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Study of the Relationship between Children's Sleep Characteristics and Parents' Psychoemotional State

Research Article

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Abstract

Sleep is one of the most important physiological processes of a child. It is assumed that the surrounding environment, parents, and cultural aspects could have the robust influence on children's sleep.

The survey was conducted in March–May 2021. All subjects were divided into 3 groups according to the duration of children's sleep: Group I – sleep 10–13 hours; II –8–10 h.; III – ≤8 h. Aim of the study: to assess the impact of parents' psycho–emotional well–being and sleep habits on children's sleep duration.

The study analyzed 304 questionnaires. Distribution of respondents by gender – 97.0% female and 3.0% male. Distribution of children by gender – 48.4% boys, 51.6% girls. The average age of children 4.55±0.49. Parents – 32.81±5.05. More than half of the parents (56.3%) indicated that their sleeping habits are good. Parents WHO–5 Well–Being Index scores median – 60. Parents whose children slept 10–13 hours (Median–4) and 8–10 hours (Median–4) had statistically significantly (p=0.048) and (p=0.042) better sleep habits scores, compared whose children slept ≤ 8 hours (Median–3). Parents whose children slept 10–13 hours (Median – 60) and 8–10 hours (Median – 64) had statistically significant (p=0.040) and (p=0.018) higher WHO–5 Well–Being Index scores compared whose children slept ≤ 8 hours (Median–52).

In our study, as well as in the reviewed literature, parents' psychoemotional state is strongly related to their children's sleep quality and duration.

Keywords: Preschoolers; Sleep Duration; Sleep Quality; Parental Sleep Habits; Parental Psychoemotional Difficulty.

Introduction

Sleep is one of the most important physiological states, which is not only responsible for rest, but is also a decisive factor for brain activity, metabolism, appetite regulation, immune, hormonal and cardiovascular system functioning [1–2]. However, researchers notice that the duration of sleep in adults and children is getting shorter [3]. Various articles indicate that during the last century, the duration of children's sleep has decreased from 0.75 to 2 minutes per year, for children aged 5 to 8, it has decreased by about 0.38 minutes per year. And over the course of a century, children's sleep has shortened by about 1 hour [3–4]. In 2016, the American Academy of Sleep Medicine issued guidelines stating that infants should sleep 12 to 16 hours, toddlers (1–2 years old) 11 to 14 hours, preschoolers (3–5 years old) 10 to 13 hours, school–age children (6–12 years old) from 9 to 12 hours. Adolescents (ages 12–18) should be getting 8–10 hours of sleep, 7–9 hours for young adults and adults, and 7–8 hours for older adults. The guidelines indicate that sleep duration is given in intervals of several hours, as certain fluctuations in sleep duration depend on the individual characteristics of each person [5].

It is assumed that the surrounding environment, parents, and cultural aspects could have the robust influence on children's sleep. Scientific research mentions that the parents' own abilities and knowledge about children's sleep can be one of the most important aspects, so that children can sleep the required amount of time or have sufficient quality sleep [6]. However, a mental health specialist notices that when a child is born in the family, it is a challenge for parents to properly take care of their child and find internal resources that would help them overcome and deal with other personal problems or difficulties. The disturbing psycho–emotional state of parents can affect not only children's mental health, but also determine children's difficulty falling asleep or poorer sleep quality, and often the duration of sleep [7].

Aim of the study: to assess the impact of parents' psycho–emotional well–being and sleep habits on children's sleep duration.

Methods

The research was conducted by questionnaire survey. The questionnaire was compiled with the help of Google forms. In

order to collect a larger sample of subjects, which would cover all regions of Lithuania, the created questionnaire was sent via e–mail to kindergartens or pre–school educational institutions in all districts of Lithuania, asking the administrative staff to share the questionnaire with the parents of children attending the kindergarten or pre–school educational institution.

The questionnaire survey was conducted in March–May 2021. The questionnaire consisted of several parts: 1. Children's demographic data (gender, age); parents' demographic data (gender, age). 2. Characteristics of children's sleep (sleep duration: 1. sleeps from 10–13 hours; 2. sleeps from 10–8 hours; 3. ≤8 hours). 3. Parents' sleeping habits (To assess sleeping habits, parents had to mark the most appropriate option that corresponded to their sleeping habits on a Likert scale from 1 to 5: 1 – meant very poor sleeping habits, 2 – poor, 3 – average, 4 – good, 5 – very good sleeping habits) and Psycho–emotional state (The psycho–emotional state of parents was assessed using the The WHO–5 Well–Being Index (a standardized questionnaire in Lithuania). Questionnaire answers are scored from 0 to 100 points, a higher score means better well–being).

All subjects were divided into 3 groups according to the duration of children's sleep: Group I were children who sleep from 10 to 13 hours; Group II – children who sleep from 8 to 10 hours. Group III – children, who sleep for 8 hours or less. According to the guidelines compiled by the American Academy of Sleep Medicine in 2016, which indicate that the recommended duration of sleep for children aged 3–5 years should be between 10–13 hours at night. Therefore, group I children should be considered as sleeping for a sufficient amount of time. Meanwhile, children in groups II and III were those who slept too little [5].

Results are presented as percentages; continuous variables are expressed as means or medians with standard deviation. Normal distribution of the data was assessed using the Kolmogorov and Smirnov test. Non–normally distributed groups of continuous variables were evaluated for ranks using the Mann–Whitney U test for two samples, and the Kruskal–Wallis test was used for three–sample evaluation. Spearman analysis was used to check the correlation. The level of statistically significant difference was considered to be $p<0.05$. Microsoft Excel 2010 and IBM SPSS 20.0 programs were used for statistical data analysis.

Results

General demographics data: 304 questionnaires were included in the study, which corresponded to the sample of subjects – 4–5 year old children. 295 (97.0%) mothers and 9 (3.0%) fathers participated in the survey. The gender distribution of children was: 147 (48.4%) boys and 157 (51.6%) girls. The average age of children 4.55±0.49. The average age of parents was 32.81±5.05. Data are presented in Table 1.

***Groups*:** The subjects were divided into 3 groups according to the duration of children's sleep: Group I, there were 137 (45.1%); Group II –136 (44.7%); Group III – 31 (10.2%). Group I children slept a sufficient amount of time (137 (45.1%)), while group II and III children (167(54.9%)) were the ones who slept too little.

Parents' sleeping habits, psycho–emotional state: 142 Parents (56.3%) indicated that their sleeping habits are good or very good (5–4 points), but 40 (13.1%) indicated that their habits are poor or very poor (1–2 points). Sleeping habits scores Median – 4 (*Kolmogorov and Smirnov test – p<0.001*). A more detailed assessment of parents' sleep habits in Figure 1.

Table 1: General demographics data.

	Gender		
	Female	**Male**	**Average age**
Parents	295 (97.0%)	9 (3.0%)	32.81±5.05
Children	157 (51.6%)	147 (48.4%)	4.55±0.49

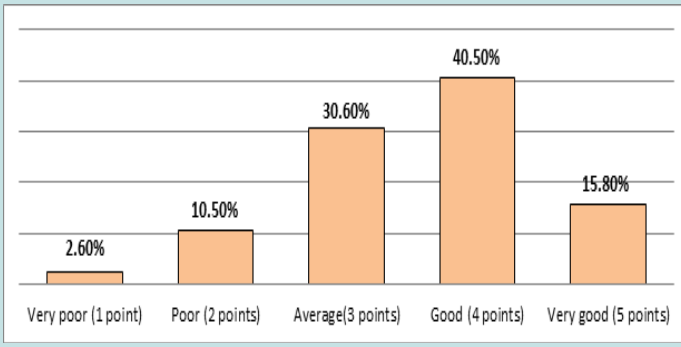

Figure 1: Distribution of parents' sleep habits scores.

Kruskal–Wallis test was used to compare the mean ranks of parents' sleep habits, according to children's sleep duration. The obtained result showed that the difference between the groups is not statistically significant *($\chi2=3.672$, $p=0.103$)*. The distribution of groups is represented in Figure 2.

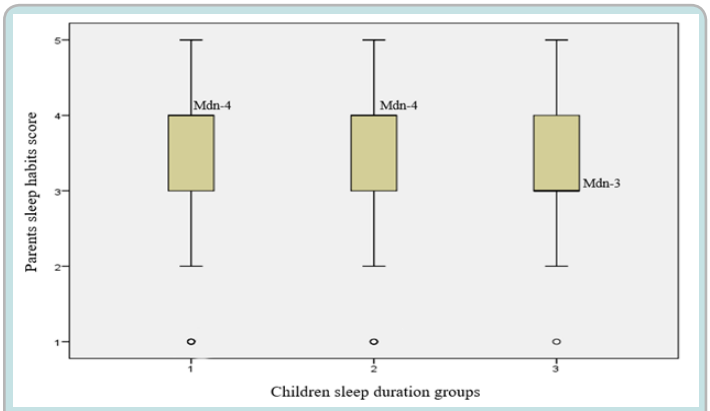

Figure 2: Comparison of parents' sleep habits scores according to children's sleep duration.

Significant differences between groups were analyzed using the Mann–Whitney U test comparing each group to the other group. It was observed that I group parents (Median–4) had higher sleep habits score than III group parents (Median–3) *(U test – 1736.50; Z–score – –1.675; p=0.048)*. Also It was observed that II group parents (Median–4) had higher sleep habits score than III group parents (Median–3) *(U test – 1685.00; Z–score – –1.820; p=0.042)*. A detailed comparison is shown in Table 2.

Parents' psycho–emotional state was assessed by The WHO–5 Well–Being Index, whose estimates are given from 0 to 100 points, a higher score indicating a better well–being. The Median subjects' questionnaire was 60 (minimum rating – 4 scores, maximum – 100 scores; (*Kolmogorov and Smirnov test – p=0.009*)).

Table 2: Comparison of parents' sleep habits scores between I–III groups.

Groups	III group (Median–3)	II group (Median–4)
I group (Median–4)	*U* test (1736.50); *Z*–score (–1.675); ***p=0.049***	*U* test (8969.00); *Z*–score (–0.563); *p=0.573*
II group (Median–4)	*U* test (1685.00); *Z*–score (–1.820); ***p=0.045***	

Kruskal–Wallis test was used to compare the mean ranks of parents' The WHO–5 Well–Being Index, according to children's sleep duration. The obtained result showed that the difference between the groups is not statistically significant *(χ2=5.877, p=0.053)*. The distribution of groups is represented in Figure 3.

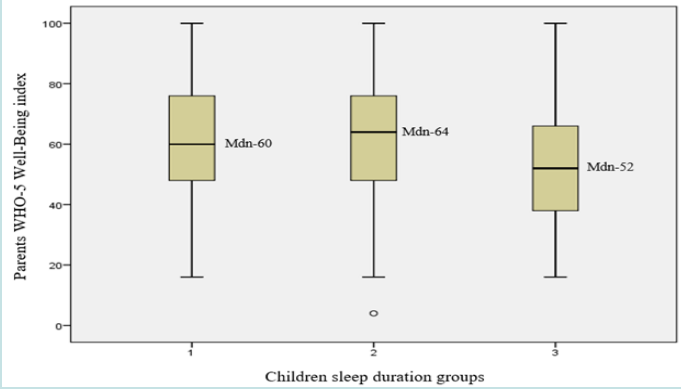

Figure 3: Comparison of parents' WHO–5 Well–Being Index estimates according to children's sleep duration.

Significant differences between groups were analyzed using the Mann–Whitney U test comparing each group to the other group. It was observed that I group parents (Median–60) had higher sleep habits score than III group parents (Median–52) *(U test – 1623.00; Z–score – –2.051; p=0.040)*. Also It was observed that II group parents (Median–64) had higher sleep habits score than III group parents (Median–52) *(U test – 1531.00; Z–score – –2.381; p=0.018)*. A detailed comparison is shown in Table 3.

Discussion

Our study found that parents of children who slept less than 8 hours had poorer sleep habits. In a study conducted in 2017, which surveyed parents raising children aged 2–12. A study found a relationship between parents' better knowledge about sleep, better sleep habits, and longer sleep duration to their children [8]. A similar study conducted in 2011 in the United Kingdom examined children aged 1–12 years. Children's sleep duration, quality, and sleep habits were studied. Their parents' knowledge of sleep hygiene was also valued. The obtained data showed that parents whose knowledge about sleep hygiene was worse, more often faced with their child's shorter and irregular sleep [6]. In 2016, a study was conducted in Finland during which the sleep quality and duration of 100 children from 2 to 6 years of age were measured using an actigraph for 1 week. At the same time, the children's parents filled out a sleep questionnaire, which reflected the parents' sleep difficulties. It was found that the quality of parents' sleep was closely related to their children's sleep problems. This finding highlights the importance of considering parental sleep quality when investigating and interpreting potential sleep problems in children [9]. Another publication indicates that parents' knowledge and ability to ensure a sleep routine for their children promotes better quality sleep and forms appropriate sleep habits in the future [10].

Also, in our study, it was observed that parents of children who slept less than 8 hours often had worse psycho–emotional assessments. A study of more than 1,000 Taiwanese children between the ages of 4 and 9 found that children whose parents had a mental health problem had higher rates of insomnia, difficulty falling asleep, sleep talking and nightmares [11]. Scientific literature indicates that parents who have higher levels of anxiety, depressed mood, may spend less time on a sleep routine. Such parents are less likely to read fairy tales, sing songs or lullabies to their children before bedtime. Depressed parents find it difficult to recognize when their child is experiencing higher levels of anxiety, which can lead to problems calming them down, especially when their child is having trouble falling asleep [12]. In a systematic review accomplished in 2016, which included 615 articles related to parents' psycho–emotional well–being and children's sleep, it was emphasized that poorer emotional well–being of parents has a robust impact on children's sleep difficulties. In addition, it was noted that parents with poorer psycho–emotional well–being often had poorer knowledge about children's sleep or their needs [13]. In a study conducted in 2017, mothers raising 4–5–year–old children were interviewed. Study found that preschoolers sleeping less than 10 hours a day were associated with moderate to severe maternal depressive symptoms [14].

Scientific literature also indicates that sleep problems in children can be closely related to poorer mental health of parents. It is like a "closed circle", when it is more difficult for children to fall asleep, their sleep time is shorter, and more frequent awakenings at night can lead to a worse psycho–emotional well–being of parents. At the same time, parents, feeling more anxious or in a depressed mood, are not able to solve the prolonged problematic sleep of their children [15].

Table 3: Comparison of parents' WHO–5 Well–Being index scores between I–III groups.

Groups	III group (Median–52)	II group (Median–64)
I group (Median–60)	*U* test (1623.00); *Z*–score (–2.051); ***p=0.040***	*U* test (8863.00); *Z*–score (–0.696); *p=0.486*
II group (Median–64)	*U* test (1531.00); *Z*–score (–2.381); ***p=0.018***	

Conclusion

Half of the parents indicated that their sleep habits are good. The parents' psychoemotional condition was assessed as average. In addition, it was found that parents of children who slept less than 8 hours had poorer sleep habits and lower estimates of psycho–emotional state.

After evaluating the research results and reviewing the literature, it is important to mention the recommendations that could significantly improve the duration and quality of children's sleep:

1) ***To strengthen parents' psycho–emotional health*:** As already indicated in the reviewed literature, the mental health of parents is strongly linked to the quality and duration of their children's sleep. Therefore, it is extremely important that specialists who work with children and notice that the quality of the child's sleep is poor or the child shows signs of not sleeping enough, should be able to pay attention to the psycho–emotional state of the parents. It is important to encourage parents to seek help from mental health professionals.
2) ***Better education of parents' sleeping habits*:** Professionals working with children, professionals working with adults could be involved in developing programs in which parents could be educated about proper sleep habits.
3) ***Education of parents about children's sleep peculiarities*:** Pre–school education groups, kindergartens, schools could be actively involved in parent education related to the peculiarities of children's sleep. Especially emphasizing the importance of routine and calming activities before sleep.

Limitations

Although the relatively large sample and narrow age range may be the main strengths of this study. However, it is worth noting some methodological limitations in the study. Sleep duration is measured by choosing 3 sleep duration options, which means that sleep duration estimates may not have been entirely accurate. In further studies, to obtain more accurate results, objective measurement methods could be used to estimate the duration of sleep. It would be possible to give parents a sleep diary, which parents could fill in about their children's sleep, in order to determine more precise characteristics of children's sleep, as well as the duration of sleep.

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Conflict of interest

Authors declare that there is no conflict of interest.

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