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Stress and Sleeping Difficulties among First Year Medical Students

Authors
Deepa.G[1], Rupa.G[2]
[1,2]Assistant professor of Physiology, Govt. Medical College, Thiruvananthapuram
Corresponding Author
Deepa G
Dept. of Physiology, Govt. Medical College, Thiruvananthapuram, PIN 695011
Email: *deepamch@gmail.com, Mobile No: 9447090258*

ABSTRACT
Background: *In recent years, there has been a growing incidence of the issues of stresses involved in medical education that can seriously affect their learning and academic performance. They may cut short their leisure activities and hours of sleep in order to achieve their goals. A cross-sectional, questionnaire-based study was carried out among the first year undergraduate medical students of Government Medical College, Thiruvananthapuram. Majority of students had perceived stress (68.4%). Stress was not found to differ significantly on the basis of sex, age, place of residence and stay at hostel. Significant association was there between stress and poor family income and sleep disturbances (76%).*
Keywords: *perceived stress, stress score, medical students, sleep quality, conventional teaching.*

Introduction

Medicine is one of the most stressful fields of education because it demands high levels of academic and professional skills. Extensive work load combined with lack of leisure time, limited contacts with family and friends, less family income, high parental expectations and worry about future may contribute to medical student's stress [1,2,3,4].

Students may cut short their time for leisure activities and sleep in order to achieve their goals. Stress during medical training is increasingly being reported in published literature from various developing countries like India, Thailand, Malaysia and Pakistan [5,6,7,8,9].

Sleep is a physiological process for human beings, essential to life. Good quality as well as amount of sleep are essential for the students to have better cognitive performance and avoid physical and mental health problems. The quantitative component of sleep includes the duration while the qualitative component is a subjective measure of depth and feeling of restfulness upon awakening [10]. Medical students are considered as a population that is very much vulnerable to sleep related problems [6]. Most of the medical schools in India follow the conventional method of didactic teacher-centred techniques during the first year of MBBS like long lectures, tutorials, non-problem based learning and practical classes. Students have to face frequent exams – theory, practical and viva, throughout first year, for which they are given internal assessment marks. A pass grade has to be scored by the student to qualify for the next academic year. This adds the stress and disturbs the sleep of the student.

In this medical college, there are students from different districts of Kerala as well as from other states of India, who belong to different cultural, socioeconomic and educational backgrounds. The present study is to find out the level of stress, quality of sleep as well as the association between level of stress and sleep among first year MBBS students who got admission during 2014 in this medical college.

Materials and Methods

Study Design

This was a cross sectional study done in all students (200) of first MBBS course, who got admission during the year 2014. The Institutional Ethical Committee and Research Committee approved this study. All students who were present during 3 consecutive sessions while taking the questionnaire were included and those who were unwilling or absent during these sessions were excluded. We got 196 completed questionnaires. In order to avoid bias, the data were collected after their University theory and practical examinations (as the study population included was 'vulnerable group). Written informed consent was obtained from all the participants. They were informed regarding the aim of this study and anonymity was assured.

Questionnaire

It had 4 sections.

1. Socio demographic data - Age, sex, family residence, place of accommodation and family income.

2. A 10-item Cohen Perceived stress scale (PSS-10 score) [12].

PSS-10 score is a valid, reliable and widely used psychological tool that measures a person's perception of stress during the previous one month. 10 question version of PSS-10 was used. Students gave their ratings according to their emotional and cognitive responses to certain specific circumstances that occur in their day to day life, on a 5-point Likert scale ranging from 0-4. [0=never, 1=almost never, 2=sometimes, 3=fairly often, 4=very often]. Positively worded items were reverse scored and total ratings taken. High scores indicate more perceived stress. According to this, PSS score <13 is low stress, 13 to 19 is average or moderate stress and≥20 is high stress.

3. The Pittsburgh sleep quality index (PSQI) [10]

PSQI is a self-rating questionnaire that helps to assess the quality of sleep and disturbances during the previous one month. It consists of 19 individual items with an average score ranging from 0-21. PSQI score of 0 means good quality sleep. 1-10 is average sleep quality and ≥11 is poor sleep quality.

results AND data analysis

Quantitative variables were expressed in mean and standard deviation. Qualitative variables were expressed in proportion. Association between stress and sleep was assessed by Chi squared test. 'p' value of 0.05 was taken as the level of significance. The data was analysed using SPSS version 16.

Socio-demographic characteristics (Table 1)

Out of 200 students, 196 completed and returned the questionnaire (response rate of 98%). The mean age was 19.4 (SD=0.9). 105 students were males (53.65%) and 91 were females (46.4%). 133 were from urban area (67.9%) and 63 from rural area (32.1%). 141 students (71.9%) were residing in hostels and 55 (28.1%) were day-scholars. 180 students (91.8%) had satisfactory family income while 16 (8.2%) had unsatisfactory family income.

Table -1: Socio demographic data

Data		Frequency	Percentage
Age	<20	190	96.9
	>20	6	3.1
Gender	Male	105	53.6
	Female	91	46.4
Residence	Urban	133	67.9
	Rural	63	32.1
Accommodation	With family	55	28.1
	Away from family	141	71.9
Income	Satisfactory	180	91.8
	unsatisfactory	16	8.2

Perceived stress

Mean perceived stress score in the present study population was 22.7% (SD=6.3) (Table 2). 134 students had high stress (68.4%) and 49 had moderate stress (25%).

Table 2: Prevalence of stress

Stress	Frequency	Percentage
No stress	13	6.6
Average	49	25.0
High stress	134	68.4
Total	196	100.0
Mean (SD)	22.7 (6.3)	

There was no significant association between stress and age (Table-3). 96.8% of average stress/no stress and 97% of high stress group were <20 years of age (p=0.928). No significant association was found between stress and gender. 58% of average stress/no stress group and 51.5% of high stress group were males (p=0.391). 77.4% of average stress/no stress group were residing in urban area where as 63.4% of high stress group were from rural area. There was a borderline significant difference observed in stress level between urban and rural population (p=0.051). No significant association was found between place of accommodation and stress (p=0.791). 11.2% of high stress group had unsatisfactory family income whereas only 1.6% of average stress/no stress group had unsatisfactory family income (p=0.023). This showed that family income had a significant association with the prevalence of stress.

Table–3: Factors associated with stress-Univariable analysis

		Stress						χ2	df	p
		Average stress / no stress (N=62)		High stress (N=134)		Total (N+196)				
		N	%	N	%	N	%			
Age	<20	60	96.8	130	97.0	190	96.9	0.008	1	0.928
	>20	2	3.2	4	3	6	3.1			
Gender	Male	36	58.1	69	51.5	105	53.6	0.736	1	0.391
	Female	26	41.9	65	46.6	91	46.4			
Place of residence	Urban	48	77.4	85	67.9	133	67.9	3.802	1	0.051
	Rural	14	22.6	49	32.1	63	32.1			
Accommodation	With family	20	32.3	35	67.9	55	67.9	0.791	1	0.374
	Away from family	42	67.7	99	32.1	141	32.1			
Income	Satisfactory	61	98.4	119	91.8	180	91.8	5.190	1	.023
	Unsatisfactory	1	1.6	15	8.2	16	8.2			
Sleeping habits	Average sleep	31	50.0	16	24.0	47	24.0	33.682	1	0.000
	Poor sleep	31	50.0	118	76.0	149	76.0			

Quality of sleep

Mean PSQI score in our study population was 13 (SD=4.6%). From Table-4, it was found that 149 students had poor sleep habit (76.0%) for past one month and 47 had average sleep (24.0%). The Chi squared test revealed a highly significant association between stress and poor quality of sleep (Chi squared test=33.682; p=0.000). The prevalence of poor quality of sleep among high stress population was 88.1%.

Table -4: Quality of sleep

Sleep Habits	Frequency	Percentage
Average sleep	47	24.0
Poor sleep	149	76.0
Total	196	100.0

Binary logistic regression analysis (Table 5)

Binary logistic regression model reveals that sleep habits was a significant predictor of stress (p=0.000). The adjusted Odds ratio for sleep habits was 6.394 with 95% confidence intervals 3.076 to 13.292. Those having poor sleep habits had 6.394 times more chance to get severe stress than others.

Table 5: Binary Logistic regression model for stress Variables in the Equation.

	B	S.E.	Wald	df	p	OR	95% C.I.for OR	
							Lower	Upper
SleepHabits	1.855	0.373	24.692	1	0.000	6.394	3.076	13.292
Residence	0.363	0.387	0.879	1	0.349	1.437	0.673	3.067
Income	1.374	1.059	1.681	1	0.195	3.950	0.495	31.497
Constant	-6.181	1.436	18.532	1	0.000	0.002		

a.Variable(s) entered on step 1: Sleep Habits, Residence, Income.

DISCUSSION

The sample population in the present study were exposed to mostly teacher-centred, conventional teaching methods during I MBBS, where mainly theoretical aspects were taught. Present study reveals a high prevalence of psychological stress (68.4%) and poor sleep quality (76%). This is in accordance with previous studies [5,13,14]. Increased stress may be due to the extensive teaching curriculum in the first year which has to be covered in a limited time and high academic demands particularly during exam periods.

An interesting finding observed in the present study was that both males and females were equally affected by stress and sleep disturbances. Study report by Cohen et al [12] also showed that there was no significant association between stress levels and gender in a sample of college students.

Another distinct finding in present study was that 88.11% of high stressed students were having poor quality of sleep, less than 5hrs per day. Insufficient sleep can lead to difficulties in interpersonal relationships, memory problems, depression, anxiety, alcoholism and drug abuse among students [5,11,15]. These results are consistent with previous studies conducted by Sreeramareddy et al [2] and Shah et al[9], which reported a strong association between academic stressors and psychological morbidity among medical students, who were exposed to conventional teaching methods.

These results emphasize the importance of cherishing a positive learning environment for medical students.

CONCLUSION

The present study shows a high prevalence of perceived stress among first year medical students along with poor quality of sleep. These findings may affect their behaviour, learning ability and ultimately patient care. However, stress associated with a conventional teaching environment can be markedly reduced by introducing problem based learning curriculum from first year itself. Adequate changes must be adopted to improve the living conditions of medical students like stress management techniques and teaching strategies by faculties. Proper emotional support should also be given to the stressed students.

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