

A study on sleep deprivation among students aged 15-18 years from a high school in Kerala state

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Abstract

Background: To identify the prevalence of sleep deprivation among students of age 15-18 years and to identify the factors influencing sleep deprivation. **Study Design:** The study was done as a cross sectional study to identify the prevalence of sleep deprivation among 200 school students aged 15-18 years in a high school. A structural questionnaire was used for data collection **Results:** In the present study the prevalence of sleep deprivation was 125/200(62.5%). **Conclusion:** Sleep deprivation among students of age 15-18 years is a considerable problem. The factors like nightmares, family problems, menstrual discomforts, stress depression, use of gadgets influence sleep deprivation as they have significant association with sleep deprivation.

Keywords: Sleep deprivation, Adolescents, Prevalence, Questionnaire.

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INTRODUCTION

Sleep deprivation is a major problem that can affect a student's physical and mental health and school performance. Sleep affects physical growth, behavior, and emotional development besides determining cognitive functioning, learning and attention¹. The reasons for student's sleep deprivation may include a wide range of social, cultural, environmental and biological factors. A range of lifestyle and physiological factors can also interfere with sleep. The prevalence of sleep deprivation

among students by different studies ranges between 56-68%^{2,3}. As there is a high prevalence of sleep deprivation in India as well as worldwide, we conducted a cross sectional study in higher school.

MATERIAL AND METHOD

OBJECTIVES

Objectives of this study were to identify the prevalence of sleep deprivation among students of age 15-18 yrs and to identify the factors influencing sleep deprivation.

Study design: The study was done as a cross sectional study to identify the prevalence of sleep deprivation among 200 school students aged 15-18 yrs in Sreekrishna High school Nallepilly, Palakkad, and Kerala. This study was conducted in the month of November 2018.

Methods of data collection: The study was done using structural questionnaire. The questionnaire was in English and was filled by students themselves. The participating adolescents were explained the rationale for the study and their oral consent was taken prior to administration of a questionnaire aimed at gathering information regarding sleep habits. Individual items of the questionnaire were

explained and adolescents were asked to respond to each question. Moreover, if any of the adolescents raised any query, it was resolved immediately. They were clearly instructed not to fill the responses of which they were not sure. Adolescents with physical illnesses, e.g., asthma, recurrent abdominal pain, sinusitis, chronic rhinitis, ADHD, etc., that could have affected sleep parameters were excluded from the study. Such information was gathered from the adolescents and corroborated from the school’s medical record. Sleep questionnaire consisted of sociodemographic information with few supplementary questions on items of sleep and activity (e.g. average sleep

duration on week days and weekends, any problem at home or other factors affecting sleep and engagement in the activities other than studies such as part time jobs, sports, games).The sleep duration was measured by questions like How much sleep do you get on an average during a weekend? How much sleep do you get on an average during a school day? moreover, the students were asked to indicate it in hours per day .The total items in the questionnaire were 30.The students who slept for less than 6 hrs were categorized to be sleep deprived .

Data analysis: Collected data was tabulated and percentage was calculated and chi square test was used.

RESULTS

In the present study, the prevalence of sleep deprivation was 125/200(62.5%). Distribution of sleep duration is shown in the Table.no.1 and figure no. 1

Table 1:

SLEEP DURATION	FREQUENCY(n)	PERCENTAGE (%)
Below 4 hrs	14	7
4-5hrs	65	32.5
5-6hrs	46	23
6-7hrs	33	16.5
7-8hrs	22	11
8-9hrs	14	7
Above 9 hrs	6	3
Total	200	100

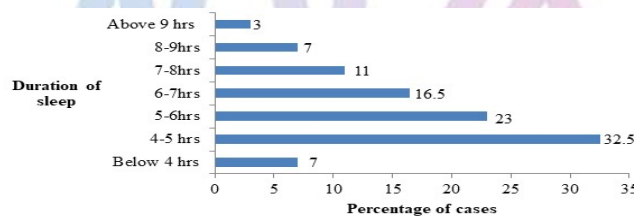


Figure 1: shows distribution of sleep duration

The students who slept for less than 6 hrs were categorized to be sleep deprived (62.5%). Factors affecting the sleep deprivation are shown in the table no. 2

Table 2:

Factor	Sleep deprivation present	Sleep deprivation absent	P value
Sleep disturbance	20(33.3%)	40(66.7%)	<0.001
Nightmares	55(52.4%)	50(47.6%)	<0.01
Usage of gadgets	53(51%)	51(49%)	<0.001
Stress	108(78%)	30(21.7%)	<0.001
Depression	85(74.6%)	29(25.4%)	<0.001
Addiction	16(51.6%)	15(48.4%)	>0.05
Menstruation	52(81.3%)	12(18.7%)	<0.001
Family problems	58(80.6%)	14(19.4%)	<0.001

There was significant association between sleep disturbance, nightmares, usage of gadgets, stress, depression, and menstruation and family problems with sleep deprivation.

DISCUSSION

Wolfson and Carskadon⁴ described that main correlates of poor academic performance are self-reported erratic sleep wake schedule, short total sleep time, phase delay, and poor quality sleep. Hence, it is important to study the sleep patterns in adolescents. Prevalence of sleep deprivation in our study was 62.5% which is comparable to most of the studies as mentioned in table no.3

Table 3: Distribution of prevalence of sleep deprivation in different studies

Study	Prevalence of sleep deprivation
Ravi Gupta et al.(2008) ²	56%
Bindhu John <i>et al.</i> (2016) ⁵	61%
Yang Qz <i>et al.</i> (2009) ⁶	70%
Annalijinet <i>al.</i> (2018) ³	68%
Present study (2018)	62.5%

In a study by Ravi Gupta *et al.*², the prevalence of sleep deprivation was 56% and high prevalence was seen in those who had stress (54%) and nightmares (58%). In present study prevalence of sleep deprivation in those who had stress was 78.3% and 52.4% in those who had nightmares. High prevalence of sleep deprivation was seen in those who had family problems (50%) in the study by Bindhu *et al.*⁵. In present study 80.6% of students with family problems had sleep deprivation. Our study had prevalence of sleep deprivation among students those who use gadgets(51%) similar to study by Yang Qz *et al.*⁶ (52.6%). As per Annalijin *et al.*³, depression had association with sleep deprivation (59%). In our study 74.6% of students with depression had sleep deprivation. Thus present study shown strong association of nightmares, family problems, menstrual discomforts, stress depression, use of gadgets with sleep deprivation. The limitation of this study is that, sample does not represent all Indian adolescents. Therefore, findings cannot be generalized. Moreover, it was not possible to examine other factors affecting sleep such as living conditions e.g. overcrowded homes, sharing the bed with

other siblings, TV viewing, and Moreover, information gathered with the help of questionnaire is influenced by commitment of the subject, his understanding of the questions and absence of objective confirmation of the complaints hence we emphasize the need for replication of this study based on objective evidence.

CONCLUSION

The prevalence of sleep deprivation among students of age 15-18 years was 62.5%. The factors like nightmares, family problems, menstrual discomforts, stress depression, use of gadgets influence sleep deprivation as they have significant association with sleep deprivation. Hence we suggest that some lifestyle modifications such as following a routine for bed and wake up times and keeping it consistent every day of the week, limiting the use of electronic gadgets 1 hr before bed, avoiding caffeine at night, exercising regularly, maintaining healthy family relationships that might have an important role in decreasing sleep deprivation.

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