

Association of Stress with Sleeping Difficulties in Medical and Allied Sciences Students: Cross Sectional Study

KHURSAND TAHIR¹, MISBAH AMANAT ALI², MUHAMMAD SHAZAIB¹, SHAZIA KANWAL³, UMER ILYAS⁴, WAJIDA PERVEEN²

¹Department of physiotherapy, M. Islam Medical and Dental College, Gujranwala-Pakistan

²Department of Physiotherapy, Sialkot College of Physical Therapy, Sialkot-Pakistan

³Department of physiotherapy, Gondal Hospital, Gujranwala-Pakistan

⁴Department of Physiotherapy, PSRD College of Rehabilitation Sciences, Lahore-Pakistan

Correspondence to: Shazia Kanwal, Email: aries_1172@yahoo.com, Cell:+92-331-6717889

ABSTRACT

Medical students are at risk of developing stress due to sleep deprivation. Students become agitated and increase their day time sleeping time. This stress greatly affects the academic performance and later on their clinical skills.

Objectives: To analyze association between perceived stresses and sleep disturbance in medical students.

Study Design: Cross-sectional study.

Methodology: Present study was conducted in Gujranwala after ethical approval. Sample size was 218. Convenient sampling technique was used. Sample was taken from intermediate and Undergraduate Medical students (MBBS, DPT, Psychology and allied health sciences). Medical students who were using sedative or anti-depressants, facing family stress and have chronic illness were not included. PSS (perceived stress scale) is used for evaluation of stress in students and PSQI (Pittsburg sleep quality index) is used for assessment of sleep disturbance in students.

Statistical analysis: Data was analyzed by SPSS software, version 19. Chi square was applied with $P \leq 0.05$ was considered significant.

Results: Most of the students had moderate stress associated with poor sleep. 25 students had mild stress, 126 had moderate stress and 23 had severe stress due to poor sleep. P value of stress and sleep quality is 0.054 which is considered statistically significant.

Conclusion: We concluded that there was significant association between stress and sleep quality in the target medical student population of Gujranwala.

Keywords: Perceived Stress Scale (PSS), Stress, Pittsburg Sleep Quality Index (PSQI) and Sleep Disturbance.

INTRODUCTION

Medical studies need hard work and demands full concentration of the students. With the burden of the studies and high demands of the medical profession in which sometimes the student have to wake up for late hours at night to compete with the academic commitments which make them saturated and they find no time to relax and they develop inadequate sleep disorders¹. The stresses which develop due to deprivation of the sleep causes loss of self-confidence, lack of attention and poor academic performance. Stress is one of the most common factors which can destroy health of an individual². On the days near the exams, the students limit their sleeping hours even to 2-4 hours only, they spend more time in preparing their exams which results in the form of depression, anxiety and stress³. Due to improper sleep during exams, the performance of the students is low during the exams and their result are poor as compare to their other classmates who took proper sleep, because proper sleep is an important factor for enhancing the cognitive system^{4,5}.

Long duty hours at night without sleeping for adequate duration of time cause stress in the medical school house officers. Their sleep cycle is affected so badly that, performing their tasks adequately becomes challenging for them⁶. Students and Graduates are more prone to stress related to sleep disorder. Students who are doing internships are less prone to the stress development⁷. Students have made the hours of sleep before the exams night as the predictor of their exam result. They assume that the less they sleep, the more efficiently they can perform on the exam day⁸ but; actually it is vice versa. Stress levels were high in the students who scored more than 90% in their intermediate exams. Academic demands are the main factor contributing in developing stress in the medical students^{9,3}. In the light of above description, we planned current project in order to find sleep disturbances and their causative stress background in medical students in the target population and to analyze association between perceived stresses and sleep disturbance in medical students. This study will help to identify the cause of disturbed sleep among students.

Objectives: To analyze association between perceived stresses and sleep disturbance in medical students.

METHODOLOGY

A cross sectional study was conducted in 6 months after ethical approval. Data was collected from undergraduate medical students (MBBS, DPT, Psychology and allied sciences) of GMC and RGC Gujranwala. Sample size was calculated by using the online Raosoft sample size calculator and was found to be 218 participants who were selected by convenient sampling technique.

Perceived stress scale was used for measurement of stress in students¹⁰ and Pittsburgh sleep quality index¹¹ was used for assessment of disturbance in sleep among students. Medical students of GMC and RGC Gujranwala who studied for more than 4 hours and taking who take 6 to 8 hours sleep were included. While Medical students who were using sedative or anti sedative drugs, facing any family stress, suffering from any chronic illness and due to pain and other related factors, Students suffering from insomnia & depression and taking anti-depressant drugs were excluded from the study. Informed consent document was sign by all the participants. **Statistical Analysis:** Data was analyzed by SPSS software, version 19. Chi square was applied with $P \leq 0.05$ was considered significant

RESULTS

Most of the students had moderate form of stress associated with poor sleep. 25 students has mild stress, 126 had moderate stress and 23 had severe stress due to poor sleep as shown in table-1.

Table-1: Descriptive statistics for Stress and Sleep Quality

Stress Score	Sleep quality (N=218)		Total
	Good sleep	Poor sleep	
0-13 mild stress	11	25	36
14-26 moderate stress	31	126	157
27-40 severe stress	2	23	25
Total	44	174	218

Chi-square test showed association between stress and sleep quality. 24.8% individuals had very good quality of sleep. 12.8% had fairly good quality of sleep. 14.2% had fairly bad quality of sleep. 48.8% had very bad quality of sleep. Large numbers of individuals are severely associated with high

percentage of stress. 27.5% had sleep duration of >7 hours. 25.7% had sleep duration of 6-7 hours. 16.1% had sleep duration of 5-6 hours. 30.7% had sleep duration of <5 hours as shown in table-2.

Table 2: Descriptive statistics for Sleep Quality

Sleep Quality	N=218	
	Frequency	Percent
Very good	54	24.8
Fairly good	28	12.8
Fairly bad	31	14.2
Very bad	105	48.8
Total	218	100.0

The higher the level of stress, the lesser will be the time of sleep. Individual with >85% stress level have 20.2% Habitual Sleep Efficiency. Individual with 75-84% stress level have 13.8% Habitual Sleep Efficiency. Individual with 65-74% stress level have 8.3% Habitual Sleep Efficiency. Individual with <65% stress level have 57.8% Habitual Sleep Efficiency. Decrease in habitual sleep efficiency with the increase in stress level. 1.8% individuals with zero stress level suffered from sleep disturbances. 0.5% individuals with mild stress level suffered from sleep disturbances. 33.9% individuals with moderate stress level suffered from sleep disturbances. 63.8% individuals with severe stress level suffered from sleep disturbances.

The higher number of individuals falls in severe category of scale that suffers from stress. 67.4% individuals who do not take medications suffered from stress. 13.3% individuals who took medications for less than a week suffered from stress. 9.6% individuals who took medications twice a week suffered from stress. 9.6% individuals who took medications three times a week suffered from stress. There is high level of stress in individuals who don't take medications. The greater the stress the greater will be the day time dysfunction, due to sleep disturbance. There was significant association between stress and sleep quality as shown in table-3.

Table-3: Association between stress and sleep quality using chi-square test

	Value	Df	P value
Pearson chi square	4.726	2	0.05*

*Statistically Significant

DISCUSSION

This study was conducted to find out the association of stress with sleeping difficulties in medical and allied sciences students of Gujranwala. Stress level is high in those students who compromise their sleep almost every second night just to complete the medical school work. Exams and tests on regular basis, lengthy assignments and many other tasks related to study needs extra time to fulfil them. Students usually complete them in night time which leads towards the stress^{12,13}. The result of our study showed that stress and sleep are closely related with each other. Poor sleep leads to increase in the level of stress.

Stress is divided into two type which is low and high level stress. Students with stress which is low is mostly beneficial for them, because it enhances their learning process. But high level stress greatly affects the health of the individual¹⁴. The result of our study showed that poor sleep leads to the development of the moderate form of the stress and its prevalence is high in medical students.

There is a co-relation between the disturbance in sleep and development of the psychological disorders like stress, anxiety and depression¹⁵. Students of starting years reported insomnia and students of later years reported difficulty in awaking on time in morning and falling asleep at night¹⁶. The result of our study showed same that stress and sleep are closely related with each other. Poor sleep leads to increase in the level of stress.

Limitations: Small sample size, single study Centre and some of the students presented non-serious behavior while filling the questionnaire.

CONCLUSION

We concluded that there was significant relationship between stress and sleep quality in pre medical, medical and allied sciences students of Gujranwala.

Authors' Contribution:

KT & MAA: Conception & design of study.

MS & SK: Data collection & Analysis.

UI & WP: Drafting of manuscript.

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