

A Cross-Sectional Study of Change in Sleep Pattern among First year Students of a Medical College in Western India

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Abstract

Introduction: Most of the medical students start college life with some knowledge of personal health but little or no knowledge regarding value of sleep. Deprivation or disturbance of sleep may cause aggressiveness, apathy and decrease academic performance.

Materials and Method: This is a cross-sectional, Questionnaire based study designed to determine the general sleep pattern and its effects in medical college students. We studied 100 randomly selected hostelite and localite students from the hostel, canteen and lecture theatres. Data regarding reasons for sleep disturbance and its impact on daily activities was collected by predesigned profoma. Data was analyzed using Microsoft Excel and Epi-info.

Results: Study stress was the main factor for disturbed sleep as 54% students experienced that their sleep was disturbed due to study. Late night sleeping was noted in 70% of the students and majority of them were hostelites. 83% students felt that their sleep pattern had changed after getting admission in M.B.B.S.

Conclusion: Adequate sleep should not be compromised on account of study as it is a part of student life. First year students should be taught to maintain balance between study and sleep.

Keywords: Sleep Pattern, Insomnia Severity Index, Hostelite, Localite.

Introduction

Sleep is a reversible state of mind and body during which consciousness is altered, voluntary muscles are relaxed and sensory activities are inhibited. Sleep is required to get rid of the stress occurred during the various daytime activities. It is a source of diversion from day to day stress and a state of mind denoted by a temporary lack of consciousness as well as reduced vigilance and responsiveness.⁽¹⁾ Researches have shown that cognitive and physiological functions of body are determined by circadian rhythms, which is influenced by various factors like work schedules, school timing etc.⁽²⁾ Consolidation of memory takes place during REM sleep. Sleep deprivation leads to impaired neurocognitive and psychomotor performance, learning abilities and consequent academic performance.⁽³⁾

Teenagers require considerably more sleep to perform optimally than younger children or adults. Reported insomnia and daytime sleepiness have been found to be significantly more common in students with low school performance.⁽⁴⁾ In general, four fundamental sleep characteristics like sleep quantity, sleep quality, sleep regularity, and sleep phase scheduling influence academic performance.⁽⁵⁾ It is also important that students should have same timings either for going to bed and waking up in the morning on weekends as on week days to prevent disturbance of circadian rhythm, because stability of circadian rhythm ensures better sleep.

Insufficient sleep has also been shown to be associated with a variety of emotional difficulties and short school-night total sleep time and/or large weekend bedtime delay are associated with depressive mood.⁽⁶⁾

The medical student population is believed to be at an increased risk for sleep deprivation.⁽⁷⁾ Specially students in first year of M.B.B.S. are vulnerable as they are first time exposed to various terminologies and understanding of which consumes significant time of total study duration which leads to sleep deprivation and its detrimental effect. Being medical students, they are likely to take self-medication for insomnia. So this study was undertaken to determine sleep pattern, various factors causing sleep disturbance and its effect in students of 1st year M.B.B.S.

Materials and Method

B.J. Medical College is the oldest medical college in Gujarat and it has highest number of medical seats among all the Medical Colleges of Gujarat. In medical admission, Seats of this college get filled up earliest so it has top rankers from all over Gujarat. So this study was done to look into the change of sleep pattern among these students after getting admission. This is a cross-sectional study carried out in the 1st year M.B.B.S. students of B.J. Medical College, Ahmedabad. Expecting the change of sleep pattern among 50% of the students, alpha 5% and Chance error $\pm 10\%$, the sample size worked out to be 96; there for 100 Students from 1st year were taken into study. Students were selected randomly from hostel, canteen and lecture theatres. Total students were divided into two groups, one consisted of 50 Hostelite students and one consisted of 50 Localite students. Sleep pattern was assessed and compared between these two groups.

Predesigned and Pre-tested, self-Administered questionnaire was used for data collection. The

questionnaire was designed in English language containing questions about timing of sleep, duration of sleep, change in sleep pattern, use of medication, reasons and effects of disturbed sleep etc. Insomnia was assessed using Insomnia Severity Index⁽⁸⁾ which consist of seven items, testing the perception regarding sleep. Each item has 5 responses like none, mild, moderate, severe and very severe. Scoring of 0 to 4 was given from none to severe. So for each item minimum score was 0 and maximum was 4 and total score ranges from 0 to 28. Depending upon total score of the student insomnia severity was assessed. Score of 0 to 7 indicates No Insomnia, 8 to 14 indicates Sub-threshold Insomnia and 15 to 28 indicates Clinical Insomnia.

The participation was voluntary and student consent was taken before the study. Data entry was done in excel 2007 and analyzed in Epi-info software version 7. Statistical tests like Percentage, chi-square test were used for the analysis.

Results:

Table 1: Sleep pattern in Medical Students

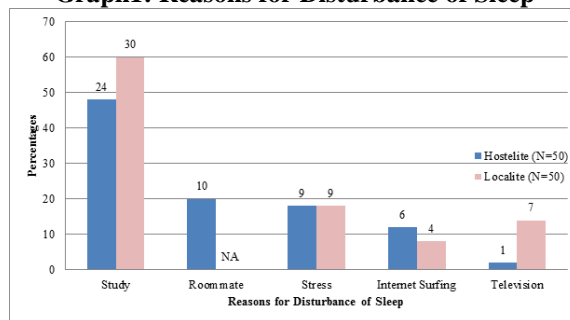
	Hostelite (N=50)	Localite (N=50)	χ^2
Time of Sleeping			
Before 12 a.m.	9 (18)	21 (42)	$\chi^2=5.7$ P<0.05
12-2 a.m.	25 (50)	24 (48)	
After 2 a.m.	16 (32)	5 (10)	
Duration of Sleep			
<6 Hours	15 (30)	9 (18)	$\chi^2=1.3$ P>0.05
6-8 Hours	27 (54)	20 (40)	
>8 Hours	8 (16)	21 (42)	
Change of Sleeping Pattern			
Present	44 (88)	39 (78)	$\chi^2=1.13$ P>0.05
Absent	6 (12)	11 (22)	
Use of Medication			
Present	13 (26)	3 (6)	$\chi^2=6.0$ P<0.05
Absent	37 (74)	47 (94)	
Total	50 (100)	50 (100)	

Number in parenthesis indicates percentage.

Table 1 shows comparison of sleep pattern among Hostelite and Localite students. Among localites 21(42%) students had habit of sleeping before 12 a.m. while 41(82%) hostelite students were going to bed after 12 a.m. and this difference is statistically significant. 15(30%) hostelite had sleep less than 6 hours while only 9(18%) localites were used to have sleep less than 6 hours. But this difference is not statistically significant. Out of total 100 students 83(83%) had change in sleeping pattern after getting

admission in M.B.B.S. Only 3(6%) localites were taking medication for disturbed sleep while 13(26%) hostelite were taking drugs and this difference is statistically significant.

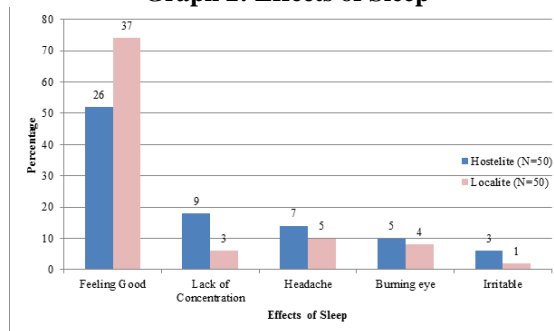
Graph1: Reasons for Disturbance of Sleep



Number at top of the bar indicates absolute number of students.

Study was noted as main reason for disturbance of sleep by 30(60%) localite and 24(48%) hostelite students. Internet surfing was the reason in 6(12%) hostelites and Television was the reason in 7(14%) localite students. For localite students roommate as a reason for disturbance of sleep is not applicable (Graph 1).

Graph 2: Effects of Sleep



Number at top of the bar indicates absolute number of students

Even though there was change in sleeping pattern after getting admission; 26(52%) hostelites and 37(74%) localites were feeling good in the morning after sleep. Rest of the students complained about headache, burning eye, lack of concentration and irritability in the morning (Graph 2).

Table 2: Insomnia Severity Index

	Hostelite	Localite	χ^2
No Insomnia	36 (72)	41 (82)	$\chi^2=0.9$ P>0.05
Sub-threshold Insomnia	14 (28)	8 (16)	
Clinical Insomnia	0 (0)	1 (2)	
Total	50 (100)	50 (100)	

Number in parenthesis indicates percentage

Out of total Students, 77(77%) had normal sleep while 14(28%) Hostelites and 8(16%) localites had shown Sub-threshold insomnia. Only 1(1%) student was suffering from clinical insomnia that was localite (Table 2).

Discussion

Medical students are at increased risk of sleep deprivation. In this study we have identified and compared various reasons of sleep disturbance and its effect among hostelites and localite medical students. However studies are lacking which compare medical students into Hostelites and localites so we have discussed the finding with medical students in general. In present study 50 hostelite and 50 localite students from first year of M.B.B.S. were assessed for sleep pattern. In a study conducted by Prajapati D et al⁽⁹⁾ they had assessed 252 hostelite and 148 localite students while Abdulghani HM et al⁽¹⁰⁾ had assessed students from First to third year, ElArab HE⁽²⁾ conducted study in first to sixth academic year students and Nojomi M et al⁽¹¹⁾ studied medical students from first to seventh year. In present study 24(24%) students had sleep less than 6 hours while in the study done by Rasekhi S et al,⁽¹²⁾ 62% students had shown total sleeping hours between 4-6 hours and O'brien et al⁽⁶⁾ in his study, noted 6-7 hours sleep during school night in 28% sample and during weekend night in only 8% sample.

Rasekhi S et al⁽¹²⁾ described in the study that sleep disturbance was very common among medical students as reported by 66.66% of respondents and females had a higher prevalence of sleep disorder than males. In present study 44(88%) hostelites and 39(78%) localites noted change in their sleeping pattern. 1.2% respondents were used to take sleeping or alerting medication always/every night in a study conducted by Pagel JF et al⁽⁴⁾ while 16% medical students were taking sleeping pills in our study.

To improve outcome of academic performance it is important to identify the factors which influence sleep of students. A study in Nepal done by Pramanik T et al⁽¹³⁾ revealed that 31.5% of medical students suffered from sleep deprivation due to late night internet surfing. Around 62.2 and 73.7% of students agreed that the demanding medical curriculum and stress of final exams lead to sleep deprivation, respectively in study done by AlFakhri L et al.⁽⁷⁾ In our study television and internet surfing was responsible for sleep disturbance in 8(8%) and 10(10%) students respectively.

One study done in Pakistan by Pasha SN et al⁽¹⁴⁾ reported that symptoms of morning headache and unrefreshing sleep were experience by 10%, 27% of males and 23%, 27% of females respectively. The vast majority of students (78.4%) in a study done by AlFakhri L et al,⁽⁷⁾ agreed that sleep deprivation negatively affects mood. In our study 63(63%) students were feeling good in the morning.

Epworth Sleepiness Scale score was abnormal for 70 (36.6%) students and 148 (37%) students in the study done by Prajapati D et al⁽⁹⁾ and Abdulghani HM et al⁽¹⁰⁾ respectively. While in our study score of Insomnia Severity Index was more than 7 in 23(23%) medical students.

Conclusion

This study revealed that majority of the students had change in sleeping pattern after getting admission in M.B.B.S. whether they were hostelites or localites. Late night sleeping was also noted in almost three fourth of the total students and majority were hostelites. Study was the major cause of disturbance for the sleep but there should not be compromise in adequate sleep so first year students should be taught to maintain balance between study and sleep. Further studies involving second, third and final year students; are required to know the trend of sleep pattern throughout the M.B.B.S. course.

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