think sleep is to your child's health?
	How important is sleep to your child's behavior?
	Tell me about your family's traditions that you use to help put your child to sleep each night. Probe: Are there other things you do to help your child sleep?
	Tell me about any problems with your child's sleep
	What things in the home and/or neighborhood may cause sleep concerns or problems for your child?
	Tell me about any health problems you think might interfere with your child's sleep?
	Tell me about some of the things that you noticed that helped your child to get a good night sleep?
	What do you think can help your child improve his or her sleep?
Mothers' advice about possible sleep health interventions	How important is it to you to try to find ways to help your sleep and child's sleep?
	What kinds of information or advice would be helpful to improve your sleep and child's sleep?
	What types of activities, classes or supports might be helpful for you to improve your sleep and your child's sleep? Probes: In-person advice or classes, advice available through text messages, on-line or videos?
	Where is the best place (clinic, library, home, other) to have classes to help with sleep?
	What things might help you to come to a program for improving your sleep? Probes: Transportation, child care, stipends, food, other?

The Pittsburgh Sleep Quality Index (PSQI; Buysse, Reynolds, Monk, Berman, & Kupfer, 1989) is a 19-item question survey that includes questions about habitual sleep quality, sleep duration, and other sleep characteristics to generate a global score. We computed mothers' sleep duration from the raw data used for the PSQI (bedtimes and wake up times). A PSQI global score of greater than five distinguishes good and poor sleep with a diagnostic sensitivity of 89.6% and specificity of 86.5%.

The Berlin Apnea Questionnaire was used to elicit mothers' risk factors for sleep apnea. The questionnaire includes 10 questions, is internally consistent, and has a sensitivity of 0.86 and specificity of 0.77 (Netzer, Stoohs, Netzer, Clark, & Strohl, 1999) for determining risk for sleep apnea.

The Center for Epidemiological Studies-Depression (Radloff, 1977) is a 20-item self-report survey of depressive symptoms that is reliable and valid. A score of 16 or higher indicates clinically relevant depressive symptoms (Carleton et al., 2013).

The Parenting Stress Index-Short Form (PSI-SF) measures risk for dysfunctional parent and child behaviors within three domains: Parental Distress, Parent−Child Dysfunctional Interaction, and Difficult Child. A Total Parenting Stress score greater than or equal to the 91st percentile indicates clinically significant stress. The PSI subscales are reliable and valid (Abidin, 1995).

The Children's Sleep Habit Questionnaire (CSHQ; Owens, Spirito, & McGuinn, 2000) includes subscales (bedtime resistance, sleep onset delay, sleep duration, sleep anxiety, nighttime waking, parasomnias, and sleep-disordered breathing). A total score higher than 41 suggests significant sleep problems with a sensitivity of 0.80 and specificity of 0.72 (Owens et al., 2000). The scale is valid and has been used in preschool-aged children (Goodlin-Jones, Sitnik, Tang, Liu, & Anders, 2008). We also asked mothers in the interview to indicate habitual bedtimes and wake up times for the children to estimate sleep duration.

The Child Behavior Checklist 1.5−5 (CBCL/1.5−5; Achenbach & Rescorla, 2000) is completed by mothers and elicits children's (18 months to 5 years of age) internalizing (emotionally reactive, anxious/depressed, somatic complaints, withdrawn) and externalizing (attention problems, aggressive) behaviors (Lavigne et al., 1998). The reliability of the CBCL ranges from 0.77 to 0.91 and is equivalent across African American, Latino, and non-Latino White parent informants (Gross et al., 2006).

Data Analysis

We entered the quantitative data into a database and used SPSS, version 22, to compute scale scores and descriptive statistics. We audio-recorded all interviews and a professional transcriptionist transcribed the data. We reviewed the transcripts for accuracy and entered the data into the Atlas.ti software version 7.5.18 (GmbH, Berlin, Germany) for data management and coding.

Three team members participated in the thematic analysis that began as they read the transcripts. We used a brief start list of codes derived from the literature and the study aims, supplemented with inductive or "open" coding as the coding process progressed (Creswell & Clark, 2011). Team members coded a subsample of transcripts independently, compared codes for agreement, discussed differences until achieving consensus, and produced a final list of codes for the remaining interviews. After coding, we discussed categorization of relevant patterns with supporting quotes, derived themes from the patterns, and confirmed themes and subthemes with field notes and original interview data.

We used methods by Lincoln & Guba (1985) and Morse (2015) to assure rigor and trustworthiness. Reflexive journaling with research memos and methodological, theoretical, and clinical observations informed the interpretation. The diversity of participants, data saturation, collaboration of a multimember research team, and use of an audit trail enhanced trustworthiness of the data.

Although merging quantitative and qualitative findings, we used a large matrix to match and cross-tabulate qualitative themes with participants' mean scores on the quantitative sleep, health, and behavioral measures (Creswell & Clark, 2011; Ivankova, 2015). The trends that emerged spurred further questions. In the second phase of integration, we constructed a matrix that included qualitative themes and subthemes, exemplar quotes, selected demographic characteristics and survey scores for each participant. We grouped findings based upon dichotomized sleep survey scores for the mother–child dyads to allow examination of patterns across four possible good/poor sleep combinations. Consistent with the recommendations by Curry and Nunez-Smith (2015), integration of the qualitative and quantitative strands allowed deeper exploration of the findings and facilitated more in-depth understanding and interpretation of mother–child dyadic sleep patterns, maternal concerns, and possible areas for the development of sleep interventions.

RESULTS

Quantitative Strand

Thirty-two mothers completed questionnaires and semistructured interviews. The clinical, demographic, sleep, and mental health scores for mothers and children are presented in Table 2. The majority ($n = 27$, 84%) of the mothers were overweight or obese, whereas 24 (75%) were at a high risk for developing obstructive sleep apnea based on the Berlin score. Only 13 (40%) reported habitually obtaining 7–8 hr of sleep, whereas 11 (34%) had less than 7 hr, and eight (25%) had more than 8 hr. The mean PSQI global score of 6.6 (3.37) suggested that mothers' sleep quality was generally poor, given that a score over five indicates poor sleep quality. Sixteen mothers scored at five or below. Seven (22%) mothers reported clinically significant depressive symptoms, and four (13%) reported a clinically significant level of parenting stress.

Children ranged in age from 19 to 59 months ($n = 14$, 44% females), and mothers reported that the child's average sleep duration was 10 hr ($SD = 1.42$), which is below the recommended sleep duration for toddlers (11–14 hr) and at the lower limit for preschool-aged children (10–13 hr) as

TABLE 2. Demographics, clinical, mental health and sleep characteristics of mothers and children

Mothers ($N = 32$)	Value[a]
Age, years	30.97 (6.34)
Educational level	
9th–12th grade	1 (3.1)
High school graduate	7 (21.9)
Some college	14 (43.8)
Associate's degree	3 (9.4)
Bachelor's degree	3 (9.4)
Graduate or professional	4 (12.5)
Self-reported ethnicity	
African American	21 (65.0)
African Caribbean	2 (6.2)
Puerto Rican	4 (12.5)
Ecuadorian	1 (3.1)
Nigerian	4 (12.5)
Marital status	
Single	19 (59.4)
Living with significant other	6 (18.8)
Married	5 (15.6)
Divorced	2 (6.3)
Employment	
Full time	5 (15.6)
Part time	11 (34.4)
Unemployed	16 (50.0)
Number of children	
1	6 (18.8)
2	12 (37.5)
3 or more	14 (43.8)
BMI	30.85 (5.68)
Sleep quality (PSQI)	6.6 (3.37)
Depressive symptoms (CESD)	10.03 (7.74)
PSI Total Score	76.19 (20.92)
Berlin Apnea Questionnaire	
Low risk	8 (35%)
High risk	24 (75%)
Children ($N = 32$)	
Age, months	38.03 (12.63)
Gender	
Female	$n = 14$ (44%)
Sleep duration, hours	10.33 (1.42)
CSHQ Total Score	52.28 (8.00)
Bedtime resistance	10.34 (3.05)
Sleep onset delay	1.46 (0.66)
Sleep duration	4.03 (1.78)
Sleep anxiety	5.94 (2.28)
Night wakings	4.44 (1.40)
Parasomnias	9.25 (1.64)
Sleep-disordered breathing	4.03 (1.63)
Daytime sleepiness	13.09 (3.45)
CBCL Total Score	50.9 (9.0)
Internalizing behavior	50.31 (10.07)
Externalizing behavior	50.09 (9.21)

Note. *BMI, body mass index; CBCL, Child Behavior Checklist; CESD, Center for Epidemiologic Studies - Depression; CSHQ, Children's Sleep Habit Questionnaire; PSI, Parenting Stress Index; PSQI, Pittsburgh Sleep Quality Index.*

[a]*Data are presented as mean (standard deviation) or n (%).*

determined by the American Academy of Sleep Medicine (Darien, IL; Paruthi et al., 2016). The mean total score on the children's Sleep Habits Questionnaire ($M = 52.28 \pm 8.0$) was higher than the normal range previously reported (Goodlin-Jones et al., 2008; Owens et al., 2000). Most of the subscale scores were higher than the normative data on preschool children, but lower than scores from problem sleepers of the same age (Goodlin-Jones et al., 2008). The mean score on the sleep-disordered breathing subscale of the CSHQ (4.0) was higher than the level for abnormal sleep-disordered breathing (Markovich, Gendron, & Corkum, 2014), with 11 (34%) scoring over four. Twenty-eight (87%) mothers reported that their child took naps, and the average time of the nap was 79 min. Two children had internalizing/externalizing behaviors on the CBCL that may be problematic (scores = 60−63), and three had behavior in the range that suggested clinical concerns (64 and above).

Qualitative Strand

The interviews revealed three main themes: (1) Sleep is REALLY important for me and my kids; (2) Sleep difficulties (difficult bedtime environments, mothers' stressful lives interfere with sleep, intergenerational bedtime rituals, and home remedies for sleep); and (3) Children's Bedtimes and Routines: Who is in Charge? (legacy bedtime routines, co-sleeping a mixed blessing). Mothers also provided ideas for future sleep interventions. Themes and subthemes (with exemplar quotes drawn from across the participants) are described below.

"Sleep is REALLY important for me and my kids"

Mothers saw sleep as an important influence on daily life for themselves and their children. They said, "sleep is good for your brain" and reported that sleep is important for energy levels and health and supports coping. Good sleep quality was necessary for them to properly care for their children and function at work. Mothers reported that good sleep contributed to feeling good, preparing them to face the day, whereas lack of sleep compounded stresses and strains and affected their coping skills and decision making. They reported feeling lazy, groggy, cranky, and worried that they could fall asleep while driving, fail at their jobs, and make bad decisions when they did not get sufficient sleep. As one mother reported:

> (sleep is) very important. I go to bed early, because I need the energy to wake up. I need to be refreshed and I just wake up in a good mood. If I don't have that much sleep I'm just like slacking and it's like a slow movement thing, but when I get enough sleep, I'm up, I'm energized, I can do everything I need to do.

Nearly all the mothers reported that sleep was extremely important for their children. Sleep helped children function and grow well, think better, and play and interact with other children. They described negative child behaviors, such as crankiness, tantrums, and whining or crying, when the children had insufficient sleep. As one mother stated, "they know they need their beauty sleep."

"Sleep difficulties"

Most mothers described problems with their own sleep, including trouble falling asleep, staying asleep, needing to get up in the middle of the night, and the influence of medical problems on waking during the night (e.g., restless legs, allergies, asthma, and back pain).

> Well I have a hard time sleeping through the night. I wake up, all through the night, looking at the clock, thinking it's time to get up. Sometimes it be 2 in the morning, sometimes it be 4 in the morning.
> Sometimes I get up and I find something to do so I could get myself back to sleep so I try to either find something to clean up, when it's nothing left to clean up, I done did everything already, but I'll either try to make a full meal. Like, cook. Sometimes I don't get up at all. I just lay there.

"Bedtime environments can make it tough to sleep". Several mothers attributed their own and their children's bedtime difficulties to the physical environment. They described uncomfortable temperatures in their bedroom and excessive lighting in their homes that were worse in the summer. They also reported noise from the streets or neighbors. Some complained that small apartments or noisy roommates led to "too many people in the household with too much going on" for them or their children to fall asleep. One mother stated, "I don't allow males to spend the night," whereas another did not feel safe at home and needed to move out of her apartment to improve the family's sleep.

"Mothers' stressful lives interfere with sleep". Mothers described staying awake and worrying about housing, insufficient funds, lack of good jobs, meeting their children's needs, single parenthood, and lack of time or energy to meet daily emotional and instrumental demands. These worries interfered with falling asleep, and lack of sleep compounded daily stresses and diminished patience, decision making, and energy. Mothers described ways to deal with their daily stressors. One described how she waited to cry at night about her stresses:

> My parents got divorced at 15 and I know it's when they got divorced I would hear my mom cry a lot, so now that I'm an adult and now I have kids and now I'm on my own, I'm not with the father, I notice . . . I don't show my emotions throughout the day when the kids are up, but when I do go to sleep that's when I release everything that's been bottled up inside and I remember hearing my mom, she wouldn't expose, but I would hear her in her room and when I'm kept by myself in that moment, I'm like, this reminds me of when I was young and hearing my mom (cry).

"Bedtime rituals passed from one generation to the next". Mothers reported that childhood experiences helped them learn ways to fall asleep, and some described childhood bedtimes that were not soothing or relaxing. Mothers recalled that their own parents, aunts, or grandparents' advice and behaviors helped to shape their sleep habits and sleep practices with their children. These included perceptions about eating particular foods, reading, listening to music, taking a bath/shower, or turning off the lights. Some bedtime routines and rituals recalled from childhood were quite structured. These included having dinner, bathing, having their hair brushed, receiving a rub down with lotion and/or powder, and doing a quiet activity before bedtime. On school nights, mothers reported having relatively consistent bedtimes. Bedtimes on weekends and during summer vacations were usually later. Many mothers recalled that prebedtime activities on school nights included drinking warm milk, chamomile tea, herbal tea, eating light bedtime snacks, having legs massaged, being told stories or playing board games, talking quietly with family members, and watching TV. One mother reported her nightly routine as a child:

> Lights off. Quiet. Peace. Say your prayers before you go to sleep and anything that had happened to you throughout the day, just forget about it. Don't think about it cuz tomorrow is the future and tomorrow is a new day.

Several mothers reported having no bedtime routines during their childhoods and less nurturing relationships. One recalled that it was her job to read to her younger cousins at bedtime, but no one ever read to her. One mother stated, "my parents were very ghetto—they didn't read us stories and tuck us in and stuff." Another described being raised by an older aunt after her mother passed away: "Living there was like living in prison," without bedtime routines. She learned about bedtimes and the importance of reading to her own children at bedtime in a parenting class.

"Home remedies for sleep". Mothers reported moving or massaging their legs to reduce uncomfortable feelings, taking antihistamines and prescribed medications for asthma and allergies, using humidifiers, and taking muscle relaxants for back pain. Mothers engaged in activities, such as reading, eating particular foods, bathing, or turning off the lights to promote sleep. Others used TV to help fall asleep by blocking out sounds. They reported using, tea, liquor, and music to help them fall asleep. Coffee in the morning helped them be alert to perform their daily activities.

Mothers reported doing housework to get tired, eating, cooking, watching TV or movies, going outside for fresh air, trying not to worry, and putting their children to sleep earlier to allow them to go to bed earlier. Mothers thought better daily organization, earlier bedtimes, and partner help with managing daily responsibilities would help them sleep. They also reported napping to compensate for short nocturnal sleep.

"Children's bedtimes and routines: Who decides? Who is in charge?"

Children's bedtimes varied by family needs and routines, and mothers' views on the importance of specific bedtimes also varied. Some needed their children to be in bed by 7:30 p.m. or 8:00 p.m. so that they could get their own work or housework done. Some treasured the quiet time after children were asleep for themselves. School and work schedules usually dictated regular bedtimes for children. However, mothers who were not working outside their homes or did not have children in school programs reported young children's bedtimes to be much later (e.g., 10:00 p.m. on weekdays and 10:00 p.m. to 12:00 a.m. on weekends). Many mothers thought that children need structured daily schedules with both indoor and outdoor activities and ritualized bedtimes so that children would feel tired and ready to sleep in the evening. They thought that children needed at least 9—10 hr of sleep, with consistent bedtimes.

> You have to give them something during the day. So, you have to have a time structured schedule for them in order for them to do—in order for them to go to bed at a certain time. If you want them to go to bed at a certain time, you've got to remind them, you want them at—to go to—to be in the bed at nine, you have to do things from the time they wake up until 8:30 and by the time, that's going to tire them out. So, when nine o'clock come and you lay them down into bed that only takes them about ten, twenty minutes to go to sleep.

Mothers reported using strategies and bedtime rituals with their children that they remembered from their own (legacy) childhood bedtime routines. Many used soft music, lullabies, television shows, coloring activities, or board games to help their children wind down for sleep.

"Co-sleeping-feeling close and loving, but a mixed blessing". Mothers had mixed feelings about where children should sleep. Some thought that it was important for young children to have the lights off and sleep in their own cribs/beds. Others reported that young children slept with them in the family bed as a way to feel close even when the children had their own rooms and beds. These mothers were comforted by knowing their children were safe and nearby in bed with them, despite children's restless arms and legs or crowding in the bed. Bedtimes were loving, tender, and relaxing times for many mothers who described happily watching their children sleep. They conveyed love and devotion to their children who provided comfort, especially at the end of the day when everyone was winding down and children were asleep. Some of the mothers expressed the "mixed blessing" of having children sleep with them in the family bed versus everyone sleeping more soundly in their own beds. Two mothers expressed these feelings in the following:

It makes me feel special . . . like, to hear they heartbeat. It's couple of nights where I just lay up and just watch them sleep. Like stuff like that. It makes me feel good.

A lot of things go through my head. Like I really got kids. I'm a good mother. My kids love me despite all my wrongs and all that. It makes me feel good.

I don't have a problem with it except for the fact that he sleeps so wild. Like it's a lot of tossing and turning and then I'll wake up and he's on my back or his arms and legs around my neck, I can't breathe, or he's stolen all my cover and doesn't want to give it back.

Mothers' Suggestions for Sleep Interventions and Approaches

Mothers thought that parents needed to know how to manage their child's sleep routines beginning at birth, common sleep problems in young infants and children, and to understand the influence of their own attitudes on children's reactions and sleep. They suggested several approaches for teaching new mothers and families about sleep, including home visits, telephone support, and written or video materials. They mentioned electronic methods (e.g., telephone "apps," chat rooms, and online programs). Many thought classes that include mothers of children of similar ages could facilitate sharing problems and hearing ways that other parents addressed sleep concerns. They suggested holding group meetings in convenient community locations, including health care agencies, libraries, hospitals, clinics, day care centers, supermarkets, or schools. They thought that providing refreshments and financial support for transportation or childcare would facilitate parental participation. Some mothers admitted that they do not like to be told what to do with their kids. Others suggested that group formats may not be helpful for everyone, and some mothers may be shy and reluctant to attend group sessions.

Integration of Quantitative and Qualitative Findings

The results of the integrated qualitative and quantitative analyses are summarized in Table 3. Many mothers reported in interviews that their children had no problems sleeping. However, these reports contrasted with the questionnaire data that indicated that many children had shorter than adequate sleep duration relative to normative data, variable sleep onset and offset times, and higher than normative scores on the CSHQ.

In the interviews, the mothers reported their own sleep difficulties that were consistent with their PSQI scores. Sleep difficulties seemed to be more common among overweight or obese women who also described stressful daily lives and physical symptoms, such as back pain, anxiety, and snoring. Most mothers who commented on their experiences with daily stresses and worries (e.g., finances, unemployment, and worry about adolescent children) had PSI in the clinical range and Center for Epidemiologic Studies – Depression scale scores that suggested depressed mood. Although mothers reported co-sleeping with their children and desired to have their children close to them at night, co-sleeping was often accompanied by poor maternal and child sleep, as indicated by the quantitative measures.

To further understand mother and child sleep patterns and the correspondence between these dyads, we dichotomized maternal sleep quality (PSQI mean scores indicating good and poor sleep) and child (CSHQ) sleep mean scores and created four groups of dyads (both mother and child with poor sleep [$n = 9$; 28% dyads]; both mother and child with good sleep [$n = 14$ dyads]; mother with good sleep/child with poor sleep [$n = 7$; 22% dyads]; and mother with poor sleep/child with good sleep [$n = 4$; 13% dyads]). Most dyads ($n = 23$; 72%) were concordant on sleep quality. We displayed these groups with their associated interview themes and health/behavior questionnaire findings to more clearly depict the lifestyle and health issues that may be associated with good or poor sleep among these women and their children. We did not display the group with only four dyads because there were insufficient data to evaluate patterns (see Table 3).

Among the nine dyads in which both mothers and children had poor sleep, most mothers were obese (body mass index [BMI] >30), and the majority had Center for Epidemiologic Studies – Depression scale scores suggesting clinical depression. They described the interference of physical and emotional concerns (e.g., back pain; heartburn; snoring; and night awakening and difficulty falling asleep often because of worrying about issues such as finances, unemployment, children's welfare, and job pressures) with sleep. They often used sleep aids, such as tea, baths, TV, or over-the-counter medications without much relief. Almost all regularly co-slept with their children, and most found it comforting. In two thirds of the cases, the children watched TV at bedtime, and some had tea and bathing as part of their bedtime routines.

Patterns seen among the 14 mother–child dyads in which both mothers and children had good sleep provide insight into characteristics or protective factors that may have helped these dyads to have healthier sleep. The mothers had far fewer depressive symptoms than the first group, and children were younger than the other two groups. Although most mothers were overweight or obese, they described fewer sleep problems or pains/worries that interfered with their sleep and had lower levels of parenting stress than the poor sleep group. Most had bedtime routines, including bathing, reading, drinking milk or tea, and a few using TV at bedtime. Very few described frequent worries, and slightly more than a half slept with their children. The children had bedtime routines that included reading books, bathing, and drinking warm milk. Very few children had watching TV as part of their sleep routines.

Among the seven dyads in which mothers had good sleep and children had poor sleep quality, all mothers were overweight or obese, but only one had clinically significant depressive symptoms, and one described the stress of worrying about her child choking while sleeping. These mothers had the lowest parenting stress scores. Almost all reported

TABLE 3. Integrated findings based on clusters of mother–child dyad sleep survey findings and interview responses

Mother–child dyad sleep clusters: sleep survey scores[a,b]	Mothers' sleep difficulties (interview)	Mothers' bedtime routines (interview)	Child bedtime routines (interview)	Stress and sleep (interview)	Co-sleeping (interview)	Child age, months, *M* (*SD*)[b]	BMI, mother, *M* (*SD*)	Maternal depressive symptoms, (CESD), *M* (*SD*)	Child behavior (CBCL), *M* (*SD*)	Parenting stress (PSI), *M* (*SD*)
Both child and mother with high sleep disturbance: 9 dyads	Many physical complaints interfering with sleep	Tea, baths, TV, OTC sleep medications: not much satisfaction	Two thirds watched TV as well as had tea and took baths	Many worries regarding finances, children, job pressures	All co-slept with young children; it was comforting for the mother	43 (9.4)	29.7 (6.1)	17 (7.2); 5 (56%) mothers above clinical cut point (≥16), suggesting clinical depression symptoms	57.1 (8.7); three children in clinical range (63-72)	90 (27.8); high stress scores
Both child and mother with low sleep disturbance: 14 dyads	Few problems, pain	Baths, reading, milk or tea; *few watched TV*	Books, baths, warm milk; *very few watched TV*	Very few worries	One-half co-slept with young children	33 (13.6)	30.8 (5.4)	7 (5.3); low levels	46.6 (8.5); no children with behaviors in clinical range	46 (2.6); moderate stress scores
Child with high and mother with low sleep disturbance: 7 dyads	Multiple awakenings to feed infants or shift work schedules; feel fatigued during days	TV; some keeping TV on all night	Bath, lotion, active play before bed; or reading, child watched TV	Only one mother worrying about the child choking in sleep	Most mothers reported co-sleeping with children	47 (8.9)	32.7 (3.6)	8 (7.9); one mother above clinical cut point	52.4 (9.0); one child in clinical range	58 (7.1); high stress scores

Note. *BMI, body mass index; CBCL, Child Behavior Checklist; CESD, Center for Epidemiologic Studies - Depression; CSHQ, Children's Sleep Habit Questionnaire; M, mean; OTC, over the counter; PSI, Parenting Stress Index; PSQI, Pittsburgh Sleep Quality Index; SD, standard deviation; TV, television.*

[a]*Mothers' sleep survey (PSQI) sample mean score (6.6 ± 3.37) was used for cut point (higher score = worse sleep); Children's sleep survey (CSHQ) sample mean score (52.28 ± 8.0) was used for cut point (higher score = worse sleep).*

[b]*Cluster with child with low and mother with high sleep disturbance only had four dyads, making it difficult to discern patterns.*

multiple awakenings as a result of the need to feed infants or because of their own or partners' shift work. Most mothers relied on TV as a sleep aid, and some kept the TV on all night, although most reported relying on soothing bedtime routines. Children's bedtime routines were more structured. All took bath at bedtime, and most children had books read to them at bedtime, but some also had active play before bedtime. All but one mother co-slept with her children.

DISCUSSION

This study provides helpful new information about perceived sleep patterns and contributing factors from the perspectives of multiethnic U.S. urban mothers who live with economic adversity. Our findings that sleep duration was lower than evidence-based recommendations (Paruthi et al., 2016) and that the overall score on children's sleep habits was considerably higher than normative values (Goodlin-Jones et al., 2008) underscore the importance of addressing sleep difficulty in these children. These findings are consistent with growing evidence that multiethnic children who live with economic adversity are at a risk for sleep problems and negative sleep-related outcomes.

Mothers almost universally viewed sleep as important for themselves and their children, provided insight into factors that influenced sleep and sleep difficulty, and used both effective and possibly ineffective strategies to promote healthy sleep for themselves and their children. Many learned sleep promotion strategies from their families of origin, and most were interested in learning more about sleep and improving sleep health for their children. Given the busy and stressful lives of these families, the importance of sleep to these families suggests an important opportunity for intervention.

The discrepancy between some mothers' positive perceptions of sleep and information provided on the Children's Sleep Habits Questionnaire are consistent with previous reports of discrepancy (Molfese et al., 2015) and suggests that educational and behavioral interventions can help clear misconceptions about sleep. Providing simple information about normative sleep requirements for children's developmental stages may help clarify these possible misconceptions, especially given the findings from the CSHQ that some children had sleep problems.

Most mothers used strategies to facilitate their children's sleep, and many used sleep remedies learned from their families, many of which (e.g., bathing before bedtime, massage, and reading a story) may have cultural underpinnings (Giannotti & Cortesi, 2009). Some of these strategies are often included in interventions to promote healthy sleep, especially when timed appropriately and used on a regular basis to facilitate regular sleep timing. However, other mothers allowed their children to stay up late and/or were unable or unwilling to provide structured bedtimes, a strategy known to facilitate regular sleep patterns and promote sleep onset. Taken together, these findings suggest the need for careful assessment of behaviors that are facilitators or barriers to sleep in specific families and personalized and tailored approaches to reinforce positive behaviors that regularize sleep (e.g., reading at bedtime, bathing, and massage). Guidance to inform and strengthen the need for regular and early bedtimes to maximize sleep duration may be beneficial for these families.

Consistent with the literature, reported influences on sleep were multifactorial and included environmental concerns within and outside of the home, sleep behaviors, and stress. Some factors such as noise outside the home or economic insecurity are difficult to modify. Others may be targets of intervention. For example, TVs and other devices with electronic screens were almost universally present in bedrooms. Considerable empirical evidence has demonstrated an association with these devices on both poor sleep quality and internalizing and externalizing behaviors (Cespedes et al., 2014; Owens & Jones, 2011). Given the high frequency with which this practice occurred in our study and the fact that it is readily modifiable, raising awareness about the negative outcomes of screen time is a pressing focus for intervention.

Mothers and children often shared beds, and mothers associated co-sleeping with feelings of closeness and gratitude. Conversely, co-sleeping was also associated with sleep disruption because of bed crowding and children's restlessness. These findings reflect the literature suggesting that although co-sleeping is common in many cultures, it may have both positive and negative effects. Although studies in non-Western cultures found no negative effects of parent–child co-sleeping (Byars et al., 2012; Jenni, Fuhrer, Iglowstein, Molinari, & Largo, 2005), African American families often report co-sleeping but experience more frequent nighttime waking (Coulombe & Reid, 2014) and more depressive symptoms (Broussard, Sappenfield, & Goodman, 2012). Co-sleeping may also limit the child's capacity to self-regulate and self-soothe (Burnham, Goodlin-Jones, Gaylor, & Anders, 2002; Tikotzky & Sadeh, 2009). These concerns differ from concerns about the dangers of co-sleeping with newborns or infants for whom there are safety issues regarding the possibility of suffocation. Given both positive and negative consequences of co-sleeping in young children, there is a need for further understanding of family perspectives on this issue and strategies to assist with problem solving for satisfactory outcomes.

The dyadic nature of maternal–child sleep was evident in the integrated findings in which 23 (77%) dyads of mothers and children had concordant sleep quality (both members had good sleep or both members had poor sleep). The reasons for the close correspondence between mothers' and children's sleep are not completely known but may include environmental influences and behaviors (e.g., TV in the bedroom), shared irregular bedtimes, and/or co-sleeping. These findings also suggest the important role of stress, worries, and mental health concerns for sleep for both mother and child, as well as the need to consider these as both contributors and consequences of sleep problems. Although our study only addressed the perspectives of mothers, there is a need to consider the perspectives of all members of the household in developing family-focused sleep interventions.

The focus of our study was not on primary sleep disorders, but most mothers, especially those who complained of poor sleep, were also obese or overweight, and a large proportion were at a risk for obstructive sleep apnea based on data from the Berlin Questionnaire. However, none of the women in this study were aware of this problem or in treatment before completing the Berlin Questionnaire. Although we did not specifically measure insomnia, the prevalence of poor sleep quality suggests that insomnia may also be common among these mothers, and depressive and anxious symptoms are often associated with insomnia. The increased risks of negative cardiovascular, metabolic, functional, and mental health outcomes associated with insomnia and sleep apnea suggest the need for screening and possible treatment of these sleep disorders, whereas strategies to assist in coping with stress may improve sleep and possibly depressive symptoms. We referred mothers who were at a high risk for sleep apnea or poor sleep to their health care practitioners for further follow-up and evaluation. We provided contact information for local counseling centers to all mothers, especially mothers who scored in the clinical range for depression or needed support for stress and/or life challenges. The self-report data on the subscales of the CSHQ suggest that about a third of these children may have signs of sleep-disordered breathing. We also referred these children for further clinical sleep assessment to their pediatric health care practitioners.

Mothers reported variable preferences for participating in sleep health interventions and ways of delivering them. Therefore, a one-size-fits-all approach is likely not warranted, and further research is needed to identify the best ways to structure and deliver them. To foster feasibility and acceptability, using community-engaged research methods and tailoring content with a choice of delivery approaches for family and community preferences (e.g., individual, group, or electronic methods of delivery) may be useful.

Strengths and Limitations

The primary strength of our study was the use of mixed-methods design to obtain insight into perceptions about sleep among young urban racially and ethnically diverse mothers of young children. Documentation of perceptions of the importance of sleep and a variety of facilitators and barriers to sleep, as well as the presence of both effective and ineffective sleep habits, suggest the need for personalized approaches in which guidance about sleep is specifically tailored to the needs of these families.

The study was limited by the inclusion of only mothers, the lack of objective sleep measurement (e.g., wrist actigraphy or polysomnography), or daily measures of sleep (e.g., sleep logs and children's napping patterns). We did not conduct an in-depth clinical assessment of primary sleep disorders and other potential medical and psychiatric influences on sleep among both mothers and children. There is also the possibility of some response bias in reporting the importance of sleep, as some mothers may not have wished to state that sleep was not important. Future studies are needed to examine the nature of sleep within the context of the family, including fathers and others in the household; individual, family, social, cultural, and environmental influences on sleep; and the feasibility, acceptability, and efficacy of sleep-promoting interventions for these families.

CONCLUSIONS

The results of this study suggest that ethnically diverse mothers who are facing economic hardship value sleep for themselves and their children, and many use beneficial strategies to promote sleep, including those learned from their families. The high value that women place on sleep for themselves and their children suggests the potential benefits of sleep-promoting interventions for these families that are tailored to the unique family and social contexts in which they live.

SUPPLEMENTARY MATERIALS

Supplementary material associated with this article can be found in the online version at https://doi.org/10.1016/j.pedhc.2019.06.006.

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