

Original Research Article

A study on sleep patterns and sleep problems in children aged 6 to 15 years as perceived by their parents

Riya Mary Tharakan*, K. Varadraj Shenoy

Department of Pediatrics, Father Muller Medical College and Hospital, Kankanady, Mangalore, Karnataka, India

Received: 08 November 2018

Accepted: 10 December 2018

*Correspondence:

Dr. Riya Mary Tharakan,

E-mail: riyatharakan@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: The objective is to study the sleep pattern and occurrence of sleep problems in children aged 6 to 15 years, visiting the Outpatient clinic at a tertiary care hospital, as perceived by the parents and to establish the common causal association as perceived by the parents for developing sleep problems.

Methods: The study design was based on the descriptive study. The duration of the study was from 1st June to 31st July. Data was collected from all the children visiting the Pediatric OPD and those who are admitted, Department of Pediatrics, Father Muller Medical College. Sample size: convenient sampling. Considering the prevalence of sleep disturbance in children as 10%, estimated error of 5% and confidence interval of 5%, sample size was 139. Children who followed the inclusion and exclusion criteria were considered for the study. Informed consent was taken from the parent. Relevant details were asked to the parents of the child and a pre-designed proforma was filled by the investigator accordingly. SDSC questionnaire was used and a cut off score of 39 was considered.

Results: Out of the 140 children who completed the survey, 48% of the children had sleep disturbances. The most common was disorder of initiating and maintaining sleep. The most common association was with need for accompaniment, followed by use of gadgets. The prevalence of sleep disorders is underestimated, and it is important to recognize them early.

Conclusions: The increasing use of electronic gadgets could be a possible cause of sleep disturbances, which suggests that the exposure of children to these gadgets maybe reduced.

Keywords: Electronic gadgets, Maintaining sleep, SDSC questionnaire, Sleep disturbance

INTRODUCTION

It is found that approximately 25% of all children experience some type of sleep problem at some point during childhood.¹ However, the sleep disorders in children are under reported. This is probably because sleep disorders are commonly linked to behavior and considered a normal variation.

Sleep onset problems have been found to be present in about 13.5% of the children according to the parents' ratings and 24% of the children according to the

children's ratings. It has also been seen that about 60% of the children reported continuing sleep problems longer than one year.²

Sleep disturbances can affect the daily activities of children especially scholastic performance. Early identification of sleep problems may prevent negative consequences, such as daytime sleepiness, irritability, behavioral problems, learning difficulties, motor vehicle crashes in teenagers, and poor academic performance.³ Johnson et al, found that the prevalence of current insomnia defined by DSM-IV was 9% and that the

lifetime prevalence of insomnia was 11% in adolescents aged 13 to 16 years.⁴ This signifies the need to identify the need to detect sleep disturbances at an early age group so as to prevent major sleep disturbances later on in life. Currently, no routine screening of childhood sleep problems exists in our country. There is a paucity of data on the prevalence of sleep problems in school going children and their relationship to scholastic performance.⁵ In a study done among the school children by Fatnani et al, the prevalence of sleep problems and their relation to school grades were studied and they concluded that 25% of apparently healthy school going children had sleep disturbances and as the scholastic grades decreased, the prevalence of sleeping problems increased, signifying the fact that sleep problems might be one of the contributors for poor scholastic achievements in children.⁶

The need for study of sleep disturbances arises due to three concerns: the sleep disorder is not identified early, there are significant number of children who suffer from some form of sleep disturbance which is underreported, there are co-morbidities associated with sleep disturbances such as poor scholastic performance, excessive day time sleep and behavioral disturbances, there are not many studies done in our setting to know the prevalence and pattern of sleep disorders.

The purpose of this study is to identify the occurrence of sleep disturbances in children who visit the hospital for routine check-up, immunization, general medical who are otherwise healthy.

The objectives of the study were to study the sleep pattern and occurrence of sleep problems as perceived by the parents, in children aged 6 to 15 years, visiting the outpatient clinic at a tertiary care hospital, to establish the common causal association as perceived by the parents for developing sleep problems.

METHODS

This is a descriptive study conducted in the outpatient clinics and inpatient wards Department of Pediatrics, Father Muller Medical College from 4 months, 1st June to 31st August 2018. The minimum sample size calculated for an estimated error of 5% and confidence interval of 95% was 139.

Exclusion criteria

- Children with meningitis/ encephalitis/ encephalopathy, suspected psychological or psychiatric disorders
- Those on treatment with antiepileptics or any other drugs likely to affect sleep
- Children with medical disorders like hypothyroidism.

Informed consent was taken from the parents. Relevant details were asked from the parents of the child and a pre-designed proforma was filled accordingly. The

information regarding the sleep pattern was obtained pertaining to the normal habits of the child, over the last one month and not on the day of the hospital visit.

For present study, authors used the SDSC questionnaire.⁷ It includes 26 Likert-type items, designed to evaluate specific sleep disorders in children and to provide an overall measure of sleep disturbance. Using factor analysis, Bruni et al, divided the items into 6 categories representing some of the most common sleep difficulties affecting adolescents and children. They are: disorders of initiating and maintaining sleep, sleep breathing disorders, disorders of arousal/ nightmares, sleep wake transition disorders, disorders of excessive somnolence and sleep hyperhidrosis (night time sweating).

The scores were tallied for each of these categories and an overall score is calculated. A cutoff score of 39 was considered as was suggested by Bruni et. al, which had a sensitivity of 0.89 and specificity of 0.74.

Statistical analysis

The data were analysed with SPSS version 16. All the parameters were analysed and compared using frequency and percentages.

RESULTS

A total of 140 children were included in the study. The age wise distribution of the sample is depicted in Figure 1.

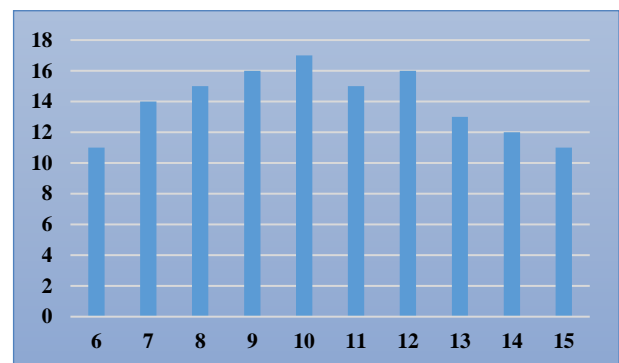


Figure 1: Graphical representation of the age wise distribution of the children studied.

The study population was 52% male (73) and 48% female (67). There was no significant past history related to sleep disturbances, nor any family history of sleep disturbances. In fact, none of the parents interviewed felt their child had any sleep disturbance during routine interview before application of the questionnaire.

Most (33.36%) children went to bed at 9 pm and had a sleep duration of 8 hours or more. However, 17.8% of the children were found to have less than 8 hours of sleep. Among the 140 children, 67 children (48%) had a score

more than 39 which implied that they had some form of sleep disturbance (Figure 2).

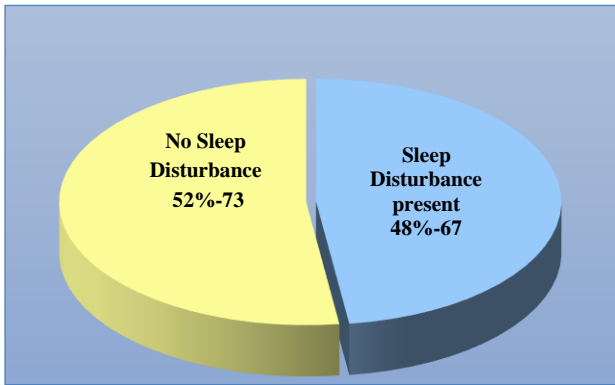


Figure 2: Graphical representation showing the percentage of children with sleep disturbance.

Under the 6 domains which were subcategorized, the most commonly observed disturbance was in the domain of initiating and maintaining sleep, followed by sleep wake transition disorder. Disorder of initiating and maintaining sleep included questions related to sleep time, duration, anxiousness while going to sleep, intermittent waking up in sleep and difficulty falling asleep once awake. Disorders of sleep wake transition includes repetitive movements while falling asleep or during sleep, experiencing vivid dreams, talking or walking in sleep and teeth grinding in sleep 50% of the parents reported difficulty getting sleep at night out of which 22.9% had problem often (3 to 5 times per week). 49.3% of the children felt anxiety at least once or twice per week with 37.9% reporting daily occurrence of the problem.

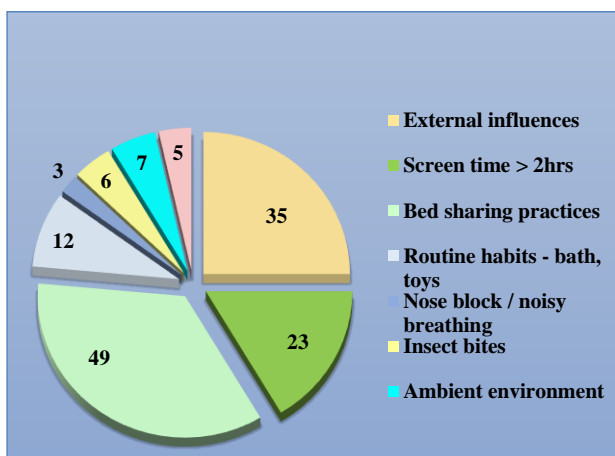


Figure 3: Various probable causes of sleep disturbance in children as perceived by the parents.

During sleep it was found that 43.6% of the children talk, with 20.7 % of children have sleep talking more often (3 to 5 times per week). Bruxism was present in 22.9% of the study population with 12.2% having it often (3 to 5 times per week). Additionally, 20.7% of the children

experience sweating in sleep at least once or twice a week. The highest score observed was 67 where the child experienced difficulty breathing in sleep and snoring daily, sleep talking and nightmares 3 to 5 times a week.

The most common cause of sleep disturbance in the age group of 5 to 8 years was bed sharing practice, where the child required accompaniment to sleep at night, whereas the most common cause of disturbed sleep among the 9 to 12 years of age was use of gadgets and television. The various causes of sleep disturbance as perceived by the parents are depicted in Figure 3.

DISCUSSION

The frequency sleep disorders in present study was 48%. More importantly none of the parents were aware of the problem initially as they never reported sleep disturbance on presentation. This would imply that no further enquiry would be routinely made to find out about the sleep pattern or a possible disturbance in sleep in all these cases. Only after detailed questioning did the issues come to light and highlights the importance of leading questions for diagnosis of this disorder.

The recommended sleep duration for this age group of 5 to 15 years is 9 to 13 hours however, 17.8% of the children had a sleep duration of less than 8 hours.⁸

In a study done by Kevin et al, 10 to 30 % of the children have difficulty getting sleep at night, whereas in present study, 50% of the children had difficulty getting sleep at night and 49% felt anxious while falling asleep.⁹ This shows a higher incidence of sleep disorder in the domain of initiating and maintaining sleep.

Bharti et al. found sleeping problem in 42.7% of the children that included sleep talking (14.6%) and bruxism (11.6%).¹⁰ In present study, 43.6% of the children experienced sleep talking and 22.9% of the children had teeth grinding in sleep at least once or twice a month.

This shows that the prevalence of sleep disorders among the population studied, which includes children visiting the OPD is significantly higher and often goes unrecognized. Hence there is a need to follow a structured pattern of questions to diagnose sleep disorders even in children who appear otherwise well.

Among the probable cause for the sleep disturbance, the younger age group of 5 to 8 years had an increased tendency for co-sleeping or bed sharing. Among the older age group (9 to 12 years and 13 to 15 years), the parents felt that the use of gadgets such as mobiles near bed time was the reason for the sleep disturbance. This is similar to the current evidence of incidence of sleep disturbances in children who use television or electronic gadgets.¹¹ The limitations of present study were that the questionnaire did not have separate cut off scores for the individual domains hence the prevalence of a specific domain of

sleep disorder could not be established. Follow up of the sample was not done to study the pattern of sleep as the child grows and daily routine is altered.

CONCLUSION

Even though the child was not brought to the hospital with a complaint of sleep disturbance, nor did any of the parents feel that their child had a sleep disturbance, 48% of the children had some sleep disturbances. This warrants a detail evaluation of sleep patterns in apparently normal children to be done routinely to identify sleep disturbances. The increasing use of electronic gadgets could be a possible cause of sleep disturbances, which suggests that the exposure of children to these gadgets maybe reduced. There could be various effects of disturbed sleep in scholastic performances which needs further research.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

- Owens J. Classification and epidemiology of childhood sleep disorders. *Sleep Medicine Clinics*. 2007;2(3):353-61.
- Fricke-Oerkermann L, Plück J, Schredl M, Heinz K, Mitschke A, Wiater A, et al. Prevalence and Course of Sleep Problems in Childhood. *Sleep*. 2007;30(10):1371-7.
- Beebe DW, Ris MD, Kramer ME, Long E, Amin R. The association between sleep disordered breathing, academic grades, and cognitive and behavioral functioning among overweight subjects during middle to late childhood. *Sleep*. 2010;33(11):1447-56.
- Johnson EO. Epidemiology of DSM-IV Insomnia in Adolescence: Lifetime Prevalence, Chronicity, and an Emergent Gender Difference. *Pediatr*. 2006;117(2):e247-56.
- Singh H, Gill PJ, Soni RK, Raizada N. Sleep pattern and night awakening in healthy infants. *Indian Pediatr*. 1992;29(11):1373-7.
- Rutva Harish Fatnani, Sunil Kumar B Minajagi, Chandrika Rao KMSK. Study of sleep problems and their association with scholastic performance in school going children. *Indian J Child Heal*. 2015;2(4):200-3.
- Bruni O, Ottaviano S, Guidetti V, Romoli M, Innocenzi M, Cortesi F, et al. The Sleep Disturbance Scale for Children (SDSC). Construction and validation of an instrument to evaluate sleep disturbances in childhood and adolescence. *J Sleep Res*. 1996;5(4):251-61.
- Iglowstein I, Jenni OG, Molinari L, Largo RH. Sleep duration from infancy to adolescence: reference values and generational trends. *Pediatr*. 2003;111(2):302-7.
- Chen VC, Yang YH, Kuo TY, Huang KY, Huang YC, Lee Y, et al. Increased Incidence of Obstructive Sleep Apnea in Hospitalized Children After Enterovirus Infection: A Nationwide Population-based Cohort Study. *Pediatr Infectious Dis J*. 2018;37(9):872-9.
- Bharti B, Malhi P, Kashyap S. Patterns and problems of sleep in school going children. *Indian Pediatr*. 2006;43 (1):35-8.
- Owens L, Maxim R, McGuinn M, Nobile C, Msall M, Alario A. Television viewing habits and sleep disturbance in school children. *Pediatr*. 1999;104:e27.

Cite this article as: Tharakan RM, Shenoy KV. A study on sleep patterns and sleep problems in children aged 6 to 15 years as perceived by their parents. *Int J Contemp Pediatr* 2019;6:611-4.