


# Early Childhood Sleep Intervention in Urban Primary Care: Caregiver and Clinician Perspectives

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## Abstract

**Background** Despite significant income-related disparities in pediatric sleep, few early childhood sleep interventions have been tailored for or tested with families of lower socio-economic status (SES). This qualitative study assessed caregiver and clinician perspectives to inform adaptation and implementation of evidence-based behavioral sleep interventions in urban primary care with families who are predominantly of lower SES. **Methods** Semi-structured interviews were conducted with (a) 23 caregivers (96% mothers; 83% Black; 65%  $\leq$  125% U.S. poverty level) of toddlers and preschoolers with insomnia or insufficient sleep and (b) 22 urban primary care clinicians (physicians, nurse practitioners, social workers, and psychologists; 87% female; 73% White). Guided by the Consolidated Framework for Implementation Research, the interview guide assessed multilevel factors across five domains related to intervention implementation. Qualitative data were analyzed using an integrated approach to identify thematic patterns across participants and domains. **Results** Patterns of convergence and divergence in stakeholder perspectives emerged across themes. Participants agreed upon the importance of child sleep and intervention barriers (family work schedules; household and neighborhood factors). Perspectives aligned on intervention (flexibility; collaborative and empowering care) and implementation (caregiver-to-caregiver support and use of technology) facilitators. Clinicians identified many family barriers to treatment engagement, but caregivers perceived few barriers. Clinicians also raised healthcare setting factors that could support (integrated care) or hinder (space and resources) implementation. **Conclusions** Findings point to adaptations to evidence-based early childhood sleep intervention that may be necessary for effective implementation in urban primary care. Such adaptations could potentially reduce significant pediatric sleep-related health disparities.

**Key words:** barriers; facilitators; implementation; primary care; sleep.

## Introduction

Sleep intervention in early childhood is critical given the high prevalence (20–30%) of sleep problems in young children (Mindell, Kuhn, Lewin, Meltzer, & Sadeh, 2006) and the many adverse outcomes linked to poor sleep (Beebe, 2011; Reynaud, Vecchierini, Heude, Charles, & Plancoulaine, 2018). There are significant income-related disparities in pediatric sleep patterns and problems beginning as early as 3 months of age (Grimes, Camerota, & Propper, 2019). Compared to youth of higher socio-economic status (SES) backgrounds, youth of lower SES have shorter sleep duration, poor sleep health behaviors (e.g., increased bedroom electronics), and greater insomnia symptoms, even when controlling for child race/ethnicity (El-Sheikh et al., 2013; Peña, Rifas-Shiman, Gillman, Redline, & Taveras, 2016), which is also associated with sleep disparities (Smith, Hardy, Hale, & Gazmararian, 2019).

There is a robust evidence base for the effectiveness of behavioral sleep interventions, particularly in early childhood (Meltzer & Mindell, 2014; Mindell et al., 2006). However, very few studies have examined intervention efficacy in families of lower SES or of racial/ethnic minority backgrounds (Schwichtenberg, Abel, Keys, & Honaker, 2019). Only two studies have examined sleep health education in children of lower SES (Mindell, Sedmak, Boyle, Butler, & Williamson, 2016; Wilson, Miller, Bonuck, Lumeng, & Chervin, 2014), but this research did not target children with sleep problems. Beyond sleep education, behavioral sleep interventions typically include caregiver-implemented components such as setting a consistent bedtime routine and sleep schedule, limit-setting around bedtime requests, and reducing caregiver presence at bedtime to promote independent sleep onset (Allen, Howlett, Coulombe, & Corkum, 2016; Mindell et al., 2006). Much like adaptations made to behavioral parent training, behavioral sleep interventions may require tailoring in content (intervention components), format (materials), and delivery for families of sociodemographically diverse backgrounds (Schwichtenberg et al., 2019). For families of lower SES backgrounds, caregiver shiftwork, parenting stress, a single caregiver household, lower health literacy, and transportation and childcare limitations may impact intervention access, engagement, and efficacy (Bathory et al., 2016; Ofonedu, Belcher, Budhathoki, & Gross, 2017; Walton, Mautone, Nissley-Tsiopinis, Blum, & Power, 2014).

Socio-cultural variation in sleep-related beliefs and practices may also impact intervention acceptability. For instance, bed- and room-sharing, which is more common in families of lower SES and may be due to limited economic resources or cultural factors (Mileva-Seitz, Bakermans-Kranenburg, Battaini, & Luijk, 2017), may not easily align with interventions

designed to promote independent child sleep onset (Allen et al., 2016). Studies using qualitative methods have explored child sleep beliefs, practices, and healthy sleep barriers (e.g., overcrowded homes; work schedules) in immigrant Brazilian mothers of preschoolers (Lindsay, Moura Arruda, Tavares Machado, De Andrade, & Greaney, 2018), mothers of lower SES (Caldwell, Ordway, Sadler, & Redeker, 2020), and caregivers of toddlers with sleep problems (Sviggum, Sollesnes, & Langeland, 2018). However, research has yet to examine caregiver perspectives on behavioral interventions in children of lower SES with known sleep problems.

Furthermore, few studies have identified how to best implement behavioral sleep interventions in accessible settings such as primary care, which can support intervention scalability and dissemination (Parthasarathy et al., 2016). With a growing number of behavioral health providers integrated in primary care (Miller, Petterson, Burke, Phillips Jr, & Green, 2014) and frequent well visits in early childhood, implementing early childhood behavioral sleep intervention in primary care could reduce treatment barriers (Honaker & Meltzer, 2016). While cognitive behavioral therapy for adults with insomnia has been adapted for primary care (Troxel, Germain, & Buysse, 2012), research on addressing child sleep in primary care is limited to a feasibility study of sleep screening and provision of initial sleep recommendations by behavioral health clinicians (Honaker & Saunders, 2018). To address the ongoing research-to-practice gap in sleep (Parthasarathy et al., 2016), more research is needed on how to adapt and implement efficacious and scalable interventions in primary care.

## Current Study

The purpose of this study was to assess stakeholder perspectives to inform adaptation and implementation of evidence-based behavioral sleep interventions in urban primary care. We qualitatively evaluated perspectives from stakeholders who would be impacted if we were to implement evidence-based behavioral sleep interventions in this context (a) caregivers of predominantly lower SES backgrounds with young children experiencing behavioral sleep problems and (b) clinicians (physicians, nurse practitioners, social workers, and psychologists) at urban primary care sites. In particular, we solicited information about factors that could support (facilitators) or hinder (barriers) intervention implementation in urban primary care.

## Methods

### Participants

All participants were recruited from three urban primary care sites that serve primarily Medicaid-insured

patients and are affiliated with a large northeastern children's hospital. Qualitative data saturation determined the sample size of 23 caregivers and 22 primary care clinicians. All clinicians at the urban primary care sites were informed about the study and asked to refer any potential caregiver participants they encountered during routine clinical care with a child ages 2–5 years with a sleep problem. The study team also recruited potential participants by reviewing child electronic health records (EHRs) and contacting caregivers of children ages 2–5 years scheduled for well-child or follow-up visits at the primary care sites. All potentially eligible caregivers were contacted to initiate study eligibility screening using a study screening form. Eligibility criteria were: English-speaking caregiver, age 18 or older, who was the legal guardian of a child ages 2–5 years receiving care at the urban primary care site, with a behavioral sleep problem and without medical (e.g., sickle cell disease; diabetes) or neurodevelopmental (e.g., autism spectrum disorder) conditions that would impact sleep. A sleep problem was defined by either (a) a caregiver-reported “small” to “severe” child sleep problem, based on an item used extensively in previous research (Mindell, Sadeh, Kwon, & Goh, 2013; Quach, Hiscock, Ukoumunne, & Wake, 2011) or (b) insufficient total (24-hr) sleep, based on national guidelines (<11 hr for age 2; <10 hr for ages 3–5 years; Hirshkowitz et al., 2015).

Clinicians were recruited via e-mail and staff presentations; participants were eligible for the study if they were English-speaking and providing pediatric patient care at one of the three urban primary care sites. Informed consent was obtained from all participants. The children's hospital Institutional Review Board approved this study. We followed the Consolidated Criteria for Reporting of Qualitative Research (COREQ) guidelines (Tong, Sainsbury, & Craig, 2007).

## Procedure

We used the Consolidated Framework for Implementation Research (CFIR), a widely used implementation science framework, to develop semi-structured interviews that would inform subsequent intervention adaptation and implementation (Damschroder et al., 2009). CFIR considers factors in five domains: (a) the characteristics of the individuals involved in the intervention; (b) the intervention characteristics; (c) the intervention implementation process; (d) the inner setting (in this study, the primary care clinic and healthcare system); and (e) the outer setting (i.e., the broader socio-cultural context). We focused primarily on the domains of the characteristics of the individuals involved in the intervention, the evidence-based intervention components, and the implementation process. An interview guide for each

stakeholder group was pilot tested and refined by four study team members (A. A. W., K. A. R., R. S. B., and J. A. M.). Interview guides included questions about interviewees' perceptions of child sleep problems and management. Interviewees were then presented with a handout of common components of evidence-based behavioral sleep interventions for pediatric insomnia or insufficient sleep and asked about potential barriers to and facilitators of implementing each component. The components were selected on the basis of evidence-based pediatric behavioral sleep intervention research (Allen et al., 2016; Meltzer & Mindell, 2014; Mindell et al., 2006) and included: maintaining a bedtime before 9:00 p.m., a consistent sleep schedule and bedtime routine, and adequate sleep duration; avoiding caffeine; avoiding electronics items before bedtime; having the child fall asleep independently; and managing tantrums at bedtime. Interview questions also focused on intervention adaptability, preferred implementers, the implementation process, and the healthcare context. The interview guides and handout are provided in [Supplementary Appendix S1](#).

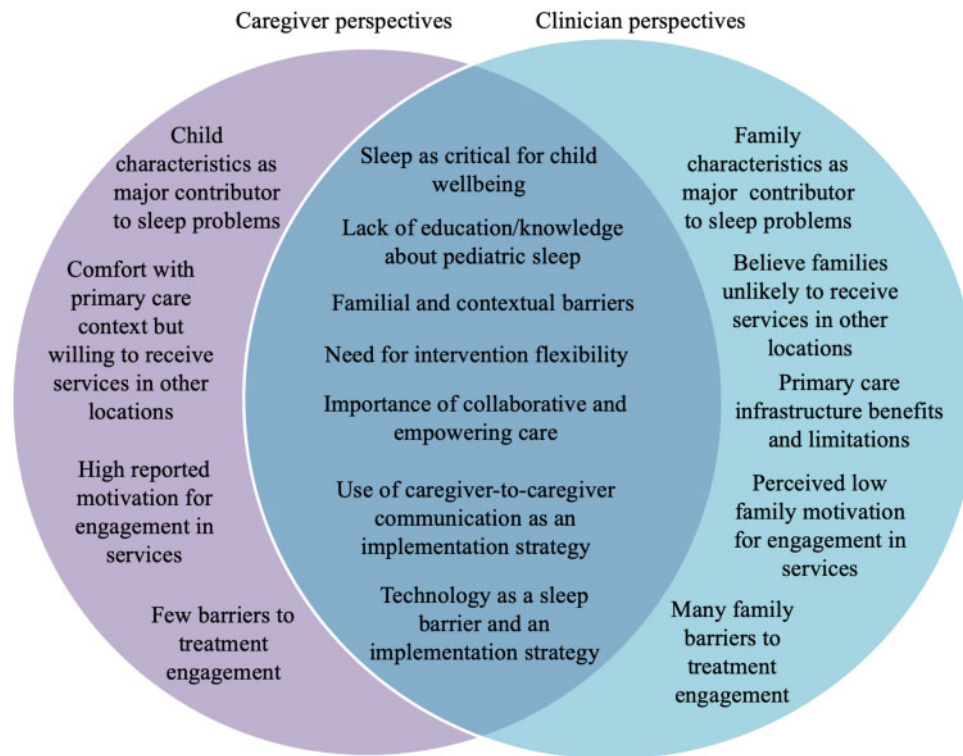
Interviews were conducted by the lead author (A. A. W.) and two supervised clinical psychology doctoral students (B. W. and I. M.). One interviewer (A. A. W.) had previously worked with three of the clinicians. Interviews were audio-recorded in private locations at the main hospital or the primary care site; one interview was audio-recorded with a caregiver participant by telephone due to family transportation difficulties. Caregiver study visits ranged from 45 to 90 min and included questionnaire and interview administration. The study team extracted child demographic data (age, race/ethnicity, and sex) from the EHR. Caregivers were compensated \$45 for participation. Clinician study visits ranged from 30 to 60 min and included questionnaire and interview administration. Clinicians were compensated with a \$20 gift card. Interviews were transcribed verbatim and uploaded into NVivo version 12 for analysis.

## Measures

### Caregiver Questionnaires

Caregivers reported their sociodemographic information, including age, sex, race/ethnicity, marital status, education, income, and household size. Income and household size were used to identify family SES position based on U.S. poverty guidelines.

Caregivers reported on child sleep patterns and problems using the 30-item Brief Child Sleep Questionnaire (BCSQ), which has shown good reliability and moderate correspondence with actigraphy (Kushnir & Sadeh, 2013; Sadeh, Mindell, Luedtke, & Wiegand, 2009). Caregivers reported on child sleep location, bed and wake times, bedtime routine frequency, bedtime resistance severity, sleep onset



**Figure 1.** Convergence and divergence in caregiver and primary care clinician perspectives.

latency, nighttime sleep duration, night awakening frequency and duration, naps, and severity of the child sleep problem over the last 2 weeks. Caregivers also reported on child caffeine consumption and the number of electronics items in the child's sleep space (Williamson & Mindell, 2020). In line with other studies (Mindell et al., 2013; Sadeh et al., 2009), caregiver-estimated nighttime sleep and nap durations were summed to obtain total (24-hr) child sleep duration and a sleep opportunity variable was calculated as the number of hours between caregiver-reported child bedtime and waketime.

Caregivers also completed the 10-item Center for Epidemiological Studies Depression scale—Short Form (CES-D-10), which has good psychometric properties (Cheung, Liu, & Yip, 2007). A cutoff score of 10 indicates clinically significant symptoms (Cheung et al., 2007).

### Clinician Questionnaires

Clinicians reported on their demographic information, education, current position, number of years in practice, and any prior pediatric sleep training.

### Analytic Approach

Summary statistics (means and proportions) were generated for quantitative data. Qualitative data analysis followed an integrated approach (Bradley, Curry, & Devers, 2007). Two types of codes were developed: *a priori* CFIR-related codes and grounded theory codes

that emerged from the data. We created an operational definition for each code and decision rules for their application. Research team members (A. A. W., B.W., and I.M.) first separately coded three transcripts, compared their coding, and developed an initial codebook with oversight from a qualitative methods expert (K. A. R.). The codebook was then applied to three additional transcripts, compared across coders, and further refined. Coding disagreements were resolved through discussion. The finalized codebook was then applied to all transcripts; 20% of the transcripts were double-coded by the coders (A. A. W., B.M., and I.M.) for reliability purposes. The weighted kappa was 0.79. The organization of themes (Figure 1) across stakeholder groups was determined by thematic saturation and consensus among the research team, including two qualitative experts (K. A. R. and F. K. B.).

## Results

### Participant Sociodemographic Information

Caregivers ( $N=23$ ; Table 1) were mostly mothers (96%) who identified as Black (86%). The majority of caregivers were the single caregiver at home (70%) and living at or below 125% of the U.S. poverty level (65%). A total of 17% caregivers endorsed clinically significant ( $\geq 10$ ) depressive symptoms. Clinicians ( $N=22$ ) were mostly female (87%) of non-Latinx White backgrounds (73%). Clinicians included

**Table I.** Participant Sociodemographic Information

Variables	Caregivers (N = 23), mean (SD)/%	Children (N = 23), mean (SD)/%	Clinicians (N = 22), mean (SD)/%
Female sex	96%	48%	87%
Race: Black or African American	83%	78%	18%
White	17%	9%	73%
Other or multiple races	–	13%	–
Asian	–	–	9%
Ethnicity: Hispanic/Latinx	4%	4%	–
Age		2.7 years (0.92)	
18–24 years	17%		–
25–29 years	17%		4.5%
30–39 years	57%		45.5%
40–49 years	9%		27.3%
≥50 years	–	–	22.7%
Highest educational level obtained			
≤High school/secondary school	48%		–
Some college/junior college	30%		–
College/university	13%		–
Postgraduate	9%		100%
Number of children living in home	2.4 (0.99)		
Number of adults living in the home <sup>a</sup>	1.7 (0.82)		
Single caregiver household	70%		
Married	21%		
Unmarried, cohabitating	9%		
US poverty level: ≤125%	65%		
≤133%	4%		
≤150%	4%		
≤200%	5%		
250% or more	22%		
Clinician prior education in pediatric sleep <sup>b</sup> and source			32%
Bachelor's program			5%
Medical school or residency			23%
Continuing education course			9%
Hospital/employer training			5%
Other experience (clinical)			9%

<sup>a</sup>Note. "Adults" indicates individuals 18 years of age or older in the home.

<sup>b</sup>Types of prior pediatric sleep education are not mutually exclusive.

primary care physicians (59%), nurse practitioners (9%), licensed social workers (23%), and psychologists providing integrated behavioral health services at the primary care sites (9%). See [Table I](#) for additional sociodemographic information.

### Child Sleep Patterns and Problems

[Table II](#) shows caregiver-reported child sleep patterns and problems. Consistent with inclusion criteria, nearly all (95.7%) caregivers reported a child sleep problem and most (65.2%) reported insufficient total (24-hr) child sleep. The average bedtime was 8:48 p.m., which aligns with early childhood guidelines of a bedtime before 9:00 p.m. ([Mindell, Meltzer, Carskadon, & Chervin, 2009](#)), but average sleep onset latency and night awakening duration were markedly prolonged (>2 hr), resulting in extremely curtailed reported average nighttime sleep (6.41 hr). Poor sleep health behaviors and insomnia symptoms identified on the basis of previous research ([Williamson &](#)

[Mindell, 2020](#)) were highly prevalent, as expected based on inclusion criteria. Almost all (91%) children lacked a consistent bedtime routine, 74% had one or more electronics items in the bedroom, and 38% consumed caffeine daily (26% iced tea, 17% soda). Most caregivers reported child bedtime resistance (87%), difficulty falling asleep (78%), a prolonged sleep onset latency (87%), and frequent night awakenings (52%).

### Qualitative Themes

Qualitative analysis revealed convergence and divergence in themes across stakeholder groups, as shown in [Figure 1](#) and described further below.

### Importance of Child Sleep

Caregivers and clinicians conceptualized sleep as being critical for child wellbeing, although the impact of poor sleep on multiple aspects of child functioning (emotion regulation and academic performance) was described in more detail by clinicians ([Table III](#)).

**Table II.** Descriptive Statistics For Caregiver-Reported Child Sleep Patterns and Problems ( $N = 23$ )

Sleep patterns	Mean (SD)/%
<b>Sleep location</b>	
Own room, own bed	30%
Shared room with caregiver(s), own bed	17%
Shared room with caregiver(s), shared bed	44%
Shared room with sibling(s), own bed	4%
Couch shared with parent, sibling, or other person	4%
Bedtime	8:48 p.m. (51 min)
Number of awakenings per night	0.52 (0.51)
Duration of nighttime awakenings (min)	158.13 (190.87)
Wake time	7:10 a.m. (113 min)
Nighttime sleep opportunity (hr)	10.36 (1.98)
Nighttime sleep duration (hr)	6.41 (2.53)
Takes naps	83%
Nap duration (min)	111.09 (85.47)
Total (24-hr) sleep duration (hr)	8.27 (2.22)
<b>Poor sleep health behaviors</b>	
Mean (SD)/%	
Inconsistent bedtime routine ( $\leq 4$ nights/week)	91%
Bedtime later than 9:00 p.m.	61%
One or more electronics item in bedroom	74%
Type of electronics item <sup>a</sup>	
Television	48%
Tablet	52%
Smartphone/cellphone	39%
Gaming device	4%
Insufficient sleep	65%
Consumes caffeine daily	36%
<b>Insomnia symptoms</b>	
Mean (SD)/%	
Bedtime resistance	87%
Difficulty falling asleep	78%
Sleep onset latency $\geq 30$ min	87%
Night awakenings $\geq 3$ times/week	52%
Sleep problem	96%

<sup>a</sup>Note. Categories are not mutually exclusive. Insomnia symptoms and poor sleep health behaviors identified on basis of previous research (Williamson & Mindell, 2020).

Many clinicians also indicated that families they treat do not always realize the extent of linkages between sleep and child functioning. Clinicians often described making the connection between sleep and child well-being more explicit for families during their visits.

#### Lack of Education/Knowledge About Pediatric Sleep

Both caregivers and clinicians identified a need for more patient and family education about healthy sleep habits and behavioral sleep intervention strategies in primary care. Some clinicians also expressed a need for more knowledge and resources in this regard for themselves (Table III). Many caregivers were surprised about recommendations related to optimal child sleep duration, including dietary advice related to limiting caffeine. Clinicians similarly described families as being unaware of these particular recommendations as well as the negative impact of nighttime electronics usage on sleep.

#### Child Versus Family Factors as Major Contributors to Sleep Problems

In discussing the importance of sleep as well as barriers to sleep intervention, caregivers primarily identified challenging child characteristics, such as being “difficult,” “full of energy,” “headstrong,” or an inherently poor sleeper as being the main contributor to the child’s sleep problem. By contrast, clinicians emphasized the family context as the main contributor to child sleep problems. In this regard, clinicians consistently described caregiver limit-setting difficulties and disorganized home environments as contributing to sleep problems and poor sleep habits (Table III).

#### Familial and Contextual Barriers

In response to questions about barriers impacting family-driven intervention components (Figure 1), both caregivers and clinicians similarly highlighted familial and contextual factors. These included: caregiver work schedules; having to manage multiple children; challenges in aligning different caregivers (e.g., co-parenting) and child sleep locations; caregiver stress and exhaustion; and family reliance on electronic items.

Caregivers and clinicians raised these barriers in relation to all of the intervention components, frequently referencing multiple barriers simultaneously. For instance, inflexible or variable work schedules and having multiple children at home resulted in later bedtimes and inconsistent routines. Caregivers and clinicians also noted that having multiple caregivers and, in some cases, multiple sleep locations, impeded management of child behaviors and enforcement of rules around electronics and caffeine. Reflecting the multilevel and interactive nature of these barriers, one caregiver described the impact of her partner’s nighttime work schedule on co-sleeping, which was also influenced by neighborhood safety concerns (Table III).

Caregivers and clinicians also discussed caregiver stress and exhaustion as barriers to implementing intervention components. As presented in Table III, a quote from one caregiver explained her level of frustration at the end of the day when, after being with her child or at work all day, his behavior is the most challenging to address. Likewise, clinicians described caregivers as being “overwhelmed” due to difficult work schedules and limited social support.

Families’ reliance on electronics at nighttime was another barrier that permeated most of the intervention components. For instance, caregivers and clinicians gave examples of children staying up late or waking overnight to use electronics, refusing to follow a bedtime routine or stay in bed without electronics, and caregivers providing children with electronics to offset caregiver stress or competing demands. Caregivers and clinicians also described family habits

**Table III.** Selected Themes and Representative Quotes

Theme/sub-theme	Caregiver quote	Clinician quote
Sleep as critical for child wellbeing	<i>"It [sleep] is affecting her behavior in a way, because it's like when she wake up in the morning, you know, that's bad. She has a bad—negative—she has a negative attitude. Because she's up, she's not asleep, she's not under her blanket. So, it's like really negative, and sometimes it takes her a while to get out of that space."</i>	<i>"I think it's [sleep] very important. I think some of my families don't recognize it, at least when I first meet them, why it's so important. Like, they're coming because this kid is having explosive tantrums. They think he has some sort of maybe ASD [autism spectrum disorder] or another disorder, and then I find out he's only sleeping 6 hr a night, and then I'm like, 'actually, let's start—you know, here.'"</i>
Lack of education/knowledge about pediatric sleep	<i>"I drink green tea so they [her children] might drink it here and there. But I didn't know that had caffeine in it."</i>	<i>"But I've never said, 'Make sure your child gets 10–13' [hr]—like I didn't know that was the recommendation, you know, so um, that's something I haven't been educating families about. But again, I don't really know what education is out there for us in teaching our families that."</i>
Child versus family characteristics as major contributor to sleep problems	<i>"She [the child] makes it real hard. She just don't want to go—I don't know. She just don't want to go to sleep." "He's extremely headstrong. If he doesn't want it, that's it. He's not taking it. If he wants something, it doesn't matter what I say, how I threaten to take away toys, electronics, Christmas, anything, he doesn't care. Like he just doesn't care."</i>	<i>"... There's parents who really just have never even really thought through some of the basic limit setting and then there's parents who sort of like know what the challenges are but have other barriers to implementing a, like, a successful strategy." "It's disorganization. And to be honest with you, sometimes over generations, so the grandparents are disorganized. The parents themselves are disorganized and don't have routines." "... Work schedules, childcare schedules, and general just sort of household chaos. And sometimes, I should have added lack of control over the home environment if they're living in a home with a bunch of other people and it's not their own space, and they can't kind of set the rules about, you know, lights out and bedtime and electronics and all that stuff." "I think is possibly parents being overwhelmed. Having possibly multiple children in the same age group, or just multiple children in general. . . I think a big thing could also be possible work schedules. . . So, just various shifts, and also just a mom may just get off at 8, so the child is just not getting home until late, and then the child themselves may be having a 12–14 [hr] day. . ."</i>
Familial and contextual barriers to intervention components Work schedules Multiple children, caregivers, or sleep locations	<i>"... But I work night shift so it's hard. . . . And then aside from that, you know, on the nights that I go to work, um, which is generally from Friday to Tuesday, he's at his sister's house with his step mother and she generally keeps a good schedule. . . . But he gives her issues too. . . . And then, you know, so I'm trying to put him on a schedule. I noticed that that did help somewhat in the past, but, with my work schedule it's hard." "... But then dad was working overnight. So it was like, and you know, our neighborhood wasn't really that good, so it was like I wanted them [the children] with me so like, you know, if something was to happen, I had them."</i>	<i>"... So parents are tired and sometimes the lesser evil is to just give in to what the child wants. Because they know that then everyone will get back to sleep faster and they're looking at kind of the short term versus a long term view of what will be good sleep habits."</i>
Caregiver stress and exhaustion	<i>"By that point in the day, um, and it's just, like I've just—I'm, I'm frustrated because I, I get frustrated because it's like I've dealt with him all day. It's literally me and him, or else I'm at work and then that's it. So by the time bedtime rolls around, like I just need him to listen. Like if there's one time in the day that I need him to listen, it's at bedtime. Because he hasn't listened all day. So yeah, I don't know. I think frustration gets in the way a lot."</i>	<i>"... this [bedtime] may be a time when the parent is trying to do a lot of things and it's much easier to give their child the screen than it is to sit and do a puzzle or even read a story since most in this age range, the kids aren't reading." "... Sometimes, it's [an electronic item] used as kind of the babysitter, you know. Like 'oh, go watch TV.' You know. And if the TV is in their bedroom, then you know, it's just—you know, there, available for the whole night."</i>
Reliance on electronics	<i>"I can't fall asleep without the TV on. So the TV's on 'cause of the sound and the light. And then sometimes I'm on my phone a lot too just 'cause that's when I can answer my emails and things like that. So I think that's really difficult. [Interviewer: It's hard for yourself.] It's hard for myself and then once she [the child] sees it, it's, you know, she wants it." "Because when she [the child] wakes up and then wants it [the iPad], it, you know, it keeps her quiet. And I can get the, you know, sleep that I need before I gotta get up and work. So that's really the main reason. I—in ideal situation, I would love for her not to have it, you know?"</i>	

Table III. (continued)

Theme/sub-theme	Caregiver quote	Clinician quote
Need for intervention content flexibility	<i>"I just felt like it was like one or nothing. Like, I didn't feel like anybody gave any other options, 'cuz the—it was pretty much everybody was just like 'Oh, just do the cry it out. Cry it out. That's what works.' Nobody was like 'these are the—these are the option—the different situations you can try. You can try the cry it out. You can try this.' Nobody had anything else. And it felt like very much like this is the only solution, and that we were doing something wrong."</i>	<i>"I think the big thing is just figuring out where that family is, keeping a consistent—I think the focus should be more so on the number of hours of sleep, not necessarily the time."</i>
Importance of empowering and collaborative care	<i>"I feel like if—I feel like it [a sleep intervention program] will help because they will be living in my reality. Opposed to just thinking up advice but not really dealing with the situation. You know what I mean? Like it's like some people have opinions but not actually in my situation. So come be in my situation with me. . . Because I felt like you still—as much as I tell you—you still don't know." "The only thing that I would say is just 'cause I'm working two jobs, sometimes it can be a little hard. So now I'm dependent on my sister who comes over and helps. And just getting her on board with trying to you know reinforce the same things that I would do if it—if I were home. And just making every kid—everybody involved."</i>	<i>"... I think the advice is different depending on what the environmental construct is around sleeping, so I start there and then veer off depending on what is offered to me. . . So. . . rather than giving a prescriptive sleep or bedtime routine, I ask parents for their own suggestions about what may work for their family. Because it doesn't work the same way for everybody." "So just sort of empowering them [families] to recognize that like this [sleep] is a big, like it's a real problem for their child and like, they're allowed to do things that might seem somewhat extreme in the short term if it's in the long-term best interest of their whole family. But then a lot of the time that gets into a conversation about all the other stakeholders in the household."</i>
Caregiver-to-caregiver communication as an implementation strategy	<i>"It would be helpful like if you didn't know like what that parent like what that parent and that family do at night, maybe they can help you and your child. You might can add that to your routine or take some of their advice. Like different stuff like that. Know what other parents are going through. If it's the same problem, it also helps."</i>	<i>"I think we, healthcare providers, could be a bit intimidating or disconnected from—you know, a parent where they are, you know. Maybe having a kind of peer support, you know, group. Whether the sessions are, you know, kind of with other peers, you know. So, I think there's value to having kind of one-on-one, you know, sessions. But hearing about other people—other parents', you know, strategies and what they're going through, I think is always helpful."</i>
Technology as an implementation strategy	<i>"I would think text messages, phone calls. . . Phone and email—keep checking emails, you know, at times. I know I check my email all the time so I, you know, see if, you know, who's important that's emailing me."</i>	<i>"... And create videos to demonstrate things. Like, that might be kind of neat, actually, for between-session reinforcement. . . Like some sort of video demonstration, both in-office and that someone could view between sessions, that you could text—you could even text people and say 'remember, look at this video'. . ."</i>
Willingness/lack of willingness to receive services outside of primary care	<i>"I'm a parent that—any referral, I take. Because it's only gonna—it's helpful and if my doctor is referring it, she knows that it's gonna be helpful. But my doc—me and my doctor, we have a 15-year relationship. So I know her well. So I wouldn't have a problem with it at all."</i>	<i>"... But I do think that coming here [to primary care], especially for a lot of our family where it's easier to get here versus having to go to the [main hospital] sleep clinic, [it] would be easier for parents."</i>
Barriers to treatment access and engagement	<i>"The number of visits I think shouldn't be that many, well right now, for me. 'Cause of my schedule at work. I work so many—like two jobs right now. So phone calls; no, I don't have a problem with phone calls. Or you can call any day if you need to. Or, you know."</i>	<i>"... I assume that coming to visits would be the same obstacles that we all have in terms of coming to visits, which is people work, children are in school and they have to remember that the appointment exists. In terms of calls, a lot of people don't have working phones. A lot of people text more than call, it seems to me. . ."</i>



perpetuating nighttime electronics usage, such as children sleeping in shared spaces with adults using electronics, children modeling family behaviors (i.e., using devices in bed), or the belief that electronics items would help their child fall asleep, based on caregivers' own experiences.

Caregivers and clinicians also noted other contextual factors including close living quarters as barriers. Some caregivers and clinicians described concerns that neighbors in close proximity could easily hear a child crying or having a tantrum at bedtime, leading to caregivers being unable to ignore or otherwise tolerate these behaviors. In addition to feeling embarrassed about neighbors hearing her child and commenting about this, one caregiver stated that a crying child at bedtime would likely cause a neighbor to report the family to child protective services.

### Need for Intervention Content Flexibility

In response to questions about facilitators of intervention content, caregivers and clinicians converged in their view about a flexible intervention approach. One caregiver described feeling as though unmodified extinction ("cry it out") was the only method to help her child sleep independently, and wanted more options and individualized information (Table III). Clinicians also discussed flexibility with regard to guideline recommendations, especially concerning a bedtime before 9:00 p.m., emphasizing instead bedtime routine consistency and sleep duration as more important and realistic goals.

### Importance of Empowering and Collaborative Care

Another intervention facilitator that aligned across stakeholder groups was the importance of care that was both empowering and collaborative, with partnerships between caregivers and clinicians and between caregivers and other family members. A clinician described empowering families to make change by eliciting intervention ideas from families, while another clinician discussed that empowering a caregiver to make change often leads to supporting collaboration with all family stakeholders. Many clinicians emphasized "*getting everyone on the same page*" in the family to collaborate and support sleep recommendations. Caregivers also expressed a desire for a more collaborative approach through increased empathy, and problem-solving with clinicians and raised the need for family members to work together ("*get on board*") for effective intervention implementation.

### Caregiver-to-Caregiver Communication as an Implementation Strategy

Caregivers reported that they would feel comfortable with individual-level treatment and uniformly expressed comfort with having a behavioral health

clinician deliver a sleep intervention. Many were also enthusiastic about group treatment, stating that this format could help them learn from other parents and feel less isolated and more supported in managing their child's sleep problem. Clinicians discussed similar group treatment benefits but expressed feasibility concerns related to the ease of scheduling and the need for an experienced group facilitator to support this format.

### Technology as an Implementation Strategy

Despite the consistent identification of electronic items as a barrier to evidence-based sleep recommendations, caregivers and clinicians both strongly endorsed the use of technology as an implementation strategy. In addition to the two in-person office visits and phone call check-ins presented to participants as part of a potential intervention delivery and implementation process, caregivers and clinicians agreed that text messages and e-mail communication were potentially helpful methods to deliver psychoeducation and reminders about intervention strategies. Many caregivers discussed having difficulty keeping track of paper-based handouts and asked whether they could receive this information electronically. Several clinicians also referenced the potential for videos to help reinforce positive bedtime behaviors and intervention strategies in between sessions (Table III).

### Caregiver/Family Comfort With the Primary Care Context and Willingness to Travel to Obtain Sleep Services

Caregivers discussed feeling comfortable receiving sleep services at their child's primary care site, but indicated they were very willing to pursue services elsewhere (i.e., specialty care or a community health center). Several caregivers mentioned that receiving a referral from their child's pediatrician for a primary care-based sleep intervention would be an important facilitator due to feelings of trust in and comfort with the clinician. By contrast, clinicians perceived families to be less willing to seek services outside of primary care or follow-up on referrals, however, citing the familial and contextual barriers described above.

### Primary Care Infrastructure Benefits and Limitations

Clinicians discussed benefits and limitations of the primary care context. One infrastructure benefit was the use of the EHR to provide sleep intervention referrals and facilitate coordinated care across primary care and behavioral health clinicians. Two of the three urban primary care sites also have integrated primary care (IPC) psychologists providing behavioral health services; the third primary care site has plans to initiate these services. Clinicians at the sites with existing IPC services referenced the ease of implementing the

sleep intervention into this existing model of brief behavioral health treatment in primary care. Clinicians without current IPC services suggested having a sleep interventionist available for “warm hand-off” referrals to the program.

The need to address multiple concerns in a short office visit was noted as an infrastructure limitation especially by physicians and nurse practitioners across sites. Clinicians described having to “*pick their battles*” with families, resulting in limited time and attention to sleep habits. The need for additional clinician training and resources was also identified as an infrastructure limitation. Some clinicians also raised questions about intervention sustainability if the program were implemented only as part of a research study and not as part of existing IPC services in future implementation efforts. Finally, many clinicians raised the issue of limited clinic space, even in clinics with IPC services and dedicated behavioral health office space.

### Treatment Motivation and Engagement

Whereas caregivers expressed a high level of motivation to engage in a sleep intervention, with many asking if they could be contacted when a program begins, clinicians raised concerns about family motivation and treatment engagement, with many referencing low show rates for primary care and IPC behavioral health visits. Many clinicians emphasized familial and contextual barriers similar to those described above, such as caregivers’ work schedules, household disorganization, childcare needs, and transportation barriers. Caregivers only noted the need for evening hours and flexible scheduling. Some clinicians suggested providing transportation passes, meals, and childcare during visits to mitigate these challenges if the sleep intervention were implemented in a future research study.

### Discussion

This study identified caregiver and primary care clinician perceptions about implementing evidence-based early childhood behavioral sleep intervention in urban primary care with families of primarily lower SES backgrounds. Patterns of convergence and divergence in perspectives that emerged can guide future intervention adaptation and implementation efforts.

Consistent with previous qualitative research on sleep among families of lower SES with young children, caregivers felt sleep was highly important for child wellbeing (Caldwell et al., 2020; Lindsay et al., 2018) and endorsed the need for more sleep education and resources. Caregivers were often unaware of which beverages contained caffeine and were surprised by 24-hr child sleep duration guidelines (Hirshkowitz et al., 2015). Clinicians echoed these views and perceived sleep to be important but under-valued by

families. They also wanted more resources to educate themselves about behavioral sleep strategies, in line with both qualitative and quantitative studies of clinician perceptions about pediatric sleep (Boerner, Coulombe, & Corkum, 2015; Honaker & Meltzer, 2016). These findings highlight the potential positive impact of more accessible caregiver- and clinician-directed sleep education to support increased primary care-based sleep problem assessment and treatment. Some caregiver-directed education has resulted in modest sleep improvements in children of lower SES (Mindell et al., 2016). Of note, one study found that caregiver sleep knowledge initially increased post-intervention, but declined over time, despite sustained child sleep duration improvements (Wilson et al., 2014).

Given the complexity and interaction of familial and contextual barriers identified in this study, caregiver education alone is unlikely to sufficiently address behavioral child sleep problems. As in other studies (Caldwell et al., 2020), many of these barriers such as work schedules or single caregiver homes are not readily modifiable. However, findings suggest that these barriers could be addressed by adapting intervention components and delivery methods to better align with the participant-identified approaches. Implementing intervention content flexibly, with tailoring to the child and family environment and fidelity to the intervention evidence base is not a new concept (Kendall, Gosch, Furr, & Sood, 2008), and is something that clinicians may already do. Yet with the dearth of evidence on the efficacy of behavioral sleep interventions with families of lower SES (Schwichtenberg et al., 2019), there is a need for future work to provide an evidence base for adapting and using these interventions flexibly. For instance, focusing on the regularity and duration of early childhood sleep as opposed to the timing (i.e., a bedtime before 9:00 p.m.) in shift-working families and reducing bedtime electronics rather than eliminating them altogether due to shared sleep spaces are flexible approaches that could be tested in an intervention trial. Explicitly adapting an intervention to prioritize caregiver empowerment, address high levels of caregiver stress, and encourage collaboration both between the clinician and the caregiver and between the caregiver and other family members are additional strategies that should be tested in behavioral sleep intervention research. These efforts may also help to improve treatment engagement in stressed families, similar to previous research in the field of behavioral parent training (Kazdin & Whitley, 2003).

Future research should explore the benefits of group behavioral sleep problem treatment, which was strongly supported by both caregivers and clinicians, although this format could limit the extent of individual intervention tailoring. Stakeholders preferred

technology-enhanced intervention delivery, with content sent to families via e-mail or text messages. This strategy could also enhance treatment engagement, as greater interventionist-family phone contact was linked to increased treatment engagement in a parent training in urban primary care (Walton et al., 2014). At the same time, using technology to enhance intervention delivery could contribute to families' reported reliance on electronics for themselves and as a method to manage difficult child behaviors, or could divide caregivers' already limited attention at bedtime. Our results and the literature suggest that any technology-based intervention should be balanced with efforts to reduce evening electronics. For example, reminders about the bedtime routine or reducing device usage could be sent in the early evening to caregivers as opposed to immediately before bedtime.

Divergence in stakeholder perspectives also has implications for clinical practice, treatment adaptations, and future research. Caregivers' focus on challenging child characteristics rather than on the family environment as the main contributor to a child sleep problem, along with the desire for collaborative care, indicates that clinicians should elicit caregiver beliefs about child sleep, empathize with caregivers, and tailor intervention accordingly. Making modifications where possible to family behaviors and values (e.g., improving limit-setting; reducing electronics usage) is still necessary, but could be presented to families more clearly as a method to manage challenging child behaviors rather than improve family behaviors.

Caregivers and clinicians also diverged in their perspectives on families' willingness to seek services outside of primary care, treatment motivation, and engagement. Clinicians identified barriers to family engagement similar to those found in a study of caregiver-perceived barriers to engagement in early childhood behavioral health services (Ofonedu et al., 2017). This discrepancy could be due to clinicians reflecting on their experiences with their patients, whereas caregivers had not yet participated in a primary-care based sleep intervention, potentially making it difficult to identify barriers. Caregivers we interviewed were also those who were motivated to participate in research and attend an interview, and could be more engaged or motivated families. Nonetheless, given the sociodemographic differences (race/ethnicity and education) between the caregiver and clinician groups and literature on the impact of implicit racial bias in particular on clinician practices and health disparities (Maina, Belton, Ginzberg, Singh, & Johnson, 2018) examining clinician biases and sleep treatment practices is a critical direction for future research.

Study findings indicate that primary care is a viable context for sleep intervention, especially in practices

with existing IPC services. However, additional clinician training and resources are needed, even among behavioral health providers. Planning for the use of practice space, integrating intervention referral information into the EHR, and ensuring that intervention practices are sustainable are considerations that all can inform planning and future research. In making adaptations to primary care service delivery and sleep intervention components, it will be critical to continue to identify stakeholder perceptions of acceptability, feasibility, and barriers.

It is important to note that study findings do not reflect the experiences of all individuals in specific racial, ethnic, or SES groups. This study was not designed to examine variation in themes by different sociodemographic groups. Comparing themes by sociodemographic group as well as by clinician level of training in pediatric sleep are important future research directions. Barriers related to caregiver work schedules and multiple children may also be regularly experienced by families across the SES continuum. Future research should explore caregiver and clinician perceptions about sleep and sleep intervention in families of other sociodemographic backgrounds. Results are additionally limited by potential response bias, as those who chose to participate in this study may view sleep as being more important or have increased knowledge about sleep. Interview questions about the importance of sleep may also have influenced interview responses. Study findings are specific to young children with behavioral sleep problems who do not have medical or neurodevelopmental comorbidities. Given the high prevalence of sleep problems in children with medical and neurodevelopmental comorbidities, research should further explore perspectives among patients with complex needs, their caregivers, and their treating clinicians. This study was conducted at clinics affiliated with a large academic medical system. Two of these clinics had integrated behavioral health services. Research on barriers and facilitators of sleep intervention in other primary care settings, including those without integrated behavioral health providers, is needed.

## Conclusions

For families of predominantly lower SES with young children and urban primary care clinicians, our results highlight the ways in which evidence-based behavioral sleep interventions may need adaptations to be optimally effective in urban primary care. Tailoring evidence-based intervention to address modifiable familial and contextual factors and using flexible, empowering, and collaborative approaches are promising strategies to support intervention delivery and effectiveness. Attending to these factors and enhancing

intervention delivery to align with stakeholder preferences could also help to address clinician-perceived family treatment access and engagement barriers, potentially reducing SES-related disparities in child sleep and related developmental outcomes.

### Supplementary Data

Supplementary data can be found at: <https://academic.oup.com/jpepsy>.

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