Original Article

SLEEPING HABITS AMONG SCHOOL CHILDREN AND THEIR EFFECTS ON SLEEP PATTERN

[1]Dr Ayaz Ahmad, [2]Dr.S.Manochandar, [3]Aashish.A.Gadgil, [4]Dr. V. Vidya Chellam, [5]Dr.S Praveenkumar, [6]M. K. Mariam Bee

[1]Assistant Professor, Department of Maths, National Institute of Technology, Patna, Ashok Rajpath, Patna, Bihar- 800005, India. ayaz@nitp.ac.in
[2]Assistant Professor, Department of Master of Business Administration, CARE college of engineering, Dindugal main Road, Thayanur, Tamil Nadu 620009,India. smanochandar@care.ac.in
[3]Assistant Professor, Department of E&C, KLS Gogte Institute of Technology, Belagavi, Karnataka, India, 590008. aagadgil@git.edu
[4]Assistant Professor & Research supervisor, Department of Management Studies, Directorate of Distance Education, Madurai Kamaraj University, Madurai- 625 021, Tamilnadu, India. vvidyachellam@gmail.com
[5]Assistant Professor & Research supervisor, Centre for Tourism and Hotel management, Madurai Kamaraj University, Madurai-625021, Tamil Nadu, India.s.praveenkumarus@gmail.com
[6]Assistant Professor, Department of ECE, Saveetha School of Engineering, Saveetha Institute of Medical and Technical Sciences, Chennai, Tamilnadu, India. mariamresearch09@gmail.com
DOI: 10.47750/pnr.2022.13.S08.192

Abstract

Children's mental and physical development are directly influenced by the amount of sleep they get, making it very necessary for them to get enough of it. Despite this, the prevalence of chronic sleep loss throughout the nation is on the rise. In this regard, the purpose of the current research was to shed light on the sleeping patterns of school-going children as well as the behaviours they engage in before going to bed. The objectives of the present study are to determine the pre sleep habits, duration and pattern of sleep among school children and to investigate the effects of the improper sleep on the performance. The study is made to know the sleeping habit of the school students and the effect of improper sleep on their performance health related issues. The study has been carried out in Chennai city. The school going children are the targeted respondents. 600 sample respondents are selected from the study area using simple random technique. The data were collected using the interview schedule. The parents of the children respondents who are aged upto 10 years were asked to fill the interview schedule as the parents are aware and reliable for collecting the information. The findings of our research, it is concluded that the children studying 9th standard and above (aged more than 15 years) are not having proper sleep due to sleeping in day time, use of electronic gadgets, academic commitments, family problems and health problems. Along with proper nutrition and regular exercise, should also take into account how much time is spent sleeping.

Keywords: School Children, sleeping pattern, Sleeping habits and sleeping Hours

Introduction

One of the most prevalent problems that contemporary civilizations face is a lack of sleep. Insufficient sleep has been linked to a wide variety of health problems, both in terms of the body's physiology and its mental and emotional well-being[1]. These problems include an impaired ability to concentrate and remember information, mood disorders, impaired motor skills, and poorer overall health as well as a weakened natural defense mechanism in the body. Insufficient falling asleep is defined by sleep and wake issues that come from "everyday living activities that are inconsistent with the maintenance of quality sleep and appropriate daytime alertness." Insufficient falling asleep caused by a number of factors. These issues are very frequent among younger people,

[1]Thorpy and Yager (2001), "The Encyclopedia of Sleep and Sleep Disorders" (2nd ed). New York: Facts on File, Inc., pp.200-235

particularly adolescents and youngsters[2]. Homework, hanging out with friends, watching late-night television, video games, and internet use are examples of activities that are often cited as contributing factors to sleep deprivation. The amount of time that youngsters spend sleeping seems to be influenced by a number of other variables, including social and cultural norms, as well as climate. Children and adolescents have shown a pattern of decreasing sleep duration over the previous several decades, with an average drop of 0.75 minutes each night and per year[3]. It has been estimated that anywhere from 15 percent to 75 percent of school-aged children are not receiving the recommended amount of sleep each night. There is a dearth of research on the sleeping patterns and hygiene practices of children who attend government schools in India, which is surprising given the growing incidence of sleep deprivation and the harmful effects it has on people's lives. Additionally, there is a large gap in the socioeconomic standing, culture, and customs of India's urban and rural populations. This gap exists in India. Because of this, the current research was carried out in public schools that are situated in sub-urban regions. These schools are participating in the government's Midday Meal Scheme, which aims to enhance the nutritional condition of children and is mandated by the Nutritional Food Security Act of 2013. Children from disadvantaged backgrounds in society are targeted by this initiative, with the goal of motivating them to improve their school attendance and pay closer attention in the classroom. Children get less sleep than they did in the past because their parents lead such frantic lives. When compared with children of the same age in Europe, preschoolers in Hong Kong were not getting the recommended amount of sleep each night.[4] In addition, a number of studies have shown that children in elementary school are not immune to the trend of cutting down on the amount of time they spend sleeping in order to better balance the demands of their academic and extracurricular schedules. A research study that was carried out in the United States discovered, which is not unexpected, that when youngsters get the recommended amount of sleep, their academic performance improves. Studies have shown that those who don't get enough sleep are more likely to have attention deficit disorder, mental health issues like depression or hyperactivity, or neurological issues.[5] The dangers that come from not getting enough sleep have caused people in numerous areas on the Chinese mainland to express alarm. As a direct consequence of this, a sizable initiative to cultivate healthy sleeping patterns among younger children in China was given birth to in the form of an annual observance of the International Sleep Day.[6]

Background of the Study

Everyone has to make sure they get enough sleep every night. The rearrangement of neuronal networks in the brain is one of the most significant benefits that may be gained by getting enough sleep. Learning, memorization, the acquisition of new abilities, and the formation of new memories via the formation of creative connections are all activities that take place throughout the day. After a full day of being awake, the brain is stuffed with jumbled up bits of knowledge that need to be pieced together with the new information that we have picked up earlier in the day. In the absence of this reorganization, chaos would reign inside the brain, and it would rapidly exhaust its capacity to store new memories. A certain amount of sleep is necessary for optimum health. It improves memory and mood, fortifies the immune system, reduces inflammation, and prevents cell adhesion, all of which contribute to the protection of the heart and blood vessels. Chronic sleep deprivation is becoming more prevalent in our culture for a variety of reasons, including but not limited to cultural shifts, lifestyle decisions, and packed academic calendars.[7]Children are one of the most obvious victims of the impacts of the carried out restrictive quarantine tactics, and as a result, they are more susceptible to a variety of mental health disorders. These considerable changes, such as the school being closed and maintaining constant touch with family, have had a significant impact on their daily routines, including the activities they engage in during their free time, the amount of sleep they get, and even their social interactions. Altering the children's normal sleep pattern and engaging in less physical activity have an effect on the children's physical and mental health, which may then lead to consequences such as increased weight gain, domestic violence, post-traumatic psychological stress, fewer social contacts, and more time spent in front of the television or computer screen. Therefore, recognizing the changes in

[2]Poceta and Mitler (1998), "Sleep Disorders: Diagnosis and Treatment. Totowa", New Jersey: Humana Press, pp.17-39

[3]Liu X, Owens, Kaplan(2005), " Sleep patterns and sleep problems among schoolchildren in the United States and China. Pediatrics". Vol.115, pp.241–9.

[4]Leger and Pandi-Perumal (2007), "Sleep disorders: their impact on public health, Information Healthcare, London, pp.11-17

[5]Wolfson, A.R., and Carskadon, M.A., 1998, Sleep schedules and daytime functioning in adolescents, Child Dev. 69(4), 875-887

[6]Shang, C.Y., Gau, S.S., and Soong, W.T., 2006, Association between childhood sleep problems and perinatal factors, parental mental distress and behavioral problems, J. Sleep Res., 15(1), 63-73

[7] Benoit D, Zeanah CH, Boucher C, Minde KK. Sleep disorders in early childhood: association with insecure maternal attachment. Journal of American Academy on Child and Adolescent Psychiatry 1992; 31:86-93.

the daily routine variables of children is the first and one of the most crucial steps of the management of these collateral consequences. This is done with the intention of assisting policymakers in following the children's potential behavioral patterns and, ultimately, taking the necessary measures. Despite the fact that a number of studies have proposed a variety of approaches for coping with the psychological repercussions of the lockdown, there is a pressing need for an approach that is uniform, coordinated, and complete.[8]

Research Objectives

The objectives of the present study are

1. To determine the pre sleep habits, duration and pattern of sleep among school children.
2. To investigate the effects of the improper sleep on the performance

Methodology

The study is made to know the sleeping habit of the school students and the effect of improper sleep on their performance health related issues. The study has been carried out in Chennai city. The school going children are the targeted respondents. 600 sample respondents are selected from the study area using simple random technique. The data were collected using the interview schedule. The parents of the children respondents who are aged upto 10 years were asked to fill the interview schedule as the parents are aware and reliable for collecting the information.

Findings

1. Sleeping habit and pattern

The study is focusing on the sleeping habit of the school children. This may vary based on the gender of the school children based on their life style. The detail of the gender of the respondents is given below.

Table 1
Gender

Gender	Frequency	Percent
Boys	276	46.0
Girls	324	54.0
Total	600	100.0

The Table 1 indicates that majority (54.0%) of the respondents is girls and rest of the 46.0% of the respondents are boys. Out of 600 respondents, 324 respondents are girls and 276 are boys. The sleeping habit will also be related to the age of the students. In this background, the respondents are also grouped based on their age.

Table 2
Age group

Age group	Frequency	Percent
Under 10	200	33.3
10-15	258	43.0
Above 15	142	23.7
Total	600	100.0

The student respondents are grouped as under 10 years of age, 10 to 15 years and aged more than 15 years of age. The above table shows that 200 (33.3%) respondents are aged below 10 years, 258 (43.0%) respondents are aged from 10 to 15 and 142 (23.7%) are aged more than 15 years. The sleeping habit is studied as the patter they use to sleep in the night. Based on their sleep and wake time, their habit is studied as follows.

Table 3
Sleeping habits

Habit	Frequency	Percent
Late sleep and late wake up	258	43.0
Late sleep and early wake up	173	28.8
Early sleep and wake up early	110	18.3
Early sleep and wake up late	59	9.8
Total	600	100.0

The Table 3 reveals that most of the respondents sleep late and wake late during the night time. 258 (43.0%) respondents are sleep late and wake up late in the morning. 173 (28.8%) respondents are sleep late in the night and wake up early in the morning. It shows the academic pressure and the workload put the majority of the

[8]Apurva Mishra , Ramesh Kumar Pandey , Varuni Arora(2017),"Sleeping Habits among School Children and their Effects on Sleep Pattern,Journal of Caring Sciences, Vol.6(4),pp. 315-323

respondents into improper sleep. 110 (18.3%) respondents sleep early and wake up early in the morning and 59 (9.8%) respondents sleep well that they sleep early and wake late in the morning. The duration of the sleep is also studied as below. Normal sleeping hours of the children is considered as sleeping hour. Normal expected sleeping hour for the children is expected 8 hours. Hence, the respondents are grouped as less than 8 hours, 8 hours and more than 8 hours of sleeping.

Table 4
Sleeping duration

Average Hours sleeping	Frequency	Percent
Less than 7 hours	195	32.5
8 hours	293	48.8
More than 8 hours	112	18.7
Total	600	100.0

Most of the respondents (48.8%) normally sleep 8 hours a day, 195 (32.5%) respondents sleep less than 7 hours and 112 (18.7%) sleep well more than 8 hours in a day. The students who study ninth standard and more are highly engaged with academic work. Hence, the routine life may be disturbed.

2. Factors affecting their sleeping pattern

There are various factors affecting the sleep of the children during the night time. Those are nightmare, family commitments, day time sleep, using electronic gadgets like TV, computer, cell phone, notepad, etc., academic works, family problems, health issues and screen time. The factors and their relationship with the gender of the children is studied.

Table 5
Gender and factors affecting their sleep

Factors	Gender	N	Mean Rank	Z
Nightmare	Boys	276	314.04	-1.984*
	Girls	324	288.96	
	Total	600		
Family commitments	Boys	276	321.22	-3.186**
	Girls	324	282.85	
	Total	600		
Day time sleep	Boys	276	309.31	-1.328
	Girls	324	292.99	
	Total	600		
Use of electronic gadgets	Boys	276	291.37	-1.239
	Girls	324	308.27	
	Total	600		
Academic work or failure	Boys	276	286.40	-1.895
	Girls	324	312.51	
	Total	600		
Family problems	Boys	276	291.13	-1.259
	Girls	324	308.48	
	Total	600		
Health issues	Boys	276	316.85	-2.263*
	Girls	324	286.57	
	Total	600		
Screen time	Boys	276	306.82	-0.867
	Girls	324	295.11	
	Total	600		

* Significant at 5% level; ** Significant at 1% level

The factors affecting the sleep of the respondents are analysed with the gender. The result shows that boys are highly affected by the nightmare (314.04), family commitments (321.22), day time sleep (309.31), health issue (316.85) and screening time (306.82). Whereas, the girl students are highly disturbed by use of electronic gadgets like TV, computer and cell phone (308.27), academic work or result (312.51) and family problem (308.48).

The result of Mann –Whitney U test shows that the boys are significantly affected by the nightmare, family commitments and health issues than the girls students. The Z values are less than -1.96. Other factors do not have significant difference in influence according to the gender of the students

Table 6
Age group and factors affecting their sleep

Factors	Age group	N	Mean Rank	Chi-Square
Nightmare	Under 10	200	291.24	3.794
	10-15	258	314.56	
	Above 15	142	287.99	
	Total	600		
Family commitments	Under 10	200	299.57	0.017
	10-15	258	300.59	
	Above 15	142	301.64	
	Total	600		
Day time sleep	Under 10	200	304.92	11.884**
	10-15	258	279.31	
	Above 15	142	332.77	
	Total	600		
Use of electronic gadgets	Under 10	200	324.77	27.867**
	10-15	258	259.73	
	Above 15	142	340.39	
	Total	600		
Academic work or failure	Under 10	200	336.68	47.167**
	10-15	258	246.41	
	Above 15	142	347.82	
	Total	600		
Family problems	Under 10	200	322.99	45.877**
	10-15	258	249.51	
	Above 15	142	361.46	
	Total	600		
Health issues	Under 10	200	311.67	25.610**
	10-15	258	265.11	
	Above 15	142	349.07	
	Total	600		
Screen time	Under 10	200	288.00	2.245
	10-15	258	311.16	
	Above 15	142	298.75	
	Total	600		

** Significant at 1% level

The Table 6 depicts that the children aged from 10 to 15 years are highly affected by the nightmare (314.56), screen time (311.16). The students aged more than 15 years are affected by family commitments (301.64), day time sleep (332.77), use of electronic gadgets (340.39), academic work, engagement or results (347.82), family problems (361.46) and health issues (349.07).

The difference in the affected level by the factors shows significant for Day time sleep (11.884), use of electronic gadget (27.867), academic failure (47.167), family problems (45.877) and health issues (25.610). The calculated Chi-Square values are significantly high at 1% level. It is concluded that the children studying 9th standard and above (aged more than 15 years) are not having proper sleep due to sleeping in day time, use of electronic gadgets, academic commitments, family problems and health issues.

The effect of improper sleeping

The improper sleep makes more effects on the health, psychological and other issues. The respondents are asked to mention the effect of the improper sleep. Various issues like affecting academic performance, affecting regular activities, memory loss, depression, health issues are considered for the study.

Table 7

The effect of improper sleep

Effects	Mean	Std. Deviation	Mean Rank	Rank
Poor academic performance	4.25	1.090	4.75	I
Lack of performance in regular activities	3.59	0.904	3.77	II
Memory loss	3.38	0.844	3.58	III
Nervousness / anger / depression	3.16	1.104	3.26	IV
Other issues	2.79	1.416	2.70	VI

Health issues	2.93	1.195	2.93	V
N	600	df		5
Chi-Square	562.516	Sig.		0.000

The Table 7 exhibits that the improper sleep is strongly affect the academic performance of the students (4.75). The performance in the regular activities are also significantly affected by the sleepless night (3.77). Another issue of memory loss (3.58) happens to the children due to their improper sleep. Nervousness, anger or depression (3.26), and health issues (2.93) are ranked fourth and fifth respectively.

Conclusion

One of the most common reasons for pediatricians to see young children is because they are having difficulty sleeping. Parents of children who have been weaned off of night feedings should have access to programmes that provide behavioral therapy approaches given by sleep experts.[9]The findings of our research, it is concluded that the children studying 9th standard and above (aged more than 15 years) are not having proper sleep due to sleeping in day time, use of electronic gadgets, academic commitments, family problems and health problems. Along with proper nutrition and regular exercise, should also take into account how much time is spent sleeping. In order to accomplish this goal, it is necessary to raise awareness on the demands for sleep, particularly those of children who are enrolled in school, within the context of the family and the community. It is important to take care of basic preparations, such as establishing a bedtime for children and prohibiting them from watching television, playing with mobile devices, or using any other electronic device before going to bed.

Reference

1. Bulck (2004), Television viewing, computer game playing, and internet use and self-reported time to bed and time out of bed in secondary-school children. Sleep, Vol.27(1),pp.101-104
2. Calhoun, Vgontzas Fernandez-Mendoza and Tsaoussoglou (2011), "Prevalence and risk factors of excessive daytime sleepiness in a community sample of young children" The role of obesity, asthma, anxiety/depression, and sleep. Vol.34, pp.503-507.
3. Durmer, J.S., and Chervin, R.D., (2007), "Pediatric sleep medicine. Continuum Lifelong Learning Neurol"., Vol.13(3), pp.153-200
4. Ebarhim , Babak G, Alimohammad A, Shabnam J, Alireza A, (2013). "High prevalence of sleep problems in school- and preschool-aged children in Tehran: a population based study". Iran J Pediatr: Vol.23,pp.45-52
5. Gupta R, Grover S, Basu A, Krishnan V, Tripathi A, Subramanyam (2020), "Changes in sleep pattern and sleep quality during COVID-19 lockdown". Indian Journal of Psychiatry. Vol.62 (4), pp.370.
6. Liu X, Owens JA, Kaplan, (2005), "Sleep patterns and sleep problems among schoolchildren in the United States and China. Pediatrics. Vol.115, pp.241–242.
7. Owens, J.A., 2008, A clinical overview of sleep and attention-deficit/hyperactivity disorder in children and adolescents, J. Can Acad Child Adolesc Psychiatry, Vol.18(2),pp. 92-102
8. Seitz ., Kraneburg, , Battaini C, Luijk,(2016), "Parent-child bed-sharing: The good, the bad, and the burden of evidence" Sleep Medicine Reviews Vol.3,p.03.
9. Shneerson (2005), "Sleep Medicine: A Guide to Sleep and Its Disorders (2nd edition). Malden, Massachusetts": Blackwell Publishing, pp.51-53
10. Stores, G., 2001, A Clinical Guide to Sleep Disorders in Children and Adolescents. New York: Cambridge University Press, pp.43-54.
11. Viner RM, Russell SJ, Croker H, Packer J, Ward J, Stansfield (2020), "School closure and management practices during coronavirus outbreaks including COVID-19: a rapid systematic review. Lancet Child Adoles Health. Vol. 4, pp.397–404.
12. Wang G, Zhang Y, Zhao J, Zhang J, Jiang F. (2020), "Mitigate the effects of home confinement on children during the COVID-19 outbreak". Lancet.Vol. 395(10228):pp.945–947.
13. Apurva Mishra , Ramesh Kumar Pandey , AnuragMinz , Varuni Arora(2017)," Sleeping Habits among School Children and their Effects on Sleep Pattern, Journal of Caring Sciences, Vol.6(4), pp.315-323

[9]Wolfson AR, Carskadon (1998). "Sleep schedules and daytime functioning in adolescents. Child Dev. Vol. 69(4):875–887.