



ORIGINAL RESEARCH PAPER

Community Medicine

AN OBSERVATIONAL COMPARATIVE STUDY OF SLEEP PATTERNS AMONG MEDICAL AND NON-MEDICAL STUDENTS AT CENTRAL INDIA

KEY WORDS: Sleep Pattern, Medical students, PQSI

Dr. Rahul Singh Bhadouria

Assistant Professor, Department of Community Medicine, LN Medical college and research centre, Bhopal.

Dr. Pritesh Goutam*

Associate Professor, Department of Psychiatry, LN Medical college and research centre, Bhopal. *Corresponding Author

ABSTRACT

Background: Sleep disturbances are quite common among many groups like students especially in medical students who have a high demanding professional curriculum to keep up.

Methods: A Total of Two hundred college students (100 medical and 100 non-medical students) were purposively selected as study subjects. Data was collected using semi-structured and self-administered questionnaire. Pittsburg Quality of Sleep Index was used as a tool to assess several factors such as sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbance and use of sleep medication. Data was presented as Mean, standard deviation and t-test is applied for analysis for parametric data. The Chi square test statistic (χ^2) and fisher exact test were used to test the significance of association between various factors of non-parametric type.

Results: In each 100 students, 51% were male in medical student group while 56% were male in non-medical group. There was no statistically significant difference in sex ratio, mean age, or BMI among two groups ($p > 0.05$). The quality of sleep on PQSI was found to be good in 52% medical students compared to 90% non-medical students. All the parameters of PQSI were statistically better for non-medical students when compared to medical students. While composite mean PQSI score for both the groups was more than 5, indicative of poor sleep, the mean score for medical student group (6.72 ± 2.13) was significantly higher ($p < 0.05$) than non-medical student group (5.13 ± 1.01).

Conclusion: On In medical students subjective sleep quality was bad, Sleep latency was increased with decreased sleep duration of less efficient sleep was more in medical students. Use of sleep medication and day time dysfunction was also common with medical students although the sleep disturbance was comparable between two groups.

INTRODUCTION

Sleep is a physiological process which is essential for life. Its quality is strongly related to psychological and physical almost all dimensions of wellbeing and health.¹ Human sleep deprivation experiments have proven to have not only mental effects like sleepiness and impairment of performance, vigilance, attention, concentration; mood changes (increased impatience and irritability), increased risk of depression or anxiety, and a higher occurrence of accidents and falls but also physical changes i.e. reduced energy levels, altered immune function, poor wound healing.²⁻⁶ Sleep deprivation and symptoms related to sleep disorders have not only been ignored but also inadequately understood by most people and even health professionals. Almost one-third of adults report difficulty in sleep.^{6,7} The pattern of sleep and wakefulness in different subjects is known to vary with their age, type of their occupation, their physiological and psychosocial characteristics, psychiatric and physical illness.⁸

Sleep disturbances is a distressing and disabling condition that affects many people, and can affect on quality of work and education of students.⁹ Medical students are vulnerable group to poor sleep among many.¹⁰ Medical students are a stressful group of students due to their extended study years, high academic load i.e. long duration and high concentration required by medical curriculum along with clinical duties, emotionally challenging work, and the highly demanding lifestyle.¹⁰⁻¹² Other groups of students also experience a number of sleep problems, which may impact academic performance, health, and mood.¹³

Almost all the dimensions of health are affected by sleep disturbances and these sleep disturbances affects life of demanding life of students especially students of medical professionals. Studies have been done in various parts of world and in India subcontinent with varying results. There is a apparent lack of such data from central Indian institutions thus the study is planned to evaluate and compare sleep patterns of medical students versus non-medical students.

MATERIAL AND METHODS

The present study was a observational cross sectional study conducted in Central Indian tertiary care medical institution, Department of Community medicine and Department of Psychiatry at L. N. Medical college and research centre, Bhopal. For duration of six months ending in December 2018. The necessary ethical approval was taken from university ethical committee. A Total of Two hundred college students (100 medical and 100 non-medical students) were purposively selected as study subjects. Half of the Medical college students were from second year MBBS while other half of medical students were from MBBS fourth year students and non-medical students were from B.Sc. second year.

Data was collected using semi-structured and self-administered questionnaire. At first the questionnaire was explained to the students to help them understand and use the questionnaire. Questionnaire was prepared in English as well as in Hindi then which most students could understand. No information related to the identification of students were kept in the questionnaires, and all participants were assured of absolute confidentiality. Purpose of the study was explained to the students and informed consent was taken. Students who were not willing to participate and who were absent are excluded from study. Information regarding socio-demographic profile and BMI, stress, use of mobile/laptops before going to sleep was gathered with distributed questionnaires.

Pittsburg Quality of Sleep Index was used as a tool to assess the quality of sleep. This scale comprised of several factors such as sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbance and use of sleep medication. Sleep efficiency is the ratio of the total time spent asleep (total sleep time) in a night compared to the total amount of time spent in bed. Sleep latency is the length of time it takes from lying down for the night until sleep onset. Most people who get less than 7-9 hours of sleep have daytime dysfunction symptoms like irritability, fatigue, and inability to concentrate. Collected data was analysed by Microsoft excel

sheet and analysed by GrapPad Prism version 8.0.1. Data was presented as Mean, standard deviation and t-test is applied for analysis for parametric data. The Chi square test statistic (χ^2) and fisher exact test were used to test the significance of association between various factors of non-parametric type. A value of $p < 0.05$ was considered statistically significant.

RESULTS

Out of all 200 students (100 students in medical and non-medical group each) included in study, 51% were male in medical student group while 56% were male in non-medical group. There was no statistically significant difference in sex ratio among two groups ($p > 0.05$). The mean age for the medical student group was 23.7 years, which was comparable to the mean age of 19.5 years in non-medical groups. Mean index for body mass was also calculated and found to be comparable between two groups.

Table 01: Demographic parameters of study groups.

Demographic parameters	Medical students (n=100)	Non-medical students (n=100)
Mean age in years	23.7 \pm 1.27	21.5 \pm 1.55
Sex		
Male	51	56
Female	49	44
Body mass index	22.66 \pm 4.17	19.33 \pm 4.15

The quality of sleep on PQSI was found to be good in 52% medical students compared to 90% non-medical students. Most of the students in both groups showed a sleep latency of 1-2 minutes while medical students showed poor sleep latency when compared to non-medical students.

Table 02: Components of sleep PQSI for between Medical and non-medical students.

Component	Medical Students	Non-medical students	Chi-square
<i>Subjective sleep quality</i>			
Good	52	90	p<0.0001
Bad	48	10	
<i>Sleep latency</i>			
0	13	17	p=0.0083
1-2	41	57	
3-4	21	19	
5-6	23	07	
<i>Sleep Duration</i>			
>8 hours	43	64	p=0.0029
<8 hours	57	36	
<i>Sleep efficiency</i>			
≥85%	83	94	p=0.0148
<85%	17	06	
<i>Sleep disturbance</i>			
0-9	89	88	p=0.8246
10-27	11	12	
<i>Sleep use of sleep medication in last month</i>			
Yes	13	5	p=0.0481
No	87	95	
<i>Daytime dysfunction</i>			
0	21	42	p=0.0014
2- 6	79	58	

Duration of sleep was less than 8 hours for 57% of medical students, while only 36% of non-medical students had sleep less than 8 hours. Eighty three percent of medical student considered their sleep more or equal to 85% efficient while 17% not, when compared to the non-medical student who had $\geq 85\%$ sleep efficiency in 94% students. All the parameters of PQSI were statistically better for non-medical students when compared to medical students. While composite mean PQSI score for both the groups was more than 5, indicative of poor sleep, the mean score for medical student group (6.72 \pm 2.13) was significantly higher ($p < 0.05$) than non-medical student group (5.13 \pm 1.01). Factors affecting sleep like

mobile/laptop/television, alcohol and tobacco use, consumption of tea/coffee and lack of exercise was comparable in two study groups.

DISCUSSION

Medical profession is demanding starting from premedical to practice. Sleep quality among college going students of different streams have been studied globally. Medical students are specially vulnerable to a life style that can leads to abnormal sleep habits such as irregular sleep, abnormal sleep latency, loss of concentration or shortening of mean sleep length, compared with individual's sleep need.

Disturbances in sleep due to any cause can leads to significant impairment of academic performance among students.¹⁴ Duration of sleep was less than 8 hours for 57% of medical students, while only 36% of non-medical students had sleep less than 8 hours. Sharma et al reported sleep duration less than 7 hours in 60% of medical students and 47% of non-medical students. In a study Giri et al found a greater sleep impairment where 81% medical students get sleep less than 7 hours.¹⁵

The mean BMI was found to be more in medical students because they do not usually practice regular exercise. High BMI is found to be causing sleep related problems.¹⁶ The global PQSI score in our study shows a significantly higher disturbance of sleep among medical students which was similar to other studies.¹⁷⁻¹⁹ In the present study, habits known to affect the quality of sleep like mobile/laptop/television, alcohol and tobacco use, consumption of tea/coffee and lack of exercise were comparable in two groups. In a similar study Sharma et al and Marzieh et al.¹⁹ reported excessive coffee intake, alcohol abuse, tobacco use and use of mobile/laptop were the habits adversely affecting sleep in students. It is well known that medical students suffer high level of stress due to academic demands, particularly during examination periods. Stress associated with insufficient sleep can lead to difficulties in interpersonal relationship, depression, anxiety and alcohol and drug abuse.^{20,21}

About 48% of the medical students in our study classified their sleep quality bad, Which was higher than that of reported by Corrêa et al, who found that 40% of the study subjects reported bad quality of sleep among medical students.²² Poor sleep quality is associated with reflex excessive daytime sleepiness.^{23,24} In the present study, daytime dysfunction was reported by 79% of the medical students, who had difficulty staying awake during the day at least once a week. This is consistent with literature, although the results of day time sleepiness among medical students varied significantly in various studies from 31% to 63%.^{23,25,26} Therefore, medical students experienced greater deleterious effects on subjective sleep quality and daytime dysfunction than non-medical students. This can be explained by the fact that attending a medical course requires a high level of dedication and selflessness, signifying harmful lifestyle changes, such as sleep deprivation and poor sleep hygiene habits.²⁷⁻³⁰

Use of hypnotic agents was found in 13% of the medical students compared to only 5% in non-medical students, but this proportion was still lower than the studies conducted on medical students in Saudi Arabia, which identified that 17% of those students used drugs for sleep induction; this fact indicates the need for early intervention programs targeting poor lifestyle habits.³⁵ The other reason for higher medication use in medical students compared to the non-medical students is their comparative knowledge and feasibility of hypnotic agents among medical students compared to the non-medical students.

CONCLUSION

On comparing sleep quality between age, sex and BMI matched groups of Medical and Non-medical students

subjective sleep quality was bad, Sleep latency was increased with decreased sleep duration of less efficient sleep was more in medical students. Use of sleep medication and day time dysfunction was also common with medical students although the sleep disturbance was comparable between two groups.

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