

Behavioral Parent-Training Approaches for the Treatment of Bedtime Noncompliance in Young Children

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Abstract

Bedtime noncompliance is one of the most common and treatable types of child sleep problems. Children who are noncompliant at bedtime are more likely to exhibit daytime somnolence, which may in turn lead children to exhibit daytime misbehavior, impaired social functioning and poorer school achievement. In addition, these bedtime problems can have a number of negative consequences for members of the child's family, including parental sleep deprivation and depression. Behavioral parent-training approaches are considered the treatments of choice for bedtime noncompliance in young children. In this paper, we describe the evidence supporting a number of such approaches. We highlight several gaps in the treatment literature and we make recommendations for future research.

Keywords: Bedtime Noncompliance, Parent Training, Sleep Problems

Bedtime noncompliance in preschool and elementary-school aged children is typically characterized by stalling, whining, or tantruming when bedtime approaches. Almost all children will exhibit these behaviors at some point in their young lives. Most parents have the skills to handle milder forms of bedtime noncompliance. However, when the intensity, duration, or frequency of these behaviors leads to disruptions in a family's functioning, mental health professionals can offer substantial help. These bedtime behaviors are best classified diagnostically as Behavioral Insomnia of Childhood, Limit-setting Type (2005 revision of the International Classification of Sleep Disorders; American Academy of Sleep Medicine). In this paper we will use the less awkward term "bedtime noncompliance" to describe this set of behaviors. Although some of the studies we will mention include infants, we will focus primarily on preschool and school aged children. For an excellent review of the entire class of sleep problems in children, including parasomnias, fears, and nightmare disorders see Sadeh (2005).

There is evidence that bedtime noncompliance is one of the most common childhood behavior problems. While many surveys of sleep problems in children lump sleep problems together, a few studies have examined prevalence rates of bedtime noncompliance. Estimates vary widely, but most studies suggest that 5-10% of school-aged children display significant bedtime noncompliance (e.g. Blader, Koplewics, Abikoff, & Foley, 1997, Mindell, 1993). Sleep problems as a class account for almost 10% of presenting concerns in child and adolescent outpatient mental health centers (Meisbov, Schroeder, & Wesson, 1993). There is no doubt that many other families experience these problems and do not seek professional help.

Research on Effects of Sleep Problems

There is an increasing amount of clinical observation and research demonstrating that sleep problems, including bedtime noncompliance, can lead to insufficient sleep in children, which can, if chronic, lead to emotional, physical, behavioral, and cognitive problems (Dahl, 1996; Gais, Philal, Wagner, & Born, 2000; Kuhn, Mayfield & Kuhn, 1999; Lavigne, et al., 1999; Mindell, Kuhn, Lewin, Meltzer, & Sadeh, 2006; Owens, 2004; Sadeh, Gruber, & Raviv, 2002). While not all children who are noncompliant with bedtime are sleep deprived, having nightly battles with parents (which often include delaying bedtime and moving from one bed to another in the middle of the night) leads many children to experience compromised sleep quality and reduced total sleep time. Mood problems associated with daytime sleepiness in children include exacerbation of negative mood,

compromised mood regulation, and a decrease in positive affect (Dahl, 1996; Kuhn, Mayfield & Kuhn, 1999; Owens, 2004). Chronic sleep problems may also have deleterious effects on the cardiovascular, immune, and metabolic systems (Mindell et al., 2006; Owens, 2004). Behavioral correlates of decreased night sleep include hyperactivity, aggressiveness, oppositionality or noncompliant behavior, and poor impulse control (Lavigne, et al., 1999; Mindell et al., 2006; Owens, Opipari, Nobile, & Spirito, 1998). Learning, cognitive flexibility, memory consolidation, and abstract thinking have been shown to be sensitive to sleep deprivation as well (Mindell, et al., 2006; Owens, 2004; Sadeh, Gruber & Raviv, 2002).

Given that early social interactions within the family and at school have long-range consequences for emotional and behavioral development (Granic & Patterson, 2006; Shaw, Owens, Giovannelli & Winslow, 2001), compromises of emotional, behavioral, and cognitive abilities caused by chronic sleep problems may have long-range consequences as well. Many children react to sleep disturbance with poorer concentration in the classroom, irritability, mood swings (Kuhn, Mayfield, & Kuhn, 1999), impaired social functioning and lower school achievement (Mindell, 1993). Daytime sleepiness can also result in paradoxical hyperactivity (Kuhn, Mayfield, & Kuhn, 1999), which, in combination with poor impulse control in the classroom, may lead to a child being misdiagnosed as hyperactive (Bergman, 1976). Perhaps most disturbing, childhood sleep problems have been identified as a precursor and possible indicator of future problems, including anxiety, depression, and substance abuse disorders (Mindell, Kuhn, Lewin, Meltzer, & Sadeh, 2006).

While a large number of research studies clearly demonstrate that sleep problems have serious and pervasive effects on the child experiencing a sleep problem, a growing body of research suggests that the effects on other family members can be at least as serious. (Adams & Rickert, 1989; Chavin & Tinson, 1980; Fisher, Feekery, Rowe-Murray, 2002; Hiscock & Wake, 2002; Kataria Swanson, & Trevathan, 1987; Leeson, Barbour, Romaniuk, & Warr, 1994; Kerr & Jowett, 1994; Mindell & Durand, 1993; Richman, 1981; Scott & Richards, 1990; Zuckerman, Stevenson, & Bailey, 1987). For example, a child's chronic sleep problems can lead mothers to suffer from sleep deprivation (Fisher, Feekery, & Rowe-Murray, 2002). Research has also shown a link between child sleep problems and increased marital distress, maternal anxiety (Hiscock & Wake, 2002; Kerr & Jowett, 1994; Richman, 1981) maternal depression (Fisher, Feekery, & Rowe-Murray, 2002; Hiscock & Wake, 2002; Leeson, Barbour, Romaniuk, & Warr, 1994; Lozoff, Wolf, & Davis, 1985), and maternal ambivalence (Lozoff, Wolf, & Davis, 1985). To make matters worse, parent and child bedtime struggles may place children at higher risk for abuse (Bax, 1980). In one study, eight percent of parents reported that struggles with their child over sleep had led them to engage in abuse (Chavin & Tinson, 1980). While the effects of bedtime noncompliance on siblings has been largely ignored in the literature, it would not be surprising to find that children who share a bedroom may also be affected by a sibling's noncompliance at bedtime.

Treatments for Bedtime Noncompliance

While the etiology of bedtime noncompliance in young children involves a complex interplay of a child's temperament, her neurodevelopmental stage, the family's expectations for behavior at bedtime, cultural practices (e.g. Liu, Liu, Owens, & Kaplan, 2005), and environmental factors, such as the number of people sleeping in the same room, most researchers believe that parenting practices play the largest role. The theoretical basis for most behavioral treatment approaches rests on the idea that children who exhibit bedtime noncompliance have been "trained" to do so by the behavior of their parents or caregivers.¹ If the behavioral contingencies that these children experience can be altered, it is expected that their noncompliant behaviors will cease, or at least significantly decline in intensity and frequency. Behavioral parent-training approaches are extremely effective and are considered first line treatments for

¹ Some researchers, such as Galbraith, Hewitt, and Pritchard (1993), question this perspective. Their treatment, which is similar to positive routines, focuses less on altering the amount of attention parents give for noncompliance and night waking and instead encourages parents to help induce sleep in their children. Their approach works from the premise that children may have difficulty going to sleep and staying asleep due to disorders of arousal.

bedtime noncompliance (Mindell, Kuhn, Lewin, Meltzer, & Sadeh, 2006). A recent analysis of 52 peer-reviewed studies with over 2,500 participants, examining behavioral interventions for bedtime noncompliance and night wakings found that 94% (49 of 52) of the studies produced clinically significant improvements in bedtime behavior, while the other three studies produced mixed results (Mindell, et al., 2006). These behavioral approaches all attempt to reduce noncompliance by altering two aspects of the sleep milieu. They attempt to create an environment that in and of itself will be more conducive to a child going to sleep willingly at a time that is desirable to her parents. These approaches also teach parents specific skills to use, when despite the proper sleep environment, a child's is uncooperative about going to bed. These approaches are also all focused on stimulus control. In other words, they involve helping parents to alter contingencies in the child's environment to increase the likelihood of a smooth and peaceful bedtime.

Even though these approaches do not attempt to alter a child's cognitions, many of them can be viewed as cognitive-behavioral because it is often necessary to alter parents' expectations of their children as well as cognitions about the effects of these interventions on their children. Many parents (and even some mental health professionals) view some of these behavioral approaches as harsh and potentially psychologically harmful to children. In fact, some of these treatments (e.g. graduated extinction and positive routines) were created, in part, to reduce the distress parents experienced from administering behavioral approaches. It should be noted that no evidence of such iatrogenic effects resulting from behavioral approaches to bedtime noncompliance has ever been published. A review of 13 studies that examined secondary effects of behavioral treatments for sleep problems found that not one reported negative effects (Mindell, Kuhn, Lewin, Meltzer, & Sadeh, 2006). In fact, a growing body of research suggests that these treatments have rather impressive and pervasively positive secondary effects on the functioning of the child and other family members, such as improvement in children's daytime behavior (France & Hudson, 1990; Pritchard & Appleton, 1988), increased child happiness, (Pritchard & Appleton, 1988), and increases in the number of positive parent-child interactions (Adams & Rickert, 1989; Reid et al. 1999). In addition, a number of studies have reported that other family members have experienced improvements on a range of variables. These include improvements in marital satisfaction (Adams & Rickert, 1989; Durand & Mindell, 1990; Mindell & Durand, 1993), parents' sleep, parental anxiety, parental self-efficacy (France & Hudson, 1990), parenting stress (Reid et al., 1999), and maternal depression (Durand & Mindell, 1990; Hiscock & Wake, 2002; Pritchard & Appleton, 1988; Wade, Ortiz, & Gorman, 2007).

Before we describe the literature on each type of behavioral parent-training approach to bedtime noncompliance, it is important to address the use of medication for these problems, given the fact that it is not uncommon for children with sleep problems to be prescribed medication (Stores, 2003). Most studies that have examined medication for sleep problems in children have combined bedtime noncompliance with pediatric insomnia that persists despite proper sleep hygiene practices. The literature suggests that pharmacological treatment is, at best, a temporary aid in reducing sleep disruptions. Antihistamines (Besana, Fiocchi, De Bartolomeis, Magno, & Donati, 1984; France, Blampied, & Wilkinson, 1991), benzodiazepines (Glick, Schulman, & Turecki, 1971; Kuhn & Weidinger, 2000), chloral hydrate (Biban, Baraldi, Pettenazzo, Filippone, & Zacchello, 1993; Kuhn & Weidinger, 2000; Steinberg, 1993), and melatonin (Camfield, Gordon, Dooley, & Camfield, 1996; Cassone & Natesan, 1997; Jan, Espezel, Freeman, & Fast, 1998; Sheldon, 1998) have all been studied, with mixed results. Problems with pharmacological interventions include unwanted side effects, lack of regulation by the U.S. Food and Drug Administration, and little or no maintenance of gains once the medication is discontinued. The National Sleep Foundation, in collaboration with Best Practice Project Management, Inc, held a conference on the pharmacological management of insomnia in children and adolescents in 2004 and unanimously agreed that studies of the safety and efficacy of pharmacologic treatment of insomnia in children and adolescents are needed. They further stated that "This population is frequently prescribed pharmacotherapy lacking evidence for efficacy or safety" (p. 1229; Mindell et al, 2006). While

medications may be helpful for some causes of childhood insomnia, given what we know about the etiology of bedtime noncompliance in particular, there is not a strong rationale for the use of medication for this group of children.

While this review will present data on a number of behavioral treatments for bedtime noncompliance as if they were distinct, in practice, these treatments are often combined. One of the weaknesses apparent in the research literature on this topic is that very few studies examine isolated treatment components; it is, therefore, difficult to make a firm determination of which treatment components are responsible for the impressive levels of improvement that these studies report. However, we believe that it remains instructive to examine the research literature, as it reveals some promising approaches to this challenging and all too common problem.

Extinction

Unmodified extinction, or “systematic ignoring,” involves having the parents place the child in bed, say goodnight, and not attend to her until the next morning (e.g. Chadez & Nurius, 1987; France & Hudson; 1990; Rapoff, Christophersen, & Rapoff, 1982; Rickert & Johnson, 1988; Sanders, Bor, & Dadds, 1984). It is typical for children to protest and cry for an extended period of time when this treatment is first instituted. Some children may protest for several hours on the first night (extinction bursting), although on subsequent nights it is typical for this period to decrease significantly. Some versions of this treatment (e.g. Wade, Ortiz, and Gorman, 2007) specifically prepare parents for extinction bursting, so that it does not come as a surprise. If done correctly, most children go to bed with little protest after about three nights (France, Henderson, & Hudson, 1996).

In practice, this approach almost always involves other treatment components in addition to ignoring, such as establishing a designated bedtime and regular bedtime routine. Furthermore, parents are typically given instructions on what to do when a child refuses to go to their room or leaves their room before they have fallen asleep. For example, Reid, Walter, and O’Leary (1999) instituted a door closing technique, in which the child’s door is initially left open, but then closed for several minutes if the child leaves the room without permission.

According to a recent review, the efficacy of unmodified extinction has been examined in 23 studies. Twenty one studies have reported the treatment to be effective (Mindell, Kuhn, Lewin, Meltzer, & Sadeh, 2006). One of the main advantages of unmodified extinction is that it often produces rapid results (France, Henderson, & Hudson, 1996). The procedure is also quite easy to understand. However, the drawbacks of this treatment are considerable. Foremost among them is that parents often find the child’s crying so aversive that they are unwilling to tolerate it (Rickert & Johnson, 1988). This issue is particularly important because if parents do not consistently ignore their child’s noncompliant behavior, they may cause the noncompliance to increase by inadvertently reinforcing the child on an intermittent schedule. In other words, attending to a child who has been ignored teaches the child to cry harder and longer in order to get parental attention. Another important issue with extinction, particularly for apartment dwellers, is concern over the reaction of neighbors to an extended period of crying by the child.

Graduated extinction can be an alternative behavioral approach for parents who find unmodified extinction too aversive to administer consistently. Graduated extinction involves progressively reducing parental attention to bedtime noncompliance by having parents ignore noncompliant behavior, as in unmodified extinction. However, parents are instructed to make short checks on their children at increasing intervals of time. Typically, on the first night of treatment, parents briefly check in on their child after five minutes and then leave the room. If the child continues to cry and complain, parents wait ten and then fifteen minutes before they make additional checks. This continues until the child falls asleep. On the next night, parents make their first check after 10 minutes and subsequent checks after

fifteen and twenty minutes, and so on. A variety of techniques fall under the heading of graduated extinction (Adams & Rickert, 1989; Durand & Mindell, 1990; Ferber, 1985; Kuhn & Weidinger, 2000; Mindell, 2005; Pritchard & Appleton, 1988; Reid, Walter, & O’Leary, 1999; Rolider & Van Houten, 1984; Sadeh, 1994); they all have in common the goal of systematically reducing parental attention, allowing the child’s bedtime noncompliance to gradually extinguish while promoting independent sleep onset. Fourteen studies have examined the efficacy of graduated extinction and all have found it to be effective (Mindell, Kuhn, Lewin, Meltzer, & Sadeh, 2006).

Another approach that attempts to soften the effects of unmodified extinction on both parent and child is the “bedtime pass” (Friman, et al., 1999; Moore, Friman, Fruzzetti, & MacAleese, 2006). In this treatment, children either make or are given a “pass” by their parents that allows them to leave their room one time per night, for a short period of time. Children can use this pass to go to the bathroom, get a drink of water, get a hug, or any other appropriate and short activity. Even when combined with unmodified extinction, this treatment was found to be highly acceptable by parents (Friman, et al., 1999), suggesting that extinction approaches may be useful to many parents, if a little ingenuity is used to make them less aversive. While the mechanism responsible for the bedtime pass’s high consumer satisfaction is unclear, it is possible that giving children some power and responsibility during their bedtimes reduces feelings of helplessness associated with having a new (and very different) bedtime routine thrust onto them.

Positive routines

Positive routines, which is essentially a chaining and fading procedure for reducing bedtime noncompliance and teaching children appropriate bedtime behavior was developed, in part, to address some of the problems associated with extinction (Adams & Rickert, 1989; Milan, Mitchell, Berger, & Pierson, 1981). As described by Milan et al. (1981), positive routines entails creating a routine of several self-help and pleasurable activities that the child has not historically resisted, with the completion of each task being the cue for the next. The parent is instructed to reinforce the child after each task in the chain, while ignoring tantruming, and to praise the child upon waking. At the beginning of the treatment, parents are told to wait until the child appears sleepy before implementing the routine, which pairs each part of the routine with the sensation of sleepiness. Over time, the bedtime is gradually faded backward to the bedtime the parents desire. While this treatment does entail some ignoring, as shaping is part of the procedure, positive routines is designed primarily to replace tantruming with more desirable, low-stimulation and cooperative behaviors that are more likely to be naturally reinforced.

While far fewer research studies have examined the efficacy of positive routines than that of extinction, results are promising. For example, Milan, Mitchell, Berger, & Pierson (1981) tested positive routines, individually instructing three parents of children who each demonstrated severe opposition to bedtime settling and engaged in in-bed resistance. The authors reported immediate success, with routines becoming established almost immediately with all three participants, with greatly reduced bedtime struggles and in-bed resistance. A similar technique was employed by Galbraith, Hewitt, and Pritchard (1993) in their study of forty-five infants and school-age children between the ages of 5 and 72 months attending a sleep clinic. Parents were advised to induce sleep in children by calm and predictable routines before bedtime. Handling of night wakings was not emphasized, but instructions were given to handle these episodes calmly. Negative parental attitudes toward the child, motivation, parental sleep deprivation, and “other stresses” were also addressed. The authors reported a 70 percent success rate, with 62 percent of participants remaining improved at follow-up. In one of the few treatment comparison studies to be conducted to date, Adams and Rickert (1989) compared positive routines to graduated extinction with 36 toddlers and preschool age children. The treatments were found to be equally effective, but the positive routines group showed a faster decline of bedtime struggles than did the graduated extinction and control groups. Also, parents who used positive routines showed significantly improved marital satisfaction after their child’s sleep problems were treated, which many of the parents attributed to lowered family stress.

In comparison to extinction-based treatments, positive routines avoid the extinction burst that causes many parents to stop treatment. In addition, this treatment does not require parents to leave a child alone in a bedroom, which can be a problem if the child shares a room with a sibling or parent or if a parent finds leaving a crying child to be unacceptable. For children who have high anxiety or who have suffered trauma, this may be a more appropriate treatment, as it solves bedtime struggles with parental presence. The encouragement of daily living skills is also an advantage, as it helps develop independence in the long-run.

Disadvantages of positive routines are that this approach can be disrupted by any event that breaks the routine, such as a family trip, caregiver absence, or family illness. For families that are disorganized or multi-stressed, helping parents find ways to increase regularity of bedtimes and sleeping arrangements may require some problem-solving. Also, parents may find the temporary change in bedtime to a later hour and increased time required at night with their child undesirable. Finally, as with other multicomponent treatments, it is unclear what the “active ingredient” is that accounts for the success reported with positive routines. This issue is important with positive routines, as this treatment involves at least four treatment components (faded bedtime, bedtime routine, positive reinforcement, and some planned ignoring). As Mindell et al. (2006) note, standardized bedtime routine and positive reinforcement have been included in multiple treatment packages, but never studied alone. Nonetheless, none of these components appear to be harmful, and may encourage good sleeping skills for life.

Fading/response cost

Another less well studied technique is the use of a faded bedtime with a response cost protocol (Ashbaugh & Peck, 1998; Piazza & Fisher, 1989; 1991a, 1991b; Piazza, Fisher & Moser, 1991; Piazza, Fisher, & Sherer, 1997). The purpose of this technique is to manipulate sleep-wake cycles to encourage longer durations of age-appropriate, nighttime sleep. The child’s bedtime is initially moved to a later hour (when rapid sleep onset is likely), then is faded back to the desired bedtime over the course of a few days. If the child does not fall asleep within a certain amount of time (e.g. 15 minutes), the bedtime is changed to a later time the next night. Caregivers are instructed not to allow a child to go to bed prior to the scheduled bedtime or to sleep past the scheduled wake time. If the child wakes up during the night, she is allowed to get up and is prompted to go back to bed at intervals. The theory supporting the use of fading is that interoceptive cues of sleepiness are caused by sleep deprivation after a later bedtime is initiated. These cues lead the child to want to go to sleep. As the bedtime is changed gradually, the child is likely to respond to the earlier bedtime as she did to the later bedtime (Piazza & Fisher, 1991a).

In addition, a response cost can be added to the protocol in which parents take the child out of bed for one hour if latency to sleep onset is longer than a predetermined amount of time (e.g. 15 minutes) The child is given access to all of the toys and attention that she had before she went to sleep but is not allowed to go to sleep until the end of the hour. The response cost of taking the child out of bed is thought to be aversive to the child, as sleep pressure increases. Thus the child is negatively reinforced for staying in bed with her eyes closed. Two biological factors may aid the fading and response cost procedure. First, sleep pressure increases as the bedtime gets later, making rapid sleep onset very likely. Second, having a set bedtime and wake time may help the child’s circadian rhythms become more regular and synchronized with the desired schedule (Piazza & Fisher, 1991b).

Using fading without response cost, Piazza and Fisher (1991a) successfully treated two children who had not been helped by other treatments. Use of the faded bedtime protocol resulted in increases in appropriate (nighttime) sleep for both children and decreased inappropriate (daytime) sleep in the one child who had problems with inappropriate sleep before treatment. With the addition of a response cost component, Piazza and Fisher (1991b) used a faded bedtime strategy with four profoundly mentally retarded children with severe behavior problems. This strategy was quickly successful, resulting in increased amounts of appropriate sleep (nighttime sleep) for all four children, decreased amounts of inappropriate sleep (daytime sleep that was inappropriate for the child’s age) in two children, and

decreases in night wakings in three children. Piazza and Fischer (1991b) reported that parents in this study reported a “high degree of satisfaction with treatment outcome.” Ashbaugh and Peck (1998) replicated this study with a non-disabled two-year-old girl using an ABAB design, leading to improvements in the child’s multiple sleep problems. Extending the literature further, Piazza, Fisher, and Moser (1991) tested this treatment with a four-year-old girl and two eight-year-old girls who suffer from Rett Syndrome, one characteristic of which is markedly dysfunctional sleep. All three girls demonstrated increased appropriate sleep (nighttime sleep) decreased inappropriate sleep (daytime sleep inappropriate for the age of the child) and reduced problematic behaviors associated with sleep.

Advantages of this treatment are that the concepts are fairly easy to understand and implement and that struggles between child and parent may be decreased due to the fact that the child is likely to be sleepy when bedtime is enforced. In addition, it does not require a child to stay in bed if he or she is not tired enough to fall asleep quickly. It should be noted, however, that if a response cost component is utilized, this strategy requires parents to stay awake with their children in the middle of the night during the treatment phase, which some parents might not find acceptable. For parents who think it unkind to the child to force him or her to stay awake when tired, the response cost portion of this technique would be problematic. In addition, this treatment does not encourage self-help skills and does not offer strategies for handling tantrum episodes if they do occur.

Other Approaches

A few other approaches to reducing bedtime noncompliance have been examined. There is not enough evidence to make a firm determination of their usefulness, but they provide insight into the strategies that researchers are examining. One of these approaches, parental presence, was examined by Sadeh (1994) who had parents sleep in the child’s room for about a week from bedtime to morning with minimal interactions. The theory behind this technique is that separation anxiety is a central cause of many children’s sleep problems and that if children receive the assurance that their parent is in the same room for the entire night, they will be more likely to soothe themselves to sleep and stay asleep. This treatment was found to be as effective as graduated extinction (Sadeh, 1994). This approach is distinct from the common practice, sometimes called “reactive cosleeping,” where a parent responds to a child’s insistence on not sleeping alone by sleeping in the same room with the child (sometimes for years!) because this approach limits the parental presence to one week. It also limits the interaction between parent and child, so that a child’s noncompliance is not reinforced by parental attention.

Burke, Kuhn, and Peterson (2004) examined the efficacy of a “social story” in combination with a tangible rewards program with four children ages 2 to 7, whose parents reported disruptive behavior at bedtime. Parents were asked to read their child a storybook about two children who overcome problems at bedtime and learn how to go to bed successfully. Parents were instructed to put small tangible rewards under the pillow of the child contingent on a smooth bedtime, so that upon waking, children would be reinforced for her efforts. All four children experienced large declines in noncompliance at bedtime and results improved slightly at follow-up.

Critical Issues for Research

In summary, the data suggest that behavioral parent-training approaches to bedtime noncompliance in preschool and school-age children are highly effective for the vast majority of children who receive treatment. The data do not indicate that one treatment is superior to another (Mindell, Kuhn, Lewin, Meltzer, & Sadeh, 2006). While these results might suggest that research has answered all the important questions with respect to treating bedtime noncompliance in young children, such a conclusion would be premature. Several critical issues and deficiencies with these treatments remain. It is likely that the largest barrier to the successful implementation of these approaches remains parental resistance to

them. Researchers have made progress in dealing with this problem by developing an impressive array of alternatives to unmodified extinction. Given that many parents whose children are noncompliant at bedtime do not seek professional help, it seems important that these efforts at improving consumer acceptability continue.

Another potential weakness with these treatments involves the generalizability of extant research to ethnic minority families. To date, only four studies validating behavioral interventions for children's bedtime problems mention any participation by ethnic minority participants (Adams & Rickert, 1989; Burke, Kuhn, & Peterson, 2004; Milan, Mitchell, Berger, & Pierson, 1981; Wade, Ortiz, & Gorman, 2007). The results from these four studies do not allow for firm conclusions about the efficacy of behavioral sleep treatments for ethnic minority families. This deficiency in the research is particularly important given emerging research demonstrating important differences in sleep practices across ethnic groups. For example, Crosby, LeBourgeois, and Harsh (2005) studied racial differences in napping and nocturnal sleep in 2- and 8-year-old African American and White children in southern Mississippi ($n = 1043$). Beginning at age 3, African American children were more likely to nap than were White children. African American children were also more likely to have fewer hours of sleep during weekdays through the age of 8 and to demonstrate an increase in sleep duration on weekends; total sleep duration between groups was found to be almost identical. Crosby, et al. (2005) suggested several possible explanations for the differences in sleep habits between the groups, including differences in "caretaker awareness and/or acceptance of children's daytime sleep propensity" (p. 231). It is important to pay attention to findings such as these because cultural differences in acceptability of daytime sleep could impact the efficacy of treatments that seek to increase nighttime sleep in children.

A related issue is that of cosleeping. Cross sectional studies of urban samples have found cosleeping rates to be significantly higher among African American and Hispanic families than in White families (Lozoff, Askew, & Wolf, 1996; Mandansky & Eldebrock, 1990; Schachter, Fuchs, Bijur, & Stone, 1989). Cross cultural studies reveal that cosleeping is a common practice that comes in many forms throughout the world (Jenni & O'Connor, 2005); in many cosleeping cultures, letting a child sleep alone at an early age is considered bad parenting. That intentional cosleeping may be a common practice among African American and Hispanic families in the United States has significant implications for treatment of a child's sleep-related disorder. Extinction procedures, for example, which require a parent to let a child cry in a room alone might not be considered acceptable by a cosleeping family.

The issue of cross-cultural generalizability has been discussed a great deal in the parent training for behavior problems literature. The traditional parent-training model is largely based on the practices of White, middle-class families (Forehand & Kotchick, 1996). The same could be said for behavioral treatments of bedtime noncompliance. Coard, Wallace, Stevenson, and Brotman (2004) found a high prevalence of culture-specific parenting practices within African American families and suggest that changes to parent-training interventions may be necessary to "fit the ecological niches, needs, and values of families of color" (p. 290). Forehand and Kotchick (1996) suggest that parenting programs that lack an awareness of the values of the particular culture(s) of its members may be unsuccessful.

Another weakness in the literature is that behavioral sleep treatments have not been validated with low-income families. To our knowledge, Wade, Ortiz, and Gorman (2007) is the only research study that specifically targeted low-income families with a treatment for bedtime noncompliance. This study examined graduated extinction with five low-income families. While the treatment was quite successful with respect to noncompliance as well as other measures of family functioning, it is difficult to make generalizations from one small study to low-income families in general. It is essential not to exclude this population because parents in this group, who likely experience more life stressors than middle-class families, might have more difficulty complying with the treatment procedures and require additional support (Reid et al., 1999). In addition, low SES has been shown to be a predictor of worse outcomes in

parent training interventions for behavior problems (e.g., Dumas & Wahler, 1983; Holden, Lavigne, & Cameron, 1990), so it is possible that the same results might be found with behavioral sleep interventions.

Another question that remains unanswered concerns the issue of group versus individual treatment. To our knowledge, only four sleep studies have used a group treatment approach (Balfour, 1988; Carpenter, 1990; Szyndler & Bell, 1992; Wade, Ortiz, & Gorman, 2007). While improvements in sleep problems were noted in all four of these studies, no study has ever directly compared individual and group sleep treatments. Research has evaluated the relative effectiveness of individual and group parent training for general oppositional behavior in children, typically finding group training to be at least as successful as individual training (Brightman, Baker, Clark, & Ambrose, 1982; Pevsner, 1982). Examining whether group treatment of children's bedtime behavior difficulties is effective could be advantageous for a number of reasons. First, given how common bedtime noncompliance is in children, a treatment that can target large numbers of clients simultaneously would be valuable from a public health perspective. Cunningham, Bremner, and Boyle (1995) reported that a group parent-training program was more than six times as cost effective as individual parent-training programs. Second, there is some evidence that immigrant families and those speaking English as a second language are more likely to enroll in group community-based parent-training programs than in individual clinic-based programs (Cunningham et al., 1995). This population is often underserved by mental health professionals. Third, group treatment is likely to provide more social support to parents than individual treatment. This component would seem to be important for highly-stressed, low-income families (Dumas, 1984; Dumas & Wahler, 1983). In three of the four studies evaluating a group treatment approach for young children's sleep difficulties, mothers' qualitative reports indicated that they felt that meeting other parents with similar problems was one of the most useful aspects of the treatment (Balfour, 1988; Carpenter, 1990; Wade, Ortiz, & Gorman, 2007).

In summary, the treatment of bedtime noncompliance in young children by behavioral parent-training interventions is a resounding research success. The literature clearly documents that extinction based approaches are efficacious. Positive routines appears to be a promising alternative to extinction. However, there remain two important tasks at hand for researchers in order to make these treatments a clinical success. The first is to continue to address parental reluctance to use these approaches. Previous work in this area has led to the development of some interesting and promising alternatives. However, we know that many parents continue to endure frustrating and disruptive nightly rituals of getting their children to bed because they do not find the current menu of approaches acceptable. No matter how well a treatment works, it really is not a good treatment if a large percentage of people who need it, refuse to use it. The second task for researchers is to test these treatments with a socioeconomically and ethnically diverse subject pool, so that we can understand whether these treatments need to be significantly tailored for different populations. If researchers can make significant headway on both of these issues, many more families will receive science-based approaches to bedtime noncompliance and far fewer families will suffer with this frustrating, yet treatable problem.

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