

## Sleep Problems in Children and Affecting Factors

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### Abstract

Sleep is the natural form of rest observed in all mammals, birds and fish and is an important function that ensures homeostatic balance. These creatures need sleep to perform their daily functions. Sleep cannot be fully described as unconsciousness, and it is a reversible event characterized by a gradual withdrawal from responding to and perceiving the environment. It is an altered state of consciousness from which the person can be easily aroused. It allows the body to rest and the brain to process the information it receives. Sleep is also necessary for memory restructuring and psychological. Sleep is associated with physical growth, emotional-behavioral development and academic performance, especially in children. For a healthy life, children need to get enough and quality sleep. However, sleep problems in childhood seem to be common and affect their sleep quality. The purpose of this book chapter is to examine children's sleep problems and affecting factors.

Sleep is the temporary, partial and periodic loss of the organism's communication with the environment, reversible by various stimuli. The person is in a state of unconsciousness during sleep that can be stimulated by sensory or other stimuli. Sleep provides the person with the opportunity to assimilate his emotions, rest by getting rid of daily fatigue, and gain energy for physical activities (Bathory et.al., 2017).

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## Situations and Stages of Sleep

The states and stages of sleep are defined by the characteristic features of electroencephalography (EEG), electrooculography (EOG) and surface electromyography (EMG). Continuous recording of these electrophysiological parameters of sleep and wakefulness is defined as polysomnography (PSG) (Marcus et al., 1992). Sleep consists of NREM and REM parts. Mesopontine nuclei in the brainstem control the NREM-REM cycle during sleep (Pace-Schott and Hobson, 2002).

NREM sleep is classically divided into 4 stages based on EEG. Parallel to the depth of ongoing sleep, the awakening threshold is generally low in the first two of the 4 NREM stages and is highest in the third and fourth stages.

## Physiological Effects of Sleep

Sleep, which constitutes two-thirds of life in the newborn period, decreases with age, and an adult spends one-third of his time asleep throughout his life. Sleep has two main types of physiological effects: its effects on the nervous system and its effects on other functional systems of the body. It is thought that the main value of sleep is to renew the natural balances between neuronal centers. In addition, it is accepted that sleep has many functions, including neuronal maturation, facilitation of learning and memory, and preservation of cognition and metabolic energy (Hall, 2011).

## Sleep in Children

Sleep constitutes a large part of the life of newborns, babies and children. Sleep in healthy babies differs significantly from the sleep of normal adults. Total daily sleep time, falling asleep times, daytime naps and sleep structure vary depending on the age of the child. Therefore, it is necessary to evaluate the child's sleep characteristics according to the child's age. Sleep, which is an important part of the quality of life, is especially critical for children's physical growth, neurological and behavioral development, tissue regeneration and strengthening of immune function (Carter and Wrede, 2017). Decrease in cognitive and academic performance, behavioral disorders, difficulty in daily activities, increase in risky behaviors and obesity have been reported in children with sleep problems (Hall and Nethery, 2019). While an increasing number of studies in recent years on sleep, which has serious effects on children's health, draw attention to the importance of sleep duration and quality, it has been reported that at least 25% of children have sleep problems (Maski and Owens, 2016).

## **Sleep Problems and Sleep Disorders in Children**

Sleep problems in children; Short sleep duration, resistance to going to bed, desire to sleep with the parent, delay in falling asleep, frequent waking up, waking up without rest, nightmares, sleep terrors, sleepwalking, urinary incontinence, teeth grinding and snoring (Ophoff et al., 2018).

When encountering a child with a sleep problem, it should be distinguished whether this is a behavioral problem or a more serious sleep disorder resulting from underlying psychological problems. While sleep problems can often be solved with behavioral treatment methods without requiring medication, if there is an underlying problem such as sleep apnea syndrome, behavioral treatment alone is not sufficient and medical or surgical treatment may be required (Mindell et al., 2010).

While sleep problems are observed in 20-30% of healthy babies, sleep problems and sleep disorders are more common in children with chronic medical, neurodevelopmental and psychiatric diseases (Ivanenko, 2010). It has been observed that the most common problems that families consult a physician about sleep are difficulties in falling asleep and frequent, prolonged night wakings that require family support (Sadeh et al., 2010). In the first year of life, difficulties in falling asleep and staying asleep on one's own and frequent awakenings at night are observed. As the child grows, problems, especially with night wakings, decrease compared to infancy. However, in the preschool period, resistance to bedtime and night fears begin to occur more frequently (Palmstierna et al., 2008).

Night fears are common between the ages of 2-4. Comforting the child, keeping the door open, using a night lamp, and making pre-sleep activities last a little longer and done with the parent can help the child overcome his fears. During this period, transitional objects and bedtime routines begin to become important (Weissbluth, 2003).

## **Risk Factors for Sleep Problems**

### **Genetic Tendency**

Twin studies have shown that genetic predisposition has a significant impact on sleep disorders, in addition to the effect of sharing the same environment (Alejandro et al., 2009).

### **Being the First Baby**

Having a baby for the first time causes families to experience anxiety about issues such as good parenting, competence, and doing the right thing,

as well as excitement and happiness. These families tend to spend more time with the baby. To the baby's cries They cannot remain indifferent. Thinking that the baby needs them, they apply soothing methods more often and for longer periods of time. Therefore, the baby cannot fall asleep on his own and cannot fall back asleep on his own without parental help every time he wakes up at night (Barr et al., 1989; Kaley et al., 2012).

### **Health-Related Conditions**

Ear infections can cause frequent awakenings, especially at night, due to pain and restlessness. However, even after the infection is resolved, the child continues to wake up at night as this situation becomes a habit and the child needs the support of the family to fall asleep again. Acute otitis media or serous otitis media can negatively affect sleep patterns, but when treated, the child's sleep problems disappear (Barber et al., 2014; Ferber, 2006).

### **Sharing the Same Bed or Room with a Parent**

When the parent shares the same bed or the same room with the baby, he immediately intervenes in every movement or sound of the baby. This prevents the baby from self-soothing and falling back asleep. It has been shown in studies that it increases the baby's awakenings (Weissbluth, 2003).

### **Feeding with Breast Milk**

Children who fall asleep by suckling want to fall asleep by suckling again every time they wake up at night. Studies have shown that breastfed babies wake up more often at night than formula-fed babies, but their total sleep time is longer. It has also been determined that the sleep/wake rhythm has no relationship with the baby's feeding style (breast milk, formula, bottle, spoon, complementary food). Frequent waking of a breastfed baby is attributed to the mother responding to the baby's voice by immediately breastfeeding (Huang et al., 2015).

### **Sleep Disorders That Affect Children's Sleep Problems**

Sleep disorders consist of sleep-related complaints. Sleep-related disorders manifest themselves with three main symptoms or a combination of them: Insomnia or insomnia, excessive sleepiness or hypersomnia, and movements or behaviors that occur during sleep or wakefulness at night (Mindell, 2005).

**Primary insomnia:** It is a state of having problems falling asleep and staying asleep. It includes bedtime resistance, sleep-disrupting night wakings, and other behavioral sleep problems. Its prevalence in young

children, especially preschool children, is around 25-50%. Insomnia and the resulting daytime fatigue can lead to stress, impairment in social, work and other important functions (Owens, 2011; Ivanenko, 2010).

**Obstructive sleep apnea syndrome (OSAS):** Sleep-related breathing disorders include primary snoring and upper airway resistance syndrome, premature apnea, and central apnea, which are often disrupted or exacerbated by sleep. It is estimated that 2% of children from infancy to adolescence have sleep-related upper airway obstruction (Johnson, 2005).

**Primary snoring:** It develops as a result of breathing and vibration of the oropharynx soft tissue wall against increased upper airway resistance during sleep, without respiratory abnormalities (apnea, hypopnea, hypoxia, hypercapnia) or respiratory-related awakenings (Owens, 2011).

**Narcolepsy and primary hypersomnia:** It is the presence of unavoidable daytime sleep attacks in the last 3 months. In addition to daytime sleepiness, cataplexy (sudden loss of muscle tone triggered by strong emotional impulses) and daytime sleep attacks constitute the main symptoms (Johnson, 2005).

**Parasomnias (disturbed sleep behaviors):** Includes any unusual behavior seen during sleep. They can occur while falling asleep, during sleep, or when waking up from sleep. Parasomnias occur as a result of activation of the central nervous system, changes in the autonomic nervous system and movement of skeletal muscles. While a significant portion of parasomnias are seen in a certain period of sleep, some of them are not specific to any period and can be seen in any period of sleep (Owens, 2011).

Sleep-related movement disorders consist of restless legs syndrome / periodic leg movement disorder and rhythmic movement disorders (such as hitting the head, shaking the body) (Owens, 2011).

### **Effects of Sleep Problems on the Child and Family**

Children, especially young children, who do not get enough sleep are not only negatively affected by themselves, but also by their parents, inability to sleep efficiently, frequent awakenings, and as a result, mood changes, learning and remembering problems, decrease in work performance, increase in vehicle accidents, deterioration in immune response, cardiovascular disease, diabetes, glucose tolerance deterioration, decrease in bone mineral density, and increase in body mass index may be observed (Mindell et al., 2015; Smaldone et al., 2007). The child's lack of sleep may increase depressive symptoms in the mother and lead to postpartum depression (Zuckerman et al., 1987).

Sleep is a very important condition for both the child and the family, and although sleep problems lead to negative consequences for the child and their family, this major problem is often ignored in clinical practice. In our country, research on sleep in children has been mostly conducted by pediatric neurologists, child psychiatrists and ear, nose and throat specialists and covers sleep disorders such as sleep apnea syndrome, sleep movement disorders and parasomnias that include other sleep-related behaviors (Sogut et al. al., 2005; Turkdogan et al., 2011). However, very few studies have been found in our country regarding the normal sleep characteristics of healthy children and the factors that may affect this (Yilmaz et al., 2002).

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