### **Original Research Article**

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# A comparative study of sleep habits among medical and non-medical students in Saifai, Etawah

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#### **ABSTRACT**

**Background:** Good quality sleep and adequate amount of sleep are important in order to have better cognitive performance, academic performance and avoid health problems and psychiatric disorders. Sleep disturbance is a distressing and disabling condition that affects many people, and can affect on quality of work and education of students. Thus the aim of the study is to assess and compare the sleep habits of medical and non-medical students in Etawah city.

**Methods:** A cross-sectional study was carried out among 200 college students (100 medical and 100 non-medical) using convenience sample size. A self-questionnaire developed based on Pittsburgh Sleep Quality Index was used. Data was analyzed by using SPSS version 23. Mean, standard deviation and t-test is applied for analysis. The Chi square test statistic ( $\chi^2$ ) and fisher exact test were used to test the significance of association between various factors.

**Results:** It was observed that mean age of the medical student was 22.8 whereas the mean age of non-medical student was 17.4. Sleep duration of less than 7 hours was seen 60% in medical students and 47% in non-medical students. PSQI score was high in medical students (6.42) in comparison to non-medical students (5.15). A total score of 5 or greater is indicative of poor sleep quality.

**Conclusions:** Despite the numerous studies regarding the subject, students and professionals tend to ignore the sleep disorders and their possible consequences. Proper counselling, better planning and support should be provided to students likely to suffer from sleep disorders.

Keywords: Sleep quality, Comparative study, Medical students, Non-medical students

#### INTRODUCTION

Sleeping is a natural repetitive state of rest for the mind and body which is crucial to life.<sup>1</sup> Quality sleep and getting enough of it at the right times is as essential to survival as food and water. It is an important part of our daily routine and we spend about one-third of our time doing it.<sup>2</sup> Good quality sleep and adequate amount of sleep are important in order to have better cognitive

performance, academic performance and avoid health problems and psychiatric disorders.<sup>3</sup>

It is an important component of normal human physiology as it serves a restorative homeostatic function and appears to be crucial for normal thermoregulation and energy conservation.<sup>3</sup> Sleep disturbance is a distressing and disabling condition that affects many people, and can affect on quality of work and education

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of students. It was postulated that sleep deprivation may be associated with defect in the immune function, and may be implicated in the pathogenesis of psychological problems and metabolic problems (diabetes mellitus, metabolic syndrome and obesity).<sup>4</sup>

The sleep wake cycle of the students is quite varies significantly between the type of professional student.<sup>5</sup> Medical students are vulnerable group to poor sleep.<sup>6</sup> They are are considered a stressful group of students and this may be attributed to their extended study years, high academic load (long duration and high concentration), clinical duties, emotionally challenging work, and the highly demanding lifestyle.<sup>6-8</sup> Other college students also experience a number of sleep problems, which may impact academic performance, health, and mood.<sup>9</sup> Sleep disturbances is a distressing and disabling condition that affects many people, and can affect on quality of work and education of students.<sup>5</sup>

Unable to fall asleep earlier in the evening, young adults cannot get enough sleep if they must get up early. In addition, sleep may be voluntarily sacrificed due to social factors or involuntarily curtailed because of living in a noisy residence hall or apartment. Some studies have shown that sleep disturbances are found more frequently among women than men, some studies have shown a positive relationship between smoking a sleep disturbance and same was true of the relationship between drinking and sleep disturbance. 10-12

The consequences of sleep problems, whether due to insufficient sleep or an untreated sleep disorder can be serious. Sleep problems have been associated with deficits in attention and academic performance, drowsy driving, risk taking behaviour, impaired relationships, and poor health. Over a decade, a rapid diffusion of computers and proliferation of audio and video gadgets and late night video-gaming zones among people and especially among students has occurred. Due to these cultural changes, sleep patterns of young adults tend to become irregular and many of them experience sleep deficiency, which could have detrimental effects on daytime activities including study. 14

Numerous studies conducted within the past decade have analyzed the deleterious effects of sleep deprivation on medical as well as non-medical students. Hence, this study intends to explore the effects of sleep habits on the medical students of UPUMS, Saifai, etawah and non-medical students of and Chaudhary Charan Singh PG College, Heonra, Saifai, Etawah.

#### **METHODS**

The present study was college based cross sectional study carried out in Uttar Pradesh University of Medical Sciences, Saifai, Etawah and Chaudhary Charan Singh PG College, Heonra, Saifai, Etawah for a period of one month in September 2017. 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. Medical college students were from second year MBBS and non-medical students were from BSc second year.

Data was collected using semi-structured and self-administered questionnaire which was explained to the students to help them understand the questions well. Questionnaire was prepared in English and then translated to local language (i.e. Hindi) which most students could understand. No names or identifying information were indicated on 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, addictions, stress, use of mobile/laptops before going to sleep was gathered with distributed questionnaires.

Pittsburg Quality of Sleep Index was also used to assess the quality of sleep.<sup>17</sup> This scale comprised of several factors such as sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbance and use of sleep medication. Sleep latency is the length of time it takes from lying down for the night until sleep onset. 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. 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 SPSS version 23. Mean, standard deviation and t-test is applied for analysis. The Chi square test statistic  $(\chi^2)$ and fisher exact test were used to test the significance of association between various factors. A value of p<0.05 was considered statistically significant.

#### **RESULTS**

Overall there were 109 (54.5%) males and 91 (45.5%) females. It was observed from Table 1 that mean age of the medical students was 22.8 whereas the mean age of non-medical student was 17.4. The mean BMI was higher in medical students (22.6) in comparison to non-medical students (18.2). Sleep duration of less than 7 hours was seen 60% in medical students and 47% in non-medical students (Figure 1).

**Table 1: Characteristics of study population.** 

Socio demographic factors	Medical students n=100	Non-medical students n=100
Mean age in years	22.8 ±1.83	17.4±0.75
Sex		
Male	58	51
Female	42	49
Body mass index	22.66±3.17	18.23±3.43

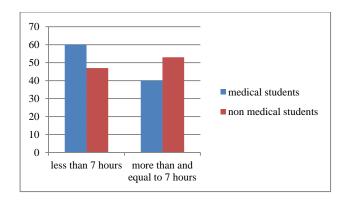


Figure 1: Sleep duration of study population.

It was seen from Table 2 that, out of 200 students, regular coffee intake was reported by 149 (74.5%) students, out of which 77 students were from medical college and 72 students were from non-medical college. Regular alcohol intake was reported by 8 (4%), out of which 100% students were from medical students. Tobacco intake was reported by 5 (2.5%) medical students. No alcohol and tobacco consumption was reported by non-medical students. Regular exercise was done by 79(39.5%) students, of which 45 students belong to medical college. Use of mobile/laptop before sleep was reported by 80% of students (94 medical and 67 non-medical students). Stress was reported by 116 (58%) students (84 medical and 32 non-medical students).

Table 2: Distribution of factors affecting sleep habits of study population.

Factors affecting sleep habits	Medical students (n=100)	Non- medical students (n=100)	Total (n=200) N (%)	Chi-square
Caffeinated drinks intake				$\chi^2$ 0.5166; df=1;
Yes	77	72	149 (74.5)	χ 0.3166; di=1; p=0.417
No	23	28		
Alcohol				.2 0.22 16 1
Yes	8	00	8 (4)	$\chi^2$ =8.33; df=1 p=0.004
No	92	100		
Tobacco				$\chi^2 = 5.13$ ; df=1 p=0.024
Yes	5	00	5 (2.5)	
No	95	100	-	
Regular exercise				2 2 52 16 1
Yes	45	34	79 (39.5)	$\chi^2$ =2.53; df=1 p=0.112
No	55	66		
Use of mobile/laptop				2 22 2 15 1
Yes	94	67	161 (80.5)	$\chi^2$ =23.2; df=1 p=0.00001
No	6	33		
Stress				$\chi^2$ =55.5; df=1 p=0.00001
Yes	84	32	116 (58)	
No	16	68		

Table 3: Comparison of sleep component of PSQI among medical and non-medical students.

Component	Medical students (n=100)	Non-Medical students (n=100)	Total N (%)	Chi- square
Subjective sleep quality				
Good	73	95	168 (84)	$\chi^2 = 18.01$ ; df =1
Bad	27	5	32 (16)	p=0.00002
Sleep latency				
0	20	18	38 (19)	$\chi^2$ =10.81; df=3 p=0.0127
1-2	37	40	77 (38.5)	
3-4	19	33	52 (26)	
5-6	24	09	33 (16.5)	
Sleep duration			•	
>7 hrs	17	21	38 (19)	$\chi^2 = 0.51$ ; df=1
<7 hrs	83	79	162 (81)	p=0.47
Sleep efficiency				
>85%	86	96	182(81)	p=0.023
<84%	14	04	18 (9)	

Continued.

Component	Medical students (n=100)	Non-Medical students (n=100)	Total N (%)	Chi- square
Sleep disturbance				
0-9	90	93	183 (91.5)	$\chi^2 = 0.578$ ; df=1
10-27	10	07	17 (8.5)	p=0.446
Use of sleep medication (in	the last month)			
Not used	90	99	189 (94.5)	n=0.0006*
Used	10	01	11(5.5)	p=0.0096*
Daytime dysfunction				
0	21	38	59 (29.5)	$\chi^2$ =6.94; df=1 p=0.008
2-6	79	62	141 (70.5)	p=0.008

<sup>\*</sup>Fisher exact test.

Table 4: Comparison of mean of global PQSI.

	n	Mean	Std. deviation	t-value
Medical students	100	6.42	2.80	3.737; p<0.001
Non-medical students	100	5.15	1.91	

The results for the seven components of the PSQI were analyzed for the total sample and for the two study groups (Table 3). Among study population, 27% medical and 5% of non-medical students reported their subjective sleep quality as bad and this difference found to be significant. 24% of medical participants and 9% of non-medical participants reported their sleep latency score 5-6 (higher the score, poorer the sleep latency) and this difference was also significant. Other components like sleep duration, sleep efficiency and sleep disturbance were not significantly different in both groups. Use of medication and daytime dysfunction was significantly higher among medical as compared to non-medical students.

PSQI score was higher (Table 4) in medical students (6.42) in comparison to non-medical students (5.15) and significant differences were found in both groups. A total score of 5 or greater is indicative of poor sleep quality.

#### **DISCUSSION**

Sleep quality among college students is a subject that has been studied worldwide because of its effects on the academic routine and personal life of this population. Medical students are a special group of young adults who have life constraints that can cause irregular sleep habits or shortening of mean sleep length, compared with individual's sleep need. There is some evidence in literature supporting the hypothesis that sleep difficulties and deprivation can significantly impair student's academic performance. Total sleep duration less than 7 hours was observed in 60% of medical students and 47% of non-medical students. Giri et al found that only 19% medical students sleep for more than 7 hours.

The mean BMI was more in medical students and they refrained from regular exercise. A study by Veldi et al also found that high BMI was related to sleep problems.<sup>20</sup>

The global PSQI score shows a higher disturbance of sleep in medical students. Other studies also corroborate this findings.<sup>21-23</sup> In the present study, excessive coffee intake, alcohol abuse, tobacco use and use of mobile/laptop were the habits adversely affecting sleep in students. Similar findings were shown by Marzieh et al.<sup>23</sup>

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. <sup>24,25</sup>

Nearly 16% of the students in our sample classified their sleep quality bad, however Corrêa et al found that 40% of the study subjects reported their life. 26 Poor sleep quality is associated with excessive daytime sleepiness. <sup>27,28</sup> In the present study, daytime dysfunction was reported by 70% of the participants, who had difficulty staying awake during the day at least once a week. This is consistent with the literature, although there are variations across studies in the proportion of medical students reporting daytime sleepiness: 31%; 42.1%; and 63%. 27,29,30 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. 31-34

Frequent use of sleeping medication was identified in 5.5% of the participants in the present study, but this proportion is lower than that found in a study involving 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.<sup>35</sup>

#### **CONCLUSION**

In the present study, we have found that medical students had more disturbed sleep patterns than the non-medical student as they showed a higher global PSQI score. Use of laptop and mobile and stress in life is higher among medical college in comparison to non-medical students. Despite the numerous studies regarding the subject, students and professionals tend to ignore the sleep disorders and their possible consequences. Proper counselling, better planning and support should be provided to students likely to suffer from sleep disorders.

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Institutional Ethics Committee

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