EXAMINING THE SLEEPING HABITS OF PRESCHOOL AND ELEMENTARY SCHOOL CHILDREN IN SOUTHERN SLOVAKIA

Eva Tóthová Tarová[1, 2], Sarolta Darvay[1], Zoltán Fehér[3], Melinda Nagy[1], Iveta Szencziová[1], Dániel Dancsa[1], Veronika Himpán[1], Éva Winkler[1], Pavol Balázs[1], Mária Konečná[4], Vincent Sedlák[4], Mária Zahatňanská[5], Renáta Bernátová[6], Janka Poráčová[4]

[1]Department of Biology, Faculty of Education, J. Selye University, Komárno, Slovak Republic
[2]Institute for Clinical and Translational Research, Biomedical Research Centre, Slovak Academy of Sciences, Bratislava, Slovak Republic
[3]Department of Mathematics, Faculty of Economics and Informatics, J. Selye University, Komárno, Slovak Republic
[4]Department of Biology, Faculty of Humanities and Natural Sciences, University of Prešov, Prešov, Slovak Republic
[5]Institute of Pedagogy, Andragogy and Psychology, Faculty of Humanities and Natural Sciences, University of Prešov, Prešov, Slovak Republic
[6]Department of Natural Sciences and Technological Disciplines, Faculty of Education, University of Prešov, Prešov, Slovak Republic

SUMMARY

Objectives: Our research aimed to examine children's sleeping habits from preschool to the end of elementary school age. Developing proper sleeping habits in childhood is essential, as it is decisive for the rest of our lives.

Methods: A total of 339 children (160 males and 179 females) took part in the research, of which 145 were preschool-age children (3–7 years old), 72 lower-grade elementary school children (6–11 years old), and 122 upper-grade elementary school children (12–16 years old). The questionnaire was completed in a paper form (elementary school students) and online (kindergarten children).

Results: The research results show that most of the children spend enough time sleeping following the recommendations. In case of the kindergarten children, the younger ones also sleep in the afternoon on weekends (average of 3.66 years, 28.3%), and the older ones do not sleep in the afternoon either in kindergarten during the week or at home at the weekend (average of 5.22 years, 46.2%). The use of blue light typically increases with age; 39% of the preschoolers, 61% of the 6–11-year-olds, and 67% of the 12–16-year-olds use it before falling asleep. Sleep aids and rituals are used by 87.6% of the preschoolers, 67.4% of the 6–11-year-olds, and 34.4% of the 12–16-year-olds, because significantly more preschoolers find it more difficult to fall asleep than older children. At night, 40% of the preschoolers wake up at least once (due to biological needs – 46.3%), 32% of the 6–11-year-olds wake up at night (due to nightmares – 42.3%), and 41% of the 12–16-year-olds also wake up all night (due to biological needs – 31.9%, and due to noise – 29.8%).

Conclusion: Although the children get enough sleep, significantly more upper-grade school children feel tired in the morning. It is essential to help sleep and eliminate factors that prevent falling asleep to create a healthy circadian rhythm in the life of children.

Key words: sleep, sleep problems, preschool age group, primary school age group, sleep time, blue light, sleep aids

Address for correspondence: E. Tóthová Tarová, Department of Biology, Faculty of Education, J. Selye University in Komárno, Bratislavská cesta 3322, SK-94501, Komárno, Slovak Republic. E-mail: tothovatarovae@ujs.sk

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INTRODUCTION

We spend a third of our lives sleeping. Sleep and wakefulness are complementary and supportive states during which biological and psychological changes constantly complement each other. Sleep is an active process that, if disturbed, can also impair wakefulness.

Many studies have shown the role of proper sleep and sleep hygiene in a long, healthy life (1). According to literature sources, insomnia (persistent difficulty falling asleep and/or staying asleep) has increased over the last decade (2). Recognition of physiological changes during sleep, changes in cerebral blood flow, body temperature, circulation, respiration, and hormonal changes help to understand the pathophysiology of diseases, maintain health and choose therapy (3–6).

Sleep is a state that is much needed by the developing child's body. The fragmentation of this state and the hypoxic episodes that occur mean that mental and physical development is impaired.

A study conducted in Saudi Arabia, which examined the age group of 2–14 years and evaluated 585 questionnaires, found that bedtime resistance was the most prevalent sleep problem (70.3%), followed by sleep-onset delay (58.1%), difficulty waking up in the morning on weekdays (41.3%), weekends (38%), and interrupted sleep (31%). Night terror was reported in 20.6%

and nightmares in 26.5% (7). Amid the epidemic of insufficient sleep in adulthood, there is growing public health concern in response to the evidence that 25–40% of children are reported to have sleep insufficiency before they are of school-age, placing them at risk of sleep-associated poor health outcomes, including metabolic, cardiovascular, and mental health. In addition, when sleep problems develop early in life, they are often persistent, contributing to long-term problems with school performance, quality of life, risk of injury, and mental health (8).

The daily use of electronic media is a significant contributor to the phenomenon of rapidly increasing sleep problems among children and adolescents. This can be attributed to late-night TV watching, computer and internet use, electronic games, and smartphone use in bed (9). Statistically significant associations were noted in Saudi Arabia between screen time, snoring, and witnessed apnoea with sleep problems (7).

In 2020, Falch-Madsen et al. (10) published the first age-specific population estimates of insomnia prevalence based on clinical interviews from preschool age to early adolescence. Their research found that insomnia was less prevalent than previous research had shown, with almost one in five participants having insomnia at least once between the ages of 4 and 14. During the ten years studied, almost one in five children (18.7%) had insomnia at least once in 5 years. Boys were more insomniacs than girls (4.5%) between the ages of 4 and 10 years (8.1%), while girls (11.4%) were more insomniacs than boys (7.1%) between the ages of 12 and 14 years. Insomnia was stable, with 22.9–40.1% of the children retaining the diagnosis two years later (10).

Based on the literature review, the research aims to assess how individual factors affect falling asleep, the quality of sleep, and whether children spend enough time sleeping. This is an important aspect from the point of view of health.

MATERIALS AND METHODS

The main goal of our research is to assess sleeping habits of preschool children and elementary school students. Our research was completed with the help of a questionnaire, which consisted of 37 questions in case of the children of preschool age and was filled out online by 145 parents in preschools in southern Slovakia, which were selected randomly from different preschools. The questionnaire for elementary school children consisted of 36 questions. It was filled out on paper by 194 parents (in case of lower-grade elementary school students) or children (in case of upper-grade students) in the lower and upper grades of six Hungarian-language primary schools and lower grades of eighth-grade high schools in southern Slovakia. The results were collected using paper-based questionnaires in January and February 2020 in elementary schools and in January and April 2021 in preschools, and primarily evaluated with the Microsoft Excel 2010 program. Additional statistical analyses were performed with the IBM SPSS Statistics 27 software. The statistical analyses were performed by Pearson's chi-square test, symmetric measures (Cramer V) and significance analyses. The results are considered significant when $p < 0.05$. Table 1 summarizes the socio-demographic data of the respondents.

The questionnaire contained questions about falling asleep and waking times, referring to activities before falling asleep, and the use of blue light before falling asleep, waking up at night (how many times, for what reason, time to fall back asleep), sleep quality, evening rituals, sleep aids, daytime fatigue, and caffeinated drinks – we also asked respondents about their consumption (what time of day, how much, what kind of drink they consume), heavy meals in the evening, and, in case of preschoolers, about afternoon sleep.

Table 1. *Socio-demographic characteristics within each group*

Socio-demographic characteristics	**Preschool children n = 145 n (%)**		**Lower-grade elementary school students n = 72 n (%)**	**Upper-grade elementary school students n = 122 n (%)**
Male	68 (49.9)		36 (50.0)	56 (45.9)
Female	77 (53.1)		36 (50.0)	66 (54.1)
Living in cities	112 (77.2)		43 (59.7)	86 (70.5)
Living in countryside	33 (22.8)		29 (40.3)	36 (29.5)
Average age (SD, median, from–to)	4.66 (SD = 1.24, median = 5, 3–7 years)		8.55 (SD = 1.41, median = 9, 6–11 years)	13.94 (SD = 2.88, median = 13, 12–16 years)
Father education degree (%)	Elementary school	6.2	–	–
	Vocational school	29.7	–	–
	High school or vocational secondary school	35.2	–	–
	University	28.9	–	–
Mother education degree (%)	Elementary school	4.1	–	–
	Vocational school	9.0	–	–
	High school or vocational secondary school	37.9	–	–
	University	49.0	–	–

Table 2. *Bedtime and waking times of preschool children and length of sleep (N = 145)*

Preschool children (3–7 years)	Weekdays	Mean (SD)	Weekends	Mean (SD)
Bedtime	6:30–11:00 p.m.	8:41 p.m. (0:39)	6:30–12:00 p.m.	9:05 p.m. (0:44)
Wake-up time	5:00–10:00 a.m.	6:49 a.m. (0:42)	5:00–11:00 a.m.	7:51 a.m. (1:02)
Length of sleep time	7–12.5 hours	10:08 (0:50)	7–13 hours	10:45 (0:50)

RESULTS

Sleeping Habits of Preschool Children

We primarily evaluated the times of falling asleep, waking up, and sleep duration. The average bedtime of the preschool children was 8:41 p.m. on weekdays (range 6:30–11:00 p.m., SD = 0:39); on weekends, this time was 9:05 p.m. (range 6:30–12:00 p.m., SD = 0:44). In the same way, we aggregated the wake-up times. On average, the preschool children wake-up on weekdays at 6:49 a.m. (range 5:00–10:00 a.m., SD = 0:42) and on weekends at 7:51 a.m. (range 5:00–11:00 a.m., SD = 1:02). As for the amount of sleep, based on our results, the preschool children sleep of 10 hours 8 minutes a day on average on weekdays (ranging from 7 to 12.5 hours, SD = 0:50) and 10 hours 45 minutes (ranging from 7 to 13 hours, SD = 0:50) on weekends (Table 2).

Afternoon naps are crucial for young children. During the week, more preschool children sleep in the afternoon (53.8%), as kindergartens have a mandatory rest period after lunch, so many children doze off, even if only for a short time; 15.9% of the parents said that the child sometimes falls asleep in the afternoon, and 30.3% stated that they do not sleep in the afternoon in kindergarten (the average age of these children was 5.22 years). At the weekend, significantly more children do not sleep in the afternoon (51%), some of the preschool children only sometimes (20.7%), depending on what their program is on the weekend and how tired they are, and only 28.3% answered that their child regularly sleeps on the weekend. The average age of these children is 3.66 years. The average length of the afternoon nap is 1.5 hours. After the afternoon nap, these children mostly (73.5%) wake up rested.

Among the children who do not sleep in the afternoon (74, 51%) during the weekends, in most cases (55.5%), their parents indicated difficulty in falling asleep as the reason, while 13.5% sometimes have difficulty falling asleep, and only 31% have no problems falling asleep, but not putting children to sleep. Most children who skip the afternoon nap fall asleep more efficiently in the evening (56.8%), probably due to daytime fatigue, yet the average time of falling asleep in the evening for these children is 8:41 p.m. during the week and 9:11 p.m. on the weekend, and they wake up on weekdays at 6:52 a.m., and on weekends at 8:01 a.m. If we examine the other group who regularly sleep in the afternoon (41, 28.3%), 46.3% of those children fall asleep easily in the afternoon, and only 17.1% have problems falling asleep. On average, these children fall asleep earlier in the evening (8:35 p.m.) than those who did not sleep in the afternoon and even fall asleep earlier also on the weekend (8:51 p.m.) compared to their peers who skipped the afternoon nap. They wake up also earlier on weekdays at 6:37 a.m. and on weekends at 7:25 a.m.

We also asked about the children's sleeping place, and most parents (78.6%) stated that their child sleeps in a separate room or the same room but in a separate bed. In this case, the average age of the children was 4.5 years, but 19.3% of the children slept in the same bed with one of their parents, and here the average age was 5.07 years.

We received exciting data about how many children migrate to their parents' beds at night. Of the 114 children who sleep separately from their parents, 39.5% never share their parents' bed (average age 4.55 years), 13.2% move to their parents' bed every day (average age 3.86 years), and 47.3% sometimes because of bad dreams (average age 4.74 years); 60% of the preschool children do not wake up even once during the night; 40% of them wake up one or more times during the night, the root cause of which is usually a biological need (thirst, using the toilet – 46.3%), to a lesser extent, nightmares (37.3%), or other unspecified reasons; 73% of the parents indicated that their child returns to sleep within 10 minutes after waking up.

It is important to mention what activities children do before falling asleep; 33% of the preschool children listen to fairy tales, 19% draw or listen to music, 18% talk with their parents, 17% watch TV, 9% play with toys, and 5% look at tablets or phones; 39% use a blue light source before going to bed. On average, they do this activity for 31.5 minutes before falling asleep, but we did not find significant correlations between the difficulty to fall asleep or waking up at night and the use of blue light sources before bed.

We examined the correlations between the difficulty to fall asleep and awakenings at night and the consumption of evening meals (cocoa, tea, carbonated soft drinks, chocolate, fatty, heavy foods), but no significant ones were found in any of the cases; 54.5% of the children do not consume heavy meals before bed, 74.5% do not consume caffeinated drinks either, and those who do, usually in the afternoon, mainly tea (39.3%) or cola (3.5%).

If sleep aids are considered, the parents use some methods more often with small children (87.6%). Most of them indicated

Table 3. *Bedtime and waking times of lower-grade elementary school children and length of sleep (N = 72)*

Lower-grade children (6–11 years)	Weekdays	Mean (SD)	Weekends	Mean (SD)
Bedtime	8:00–10:30 p.m.	9:04 p.m. (0:35)	8:00–11:30 p.m.	9:45 p.m. (0:41)
Wake-up time	5:30–7:30 a.m.	6:41 a.m. (0:23)	6:00–10:00 a.m.	8:13 a.m. (0:59)
Length of sleep time	7.5–11 hours	9:35 (0:39)	8–12.5 hours	10:26 (0:49)

a sleeper – their favourite stuffed toy (30.4%), then the light of a night lamp (25%), as well as evening rituals applied in the usual order (24.6%), a favourite blanket (10%), and some soothing essential oil (5%) was marked as an option.

Sleeping Habits of Elementary School Students – 6–11 Years Old Children

The average bedtime of the lower-grade elementary school students was 9:04 p.m. on weekdays (range 8:00–10:30 p.m., SD = 0:35); on weekends, this time was 9:45 p.m. (range 8:00–11:30 p.m., SD = 0:41).

The wake-up time was 6:41 a.m. (range 5:30–7:30 a.m., SD = 0:23) for the weekdays; during the weekend, it averaged around 8:13 a.m. (range 6:00–10:00 a.m., SD = 0:59).

Regarding the amount of sleep time, the 6–11-year-old age group sleeps an average of 9 hours and 35 minutes during the week (range 7.5–11 hours, SD = 0:39). On weekends, this number is higher; on average, they sleep 10 hours and 26 minutes (range 8–12.5 hours, SD = 0:49) (Table 3).

The lower-grade elementary school students mostly never wake up during the night (68%), while 32% wake up or wake up at least once during the night. It is also important to mention that in this age group, 42.3% wake up due to nightmares, and 38.5% wake up at night due to biological needs. In 80% of the cases, they fall back asleep successfully within 10 minutes; 12.5% of the lower-grade elementary school students have difficulty falling asleep at night. In the age group 6–11, the children use sleep aids even more often (67.4%), especially their usual rituals and favourite toys are used the most.

Examining the individual factors that can make it difficult to fall asleep or result in restless sleep, consuming caffeinated or heavy food/drinks did not show a significant correlation. As for the frequent awakening at night, consuming heavy food ($p = 0.154$), or caffeinated drinks ($p = 0.371$) for dinner, or both factors ($p = 0.036$) did not show a significant correlation in this age group. Cola (68.8%) and tea (21.9%) were mainly indicated as sources of caffeine.

As we looked at evening activity, 61% of the lower-grade elementary school students indicated using blue light (TV 50%, telephone 7%, PC 4%). A few students read (21%), talk (8%) or play games (7%).

Sleeping Habits of Elementary School Students – 12–16 Years Old Children

A more comprehensive range of times and a delay in falling asleep can be observed for the upper-grade elementary school students; on average, they fall asleep at 10:21 p.m. (range 8:00 p.m.–2:30 a.m., SD = 1:01) on weekdays and 11:32 p.m. (range 8:30 p.m.–6:00 a.m., SD = 1:30) on weekends. The wake-up time was on weekdays at 6:23 a.m. (range 4:45–7:15 a.m., SD = 0:31), and on weekends they wake up on average around 9:17 a.m. (range 6:00 a.m.–2:00 p.m., SD = 1:26).

As for the amount of sleep of the older age group, 12–16-year-olds sleep an average of 8 hours and 2 minutes during the week (range 4 to 10.5 hours, SD = 1:04). On weekends, the amount of sleep increases, on average they sleep 9 hours 43 minutes (range 5 to 13 hours, SD = 1:21) (Table 4). There was a significant difference between the amount of sleep of the two elementary school age groups on weekdays ($t = 12.381$, $p < 0.001$) and weekends ($t = 4.603$, $p < 0.001$) (11).

Regarding awakenings, students aged 12–16 wake up more often at night (41%), and 59% of them said they never wake up at night. The first triggering factors are biological needs (31.9%), followed by noise (29.8%), and nightmares (25.5%). Even in this case, 80% of those completing the questionnaire fall back to sleep within 10 minutes.

Among the 12–16-year-olds, 18% said they had difficulty falling asleep. Despite this, 34.4% of them use some ritual or sleep aid to fall asleep.

In case of the older students, it happened several times that they consumed caffeinated drinks, especially in the afternoon and evening hours, which showed a significant correlation between difficulties to fall asleep ($p = 0.001$) and restless sleep at night (11). There was no significant correlation between frequent night waking and heavy meals in the evening ($p = 0.955$), nor between the consumption of caffeinated drinks in the evening ($p = 0.580$). However, there was a significant correlation for both factors simultaneously ($p = 0.042$). Cola (35.9%), coffee (32.4%) and tea (20.7%) were mainly indicated as sources of caffeine.

As for evening activities, the upper-grade elementary school students watch less TV (25%), but their phone use has increased (33%), so overall, 67% of them use a blue light source before falling asleep. They show little interest in reading (19%) and talk with parents (1%).

Comparison of Sleeping Habits of Three Age Groups

If we observe all the three groups, we found significant differences in the comparison of sleep times, as well as in the difficulty of falling asleep (most difficulties in falling asleep were defined by the parents of preschool-age children), as well as in how the children feel in the morning after waking up (significantly more children among the upper-grade elementary school students feel tired or moderately tired after waking up). The results are shown in Table 5.

In our survey, for the 6–11-year-olds (36 boys and 36 girls), there is no difference between the gender in the average amount of sleep on weekdays, but on weekends, girls sleep half an hour longer (10:42), which shows a significant difference (Mann-Whitney test, $t = 377.0$, $p = 0.003$). There is no difference in average

Table 4. *Bedtime and waking times of upper-grade elementary school children and length of sleep (N = 122)*

Upper-grade children (12–16 years)	Weekdays	Mean (SD)	Weekends	Mean (SD)
Bedtime	8:00 p.m.–2:30 a.m.	10:21 p.m. (1:01)	8:30 p.m.–6:00 a.m.	11:32 p.m. (1:30)
Wake-up time	4:45–7:15 a.m.	6:23 a.m. (0:31)	6:00 a.m.–2:00 p.m.	9:17 a.m. (1:26)
Length of sleep time	4–10.5 hours	8:02 (1:04)	5–13 hours	9:43 (1:21)

Table 5. *Differences between three age groups regarding sleep time, difficulty falling asleep and morning feelings*

Characteristics	Age group			Test stat	p-value
	Preschool	Lower-grade	Upper-grade		
Sleep time on weekdays	10:08	9:35	8:02	186.90	<0.001
Sleep time on weekends	10:45	10:26	9:43	47.20	<0.001
	n (%)	n (%)	n (%)		
Difficulty with falling asleep					
No	70 (48.3)	63 (87.5)	100 (82.0)	49.977	<0.001
Yes	75 (51.7)	9 (12.5)	22 (18.0)		
Morning feeling					
Tired	4 (2.8)	1 (1.4)	12 (9.8)	30.181	<0.001
Moderately tired	22 (15.2)	12 (16.7)	43 (35.2)		
Relaxed	119 (82.1)	59 (81.9)	67 (54.9)		

Chi-square test, Kruskal-Wallis test

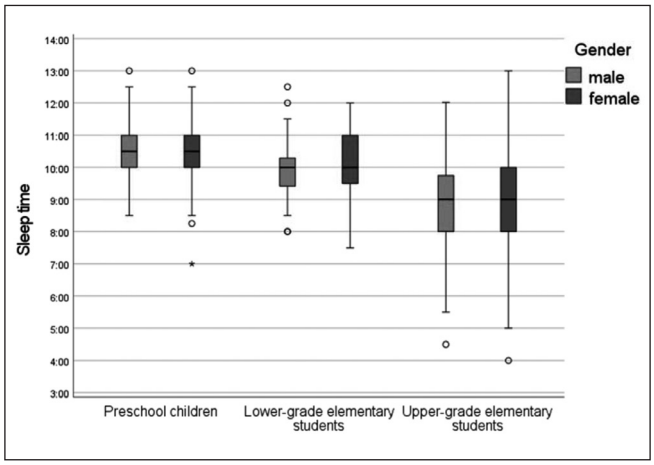

Fig. 1. *Distribution of sleep time in each age group according to gender.*

A significant difference can be observed among students in the lower-grade; girls sleep significantly more on weekends than boys (Mann-Whitney test).

sleep time between boys and girls on weekdays or weekends in the group of 12–16-year-olds and the group of preschool children. The results are shown in Figure 1.

DISCUSSION

Our results show that preschool-aged children sleep enough (10 hours and 8 minutes on weekdays and 10 hours and 45 minutes on weekends), which agrees with other literature (12). According to the recommendation of the National Sleep Foundation, the daily amount of sleep for 3–5-year-old children should be 10–13 hours, and afternoon sleep can also be added to this (13).

In the research of Fusz et al. (12), 17% of children wake up once a night (usually or permanently); according to Blair et al. (14), this rate is 50% for preschoolers. In our research, this number is 40% for preschoolers, and 32% for 6–11-year-olds, while 41% of older children (12–16 years old) regularly wake up at least once during the night.

The most popular bedtime habit among preschoolers is reading fairy tales (33%), while in other research, this number was much higher (65.1%) (12). Our results show that 19.1% of preschoolers sleep with their parents, and another 10.3% migrate to their parents' beds every night. In the research mentioned above, co-sleeping was indicated by 42.8% of the parents. In another cross-sectional study, co-sleeping with parents was reported in 41% of the children (7).

Our findings show that 11 (7.6%) of the preschool children do not sleep the amount of sleep according to the literature; that is, they do not sleep at least 10 hours (10–13 hours is the recommended amount of sleep in total for children of preschool age). These findings are inconsistent with large-scale epidemiologic surveys which have reported that approximately one-quarter to one-third of children aged six months to 5 years have difficulties in going to bed, falling asleep, or sleeping through the night (15–17).

Children who napped more on weekdays were also more likely to nap during weekends. According to Lam et al., those who napped in the afternoon more slept less at night, although total weekday sleep remained relatively constant. Children who sleep less do not appear to be sleep deprived, especially if they compensate it with increased nighttime sleep (18). Our results show that during the week, children rest during the afternoon sleep time in kindergartens; in this case, they fall asleep later in the evening and wake up later in the morning, but the amount of sleep time meets the requirements. Those who sleep in the afternoon go to bed earlier at night and wake up earlier in the morning, so it does not affect the amount of sleep. Afternoon naps are common, especially among the 3–4-year-old age group, and children gradually abandon them.

Sleep disorders are often influenced by age: infants and toddlers are reported to have difficulties in settling down or sleeping through the night, prepubertal children are mainly affected by parasomnias, whereas adolescents are mainly affected by insomnia, circadian disturbances and daytime sleepiness (19).

The sleep time of the lower-grade school students was 9 hours and 35 minutes on weekdays and 10 hours and 26 minutes on weekends. The average sleep time of the upper-grade school students was 8 hours and 2 minutes on weekdays and 9 hours and 43 minutes on weekends. In the survey by Fusz et al. (12), the sleep time of schoolchildren (average age 15) is 7 hours 31 minutes on weekdays and 9 hours 30 minutes on weekends. In their 2013 survey, Sólyom et al. obtained higher values (8.5 and

10.2 hours) (20). The National Sleep Foundation recommends 9 to 11 hours of sleep per day for 6–13 years old children and 8 to 10 hours per day for 14–17 years old adolescents. So, on average, the students we surveyed get enough sleep, yet one child in a lower-grade sleeps less than the recommended amount, and in upper grades 37.5% of students sleep less than the recommended amount during the week.

Other studies show similar results; on weekdays, students (average 14 years old) went to bed at 11:17 p.m. and got up at 7:46 a.m. (our upper-grade students at 10:21 p.m. and 6:23 a.m.) and the average sleeping time was 8 hours and 18 minutes (in our case 8 hours 2 minutes). On weekends they went to bed at 1:02 a.m. (in our study 11:32 p.m.) and got up at 10:42 a.m. (in our study 9:17 a.m.), and the average sleeping time was 9 hours and 40 minutes (in our case 9 hours 43 minutes) (21). Although they try to make up for the lack of sleep on weekends, they go to bed later, disrupting their circadian sleep rhythms. In the case of extreme weekend individual waking times (between 10:00 a.m. and 2:00 p.m.), the students also indicated late bedtimes (1:00 a.m. to 6:00 a.m.), but we did not ask what the reason for this late bedtime was. The trend observed worldwide among young people can be primarily due to social entertainment and computer games, but further research is needed.

However, exposure to the light emitted from TV screens or other electronic devices may affect the natural circadian rhythm in children (22). Our results also show that most children use a blue light source before bed, although we did not find a significant correlation between the use of blue light and difficulty to fall asleep or waking up at night. Regardless of this, overall, the presence of factors (eating heavy food for dinner, drinking caffeinated drinks, use of blue light) can together affect sleep, especially if it is irregular. Our data shows that 80% of those surveyed regularly use some electronic device before falling asleep.

In one case, we found a significant difference between the sexes: in case of the lower-grade elementary school students, girls slept more on weekends than boys. In case of adults, Horne explains this by the fact that women can carry out several activities simultaneously, so they are more tired than men, and he also assumes the effect of female hormones (23).

From early years to adolescence, at least 20–30% of children have a sleep disorder considered significant by parents or children themselves (24, 25). However, the nature of sleep problems varies significantly with age. A child who sleeps badly makes it difficult for him/her to adjust to life and the environment. A child's prolonged sleep deprivation can harm mood, behaviour, performance, social functioning, and physical health. Overtired children are often challenging to manage; they become irritable, upset, and aggressive. Sleep disorders in children can have severe consequences because, if left untreated, they can persist into adulthood (25).

According to the results of the Health Behaviour in School-aged Children study, the sleep patterns of adolescents vary by country and socio-demographic group. Insufficient sleep on school days is common in many countries (26, 27).

Our research has several strengths but also limitations. The strength of the work lies in the fact that it examines three age groups, which show different sleeping habits based on their lifestyle. The strength of our research is also the sample size; however, the sample is not representative. Due to voluntary participation, we did not influence the sample composition; our sample was not balanced regarding gender or other background variables. We could not find any literature that evaluated all the three groups together, so we solved the comparison by dividing the sample into separate age groups and comparing them with different literature. The limitations were also manifested in the fact that we did not examine lifestyle habits (sport, food, mental health, school performance), although this was not the goal. The work aims to assess the amount of sleep, distractions, falling asleep habits, the effect of blue light and caffeine on falling asleep, and the amount of afternoon sleep in kindergarten children, depending on age.

CONCLUSION

Sleep problems should always be taken seriously, whatever their intensity and whatever stage of life. In addition to waking conflicts and traumatising factors, these include ignoring the child's sleep needs, inappropriate sleeping conditions and the child's sleep habits at home or nursery school in conflict with their own. A child's sleep problems have a significant impact on the lives of all members of the family. The child's restlessness at night and sleep deprivation can leave parents unable to rest. The combined efforts of health professionals, parents and educators are needed to promote healthy sleep among children and adolescents.

It is important to note that sleep problems in children can cause many physical and mental problems, e.g., worse school performance, obesity, high blood pressure, anxiety, and depression, and children carry these symptoms with them into adulthood. Our results shed light on correct sleeping habits (early bedtime, appropriate bedtime, sleep rituals, avoiding blue light, caffeinated drinks, and heavy foods, etc.). It is a call to parents/educators to deal with the development of appropriate sleeping habits in children to notice that, in many cases, hyperactivity/apathy might also be caused by poor sleeping conditions. Our work does not deal with a number of aspects potentially related to sleeping habits, such as the importance of sports, other nutritional habits, social factors, body composition, and school results, so it is necessary to create an even more complex survey in the future.

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Conflicts of Interest

None declared

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