Sleep in the Family

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Family systems are dynamic, with reciprocal interactions among family members, including interactions at night and during the day. When children have sleep problems, they often awaken a parent, affecting parent sleep and subsequent parent daytime functioning. Parent behaviors, which are shaped by parental cognitions and beliefs about sleep, as well as external stressors (eg, work or marital problems), can also disrupt child sleep patterns. Thus sleep among children cannot be understood in isolation, but rather it is important to view sleep from a family context.1 This article reviews the relationship between sleep among children and their parents from infancy through adolescence. It also reviews the added complexity for sleep in the family when a child has a chronic illness or development disorder. For the sake of brevity, we summarize all primary care roles as parents.

PREGNANCY, NEONATES, AND INFANTS

Hormonal changes contribute to alterations in maternal sleep as early as the first trimester,2 resulting in less total sleep, lower sleep efficiency, more frequent night wakings, and less deep sleep than before pregnancy.3,4 However, sleep is most disrupted in the immediate postpartum period. Compared with pregnancy, the postpartum period is characterized by a self-report of 3 times the number of nighttime awakenings, a decrease in sleep efficiency, and twice the level of daytime sleepiness.5 Most postpartum mothers’ sleep disturbances are caused by the newborns’ sleep and feeding schedules.6,7

Newborn sleep is distributed almost equally across the day and night.8 To match their newborns’ polyphasic sleep pattern, mothers report having to adjust their own sleep schedule, often attempting to sleep when the baby sleeps. However, this can be challenging, often because of household chores, caring for other children, or simply the inability to fall asleep on demand for short periods of time. New mothers report being surprised by their level of sleep disturbance and daytime exhaustion.9

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Despite the common belief that new mothers are significantly sleep deprived, recent evidence shows that mothers experience significant sleep fragmentation and low sleep efficiency rather than sleep loss per se. Their average total sleep time of 7.2 hours per night throughout the first 4 months after giving birth is within the recommended range.10

Sleep fragmentation can have a significant impact on women, most notably on mood. During the first week following childbirth, most women report baby blues, a risk factor for the onset of postpartum depression.11,12 One of the major contributors to the baby blues is the fatigue caused by disrupted sleep. For example, one study found that the negative mood effects during the first postpartum week were mediated by the amount of time mothers spent awake during the night.13 Another study found a strong association between fatigue caused by chronic sleep disruptions and the onset of depressive symptoms.14

Although sleep disruption is linked to the onset of postpartum depression and depressive symptoms, there is a bidirectional and interactive relation between sleep disruption and negative affect. Although infant sleep disruptions contribute to maternal sleep disruption and subsequent depressive symptoms, prenatal depressive symptoms or negative cognitions may also contribute to infant sleep problems. Maternal cognitions related to infant distress at night have been associated with poorer infant sleep quality.15 One complicating factor is that sleep disruption during pregnancy may contribute to an accumulated sleep debt that then facilitates the onset of symptoms not directly attributable to childbirth or childcare.16

Fathers can also experience significant sleep disruptions in the postnatal period, including less total sleep time2 and increased fatigue.2,17,18 Research has shown that paternal cognitions about infant sleep were associated with infant sleep patterns,19 but when fathers were involved with overall infant care, infants had fewer night awakenings.20 Because they play an important role in infant sleep and development, it is important for future research studies and interventions to include fathers.

The dynamic relation between infant sleep and parent mood continues for infants 6 to 12 months of age. Although multiple studies have found an association between infant sleep problems and maternal depression,14,21–23 longitudinal studies have shown that infant sleep problems contribute to maternal depressive symptoms.24,25 In addition, maternal sleep quality has been shown to mediate the relation between infant sleep disturbances and maternal mood,23,26 whereas resolution of infant sleep problems from the first to the second year after birth is more likely among mothers with lower depression and anxiety.27

For most infants, sleep begins to consolidate by 6 months of age, with infants establishing a circadian rhythm and no longer needing to feed during the night. However, for 17% to 46% of families, bedtime problems and night wakings persist.23,28,29 If left untreated, infant sleep problems can continue into childhood.25,30

Most interventions to address sleep problems have focused on infants more than 6 months old, but preventative behavioral-educational interventions have also been found to promote maternal and infant sleep.31–34 For infants 6 months and older, several behavioral treatment approaches have been recommended and shown to be efficacious, producing reliable and durable changes.29 Behavioral intervention for infant sleep problems have also been shown to improve maternal mood,35–38 decrease caregiver fatigue,35,36 and reduce distress in both mothers and fathers,39 with benefits for maternal depression maintained for up to 2 years.37
TODDLERS, PRESCHOOLERS, AND SCHOOL-AGED CHILDREN

A national survey of sleep in American children reported more than 50% of parents losing an average of 30 minutes of sleep per night because of their child’s night awakenings. The negative association between child sleep disruptions and parent sleep and health has also been reported in population studies of Australian preschoolers and Swedish school children. Sleep problems in Australian children were associated with psychological distress among mothers and poor general health among both mothers and fathers; frequent night wakeings in Swedish children were associated with maternal sleep problems, whereas difficulties falling asleep or sleep disordered breathing were associated with paternal sleep problems.

Parental sleep schedules may also be influenced by children’s sleep. One study of young children found that maternal chronotype was influenced by children’s sleep patterns. However, a study of school-aged children found no relation between parent and child sleep schedules. Differences in the results from these studies are likely caused by child age, with parents becoming less involved with sleep routines as children get older. Furthermore, older children require less supervision when they awaken in the morning, reducing the impact of their sleep schedules on parent sleep schedules.

Beyond sleep schedules, 2 studies examined the impact of children’s sleep disorders and sleep disturbances on parent sleep and parent functioning. One found daytime sleepiness in both mothers and fathers to be associated with child sleep problems, child sleep duration, and child daytime sleepiness. Another study reported that maternal sleep quality, mood, parenting stress, fatigue, and daytime sleepiness were all worse when children had significant sleep disruptions. Children’s sleep disruptions were reported to have an indirect association with maternal daytime functioning, with children’s sleep disruptions predicting maternal sleep quality, whereas maternal sleep quality predicted maternal negative daytime functioning (eg, depression, parenting stress).

Behavioral interventions for younger children (toddlers and preschooler) have been shown to be effective for improving both child sleep and family functioning, including parental depression, marital satisfaction, and parenting stress. A recent study also found that the simple implementation of a consistent bedtime routine for infants and toddlers was associated with decreased maternal tension, anger, and fatigue. A brief behavioral sleep intervention among 8 to 10 month olds was associated with not only fewer child sleep problems 2 years after treatment but also fewer symptoms of maternal depression. Together these studies show the effectiveness and durability of changes to the child’s sleep, parent’s sleep, and family functioning. However, few studies have examined treatments for sleep problems in typically developing school-aged children, with a recent call for more research in this area.

This article has primarily focused on the premise that children’s sleep problems disrupt parent sleep and family functioning. However, several recent studies have also examined aspects of families that may influence a child’s sleep. One group has found marital conflict to be associated with disruptions to sleep quantity and quality among third graders. In a 2-year follow-up of these youth, initial emotional security predicted later sleep duration and quality, with emotional security about marital relationships negatively associated with child sleepiness, sleep-wake problems, and increased sleep onset latency. In a cross-sectional nationally representative study, parental warmth was related to increased total sleep time among school-aged children. Although more research is needed in this area, it is clear that family functioning plays an important role in children’s sleep.
ADOLESCENTS

In general, adolescents in the United States are sleep deprived, averaging only 7.6 hours, considerably less than the required 9.2 hours. This sleep deprivation is primarily caused by academic and social demands that result in late bedtimes and early wake times, as well as a circadian shift in the underlying biologic clock. This shortened sleep opportunity may also influence parent sleep, although few studies have examined this issue. For example, parents may have difficulties initiating and maintaining sleep if they are waiting for their teen to come home late at night, or parent sleep may be delayed if an adolescent needs to be picked up after a late night extracurricular activity or social event.

Only a handful of studies have examined the relationship between adolescent sleep and either parent sleep or family functioning. Parents are typically not involved with adolescent sleep routines. However, one study reported that adolescent total sleep time increased with parental rules (including an earlier bedtime). Another study found that psychological distress mediated the relationship between parental involvement and sleep efficiency in adolescents with a history of substance abuse. When parents were more involved with monitoring, adolescents experienced less psychological distress and greater sleep efficiency. In addition, a study of undergraduate students found that family stressors predicted insomnia, even after controlling for depression.

Three other studies have examined the association between adolescent and parent sleep. Each of these studies reported that adolescent sleep quantity, sleep quality, and/or sleep problems were associated with family factors, including parenting style, family problems, and the atmosphere in the home. Together, these studies suggest a dynamic relationship between adolescent and parent sleep, with adolescent sleep affected by poor parenting or family functioning. In turn, poor parenting may result from poor parent sleep, which may be a result of poor or insufficient adolescent sleep. However, each of these studies was limited by relying solely on the adolescent’s report of both their own and their parents’ sleep. More research is needed that examines the association between adolescent sleep, parent sleep, and family functioning.

CHRONIC ILLNESS

A chronic illness affects family functioning in many ways, including sleep disruptions for both children and caregivers. Sleep problems among children can be caused by disease symptoms (eg, pain, itching, wheezing) or medical management of the disease (eg, nocturnal blood glucose monitoring). Parent sleep may be disrupted because of heightened vigilance (eg, monitoring for a seizure), worries about the child’s health, or changes to sleeping arrangements (eg, increased cosleeping). Together, these factors result in significant sleep deprivation in parental caregivers, with studies reporting an average of less than 6 hours of sleep for many parents. With research showing significant declines in alertness and memory after 18 cumulative hours of wakefulness, the significant sleep loss experienced by caregivers may interfere with the parents’ ability to provide the best medical care in the home or make critical medical decisions.

Sleep disruptions in parents of children with chronic illnesses have also been associated with increased symptoms of depression and anxiety, less marital satisfaction, poorer parent health, and more days of missed work. Two studies have shown that sleep quality in parental caregivers mediates the relationship between child health and negative caregiver outcomes (ie, depression, anxiety, fatigue). Although disease management should be the primary intervention to alleviate child night wakeings caused by illness factors, additional interventions are needed to
improve both child and parent sleep. Behavioral interventions that work for healthy children should also be used for children with chronic illnesses. However, many parents struggle with consistency and limit setting when a child is ill. Interventions such as respite care should also be examined for parents. One recent study of parents of ventilator-assisted children found that regular night nursing was associated with increased parent total sleep time (>1 hour), as well as fewer symptoms of parent depression and sleepiness.\textsuperscript{77}

As suggested in a recent review article focusing on sleep in parental caregivers, future studies need to include objective assessments of sleep (ie, actigraphy), longitudinal study designs to assess changes in sleep associated with disease factors (eg, flares, remission), and appropriate control groups (eg, children with other illnesses, children with developmental delays, healthy children).\textsuperscript{78} Interventions are needed to alleviate caregiver burden and reduce sleep disruptions. Siblings’ sleep can also be affected when there is a child in the home with a chronic illness, so sibling sleep should also be examined in future studies.

**DEVELOPMENTAL DISORDERS**

For children with developmental disorders (including intellectual disabilities, autism spectrum disorder [ASD], and attention-deficit/hyperactivity disorder [ADHD]), sleep problems are common and can include difficulties initiating sleep, frequent and/or prolonged night waking, as well as early morning sleep termination.\textsuperscript{79–84} Because many of these children cannot go unsupervised, if the child is not sleeping, parents are typically also not sleeping.

Multiple studies have found associations between sleep problems in children with developmental disorders and parent sleep disruptions.\textsuperscript{82,85,86} One study using actigraphy found that parents of children with ASDs slept 1 hour less than parents of typically developing children.\textsuperscript{87} Along with sleep disruptions, parent daytime functioning has also been associated with sleep problems among children with developmental disorders, including increased parenting stress,\textsuperscript{88,89} as well as increased symptoms of depression and anxiety.\textsuperscript{90,91} Parent work attendance and family functioning have also been associated with sleep problems among children with ADHD.\textsuperscript{90}

Although only a handful of studies have examined the benefits for parents of treatments that address sleep problems among children with developmental disorders, improvements were reported in parent satisfaction with their own sleep, as well as their ability to manage their child’s sleep.\textsuperscript{92,93} Together, these studies highlight the need to include parent sleep and functioning as an important outcome for interventions that primarily target sleep problems in children with developmental disorders.

**SUMMARY**

Because the family system is a central part of a child’s life, child sleep problems can have a significant impact on family functioning, in particular parent sleep and daytime functioning (eg, mood, stress, and marital satisfaction). Likewise, family functioning (eg, parent stress, marital conflict) may affect child sleep. Behavioral treatments that improve sleep in children are also likely to result in improvements to parental sleep and subsequent daytime functioning, although more research is needed in this area. Clinicians and researchers who work with children of all ages, both healthy and those with a chronic illness or developmental disorder, need to be aware not only of the causes and consequences of sleep problems among children but also how these sleep problems affect the entire family system.
REFERENCES


