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# Sleep Hygiene Education in Adolescents: The Role of the Pediatric Nurses

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**ABSTRACT**

Pediatric nurses have an essential role in promoting adolescent health. Adolescence is a vital childhood period. This period is the transition from childhood to adulthood, and the mainstay of a healthy life occurs. Adolescents' needs and risks should be considered to continue their growth and development. Sleep is an essential factor influencing adolescent health, such as nutrition, physical activity, psychosocial environment, and risky behaviors. Sleep is directly related to situations such as physical health, the development of cognitive skills, and risky behaviors for adolescents. If adolescents do not have adequate and quality sleep, they face various problems such as learning difficulties, low academic success, accidents, and injuries. Sleep hygiene programs are beneficial for preventing adolescent's sleep problems. Sleep hygiene programs contain parameters such as creating a sleep schedule, regulating daily physical activity and eating habits, creating a pre-sleep routine, reducing caffeine consumption, and creating a sleep environment. Pediatric nurses lead sleep hygiene education programs together with adolescents' parents, teachers, and healthcare professionals. It is recommended to develop games and web-based alternative designs. Games and web-based designs increase the effectiveness of sleep hygiene programs. This article aimed to emphasize the importance of sleep health in adolescents and the roles of pediatric nurses. Sleep hygiene practices are essential to develop healthy sleep patterns in adolescents. The article points out the roles of pediatric nurses, such as educators, guides, and consultants, in promoting the sleep health of adolescents.
**Keywords:** Adolescent, sleep hygiene education, pediatric nursing

## INTRODUCTION

According to the World Health Organization's (WHO) definition, adolescence is a unique phase of human life, and the mainstay of a healthy life occurs during this period. Adolescence is defined as the age of 10 to 19. (1). In this period, when bio-physiological, cognitive, and psychosocial growth accelerates, it becomes essential for adolescents to interact with their emotions, thoughts, decisions, and environment (2). Adolescents face significant morbidity, injuries, and deaths worldwide. Adolescents can protect their health and surroundings during this period but also exhibit risky behaviors (3). Most factors influencing adolescent health, such as nutrition, physical activity, sleep, substance use, and sexual health, can be prevented and treated (1). Sleep is directly related to situations such as thinking and academic achievement, emotional health, physical health, growth and development, decision-making, risky behavior, accidents, and injuries for adolescents (4). If we determine the factors that negatively affect sleep and adolescent sleep needs, sleep problems can be prevented. It is known that sleep hygiene interventions are beneficial in preventing sleep problems. Pediatric nurses have an essential role in protecting adolescents' sleep health. Nurses use roles such as educators and consultants. They can prepare sleep hygiene education to promote adolescents' sleep quality. They help adolescents cope with sleep problems.

In this article, we tried to explain the importance of sleep health in adolescents and the role of pediatric nurses in sleep

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hygiene. It aims to contribute to the literature and to generalize sleep hygiene education. The article is intended to guide the development of new education programs.

## Sleep Importance in Adolescents

Sleep, one of the critical factors affecting the health of adolescents, is essential for brain development. (4). According to data obtained by the Sleep Foundation and Centers for Disease Control Prevention (CDC) from the American Academy of Sleep Medicine, it is indicated that adolescents between the ages of 13 and 18 should regularly sleep 8 to 10 hours a day to support their optimal health (5-7). A study conducted with 1717 European adolescents from Spain, Iceland, and Estonia shows that the daily sleep duration of adolescents, who require an average of 9 hours of sleep, is 7 to 7.5 hours. It has been reported that adolescents have insufficient sleep duration due to the tendency to go to bed late, early start of classes at school, exposure to screens before bedtime and, at the beginning of sleep, the influence of the social environment, and increased school-related responsibilities (8).

## Factors Affecting Sleep in Adolescents

It is indicated that there are many factors affecting sleep in adolescents. Starting classes early at school affects sleep. Additionally, the sleep quality of adolescents with an evening chronotype is affected. In the evening chronotype, the adolescent goes to bed late at night, has difficulty waking up early in the morning, and feels better in the afternoon—performance increases in the afternoon (9). A study was conducted to determine sleep habits in adolescents in Turkiye. In this study, the sleep hours of adolescents were examined in terms of age, gender, and educational status. In a recent research, the sleep hours of adolescents were examined. It has been shown that 16.3% of people sleep after midnight and experience sleep problems when bedtime is delayed (10). In meta-analysis research, there is evidence that later school start times are associated with longer sleep durations and a less negative mood in adolescents (11). Adolescents' obligations, such as their busy schedules, homework, test anxiety, etc., increase stress levels and cause insomnia during their school periods. Socializing and hanging out with friends also causes them to stay up late at night (7). Adolescents' excessive use of electronic devices and long periods of staring at screens critically affects sleep. Other factors that negatively affect sleep quality include having an electronic device in the bedroom and excessive use of the internet, telephone, and social media (12, 13). Some research shows that exposure to blue light emitted from screens, especially before sleep, affects melatonin levels and harms sleep quality (14,15). Research has shown that it affects sleep quality and cause sleep disorders, such as sleep apnea, a sleep interrupter (16), restless legs syndrome (17), narcolepsy, which affects the sleep-wake balance (18), anxiety that occurs due to insomnia or affects the process two-way by causing insomnia and mental health problems such as depression (19,20), neurodevelopmental diseases such as Attention Deficit Hyperactivity Disorder and Autism Spectrum Disorder (21) in adolescents.

## Sleep Problems and Impact of Insomnia in Adolescents

The American Academy of Pediatrics (APA) indicates that approximately 92% of children in the United States (USA) consult a doctor with at least one sleep problem—only 20% of children are diagnosed with sleep disorders (22). According to the Sleep Foundation from the APA, it is estimated that 20 to 50% of children and 40% of adolescents are affected by sleep problems (4). Sleep is vital for growth and development in adolescence bio-physiologically, spiritually, mentally, emotionally, and socially. Sleep has positive effects on all systems of the body, such as the strengthening of the immune system, the balance of hormones, and the healing of muscles and tissues. Sleep is required to perform metabolic activities for the body. Adequate and quality sleep is essential for a healthy physical and cognitive development. Considering the physical health of adolescents, insufficient sleep may affect metabolic activities such as blood pressure and cholesterol levels, causing them to be at risk for diabetes and cardiovascular problems in the long term (4,23). Research shows that adolescents who do not have sufficient sleep time are negatively affected emotionally (24) and that poor sleep quality is associated with emotional-behavioral problems (25). In addition, it was emphasized in a cohort study that sleep deprivation increases the risk of major depression (26). Wu et al. (2022), in their research, state that poor sleep quality, short sleep duration, poor sleep hygiene, and insomnia symptoms are associated with suicidal ideation in adolescents (27). Considering the importance of sleep for the development of brain functions, it is known that insufficient sleep causes a decrease in academic performance, and in a review of various research studies in this field, it is indicated that postponing school start times has positive effects on academic performance (28). In a study in which adolescents were analyzed for risky behaviors over a certain period due to reasons such as not getting enough sleep, excessive sleepiness in adolescents is dangerous for driving, not wearing seat belts and helmets, and drunk driving, etc. and they engaged in behaviors such as these, it is indicated that they encounter accidents for this reasons (29). Research conducted in the United States analyzed the effects of sleep deprivation on the health and behavior of high school students. They were asked to self-report how many hours they slept on a weekday school night. In the research, it is indicated that risky behaviors such as drinking alcohol, drunk and driving, message while driving, fighting, having suicidal ideation, taking sexual risks, and tendency to obesity are more common in adolescents who sleep less than five hours compared to adolescents who sleep eight hours or more (30).

The Sleep Foundation has reported that critical situations such as physiological problems, difficulty in learning, decrease in academic performance, impact on emotional health, having risky behaviors that may harm themselves and their families, and accidents and injuries resulting in death may develop in adolescents who do not have adequate and quality sleep cycles (4). Research shows that the COVID-19 pandemic, which occurred in recent years and continues worldwide, affects sleep processes in children and adolescents. A cross-sectional study

conducted in Hong Kong (2022) emphasized that school-age children's physical activity, screen viewing time, and sleep duration were affected during the pandemic period (31).

## Recommendations for Sleep Health Protection

Interventions of the healthcare team are needed to determine and improve adolescent sleep problems. Although it is not recommended to treat sleep problems experienced during this period with medication, it is necessary to define and enhance each adolescent's unique sleep hygiene practices. Sleep hygiene processes by the Sleep Foundation to improve sleep quality are determined as complying with an eight-hour daily sleep schedule on weekdays and weekends, creating a pre-sleep routine that will make it easier to fall asleep and relax, avoiding the consumption of caffeine and energy drinks especially in the afternoons and evenings, stopping the use of electronic devices at least half an hour before bedtime, and staying in silent mode throughout the night, creating a quiet, calm and dark sleeping environment in a comfortable bed with a comfortable pillow. Adolescents should also be supported by their parents regarding sleep hygiene processes (4).

## Sleep Hygiene Education

Today, in the direction of adolescents' changing characteristics and differing needs, educational programs are essential for improving sleep health to protect adolescents' physical, mental, emotional, and social health, and improve their sleep problems. When the research conducted in this field is analyzed, it is seen that face-to-face or web-based sleep hygiene training positively affects adolescents' sleep health (32). In a review evaluating sleep education given in schools, it has been shown that sleep education generally consists of two groups that aim to change behavior and provide information. Sleep education programs planned in the future have a high potential to improve the sleep health of young people; it was concluded that sleep education is considered essential by students, teachers, and parents. However, this review recommends developing programs with more intense content, different focuses, and targeting other age groups (33). A pilot study published in New Zealand in 2014 to evaluate a sleep education program in high school students determined that while there was no difference between the intervention group and the control group in terms of sleep duration on weekday nights, the intervention group's sleep duration was longer on weekend nights compared to the control group (34). Another randomized controlled study applied a school-based sleep education program to the intervention group. After the education program, while the sleep duration of the intervention group increased by even a short margin compared to the control group, there was no difference in sleep duration in the control test (35). A review analyzing research on sleep hygiene recommendations and sleep time extension interventions emphasized that there is evidence that this research reduces sleep problems and depressive symptoms. In this regard, it is assumed that different groups of adolescents with various sleep problems may respond differently to the interventions in future research (36). In another systematic review analyzing sleep education programs, it has been indicated that sleep education programs, which include strategies planned within specific frameworks, will change the sleep behaviors of adolescents. A knowledge-to-action perspective into practice is needed to develop pediatric sleep health approaches. This review, as a knowledge-to-action perspective, suggests that informing stakeholders and ensuring their participation, determining goals and targets for change, assessing needs, ensuring that programs are suitable for local use, evaluating barriers and facilitators, evaluating the results of studies, developing a sustainable education program, reporting interventions clearly and comprehensively, and ensuring that other researchers and practitioners are aware of these interventions, It is recommended to design and integrate into practice so that they can benefit from (37,38). In another research study, after video-based sleep hygiene education was given to adolescents diagnosed with Type 1 Diabetes Mellitus (DM) to determine their sleep quality, the intervention group's sleep quality score was higher than the control group (39). In another school-based sleep education program, research applied to adolescents; while knowledge about the importance of sleep increased, small changes in sleep quality and hygiene were detected (40). Although there is a quantitative increase in sleep education programs in general, when the results are monitored, it is stated that the increases in sleep behaviors and sleep hygiene practices are variable (41). The research reviewed suggests some features for programs planned to be designed in the future. For example, keeping the age range wide in interventions and including larger groups, respecting the autonomy needs and multiple lifestyles of adolescents, objectively measuring sleep durations through devices such as actigraphy as well as self-reports, keeping intervention periods longer, evaluating behavioral changes in the short and long term, to determine the permanent effects of the interventions, to support them with protocols involving the participation of stakeholders, especially parents, and to include internet-based and family-based alternative approaches including game activities such as animation (34,38,39,41,42).

Education aims to ensure sleep hygiene, provide adequate and effective adolescent sleep patterns, and intervene in behavioral sleep problems (43). Ensuring sleep hygiene includes arranging the sleep environment, arranging sleep time and duration, and regulating daily activities, nutrition, and habits (44). Sleep hygiene was first put forward in 1977 and defined as "giving suggestions to patients suffering from insomnia." It has undergone many changes until today. Nowadays, sleep education is planned through guides that include recommendations on sleep hygiene (45). It has been emphasized that experimentally designed studies that include sleep hygiene suggestions are partially inadequate regarding the evaluation processes of the results in the general population. Sleep hygiene education plays an essential role in improving sleep. It has been indicated that to increase the usefulness of training, comprehensive studies are needed, especially evaluating habits and behavioral and environmental factors (46). It is stated that individual differences should be considered in implementing sleep education programs, which

include main topics such as making a daily sleep schedule, creating and following a night routine, developing healthy daily habits, and arranging the bedroom (47). Accordingly, starting sleep hygiene early and with a personalized approach is essential. Although there is no specific information in the literature about the frequency of training, it seems that one-time counseling and monthly follow-ups are suggested for patients with insomnia. It is indicated that developing personalized sleep forms and evaluating sleep durations with actigraphy will be beneficial for assessing the effectiveness of education (46).

## Pediatric Nurse's Role in Sleep Health

Pediatric nurses have essential roles and responsibilities in protecting, developing, and improving the health of children and their families. One of the areas where they actively use their roles as caregivers, consultants, educators, advocates, comfort providers, and comforters (48) is the protection and improvement of children's sleep health. Nurses have a lot of responsibility for sleep management. They monitor the sleep behaviors of healthy and unhealthy children with health problems, diagnose children's sleep disorders, provide training for adolescents, support families and teachers about sleep hygiene practices, provide guidance, evaluate the sleep practices processes, and give feedback (49).

The literature shows model-based sleep hygiene education studies for healthy children and those with health problems. These studies were conducted by pediatric nurses (50). When the literature is examined, nurses mostly participated in sleep education interventions for children with health problems and their families in sleep education research (51). A pediatric nurse gave sleep education to the parents of a group of school-age children with neurodevelopmental disorders, and the results were evaluated. As a result of the training, insomnia problems decreased, and sleep durations increased on weekdays and weekends (42). In addition, pediatric nurses have essential responsibilities in managing the treatment and rehabilitation processes of those who need special care in line with the identified problems and determined nursing diagnoses (49).

## CONCLUSION

In conclusion, the health of adolescents must be protected, developed, and promoted holistically to help them live a healthy and quality life, and build their lives on solid foundations. To achieve the desired level of sleep health, which affects the individual significantly in bio-psycho-social and cultural terms, essential responsibilities fall on parents, caregivers, teachers, and nurses, who are the primary health leaders of the society. Pediatric nurses working with healthy and sick children take an active role in sleep education to improve the sleep health of adolescents. When national and international literature on this subject was analyzed, it was seen that interventions aimed at improving the sleep health of adolescents, especially those without any diagnosed health problems, were insufficient. To protect and improve the sleep health of adolescents who are a part of society, it is suggested to increase research involving sleep health practices of nurses, who are essential health spokespersons.

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