



SLEEP PATTERNS AMONG UNDERGRADUATES AND INTERNS IN A GOVERNMENT MEDICAL COLLEGE, TELANGANA

Dr. Usha Rani Chadalawada

Prof & HOD, Dept. of PSM, GMC, Mahabubnagar

Dr. Jyothi Veleshala*

Assistant Professor, Dept. of PSM, GMC, Mahabubnagar*Corresponding Author

Dr. Arya TS

Post graduate, Dept. of PSM, GMC, Mahabubnagar

Dr. Arubam Beegita

Post graduate, Dept. of PSM, GMC, Mahabubnagar

Dr. Chandralekha Makam

Post graduate, Dept. of PSM, GMC, Mahabubnagar

ABSTRACT **BACKGROUND:** Sleep is a basic human need and is essential for good health, good quality of life and performing well during the day. The main effect of sleep deprivation includes physical effects, cognitive impairment and mental health, complications. Inadequate rest impairs the ability to think, to handle stress, to maintain a healthy immune system and to moderate emotions. Change in sleep pattern and sleep deprivation are a common finding in healthcare professionals as is evident by the numerous articles published related to this topic. Creating awareness regarding the hazards of sleep deprivation and the importance of sleep quality is the need of the hour.

OBJECTIVES:

- 1) To determine sleep pattern among the undergraduates and interns.
- 2) To assess risk factors leading to sleep deprivation among the study population.

METHODOLOGY: This is a cross – sectional study to determine sleep patterns among Medical undergraduates and Interns of a Government Medical College in Mahabubnagar, Telangana. The study was conducted using Pittsburgh Sleep Quality Index (PSQI) scale. **RESULTS:** Out of the study population nearly 54% have poor sleep quality. Highest contributing factors being Overweight(66.6%), Stress (65.3%) , Caffeine consumption (65%) , Screen time in general leading to disturbed sleep. Other factors being overweight, alcoholism and smoking.

CONCLUSION: More than half of the study population has poor sleep quality influenced by the above mentioned factors, which in long run can impact their physical, mental and emotional well being if proper and judicious measures are not taken.

KEYWORDS : PSQI, Undergraduates, Interns, Sleep quality

INTRODUCTION

Sleep, which is directly related to health and quality of life, is a basic need for a human being to continue his bio-psycho-social and cultural functions^[1]. Good quality and adequate amount of sleep is necessary for being healthy. It is recommended to take 7 or more hours of sleep per night for adults^[2]. 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^[3].

Sleep disturbance is frequently considered the most serious consequence of environmental noise by WHO^[4]. Sleep disturbance is a psychiatric disorder, which impairs the ability to think, to handle stress, to maintain a healthy immune system, and to moderate the emotions. Sleepiness is inversely proportional to hours of sleep and it may have substantial adverse effect on general health and quality of life^[5]. Adequate sleep has proven important to the mental and physical well-being of the human species, and a supposed chronic lack of sleep has been previously linked to impairment of neurobehavioral function^[6].

Medical students are one subgroup of the general population who appear to be especially vulnerable to poor sleep, perhaps due to the long duration and high intensity of study, clinical duties that include overnight on-call duties, work that can be emotionally challenging, and lifestyle choices^[7]. Sleep disruption is described as a pandemic in the population of medical students compared to the general population^[8]. Poor sleep hygiene can have an adverse effect on patient care and safety by lowering cognitive function, judgment, and clinical abilities^[9]. Additionally, sleep disorders and disturbances can worsen mental health conditions like depression, anxiety, and burnout as well as raise the risk of developing chronic illnesses like diabetes and cardiovascular disease^[9,10]. The majority of studies on stress in medical education focuses on the documentation of stress and information on the correlates of stress^[11,12].

In view of paucity of literature regarding sleep patterns, despite being

an important aspect in medical students the present study was planned to assess the sleep pattern and associated risk factors among undergraduate medical students and interns with the following objectives:

OBJECTIVES

1. To determine sleep patterns of the Medical undergraduates and Interns of Government Medical College, Mahabubnagar.
2. To assess risk factors leading to sleep deprivation among the study population.

MATERIAL AND METHODS

STUDY AREA

This cross sectional study was conducted at Government Medical College and Government General Hospital, Mahabubnagar during December 2023.

STUDY POPULATION

Undergraduates from first, second, third and fourth professional years and interns were included in the study. Those who are having any physical or psychological illnesses, those not willing to participate were excluded

SAMPLE SIZE

According to a study conducted by Rangesh HD et al^[13], (2023) in Tamil Nadu, the prevalence of sleep disorder was found to be 75.1%. So, taking the prevalence of sleep disorder as 75.1%, the sample size according to formula $4PQ/L2$ and taking relative error of 5%, the sample size comes out to be 300.

STUDY TOOLS

1. A self-designed, semi structured questionnaire along with PSQI(Pittsburgh sleep quality index) was used. Pre-testing of the questionnaire was done. Subsequent to the findings of pre-testing, the questionnaire was suitably modified.

2. Pittsburgh sleep quality index (PSQI) contains 19 self-rated questions and 5 questions rated by the bed partner. Only self-rated questions are included in the scoring. Each component is weighted on a 0 to 3 scale. Where a score of "0" indicates no difficulty and a score of "3" indicates severe difficulty. The global PSQI score is then calculated by totaling the score of the seven components, providing an overall score ranging from 0 to 21, where lower scores denote a healthier sleep quality. A score of less than 5 is considered as good sleep quality and a score more than five is considered as poor sleep quality.

STATISTICAL ANALYSIS

The data was entered in a master sheet on MS Excel and later transferred from MS Excel to SPSS licensed Software version 29.0 for analysis. Data validation checks were performed at regular interval for the data entered in the worksheet of MS Excel. Simple tables and cross tables were made. Appropriate diagrams were made to illustrate the results e.g. Tables. For qualitative data analysis Chi-square test was used.

RESULTS

Out of a total of 300 study subjects, 88(29.33%) were male and 212(70.67%) were female. 60 students each from 1st, 2nd, 3rd and 4th year and 60 interns participated in the study. Majority were in the age group of 18-20 years (45.66%). Most of the study participants (42.33%) belong to middle class according to Modified B G Prasad socioeconomic status classification 2023.

TABLE.1. SOCIODEMOGRAPHIC DATA OF STUDY PARTICIPANTS

Characteristics		No%
Gender	Males	88 (29.33%)
	Females	212 (70.67%)
Age group	18-20	137 (45.67%)
	20-22	120 (40%)
	22-24	43 (14.33%)
Socio-economic status(B G Prasad classification 2023)	Upper class	29 (9.67%)
	Upper middle class	46 (15.33%)
	Middle class	127 (42.33%)
	Lower middle class	71 (23.67%)
	Lower class	27(9%)

TABLE.2. YEAR WISE DISTRIBUTION OF SLEEP QUALITY

	GOOD	DISTURBED	HIGHLY DISTURBED	TOTAL
1st Year	28 (46.7%)	32 (53.3%)	0	60
2nd Year	28 (46.7%)	32 (53.3%)	0	60
3rd Year	31 (51.7%)	27 (45.0%)	2 (3.3%)	60
4th Year	28 (46.7%)	32 (53.3%)	0	60
Intern	22 (36.7%)	34 (56.7%)	4 (6.7%)	60
TOTAL	137 (45.6%)	157 (52.3%)	6 (2%)	300

Out of the total study population of nearly 54% have poor sleep quality. Table.2 shows that 46.7% of the first year students have good sleep quality whereas 53.3% have disturbed sleep. Among the second year students, 53.3% are having disturbed sleep patterns. In case of third year students, 45% have disturbed sleep and 3.3% have highly disturbed sleep. In fourth year students, 46.7% and 53.3% are having good quality and disturbed sleep respectively. Sleep deprivation was more prevalent among interns (63.4%) than undergraduates. Among interns 56.7% were having disturbed sleep patterns and 2% were having highly disturbed sleep.

TABLE.3. STRESS V/S QUALITY OF SLEEP

	GOOD	DISTURBED	HIGHLY DISTURBED	TOTAL	
BELOW MODERATE	84 (64.6%)	46 (35.4%)	0	130 (43.3%)	p<0.01

MODERATE AND HIGH STRESS	53 (31.2%)	111 (65.3%)	6 (3.5%)	170 (56.7%)	X2 =33.2
TOTAL	137	157	6	300	

Table.3. shows 64.6% of people with below moderate stress have good sleep and 35.4% have disturbed sleep patterns. 3.5% among moderate and high stressed students have highly disturbed sleep, 65.3% have disturbed sleep. It was found that the association between stress and sleep quality is statistically significant.

TABLE.4. CAFFEINE CONSUMPTION V/S SLEEP QUALITY

	GOOD	DISTURBED	HIGHLY DISTURBED	TOTAL	
DONT CONSUME	61 (52.6%)	53 (45.6%)	2 (1.7%)	116 (38.7%)	p<0.02
OCCASIONAL	52 (45.2%)	63 (54.7%)	0	115 (38.3%)	
WEEKLY	13 (33.3%)	23 (59%)	3 (7.7%)	39 (13%)	X2 =3.65
DAILY	11 (36.7%)	18 (60.0%)	1 (3.3%)	30 (10%)	
TOTAL	137	157	6	300	

Table.4. shows that 52.6% of people who are not consuming coffee are having good sleep, 45.6%, 1.7% are having disturbed and highly disturbed sleep respectively. 54.7% of people with occasional consumption are having disturbed sleep and among those who consume weekly 59% reports disturbed sleep and 7.7% highly disturbed sleep. In the study participants who consume caffeine daily, 60% having disturbed sleep and 3.3% are having highly disturbed sleep. We found that the association between caffeine consumption and sleep quality is significant.

TABLE.5. SCREEN TIME V/S SLEEP QUALITY

	GOOD	DISTURBED	HIGHLY DISTURBED	TOTAL	
<2 HOURS	11 (40.6%)	18 (59.4%)	0	29 (10%)	p<0.18
> 2 HOURS	126 (46.5%)	139 (51.3%)	6 (2.2%)	271 (90%)	X2 =0.46
TOTAL	137	157	6	300	

It is seen from table.5. that 40.6% among study participants with <2 hours screen time 40.6% have good sleep quality and 59.4% have disturbed sleep. In the students with >2 hours screen time 46.5% have good sleep pattern, 51.3% , 2.2% have disturbed and highly disturbed sleep quality.

TABLE.6. ALCOHOL V/S SLEEP QUALITY

	GOOD	DISTURBED	HIGHLY DISTURBED	TOTAL	
NO	120 (46.7%)	135 (52.5%)	2 (0.8%)	257 (85.7%)	p<0.19
OCCASIONALLY	16 (43.2%)	18 (48.6%)	3 (8.1%)	37 (12.3%)	
WEEKLY	1 (16.7%)	4 (66.6%)	1 (25%)	6 (2%)	X2 =0.76
TOTAL	137	157	6	300	

Table.6 shows that 46.7% of participants who are not consuming alcohol have good sleep and 52.5%, 0.8% of them are having disturbed, highly disturbed sleep respectively. 48.6% of participants with weekly consumption have disturbed and 8.1% have highly disturbed sleep. Among the participants who consume alcohol daily 66.6% have disturbed sleep and 25%, 2% have disturbed and highly disturbed sleep respectively.

TABLE.7. SHARING OF BED VS SLEEP QUALITY

	GOOD	DISTURBED	HIGHLY DISTURBED	TOTAL	
SHARES BED	41 (47.7%)	43 (50.0%)	2 (2.3%)	86 (28.7%)	p<0.32
SLEEPS ALONE	96 (44.9%)	114 (53.3%)	4 (1.8%)	214 (71.3%)	X2 =0.19

TOTAL	137	157	6	300	
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Among the participants who shares bed 47.7% have good sleep and 50%, 2.3% have disturbed and highly disturbed sleep respectively. Table.7 shows that in the students who are sleeping alone 53.3% have disturbed sleep and 1.8% have highly disturbed sleep. There was no significant association between bed sharing and sleep quality.

TABLE 8: BMI Vs SLEEP QUALITY

	Good	Disturbed	Highly disturbed	Total	
No	133 (44.9%)	148 (53.1%)	4 (1.91%)	285 (95%)	p<0.06
Occasionally	3 (37.5%)	5 (62.5%)	-	8 (2.7%)	
Weekly or more	1 (16.6%)	4 (50%)	2 (33.4%)	7 (2.3%)	X ² =2.297
Total	137	157	6	300	

Among the overweight participants, 29.4% have good sleep quality, 66.6%, 1.9% have disturbed and highly disturbed sleep quality respectively. In table.8 it can be seen that 37.5% of obese people have disturbed sleep. It was found that there is no significant association between BMI and sleep quality.

TABLE.9.SMOKING V/S SLEEP QUALITY

	GOOD	DISTURBED	HIGHLY DISTURBED	TOTAL	
UNDERWEIGHT	17 (51.5%)	15 (45.5%)	1 (3.0%)	33 (11%)	p<0.08
NORMAL WEIGHT	97 (47.1%)	105 (51%)	4 (1.9%)	206 (68.7%)	
OVERWEIGHT	18 (29.4%)	34 (66.6%)	1 (1.9%)	53 (17.7%)	X ² =1.95
OBESE	5 (62.5%)	3 (37.5%)	-	8 (2.6%)	
TOTAL	137	157	6	300	

Out of the participants who smoke occasionally, 62.5% reported disturbed sleep and those who smoke weekly , 50% have disturbed and 33.4% have highly disturbed sleep. No statistical significance was found between smoking and sleep quality.

DISCUSSION

In our study, 54% of medical students demonstrated poor sleep quality as per PSQI scale. Similarly 53% medical students reported poor quality of sleep in the study done by Rajiv Kumar Singh et al[14] at Kerala and similarly 66.1% reported changes in sleep pattern in the study done by Kusum Gandhi et al[15] at Bhopal (2021). Whereas in the study done by Aakansha Bharti et al,[16] a fairly bad and very bad subjective sleep quality was reported by 15.1% subjects. Anuradha et al [17] from Chennai reported 54.2% of the students had poor sleep quality, whereas Basu et al[18] reported 63.48%.

In the present study, interns (63.4%) was found to have poorer sleep quality as compared to undergraduates similar to study done by Rachana K Nair et al[19] at Mysuru where interns have poorer sleep quality. They state that it is mainly because of their hectic COVID duties and the pressure of preparation for PG entrance examination. Giri PA et al[20] states that Postgraduates and undergraduates showed a higher percentage of sleep disturbances as compared to interns.

The relationship between sleep quality and stress in the present study came to be significant (p<0.05) and this result is consistent with the study done by Aakansha Bharti et al[16] at New Delhi in 2021. Studies by A I Almojali et al,[21] (2017) and Khani et al., (2019) also suggested a statistically significant association between sleep quality and stress. But our study deviates from the result of Arini Dyah Saputri et al(2023).[22]

According to our study the consumption of alcohol,caffeine were found to be contributing to reduced quality of sleep similar to study conducted by Mandar Baviskar et al at Loni.[20]

This current study proves no statistically significant association between BMI and quality of sleep , similar to the study conducted by Yusra Amin et al at Jammu in 2019. [23]

CONCLUSION

Sleep has a very important impact on a person's health. There is high prevalence of poor sleep quality among the medical students as per PSQI score and clearly explains the impact of stress on sleep. Also, association between stress factors and change in sleeping pattern were observed. Along with that over-weight, stress, caffeine, screen time, alcohol consumption and smoking were observed to be some factors contributing for poor sleep quality.

RECOMMENDATIONS

The results of the study highlights a strong need for providing a healthy stress free environment as well as counseling activities to promote good sleep hygiene among students.

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