

## Sleep Disorders of Children; a Literature Review

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### Abstract

**Introduction:** Sleep disorders are common psychological disorders that disturb physical and mental health and quality of life. Sleep disturbances are syndromes characterized by impairment in the amount of sleep, sleep quality, sleep time, or disorder in the behavioral or physiological conditions that occur during sleep. Sleep disorder is a common childhood complaint and the fifth cause of referrals to pediatricians. Although Sleep disorder is considered one of the common disorders in childhood, it has not been primarily investigated.

**Conclusion:** Individuals follow a unique behavioral habit to sleep, but what is certain is that sleeping habits tremendously affect the sleep process. Inappropriate health habits and specific sleep problems result from physical, mental, environmental, or inherited conditions that reduce good sleep and endanger the individual's health. Sleep habits affect the quality of sleep during childhood. Improper sleep habits are hazardous for health and well-being, even in adulthood and after that. Perhaps, with much more community-based and clinical research, it is possible to identify and correct sleep problems and habits in children. So, those children can be brought to a higher level of physical-psychosocial health. On the other hand, early identification and suitable intervention of children with backgrounds of sleep problems provided them with better results.

### Keywords

Children [<https://www.ncbi.nlm.nih.gov/mesh/68002648>];  
Sleep Disorders [<https://www.ncbi.nlm.nih.gov/mesh/68012893>];  
Alternative Therapies [<https://www.ncbi.nlm.nih.gov/mesh/68000529>]

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Received: May 27, 2022

Accepted: September 6, 2022

ePublished: November 2, 2022

## Introduction

Sleep is one of the primary human needs essential for the conservation and maintenance of energy, physical appearance, health, and well-being, and human health is related to the quantity and quality of sleep [1]. On average, humans devote about a third of their lives to sleep; any disturbance and sleep deprivation will harm their physical and mental state. Studies have shown that prolonged sleep deprivation leads to severe physical and cognitive degradation and death. During sleep, the body secretes the body's growth hormone, which supports the heart and defense systems of the metabolic and metabolic systems [2]. Sleeping adequately and comfortably is one of the mainstays of health because, during sleep, the body relaxes, loses energy, and is again prepared for physical and intellectual activity [3]. Learning improper sleep habits also affects the life process and endangers the health of the individual and the community. Individuals follow unique habits of sleeping, and sleep habits have a tremendous effect on sleep patterns. Inappropriate habits and some sleep problems result from physical, psychological, environmental, and inherited conditions that reduce the amount of sleep and the health of the individual [4].

Sleep disturbances are syndromes characterized by impairment in the amount of sleep, sleep quality, sleep time, or disorder in the behavioral or physiological conditions that occur during sleep. Sleepiness is one of the most common symptoms of sleep disorders, so you can define sleep disturbance as excessive sleepiness during the day or nighttime [5].

In general, there is no precise definition of sleep disorders, but what is certain is that sleep well is essential to good eating and digestion for physical and mental health. Sleep protects the body against extreme and tired fatigue. However, sleep is not just a neurophysiologic part.

Psychologically, its remedial effect is so much that it treats tangles and nerves with mummies. Also, in the etiology of neuropsychiatric diseases of the child and adults, we often encounter sleepiness or sleepiness [6].

Sleep disturbances in children are a widespread phenomenon; severe forms can interfere with the performance of the patient and his or her family [7]. Sleep habits affect the quality and quantity of sleep and childhood health [4]. Sleep disorder is a common complaint in childhood, and it's the fifth cause of referrals to pediatricians [8]. Little attention to sleep problems will be paid from early childhood [9]. Therefore, its continuity until the school-age requires follow-up and treatment.

Sleep problems can lead to anxiety, depression, reduced compliance, and children's self-esteem [10]. The continuity of these problems from childhood to adolescence is linked to alcohol and drug use in the

future [11]. Not treating sleep disorders in children can lead to complications such as attention and concentration impairment, memory and learning, and behavioral disorders [7]. Sleep disturbances in children tend to lead to overactive depression, low levels of attention, and learning difficulties; therefore, the epidemiological study of sleep problems is essential for preventive interventions against complications [12]. In children with sleep disorders, there may be various behavioral disorders. Sleep deprivation is one of the major causes of academic disorder and academic failure. So, for example, reducing sleep duration to about 5 hours a night can affect cognitive, educational, and abstract thinking activities in school-age children [8].

## Types of Children's sleep disorders and problems

Sleep disorders in children include Insomnia, Drowsiness, Respiratory distress dependent on sleep, Nightmares, Awakening disorders, Rhythmic motor disorders, and Enuresis [13].

**Insomnia:** Insomnia is a difficulty in starting or lasting sleep. Insomnia is the most common type of sleep complaint [6].

**Drowsiness:** Extreme drowsiness pretends with long nighttime sleep and unwanted sleep periods during the day. Complications from being overweight are less prevalent than insomnia. The most common conditions that caused excessive sleepiness, which were severe enough to assess and record in particular centers of sleep disorders, are sleep apnea and narcolepsy [6].

**Respiratory distress depends on sleep:** Like sleep apnea, it is a type of respiratory tract disrupted by breathing during sleep [13]. The most common cause of obstructive apnea in children is excessive growth of adenoid and tonsillitis [14].

**Nightmare:** Nightmares occur at the REM stage. The content of the dream may be Unpleasant and scary, and this is a nightmare [15].

**Awakening disorders:** The patient could not wake up at the desired time.

Awakening can be considered as a mismatch between sleep and Awakening behaviors. A sleep history question helps identify a patient with a sleep disorder [16].

**Rhythmic motor disorders:** Repetitive movements occur by the limbs, trunk, or head when falling asleep [17].

**Enuresis:** Urinary incontinence, frequently voluntary or unintentional excretion of urine in clothing or bed, day or night, in the absence of abnormalities in children who must have naturally acquired bladder control at their age [18]. The prevalence of enuresis in boys is twice that of girls. At five years old, about 3% of girls and 7% of boys have enuresis [19].

### Children's sleep disorder and cancer

Sleep disturbance is one of the most critical complications of cancer, with a prevalence of 30-60%, and is associated with its treatment [20]. This problem is prevalent among patients, with about 25-50% of drug administration oncologists as sleeping medications. Although sleep disorders and cancer-related fatigue are two distinct conditions, their close relationship has been confirmed. Based on the National Cancer Network's clinical guidelines, a disease suffering from fatigue should first be assessed in terms of five factors, and sleep disorders are one of these five factors. This guideline recommends sleep modification as one of the non-pharmacological treatments for cancer-related fatigue [21].

Sleep can save the activity of some immune cells that are important in treating cancer. According to the pieces of evidence, the activity of natural lethal cells decreases with sleep deprivation. It is probably essential to sleep for the immune system to cope with tumor cells [22]. Cancer patients suffer many side effects, including problems and sleep disorders [23]. More than half of cancer patients suffer from sleep problems [24]. Although the nature of the disease and its complications prevent enough sleep and rest, the hospital environment, long-term care, and activities of the staff of the treatment centers can also cause sleep disturbances; somehow, these people suffer not only from fatigue but also from forms of cellular repair, memory deficits, and learning, increased stress and anxiety, and lower quality of life every day [25].

It should be noted that the rapid diagnosis and timely diagnosis of sleep problems during anticancer therapies, including chemotherapy. Because these problems have a direct impact on the ability of patients to continue their treatment programs, complete treatment, improve, and ultimately maintain and maintain a good quality of life [26].

Sleep disturbance in clinical practice associated with treatment problems is not uncommon in children with leukemia and is considered the most common sleep problem in 39% of cases [27]. These children experience higher levels of behavioral problems, depression and anxiety in adulthood (3.7%), cognitive impairment, and disability in learning and emotional growth [28]. According to collected documents, sleep disorders in these children begin with various causes. They are most likely a direct consequence of brain complications due to radiotherapy or the indirect outcome of chemotherapy. Also, stress in these patients, due to the life-threatening nature of this illness, is associated with sleep disorder [29].

### Aromatherapy

Research by Alijani *et al.* investigated "the effect of aromatherapy with orange essential oil on the quality

of sleep-in school-age children with acute lymphoblastic leukemia. This research was a quasi-experimental study in which 60 children admitted to the oncology unit of Shafa Hospital were allocated in two intervention and control groups. The research instruments were a demographic information questionnaire and the standard Children's Sleep Habits Questionnaire. Subjects included hospitalized school-aged children with acute lymphoblastic leukemia and with sleep quality scores of higher than 41. The intervention included inhaling the essential oil of orange three days a week, three times daily. In the control group, distilled water was used as a placebo. Results indicated no significant difference between the two groups regarding main characteristics. There was a significant decrease in sleep quality score in the intervention group before and after intervention ( $74.86 \pm 8.94$  and  $52.91 \pm 11.14$  respectively,  $p < 0.0001$ ), but this difference was not significant in the control group. Results showed that inhaling essential oil positively impacts sleep quality among children with acute lymphoblastic leukemia, and it can be used as a helpful method in improving their sleep quality [25].

### Story therapy

Ajorloo *et al.* study was semi-experimental with pre-test, post-test, and follow-up with the aim of continuing the story therapy in these groups. The population of this study included 7 to 10-year-old children with cancer chemotherapy who were hospitalized at Children's Medical Center in 2015. In this study, for each group (experimental and control), 12 children were considered (a total of 24). The questionnaires, including the multidimensional children's anxiety scale and the children's sleep habits, were completed with the help of their parents. Variance analysis and LSD tests showed a significant difference between the two groups regarding anxiety and sleep habits. In the experimental group, anxiety was reduced, and sleep habits improved. So, we can say that story therapy has improved the sleep habits of children ( $p < 0.001$ ) [29].

### Massage therapy

One study has assessed the effects of massage therapy on weight gain and sleep behavior in infants. This was a clinical trial study that involved 2-month-old infants who were referred to Arak city clinics. At first, the infant's topometrics sizes (weight, length, head, chest, abdomen, arm, and femoral circumference) and sleep behaviors (length of sleep in 24h and length of night sleep) were assessed. Then, infants were divided randomly into two groups, with and without massage. In the massage group, mothers were trained to do 10 minutes of rotational and continually monotonous massage used in all of the infant's bodies twice daily (morning and night before sleep) for four weeks. After four weeks, the top

metrics size and sleep behaviors were assessed again. Results from this study have shown that massage therapy could improve sleep behaviors, weight gain, and length in infants. These positive effects on the growth of infants may result from augmented growth hormone release due to an increment in the duration of the infants' night sleep [30].

### Progressive muscle relaxation

In this clinical trial, 46 pre-university students from public schools in Malayer city with inclusion criteria were systematically randomized into two groups of progressive muscle relaxation (test) and control. The test group was taught a progressive muscle relaxation program and asked to do this once a day for a month. The sleep quality of the samples using "The Pittsburgh Sleep Quality Index" was measured at the beginning and end of the intervention. After one month of intervention, the mean score of Sleep Quality in the test group showed a significant increase ( $p < 0.001$ ). Also, the test and control groups had a significant difference in sleep quality scores ( $p < 0.001$ ). The finding of this study showed that a progressive muscle relaxation program enhances sleep quality in pre-university students [31].

### Music inducing sleep

This pre-test/post-test study aimed to determine the effect of music-inducing sleep on the sleep onset latency of children in need of special care. Purposive sampling was used in this study to observe the sleep onset latency of children ages 1-6 with no hearing impairment, who can comprehend verbal instructions, are oriented to time, place, and person, and have no severe physiological or psychological problems. There were 16 research participants, male and female. The effect of music will be measured based on the duration of the research participants' sleep onset latency (NREM stage 1), from lying in bed to falling asleep at night. One day was allotted for observing the sleep onset latency, which served as the basis before music was played. Music was played 45 minutes after the participants lay in bed to sleep for seven days. Results revealed a significant difference in the effect of music in inducing sleep based on the participants' shortened duration of sleep onset latency. However, based on the effect of music in inducing sleep, there is no significant relationship according to the profile of the participants. The findings of this study provide evidence for the use of music therapy as an independent nursing intervention to induce sleep [32].

### Conclusion

Individuals follow a unique behavioral habit to sleep, but what is certain is that sleeping habits tremendously affect the sleep process. Inappropriate health habits and specific sleep problems result from physical, mental, environmental, or inherited

conditions that reduce good sleep and endanger the individual's health. Sleep habits affect the quality of sleep during childhood. Improper sleep habits are hazardous for health and well-being, even in adulthood and after that. Perhaps, with much more community-based and clinical research, it is possible to identify and correct sleep problems and habits in children. So, those children can be brought to a higher level of physical-psychosocial health. On the other hand, early identification and suitable intervention of children with backgrounds of sleep problems provided them with better results.

**Acknowledgments:** We thank the Research and Technology Administration of Mashhad University of Medical Sciences for financial support.

**Ethical Permissions:** The Ethics Committee of Mashhad University of Medical Sciences approved this study (Code: IR.MUMS.REC.1396.319).

**Conflicts of Interests:** The authors declare no conflict of interest in this study.

**Authors' Contribution:** Rezaei Z (First Author), Introduction Writer/Assistant Researcher (30 %); Rabiee L (Second Author), Assistant Researcher (10 %); Ramezani M (Third Author), Introduction Writer/Methodologist/Original Researcher/Discussion Writer (60 %)

**Funding/Support:** We thank the Research and Technology Administration of Mashhad University of Medical Sciences for financial support.

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