



A CROSS SECTIONAL STUDY ON STRESS AND IT'S ASSOCIATION WITH SLEEP DISTURBANCE AMONG FIRST YEAR COLLEGE STUDENTS.

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ABSTRACT **Background:** Because of demanding academic duties, college students are at an increased risk for development of sleep disruption. Studying the relation between sleep quality and psychological stress can be useful in implementing an organized mental health program in college students. The main objective is to study the prevalence and the effect of stress on sleep quality in young adult college students.

Methods: A cross sectional study to recognize the effect of stress on sleep quality among 50 college students. The instruments used for data collection were a self-report Pittsburg Sleep Quality Index (PSQI).

Results: Results of present study showed that 58% of subjects were poor sleepers. Furthermore, there was a significant correlation between general health status and sleep quality of students ($p = 0.0001$).

Conclusions: A considerable proportion of college students are affected by poor sleep quality. Sleep disruption acts as a barrier for students' performance in examinations. So, it is important to implement health promotion and educational programs for them.

KEYWORDS : Psychological distress, Sleep quality, General health, College students.

Introduction:

Sleep is one of the most important elements of daily life and is referred to as the source of energy and mental improvement. Psychological stress and sleep disturbance are high prevalent among the college students. Psychological stress is a triggering factor for insomnia and has a bidirectional association with poor sleep quality. Thus it represents a vicious cycle that is associated with adverse mental health consequence in college students. Poor sleep quality is also associated with dysregulation of the human metabolism and poor academic performance¹. Stress and sleep problems are inextricably linked and affect health and well-being. Sleep disturbance is defined as sleep deprivation resulting from inadequate total sleep time or sleep disruption resulting from fragmented sleep during the night, which leads to adverse health outcomes. Sleep disturbances can also cause daytime sleepiness, which can lead to poor performance¹.

The purpose of the study is to observe the effects of stress on sleep quality among the first year college students.

METHODS

A cross sectional study was conducted in a college. Study participants were college students. The study was approved by the institute's ethical committee. We planned for purposive sampling, so our sample size was 100 (50 boys and 50 girls). They were invited to meet in their classroom where they were informed about the purpose of the study and asked to participate in the study. Informed written consent was obtained from all the participants.

Data collection

A self-administered questionnaire was used to collect information for this study. PSQI is a self-rated questionnaire which helps to assess the sleep quality for the past 1 month. It has 19 self-rated questions and 5 other questions which are to be answered by the bed partner or room partner. The last 5 questions (rated by bed partner or roommate) of the scale do not contribute to the PSQI scoring, so these were not included to get the global score. The 19 questions assess various factors related to sleep quality. The questions are again grouped into 7 component

Table 1: Results of PSQI according to gender and in all students.

PSQI items	Statistical characters	Boys	Girls	Total
Time of going to bed (hrPM)	Mean (\pm SD)	10.86 \pm 0.78 *	11.28 \pm 0.52 *	11.09 \pm 0.68
Time of getting up (hr AM)	Mean (\pm SD)	6.13 \pm 1.2	6.13 \pm 0.78	6.13 \pm 0.99
Subjective sleep quality (%)	Frequency of very & fairly good state	75%	80.76%	78%
Sleep latency (min)	Mean (\pm SD)	18 \pm 15.07	15.38 \pm 12.48	16.64 \pm 13.7
Sleep duration (hr)	Mean (\pm SD)	6.77 \pm 1.13	6.37 \pm 0.87	6.56 \pm 1.13
Habitual sleep efficiency	Mean (\pm SD)	92.4 \pm 9.48	93.04 \pm 8.03	92.73 \pm 8.67
Sleep disturbances (%)	Frequency of at least once a week	20.83%	34.16%	28%
Use of sleep medications (%)	Frequency of at least once a week	4%	4%	4%
Daytime dysfunction (%)	Frequency of at least once a week	37.5%*	53.84% *	46%
Poor sleep quality (%)	Frequency of > 5 global score	58.33%	57.69%	58%

scores and all are reflected equally on a 0–3 scale. These components are: sleep quality, sleep latency, habitual sleep efficiency, sleep disturbances, use of sleep medications and daytime dysfunction. Questions

1- 4 was based on estimations for the past and they included —bed time, —number of minutes to fall asleep, —getting up time and —hours of sleep per night. While questions 5 to 10 was based on a score ranging from 0 - 3 points (0 - Not during the past month, 1 - Less than once a week, 2 - Once or twice a week, 3 - Three or more times a week). The seven component scores were added to yield a global PSQI score ranging from 0 - 21. Higher the score, worst is the sleep quality. A global score of more than 5 indicates poor sleep quality in the person for the last 1 month.

Statistical analysis

Statistical analysis was done using SPSS software for analysing the general description of the questionnaires results and comparison of the score of girls and boys groups. A confidence interval of 95% was achieved with 0.05 level of significance. Association between PSQI was assessed using Pearson correlation coefficient.

RESULTS

A cross sectional study was conducted to find out the effect of stress on sleep quality in young adult college students. The data was collected from 100 college students (50 girls & 50 boys) enrolled among first year college students.

Of all the subjects, 58% were grouped as poor sleepers with global PSQI score >5. Most of the students described their sleep quality as very good to fairly good as shown in Table 1. As regards with the gender differences, boys suffered from poor sleep quality when compared to girls. Boys had a tendency to go to bed sooner, they fell asleep later, had shorter sleep duration and less habitual sleep efficiency, while girls had more day time dysfunction because of more sleep disturbances as in Table 1.

*p<0.05 significant

DISCUSSION

There is always an increased risk for deprivation of sleep with mental and physical morbidity because of working on a tight schedule and changes in pattern of sleep wake cycle. Studies done on professionals working in a tight schedule have shown an elevated percentage of errors during work because of partial sleep deprivation¹. Sleep deprivation leads to a variety of neurophysiological and psychological imbalances like decreased alertness and mood variations which have direct effects on an individual's performance. Investigators have seen a direct correlation between insomnia and sleep disruption due to stress with development of depression in college students⁴.

In our study, we found a high prevalence of poor sleep quality (58%) among college students. Researchers in United States have found that 16.3% of adolescents, 25.9% of adults older than 18 and 71% of college students suffer from at least one type of sleep problems. While in China 16.9% of adolescents suffer from sleep disturbances and in Taiwan it has increased upto 40%. participants can contribute towards an increased prevalence of poor sleep quality. In future, studies enquiring about etiology can simplify the reasons for such a high prevalence of poor quality of sleep².

As a matter of fact, practically analyzing the impression of poor sleep quality on school functioning and screening students for sleep problems by education system plays an important role, mainly in those students who are poor performers¹⁰.

In our study, we have found a significant difference between the subjective and objective measures of sleep quality¹². From the subjective component, 78% of the subjects reported their subjective sleep quality as very good or fairly good and 4% of them were on sleep medications. Simultaneously from the objective component, the results from PSQI revealed that 58% of all the subjects had poor sleep quality and 46% had daytime dysfunction⁵.

This difference in results can be explained by some possibilities: Firstly, the subjects were unaware that their symptoms had a relation to the kind of sleep problem. So they reported that their sleep quality was well or very well. Secondly, we have to consider both subjective and objective assessments of sleep quality while assessing poor sleep quality⁹. Because these two are moderately interrelated and that subjective component partly may reflect an individual's opinion or state of mind in addition to some components in their objective sleep patterns. Finally, it could be because of unreliable answers given by subjects¹¹.

Our research also revealed a close correlation between self-assessed quality of sleep and self-assessed general health. These finding gives an idea that sleep quality can be used as one of the indicator for general health⁶. This correlation is consistent with the studies that advise a two way connection between sleep and general health statuses of adolescents, in which anyone can be the cause or result of the other⁷.

CONCLUSION

In our study greater part of college students reported poor quality of sleep. This should be an important alarm to educators. This could be because of inadequate sleep hygiene behaviors for general population to protect sleep in college students. In future studies can be planned on college students with comparison to local populations and also studies including screening of individual (e.g., anxiety, depression, sleep attitudes) and school-related (e.g., academic schedule) risk factors with objective sleep outcomes. We can also try to improve quality of sleep in college students by including sleep hygiene education programs in their curriculum.

Our finding also recommends the health system to try and increase the general public's knowledge about sleep health with the help of media, and also the physicians should try to assess sleep problems in detail and utmost care. There is also requirement for training sleep specialists.

REFERENCES

1. Lund HG, Reider BD, Whiting AB, Prichard JR: Sleep patterns and predictors of disturbed sleep in a large population of college students. *J Adolesc Health*. 2010;46:124-32.
2. Buysse DJ, Reynolds CF, Timothy HM, Susan RB, David JK. The Pittsburgh sleep quality index: a new instrument for psychiatric practice and research. *Psych Res*. 1988;28:193-213.
3. Cheng SH, Shih C-C, Lee H, Hou Y-W, Chen KC, Chen K-T et al. A study on the sleep

4. quality of incoming University students. *Psych Res*. 2012;197(3):270-4.
5. Sreeramareddy CT, Shankar PR, Binu V, Mukhipadhyay C, Ray B, Menezes RG. Psychological morbidity, sources of stress and coping strategies among undergraduate students of Nepal. *BMC Med Educ*. 2007;7:26.
6. Lavie P, Pillar G, Malhotra A. *Sleep disorders: Diagnosis, management & treatment, A hand book for clinicians*. London: Martin Dunitz Ltd; 2002.
7. Taylor DJ, Bramoweth AD. Patterns and consequences of inadequate sleep in college students: substance use and motor vehicle accidents. *J Adolesc Health*. 2010;46:610-12.
8. Chokroverty S. *Sleep disorders medicine: Basic science, technical considerations, and clinical aspects*. 3rd edition. Philadelphia: Saunders, an imprint of Elsevier Inc. 2009.
9. Steptoe A, Peacey V, Wardle J. Sleep duration and health in young adults. *Arch Intern Med*. 2006;166:1689-92.
10. Hsieh Y-H, Hsu CY, Liu CY, Huang TL. The levels of stress and depression among interns and clerks in three medical centers in Taiwan- a cross sectional study. *Chang Gung Med J*. 2011;34:278-85.
11. Suen LK, Hon KLE, Tam WW. Association between sleep behavior and sleep-related factors among university students in Hong Kong. *Chronobiol Int*. 2008;25(5):760-75.
12. Wolfson AR, Carskadon MA. Schedules and day time functioning in adolescents. *Child development*. 1998;69(4):875-87.
13. Alex D, David A. Adolescence sleep disturbances as predictors of adulthood sleep disturbances—a cohort study. *J Adolesc Health*. 2010;46:482-7.