

Original Research Article

**A Study of Sleep Pattern and Associated Factors among MBBS Students of
Dr. B. R. Ambedkar Medical College, Bangalore.**

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Abstract

Background: Most students staying away from home, in new environment can experience many issues. And due to demands of academic performance the lifestyle and habits tend to change. Sleep is one of the factor if not stabilized can affect the quality of work, performance and education. Medical students are a population who are at great risk. Several factors like attitude and knowledge, habits, environmental factors, etc. have been identified as factors for disturbed sleep. **Objectives:** To study the sleep pattern among MBBS Students and to assess factors influencing sleep among MBBS students. **Methodology:** An institutional based, descriptive cross sectional study conducted for period of 3 months. Study was conducted in class room at the end of teaching session, by using preformed semi-structured questionnaire after explaining aim of the study and instructions for filling the questionnaire. Information regarding habits, social history and sleep habits during past one month only was collected in order to obtain most accurate reply. The responses were entered in EpiInfo7 software and further analysis will be conducted. **Results:** Number of students included in study were 301 out of which majority were female students. Students believed minimum 6 to 8 hours of sleep is required to continue normal daily activities. Most of them sleep 7 hours per day yet some (20.5%) would not feel refreshed after sleep. the most common factors influencing sleep were observed to be disturbances due to noises (66.7%), light (54.6%) and many thoughts racing in mind before falling asleep (51%). This study also describes symptoms differentiating disturbed sleep and insomnia.

Keywords: Sleep pattern, quality assessment, insomnia, symptoms

INTRODUCTION:

Sleep is an important aspect of healthy living, yet ignored often. Sleep is defined as state of unconsciousness from which a person can be aroused. Sleep is essential for the normal functioning of all the systems of our body as it affects mental as well as physical health. The stages and state of human sleep are defined on the basis of Electroencephalograms.

Normal healthy adult requires sleep for 7 to 8 hours. A sleep deprived person lack concentration, behaves unpleasant and irritable and often makes mistakes in his activities. It also has a long term effect on body systems. With the growing technologies there is increased burden among students to know about it, which requires more

efforts. All these advancements and expectations has directly or indirectly influenced the pattern of sleep.

Students have developed the habit of sleeping late and less in order to satisfy the needs of academics¹. Sleep deprivation and symptoms related to sleep disorders have not only been ignored but also inadequately understood. Almost one-third of adults report difficulty in sleep.²

Sleep disorders and insufficient sleep duration seem to be endemic in our contemporary society, and currently constitute a health, welfare and social problem that requires close monitoring and preventive measures³.

Factors influencing quality of sleep is an unidentified public health issue, especially among university students.⁴

Even a small reduction in the amount of sleep, especially when accompanied with a varying sleep schedule, may cause fatigue.⁵

When College life starts, the students face lot of challenges like new schedules and environment, social obligations as well as academic stress.⁸ The stress of adjusting to the changes in city, environment, food etc., may be reason for this in addition to missing of their homely atmosphere especially for hostellers according to a pilot study assessing quality of life, sleepiness and mood disorder among first year undergraduates.⁹ Studies regarding factors to poor sleep experiences are rare for university students. The contributing factors should be identified and comprehensive measures should be taken to improve the quality of sleep.

The objectives of this study are to study the sleep pattern among MBBS Students and to assess factors influencing sleep among them.

MATERIALS AND METHODOLOGY:

This is an Institutional based, descriptive cross sectional study, done among MBBS students from 1st to final year. Total number of 400 students were expected to be involved, but at the time of study 301 students were involved. A semi structured questionnaire was framed by combining questions from sleep assessment questionnaire and sleep quality assessment (PSQI) in such a way that it was simple to understand and easy to answer, and questions pertaining to their general information, social history and leading questions for assessment of symptoms of sleep patterns like that of disturbed sleep and insomnia were included.

Study was conducted in the class room at the end of teaching session. The questionnaire was given to students after explaining aim of the study and instructions for filling the questionnaire. And completed forms were collected after 15 minutes. The responses were analyzed using EpiInfo7 and Microsoft Excel. Students absent for 3 consecutive visits to class could not be included and also incomplete information was not analyzed.

RESULTS:

Total of 301 students from various academic levels were included in the study, out of which 174 (57.8%) were female and 127 (42.2%) were male students. The other student details are as follows in Table 1.

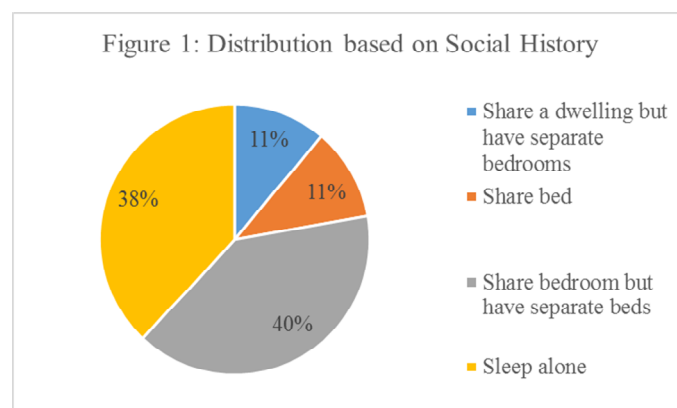
It was observed that 89% of the students had habit of sleeping, either alone in separate bed or separate bedrooms (Figure 1- Distribution based on Social History).

Majority of students (98%) had no health hazardous habits. Just 4 (1.3%) of the students had habit of consuming alcohol occasionally, and 2 (0.7%) students occasionally smoked tobacco. Other habits included consumption of tea or coffee during exams.

Though most of the students preferred familiar bed set up but there were some students (6%) who preferred unfamiliar bed set up.

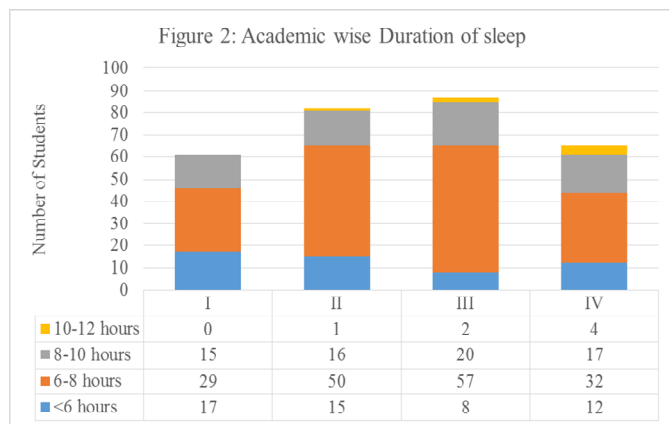
Table 1- General Description of Subjects.

	Total	Male	Female
	(% sum of all categories)	(% out of total)	(% out of total)
Age range (in years) (301)			
<20	156	65	91
	-51.80%	-41.70%	-58.30%
21-24	135	57	78
	-45%	-42.20%	-57.80%
>25	10	5	5
	-3.30%	-50%	-50%
Academic Year (297)			
I	61	21	40
	-20.50%	-34.40%	-65.60%
II	83	42	41
	-28%	-50.60%	-49.40%
III	87	36	51
	-29.30%	-41.40%	-58.70%
IV	66	27	39
	-22.20%	-41%	-59.10%
BMI (284)			
<18.5	40	13	27
	-14.10%	-32.50%	-67.50%
18.5-24	161	65	96
	-56.70%	-40.40%	-59.60%
25-29	70	36	34
	-24.60%	-51.40%	-48.60%
>30	13	8	5
	-4.60%	-61.50%	-38.50%
Address (297)			
Local	148	73	75
	-49.80%	-49.30%	-50.70%
Hostel	149	53	96
	-50.20%	-35.60%	-64.40%



On further analysis it was observed that students had habit of sleeping on an average of 6-8 hours per day. And according to them, the minimum duration of sleep required to continue daily activities normally ranged from 1 to 10 hours, but most (55.8%) of them were aware that minimum of 6 to 8 hours of sleep is necessary to continue daily activities.

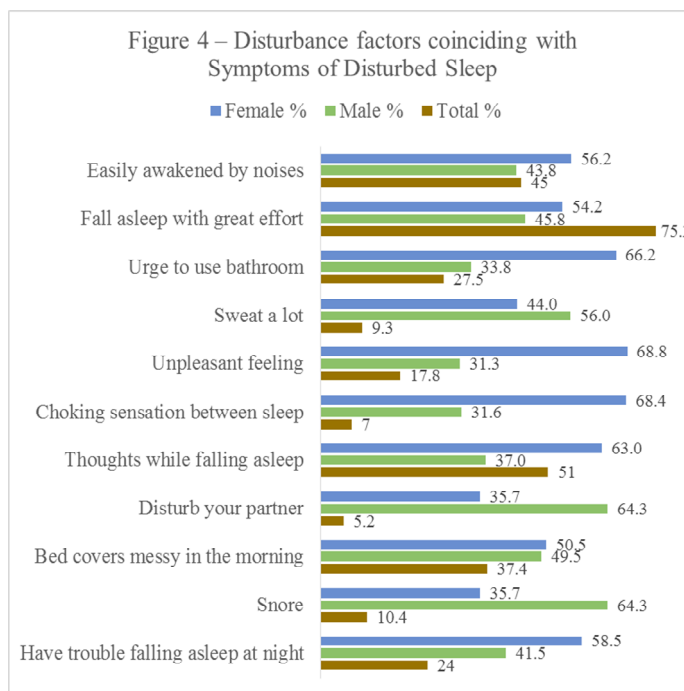
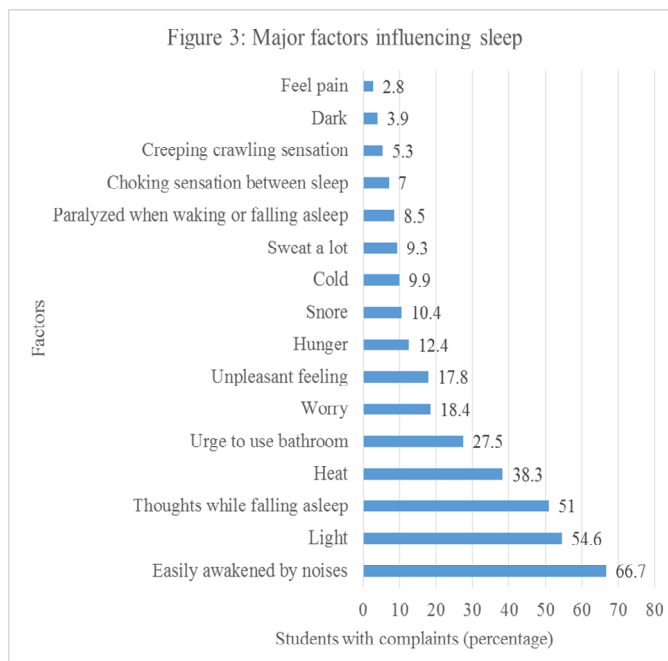
Their sleep pattern varied as shown in Figure 2.



It was observed that a total of around 40.2% (121) complained of being disturbed by noises, 51.2% (154)-light, Heat-36% (108), cold-9.3% (28); 15.6% (74) students would wake up often to use bathroom, 8.3% (25) would sweat a lot during sleep, 16% (48) would have unpleasant feeling during sleep, 6.3% (19) get choking sensation when asleep, 46% (138) had many thoughts going on in mind while falling asleep, 5% (14) who slept with others would disturb them, 33.5% (101) noticed very messy bed covers after sleep, 9.3% (28) were said that they snore loudwhile asleep, 25.6% (65) had trouble in falling asleep, 9.3% (18) preferred unfamiliar bed set up; 5% (15) had creeping or crawling sensation when falling asleep; 2.6% (8) felt pain; 32.2% (97) could not fall asleep without trouble; 8.3% (25) would not fall asleep no matter how hard they try; 27.2% (82) students had trouble going back to sleep once awoken in night; and about 11.6% (35) students would wake up in midnight feeling hungry.

Some of the symptoms of disturbed sleep and insomnia evaluated in this study and its proportion among students are represented in Figure 4 and Figure 5 respectively.

Considering the proportions of factors influencing sleep some major factors affecting sleep are sorted in Figure 3. (Complete description of Factors influencing sleep and the symptoms among students are as shown in Table 2).



In this study it was also observed that students in early academic year (1st year) and under 20 years of age group had more sleep problems compared to other students. The details are as shown in 100% stacked bar graph in Figure 6- age-wise distribution of factors affecting sleep, Figure 7- Distribution of factors influencing sleep according to BMI of students and Figure 8- Academic year wise distribution of factors influencing sleep pattern. (A- Factors coinciding symptoms of disturbed sleep. B- Factors coinciding symptoms of insomnia).

Figure 5- Disturbance factors coinciding with Symptoms of Insomnia.

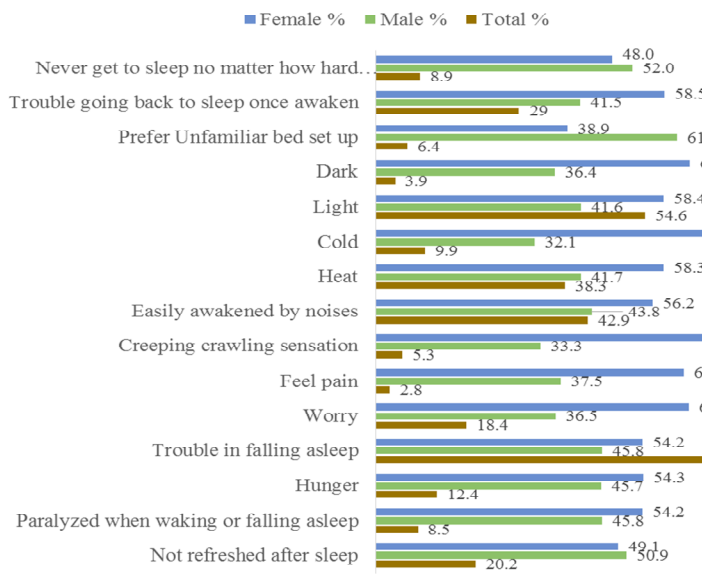


Figure 7- Distribution of factors influencing sleep according to the BMI of students.

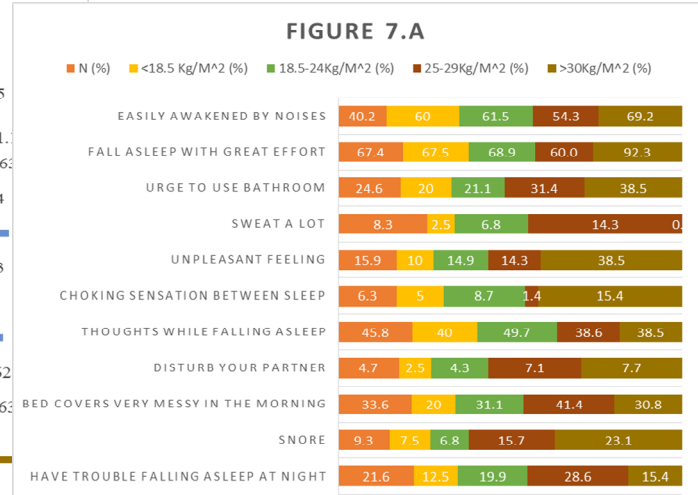


Figure 6- Age-wise distribution of Factors influencing sleep

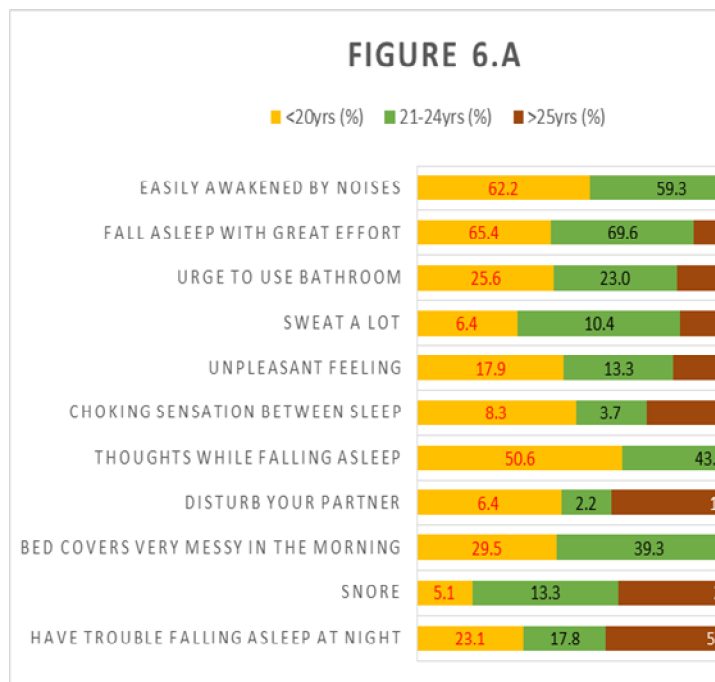


Figure 8- distribution of factors influencing sleep pattern according to Academic year

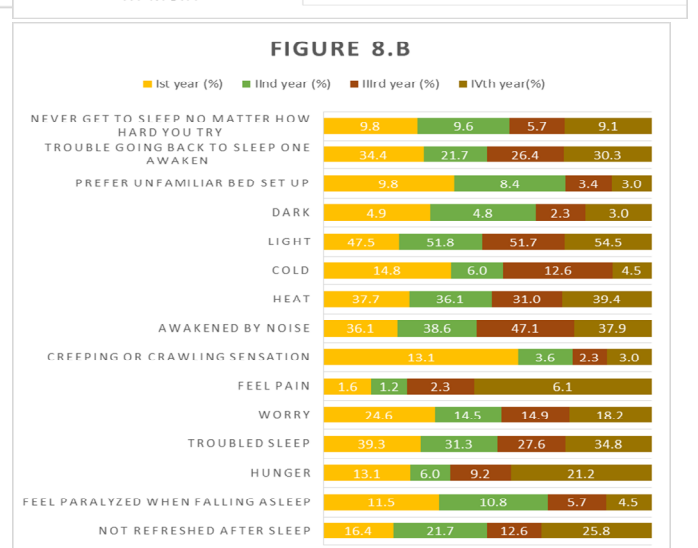
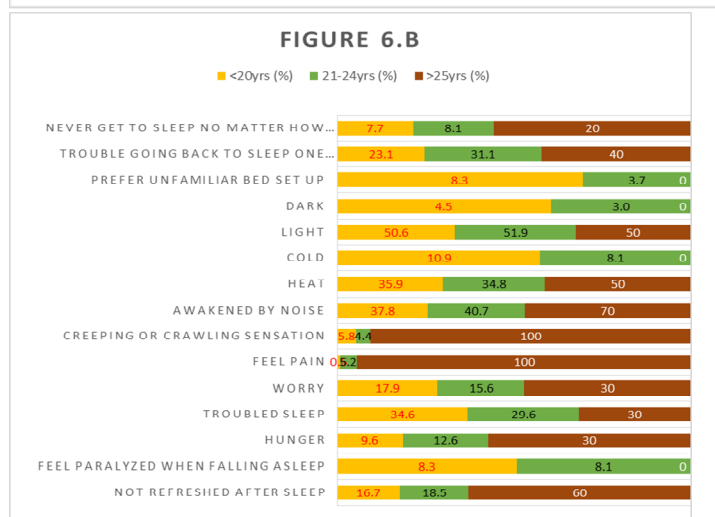
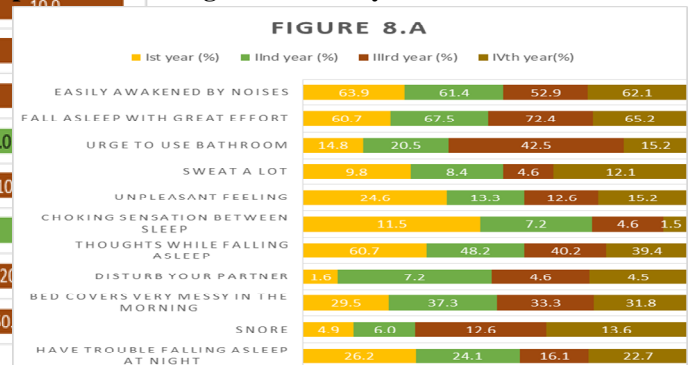


Table 2: Factors influencing sleep, signs and symptoms of disturbed sleep and insomnia.

Sl. no	Factors	Total		Age			Academic year				BMI				Address	
		N	<20	21-24	>25	I	II	III	IV	<18.5	18.5-24	25-29	>30	Hostel	Local	
	Total %	301 %	156 %	135 %	10 %	61 %	83 %	87 %	66 %	40 %	161 %	70 %	13 %	149 %	148 %	
1.	Have trouble falling asleep at night	65 21.6	36 23	24 18	5 50	16 26.2	20 24	14 16	15 22.7	5 12.5	32 20	20 28.6	2 15.4	35 23.5	27 18.3	
2.	Snore	28 9.3	8 5	18 13.3	2 20	3 5	5 6	11 12.6	9 13.6	3 6.8	11 6.8	11 15.7	3 23	17 11.4	11 7.4	
3.	Bed covers very messy in the morning	101 33.6	46 30	53 39.3	2 20	18 29.5	31 37.3	29 33.3	21 32	8 31	50 31	29 41.4	4 30.8	52 35	47 31.8	
4.	Disturb your partner	14 4.7	10 6.4	3 2.2	1 10	1 1.6	6 7.2	4 4.6	3 4.5	1 2.5	7 4.4	5 7.2	1 7.7	8 5.4	6 4.1	
5.	Thoughts while falling asleep	138 45.8	79 50	58 43	1 10	37 60.7	40 48.2	35 40.2	26 39.4	16 40	80 49.7	27 38.6	5 38.5	68 45.6	68 46	
6.	Choking sensation between sleep	19 6.3	13 8.3	5 3.7	1 10	7 11.5	6 7.2	4 4.6	1 1.5	2 5	14 8.7	1 1.5	2 15.4	12 8	7 4.7	
7.	Unpleasant feeling	48 15.9	28 18	18 13.3	2 20	15 24.6	11 13.3	11 12.7	10 15.2	4 10	24 15	10 14.3	5 38.5	26 17.5	20 13.5	
8.	Sweat a lot	25 8.3	10 6.4	14 10.4	1 10	6 10	7 8.4	4 4.6	8 12	1 2.5	11 7	10 14.3	0	13 8.7	12 8	
9.	Urge to use bathroom	74 24.6	40 25.6	31 23	3 30	9 14.8	17 20.5	37 42.5	10 15.2	8 20	34 21.1	22 31.4	5 38.5	40 27	33 22.3	
10.	Fall asleep with great effort	203 67.4	102 65.4	94 70	7 70	37 60.7	56 67.5	63 72.4	43 65.2	27 67.5	111 69	42 60	12 92.3	98 65.8	103 70	
11.	Easily awakened by noises	121 40.2	97 62.2	80 59.3	3 30	39 64	51 61.4	46 53	41 62	24 60	99 61.5	38 54.3	9 69.2	83 55.7	95 64.2	
12.	Not refreshed after sleep	57 18.9	26 16.7	25 18.5	6 60	10 16.4	18 21.7	11 12.6	17 25.8	7 17.5	29 18	13 18.6	2 15.4	28 18.8	27 18.2	
13.	Feel paralyzed when falling asleep	24 8	13 8.3	11 8.1	0	7 11.5	9 10.8	5 5.7	3 4.5	5 12.5	15 9.3	4 5.7	0	13 8.7	11 7.4	

14.	Hunger	35 11.6	15 9.6	17 12.6	3 30	8 13.1	5 6	8 9.2	14 21.2	3 7.5	17 10.6	9 12.9	3 23.1	18 12.1	17 11.5
15.	Troubled sleep	97 32.2	54 34.6	40 29.6	3 30	24 39.3	26 31.3	24 27.6	23 34.8	13 32.5	49 30.4	28 40	1 7.7	103 69.1	42 28.4
16.	Worry	52 17.3	28 17.9	21 15.6	3 30	15 24.6	12 14.5	13 14.9	12 18.2	6 15	29 18	13 18.6	2 15.4	32 21.5	20 13.5
17.	Feel pain	8 2.7	1 0.6	7 5.2	10 100	1 1.6	1 1.2	2 2.3	4 6.1	1 2.5	5 3.1	1 1.4	1 7.7	4 2.7	4 2.7
18.	Creeping or crawling sensation	15 5	9 5.8	6 4.4	10 100	8 13.1	3 3.6	2 2.3	2 3	1 2.5	8 5	5 7.1	1 7.7	10 6.7	5 3.4
19.	Awakened by noise	121 40.2	59 37.8	55 40.7	7 70	22 36.1	32 38.6	41 47.1	25 37.9	16 40	62 38.5	32 45.7	4 30.8	66 44.3	51 34.5
20.	Heat	108 35.9	56 35.9	47 34.8	5 50	23 37.7	30 36.1	27 31	26 39.4	11 27.5	58 36	27 38.6	9 69.2	56 37.6	51 34.5
21.	Cold	28 9.3	17 10.9	11 8.1	0	9 14.8	5 6	11 12.6	3 4.5	4 10	17 10.6	4 5.7	1 7.7	14 9.4	14 9.5
22.	Light	154 51.2	79 50.6	70 51.9	5 50	29 47.5	43 51.8	45 51.7	36 54.5	23 57.5	80 49.7	38 54.3	7 53.8	68 45.6	83 56.1
23.	Dark	11 3.7	7 4.5	4 3	0	3 4.9	4 4.8	2 2.3	2 3	1 2.5	5 3.1	3 4.3	0	6 4	5 3.4
24.	Prefer Unfamiliar bed set up	18 6	13 8.3	5 3.7	0	6 9.8	7 8.4	3 3.4	2 3	3 7.5	11 6.8	3 4.3	0	7 4.7	11 7.4
25.	Trouble going back to sleep one awoken	82 27.2	36 23.1	42 31.1	4 40	21 34.4	18 21.7	23 26.4	20 30.3	8 20	42 26.1	20 28.6	6 46.2	46 30.9	35 23.6
26.	Never get to sleep no matter how hard you try	25 8.3	12 7.7	11 8.1	2 20	6 9.8	8 9.6	5 5.7	6 9.1	3 7.5	14 8.7	6 8.6	1 7.7	15 10.1	8 5.4

(Factors of SL NO: 1 to 11 are coinciding with signs and symptoms of disturbed sleep whereas factors 10 to 24 coincide with signs and symptoms of insomnia.)

DISCUSSION:

The two main stages of sleep alternate at about 90-minute interval. And any form of disturbance in this duration of 90 minutes can have consequences on activities of whole day.

Social history is one of the factor in building the pattern of sleep and most of the students have change in environment of sleep due to change in their habitat. Thus they are more prone for disturbed sleep. In this study it was observed that students staying away from home had more sleep concerns compared to those who stayed at home.

Recent surveys show that nearly 75% of university students reported occasional sleep problems such as difficulty falling asleep, sleep disturbances.⁴

A study by Gwiria, et al on the prevalence of sleep problems and its impact on sleep quality and academic performance mentions that prevalence of sleep problems is more among the female medical students.⁶

Study by Veldi M, et al. demonstrates that complaints about sleep problems are common in young medical students⁷. In this study also it was observed that more number of females and students of 1st and 2nd academic year complaint of disturbances in sleep than others.

Experimental studies have demonstrated that a shift in bedtime by two hours while maintaining the same sleep duration resulted in increased feelings of depression, difficulty in concentration and mood changes.⁸

Some experts have claimed that basic amount of sleep is around 6 hours per night¹⁰. In this study also students slept on an average of 6 to 8 hours, and considered that minimum of 7 hours of sleep is required to continue normal daily activities. Medical students are a unique group of young adults whose academic commitments and lifestyle can impact their sleep habits and result in sleep deprivation⁸.

It is a known fact that there is activation of sensory systems during REM sleep, this is the reason individual feels unpleasant while asleep and have various signs like choking sensation, feel pain, creeping and crawling sensation, etc. Stressful events such as examinations, relationship problems and worry can also be precipitating factors for the sleep problems.

Pre-sleep cognitions, i.e., active thinking, worrying, planning, and analyzing at bedtime are significantly correlated with insomnia. Prevalence of Sleep disturbances are more common among medical students than among non-medical students and the general population¹¹.

Thus, among medical students, sleep disturbance is a distressing and disabling condition that can effect on quality of work and education¹². And medical students are said to be at great risk of having bad sleep practice and hygiene due to demanding clinical and academic activities.¹³

Survey among university students using the Sleep Hygiene Awareness and Practice Scale and the Pittsburg Sleep Quality Index and showed that the practice of proper sleep habits was related positively to good sleep quality¹⁴.

These are just some of the factors disturbing sleep pattern. If not corrected can have hazardous outcomes like insomnia, depression, parasomnia, etc.

CONCLUSION:

Despite of sleeping for an average of 7 hours per day, students would not feel refreshed and desired to sleep for longer duration. And this need could not be met sometimes even on holidays, especially among medical students.

Some students would feel hungry after a short duration of sleep, this could be due to insufficient intake of dinner. Thoughts or unpleasant feelings before or during falling asleep could be due to the stress during the day. Some students also complained of snoring aloud or choking sensation this could be due to involvement of other system of body like respiratory system or neurological condition.

In the study the most common disturbing factor were noise and light and plenty of thoughts racing in mind before falling asleep. Messy bed covers in the morning

indicate rapid movements during sleep this is the indication for disturbed sleep and subconscious attempt to be comfortable while asleep.

And majority of the students sleep alone more comfortably than sharing bed with anyone else.

This study shows that students of academic year II and III had comparatively more complaints of sleep disturbance than other year students. And also students below 20 years of age had more complaints of disturbed sleep than others.

This study also shows that staying away from home is associated with more incidence of disturbed sleep.

RECOMMENDATIONS:

Academic requirements cannot be modified easily but lifestyle changes can improve quality of sleep and prevent its hazardous consequences. For students it is important to maintain sleep hygiene. Some tips to improve quality of sleep among students of MBBS group are:

1. Get a full night's sleep on a regular basis.
2. Get up at the same time every morning.
3. Avoid taking naps during daytime.
4. Keep a regular schedule. (Regular times for meals, medications, chores, and other activities).
5. Avoid using mobile or other gadgets before going to sleep.
6. Do not go to bed hungry, but don't eat a big meal near bedtime either.
7. Do not drink plenty of water after 6 P.M, especially near bedtime.
8. Try to get rid of worries by discussing with close people (friends, relatives)
9. Try to get rid of disturbances by discussing with family members.
10. Make the surroundings comfortable before going to sleep. (Level of luminosity, speed of fan or air cooler).

LIMITATIONS: Not all the questions were answered by all the students so the incomplete data is not utilized.

Conflict of interest: None

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