

To Estimate the Prevalence of Sleep Deprivation and To Assess the Awareness & Attitude towards Related Health Problems among Medical Students in Saveetha Medical College

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Abstract:-

➤ Introduction:

Sleep disorders, especially insomnia and excessive daytime sleepiness, are common disorders seen amongst approximately one-third of the adult population. These disorders are known to increase the prevalence of various somatic diseases, psychiatric disorders as well as social problems. Medical students are more predisposed to poor sleep due to their longer work hours, higher intensity of study and academic load, clinical, and other lifestyle choices.

➤ Aim & Objectives:

To estimate the prevalence of sleep deprivation and to assess the awareness and attitude towards related health problems among medical students in a private college.

➤ Materials and Methods:

The study was conducted in a private medical college in Tamil Nadu. This study is a cross-sectional study. The sample size was calculated using the d-squared formula and calculated to be 400. Data was collected using the self-reportable sleep and Daytime Habits Questionnaire (S&DHQ). It covered demographic characteristics (4 questions) and sleep and daytime habits (24 questions). The supplement includes information about lifestyle and academic progress on a four-point scale. The 'Effects of sleep deprivation' section contains 6 questions and focuses on the ill-effects of sleep deprivation.

➤ Results:

The S&DHQ was used to study sleep problems, assess sleep quality and ill-effects of sleep deprivation in young medical students. The subjective sleep quality of students was as follows: excellent- 12 percentile; good- 38 percentile; satisfactory- 34 percentile; poor-13 percentile; very poor- 2 percentile.

➤ Conclusion:

The results of the study depict that approximately 50 percentage of medical students have sleep deprivation. There was no association between sleep quality and mode of study. There was a high association between sleep quality and academic progress ('p' lesser than 0.0001). The most common sleep disorders were snoring and waking up because of nightmares.

Keywords:- Sleep Deprivation; Insomnia; Medical Students; Related Health Disorders.

I. INTRODUCTION

Sleep disorders, especially insomnia and excessive daytime sleepiness, are common disorders seen amongst approximately one-third of the adult population [1,2,6]. These disorders are known to increase the prevalence of various somatic diseases, psychiatric disorders as well as social problems [3-5]. Out of the general population, medical students are more predisposed to poor sleep due to their longer duration, higher intensity of study and academic load, clinical duties that include night duties, long hours, work that can be emotionally challenging, and other lifestyle choices [7]. There is a large methodological difference in the definition and characterisation of sleep disorders hence causing a large variation in estimating the prevalence. From the previous studied related to sleep disorders, one can conclude that the major risk factors for sleep disturbances are age, sex, socioeconomic status, life habits, and psychological factors [8,9]

The study documents the results of a survey based on a self-reported questionnaire on sleep quality and daytime habits, which also includes a supplementary section about lifestyle, academic progress and other related disorders.

There is a well-established relationship between sleep and mental health and hence is of phenomenal importance among young medical students [10]. The intensive medical programme is known to induce a lot of stress in medical students and sleep disorders worsen the situation by leading long-term consequences on the individual's health and also affects their efficiency in their practise [11,12]. Good

quality sleep is of prime importance for optimal neurocognitive and psychomotor performance, physical and mental health [13]. This study focuses on assessing the prevalence of sleep deprivation among Indian medical students pursuing their undergraduate degree in Saveetha Medical College and associated adverse effects on health, if any.

II. METHODOLOGY

➤ *Study Setting:*

The present study was conducted among the students of Saveetha Medical College and Hospital in Chennai, Tamil Nadu.

➤ *Study Design and Sample:*

It is a cross sectional study and was conducted between January and March 2019. Sample size was calculated using the formula $4pq/L^2$, an absolute allowable error as 15%, to be 400 students. The required number of students were enrolled by simple random sampling.

➤ *Data Collection:*

Eligible participants were made to answer the self-reportable Sleep & Daytime habits questionnaire at a convenient time using google maps or a printed form. Anonymity of the study participants was maintained to enhance the participation rate and to ensure confidentiality. Details about age, gender and year of study were collected. The questionnaire includes questions to assess the knowledge about sleep disorders, the awareness and attitude towards the problem.

Microsoft Excel for Mac iOS was used to analyse the data. Chi square test was applied to assess the significance and association between various study variables. Two-sided $p < 0.05$ will be considered as statistically significant.

Approval of the Institutional Review Board and Ethics Committee of Saveetha Medical College & Hospital was obtained before the commencement of the study. Informed written consent was taken from all the study participants for voluntary participation. All information collected was kept private and confidential.

III. RESULTS

➤ *Sleep Quality*

The total number of students involved in the study were 402. Out of the sample size (402), 49 (12%) students reported excellent sleep quality, 152 (38%) students reported good sleep quality, 138 (34%) as satisfactory, 54 (13%) students as poor sleep quality, and 8 (2%) students as very poor quality. There was no association between sleep quality and sex (p value= 14.2, i.e., >0.05 , therefore not significant.)

There was also no association with sleep quality and where the students stayed, i.e., hostellers or day scholars (p value = 9.6, i.e., >0.05 , therefore not significant). There was also no significant association of sleep quality with respect of year of study though a slightly higher incidence of poor sleep quality was reported by higher years of year and better sleep quality among the early years of study.

➤ *Academic Progress*

Academic progress has a significant association with sleep quality and daytime habits ($p < 0.0001$) [2]. Out of the study population, the following academic progress was observed- Excellent = 6 (1%), Good=168 (42%), Satisfactory= 152 (38%) and Unsatisfactory= 51(13%). This statistic indicates better academic performance among those with better sleep quality. Academic progress was almost similar among both genders and there was no significant difference.

➤ *Living Conditions*

The living conditions is a subjective-criteria and according to the study population, 56(14%) reported excellent living conditions, 201 (50%) reported good, 119 (30%) as Satisfactory and 25 (6%) as Unsatisfactory. Better living conditions were reported more among day scholars in comparison to hostellers. Though better living conditions were reported among day scholars, there was no significant association with respect to sleep quality and living conditions.

➤ *Effects of Sleep Deprivation*

This table shows the proportion of sleep disorders as reported by members of the study. It is on a five-point scale graded as- How often during the week :

- 1: never or almost never
- 2: less than once a week
- 3: once or twice a week
- 4: 3-5 nights/days a week
- 5: almost every day or night

	1		2		3		4		5	
Do you go to bed at an unusual time (later than usual) at night?	52	13%	86	21%	136	34%	66	16%	81	15%
Do you have difficulty in getting to sleep at night?	147	37%	99	25%	101	25%	36	9%	18	4%
Do you drink coffee late in the evening?	243	61%	52	13%	65	16%	24	6%	17	4%
Do you use sleeping pills?	375	94%	13	3%	6	1%	2	<1%= 0%	5	1%
Do you wake up because of noise?	162	40%	111	28%	79	20%	30	7%	19	5%
Do you wake up because of nightmares?	166	41%	127	32%	72	18%	23	6%	13	3%
Do you wake up because of talking during your sleep?	322	80%	36	9%	29	7%	11	3%	3	1%
Do you wake up because of walking during your sleep?	375	94%	11	3%	11	3%	0	0%	4	1%
Do you wake up because of nocturnal eating habits?	335	84%	47	12%	12	3%	5	1%	2	<1%= 0%
Do you wake up because of leg movements or disagreeable leg sensations?	270	67%	66	16%	38	9%	19	5%	8	2%
Do you snore?	309	77%	49	12%	30	7%	7	2%	6	1%
Do you grind your teeth while asleep?	344	86%	29	7%	12	3%	14	3%	2	<1%= 0%
Do you wake up too early and have difficulty in getting to sleep again?	223	56%	92	23%	52	13%	28	7%	6	1%
Do you feel tired when waking up?	57	14%	89	22%	123	31%	62	15%	70	17%
Do you feel daytime sleepiness?	41	10%	90	22%	114	28%	101	25%	55	14%
Do you feel excessive sleepiness during the lectures?	43	11%	90	22%	101	25%	97	24%	70	17%
Do you feel excessive sleepiness in your free time?	99	25%	135	34%	89	22%	50	12%	28	7%
Do you take daytime naps?	67	17%	133	33%	110	27%	48	12%	43	11%

Table 1

IV. DISCUSSION

This study was conducted using the Sleep and Daily Habits questionnaire which gave a significant insight in understanding the prevalence and trend of sleep deprivation among medical students in Saveetha Medical College. Out of the 402 students included in the study, almost 50% of students reported having satisfactory to very poor sleep quality which is alarmingly high and in concurrence with previous studies which report higher incidence of sleep deprivation and disorders among medical students [7]. To add to the problem, Sleep quality was reported to be even worse during exams with an alarming 85% of students having satisfactory to very poor sleep quality. Main emphasis was laid on identifying which factors may have caused sleep deprivation such as gender, year of study, living conditions, etc. There was no variation of sleep quality with respect to gender, year of study and living conditions. Sleep quality has a significant effect on psychomotor and mental functioning and hence a higher proportion of students with better sleep quality showed better academic performance [3-5].

A lot of sleep disorders were analysed in the study like snoring, sleep bruxism, somnambulism (sleep walking), disagreeable leg movements/sensations, etc. As

suspected, there was a high incidence of these sleep disorders among medical students. The disorders that showed highest prevalence were daytime sleepiness and excessive sleepiness, abnormal circadian rhythm indicated by day time naps, inability to fall asleep until late at night, a feeling of tiredness while waking up, etc. Though late bedtime was reported by the majority, only a few of them compensated by waking up late and hence had better sleep quality.

Along with disorders of sleep deprivation, there are other unfavourable effects of sleep deprivation that are noted among students. The most common effect of sleep deprivation was the inability to concentrate in academic lectures, with a whopping 79% of students reporting the finding. Due to difficulty in concentrating in class, there was also a difficulty in assimilating new topics taught in class, which was reported by 66% of students. Sleep disorders are known to be associated with motor and psychosocial aspects of functioning [3-5] and due to lack of good quality sleep, 46% of students reported having depression and depressive thoughts and 8% even have had hallucinations. These detrimental effects of sleep deprivation are very dangerous to their quality of life and to those surrounding them.

In a similar study set in Delhi Government College, high prevalence of depression (32.1%), anxiety (40.1%), and stress (43.8%) was reported among medical students [14]. The high prevalence of depression, anxiety and stress could've been associated to various lifestyle factors and majorly sleep deprivation, and was also shown to improve on proper counselling, better sleep and sometimes with drug therapy.

Improper sleep also meddles with normal physiology of the body causing some abnormalities in metabolism and other systems in the body. Female reproductive system is highly sensitive to any disturbances in normal functioning of the body and hence, 43% of females who took part in the study reported having irregular menstrual cycles of varying duration, missed menstrual phase, dysmenorrhoea, etc. There was also a complaint of fluctuation in weight as reported by 56% of study population.

V. CONCLUSION

In conclusion, there is a high incidence of sleep deprivation and other related disorders in medical students of an Indian medical college. This is very common among all medical students and needs to be improved on. There needs to be more awareness regarding the issue and its detrimental effects and hence, poster presentations, lectures on this topic, etc. must be done to highlight the issue and find appropriate solution for it. Knowledge on this particular subject was also pretty poor among students involved in the study so more emphasis must be laid on this subject. Identification of sleep deprivation, its associated disorders, the treatment and other related aspects must be taught and put into general medical practise. Better time managements such as regular and frequent studying, avoiding last-minute exam preparation, etc. must be adopted by students to prevent lack of proper quality sleep and thus decrease incidence of sleep disorders. Mnemonics and other methods helpful in preparation must be taught which can reduce the academic burden of memorising the large subject matter in medical studies.

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