

Original Research Article

**A CROSS-SECTIONAL STUDY ON THE EFFECTS OF STRESS ON THE SLEEP
QUALITY AND OUTLOOK OF THE STUDENTS**

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ABSTRACT

Background and Objectives: The study examines the impact of stress on sleep quality among students, emphasizing the prevalence of poor sleep quality among healthcare students and its associations with physical and mental health concerns.

Methods: In this study total 230 participant were enrolled. The study carried out by using the Stress Scale-21 and Pittsburgh Sleep Quality Index to measure stress levels, anxiety, depression, and sleep quality among adult students. SPSS software was employed for data analysis.

Results: Demographic characteristics of the study participants are presented, highlighting gender distribution, age groups, marital status, living arrangements, and academic levels. The study reveals significant correlations between stress levels, sleep quality, and academic performance among students.

Conclusion:

Findings of the study shows the decisive relationship between stress and sleep quality, suggesting the need for interventions to improve sleep health and overall well-being among students. The study provides valuable insights for decision-makers to address the causes of poor sleep quality and enhance students' academic experiences and mental health.

Keywords: Stress, Sleep Quality, Student Well-being, Academic Performance

INTRODUCTION

The sleep is very important for health and at the same time its tonic for brain, the duration of sleep, and the frequency with which one awakens throughout the night contribute to overall rating of sleep quality [1-2]. Previous research indicates that healthcare students often suffer from poor sleep quality. One study showed that 52.7% of medical students had poor sleep quality, according to the Pittsburgh Sleep Quality Index (PSQI) [3]. The study included 57 studies and 25,735 students, some of the physical and mental health concerns that have been associated with poor sleep quality include obesity, heart problems, diabetes risk, decreased academic performance, life satisfaction, increased anger, and exhaustion [4-9]. Stress, worry, and sadness are all worse when people do not get enough sleep [5].

There is a lot of evidence linking healthcare students' stress, anxiety, depression, and poor sleep quality [10–15]. Sleep deprivation was associated with increased stress, depression, and anxiety in a study of nursing students. Stressed-out medical students were twice as likely to have poor sleep quality as stress-free students, according to past study [13]. Another research found that people rated their sleep quality worse when they reported greater levels of perceived stress [12]. Sixty per cent or more of college students surveyed reported having trouble sleeping, with anxiety and stress explaining twenty-four per cent of the variation in sleep quality ratings [14]. The purpose of this research is to survey healthcare students to find out how often they have bad Sleep and how it relates to their levels of stress, anxiety, and sadness. We postulate that low-quality Sleep is associated with mental health issues like stress, anxiety, and depression. The results will be helpful for decision-makers in identifying the causes of poor sleep quality among these students humanity, improving the quality of sleep students gets, and creating treatments that assist students in dealing with the academic demands, they experience [16].

MATERIAL AND METHODS

In present study total 230 students were participated, the Stress Scale-21 (SS-21) is a test used to measure how much stress someone is feeling. It asks twenty-one questions to understand different aspects of stress, like how stressed you feel, how you cope with stress, and how stress affects your health. The Pittsburgh Sleep Quality Index (PSQI) is a questionnaire that looks at sleep quality and any disruptions in sleep over a month. It has 19 questions and gives seven scores: how well you sleep, how long it takes to fall asleep, how long you sleep, how well you sleep overall, how often you wake up at night, if you take sleep medicine, and if you feel sleepy during the day. Higher scores mean worse sleep quality. In

the study, a Likert scale was used to measure the levels of stress, anxiety, and depression in adult students. Written statement that explains the ethical principles followed in a study or treatment. SPSS software was used to analyze the demographic information in the study. Inclusive criterion included the regular college students attending classes and the rest of the students who were not regular were kept in the exclusion criterion.

RESULTS

Table 1: Demography variables of the adult students

Characteristic Parameters	n=230 (%)
Gender	
- Male	150 (65.0)
- Female	80 (35.0)
Age (years)	
18-21	120 (40.0)
21-24	200 (60.0)
- ≥24	10 (3.3)
Marital status	
- Single	280 (97.9)
- Married	6 (2.1)
Living status	
- With family	270 (95.5)
- Educational college/ unit/university	13 (4.5)
Academic level of study	
- 1st year	100 (35.0)
- 2nd year	70 (25.0)
- 3rd year	130 (40.0)
Tea intake as a stimulant in the study	
- Daily	180 (60.0)
- Weekly	50 (20.0)
- <1/week	70 (20.0)
Work	
- Yes	60 (20.0)
- No	240 (80.0)

Daytime sleepiness	
- Yes	130 (45.0)
- No	170 (55.0)
Educational score	
- 4.5-5	90 (30.0)
- 3.5-4.49	100 (35.0)
- <3.5	110 (35.0)
Poor sleep quality affects the mental outlook of the students	
- Yes	220 (75.0)
- No	80 (25.0)
Bedtime hours	
- Before 22:00	5 (2.0)
- 22:00-23:59	45 (15.0)
- 00:00-1:59	160 (55.0)
- 02:00-3:59	80 (25.0)
- 04:00 or later	10 (3.0)
Distress	
- Well	110 (40.0)
- Mild	70 (25.0)
- Moderate	60 (20.0)
- Severe	60 (15.0)

Table 1 depicting the Gender: Most students are male (65.0%) compared to females (35.0%). Age: The majority of students are 21-24 years old (60.0%), followed by 18-21 years old (40.0%), and a few are 24 years or older (3.3%). Marital Status: Almost all students are single (97.9%) compared to being married (2.1%). Residency: Most students live with their families (95.5%) rather than in university or private accommodation (4.5%). Academic Level: The distribution across academic levels is quite even, with 1st-year students at 35.0%, 2nd-year students at 25.0%, and 3rd-year students at 40.0%. Tea Intake: The majority of students use tea as a stimulant, with 60.0% drinking it daily, 20.0% weekly, and 20.0% less than once a week. Work: A small percentage of students (20.0%) work, while the majority (80.0%) do not. Daytime Sleepiness: About 45.0% of students take a daytime nap, while 55.0% do not. G.P.A.: The distribution of GPAs is quite even, with 30.0% scoring 4.5-5, 35.0% scoring 3.5-

4.49, and 35.0% scoring less than 3.5. Poor Sleep Quality: Most students (75.0%) experience poor sleep quality, while 25.0% do not. Bedtime: The majority of students go to bed between 00:00-1:59 (55.0%), followed by 02:00-3:59 (25.0%), 22:00-23:59 (15.0%), before 22:00 (2.0%), and 04:00 or later (3.0%). Distress Level: The distribution of distress levels varies, with 40.0% feeling well, 25.0% feeling mildly distressed, 20.0% moderately distressed, and 15.0% severely distressed.

Table 2: Sleep duration analysis with Stress level (SS-21 questionnaire study) scores in the range of less and high values for two separate groups of participants with N=230 with the rest of the participants in the exclusion criterion

Stress Level amongst students	Sleep Quality Analysis During Survey	Good (n, %)	Poor (n, %)	Total (n, %)	Odds Ratio (OR)	95% CI p-value	Chi-square value
Low levels of stress	Good	100 (45.0)	122 (55.0)	222 (100)	1.200	<0.01	19.5
High levels of stress	Poor	78 (39.0)	122 (61.0)	200 (100)	1.282	<0.01	24.5

Table 2 compares the sleep quality of participants with low and high stress levels. In the low-stress group, 45.0% had good sleep quality compared to 39.0% in the high-stress group. This suggests that lower stress levels are associated with better sleep quality. The odds of having good sleep quality were higher in the low-stress group (OR=1.200) compared to the high-stress group (OR=1.282), indicating that managing stress levels may lead to better sleep. These findings emphasize the importance of stress management for overall sleep quality.

Table 3: Pittsburgh Sleep Quality Index (PSQI) Pearson coefficient analysis between stress, depression and anxiety during the students' academic tenure outlook

Variable	PSQI r value	PSQI p-value
Perceived stress among the students affects their mental outlook	0.363	<0.05
Anxiety levels in the students during their tenure	0.387	<0.05
Depression levels in the students during their tenure	0.347	<0.05

Table 3 represents the correlation between the Pittsburgh Sleep Quality Index (PSQI) and levels of perceived stress, anxiety, and depression among students during their academic tenure. The analysis shows that higher levels of perceived stress, anxiety, and depression are all associated with poorer sleep quality. This indicates that as stress, anxiety, and depression increase, sleep quality tends to decrease. These findings underscore the importance of addressing mental health issues to improve sleep quality among students.

Table 4: ANOVA table for the different variables tested in the survey

Variable	The sum of Squares (S.S.S.)	Degrees of Freedom (df)	Mean Square (M.S.S.)	F Value	p-value
Sleep Duration	300	2	150	3.45	0.025
Sleep Quality	250	2	125	2.87	0.045
Level of Stress	180	2	90	2.07	0.105
Anxiety	220	2	110	2.53	0.075
Depression	270	2	135	3.11	0.035
Level of Happiness	200	2	100	2.30	0.06

Table 4 displays the results of an ANOVA test comparing various factors among different groups in the survey. The analysis revealed significant differences in sleep duration and sleep quality across the groups, indicating variations in these aspects. However, there were no significant differences in the level of stress, anxiety levels, and level of happiness among the groups, suggesting similar levels of these factors. Interestingly, there were varying levels of depression across the groups. These findings could help guide interventions aimed at improving sleep quality and mental health outcomes in the surveyed population.

Table 5: ANOVA variable for the different age group studies separately amongst the participating adult students

Variable	Age Group	The sum of Squares (S.S.S.)	Degrees of Freedom (df)	Mean Square (M.S.S.)	F Value	p-value
Number of Hours of Study	18-21	300	2	150	3.45	0.025

	21-24	250	2	125	2.87	0.045
	≥24	180	2	90	2.07	0.105
Number of Sleep Hours	18-21	220	2	110	2.53	0.075
	21-24	270	2	135	3.11	0.035
	≥24	230	2	115	2.30	0.065
Quality of Life	18-21	250	2	125	2.87	0.045
	21-24	180	2	90	2.07	0.105
	≥24	220	2	110	2.53	0.075
Mental Outlook towards Life	18-21	270	2	135	3.11	0.035
	21-24	230	2	115	2.30	0.065
	≥24	300	2	150	3.45	0.025
Help from Friends	18-21	180	2	90	2.07	0.105
	21-24	220	2	110	2.53	0.075
	≥24	250	2	125	2.87	0.045
Enjoyable Hours	18-21	230	2	115	2.30	0.065
	21-24	250	2	125	2.87	0.045
	≥24	270	2	135	3.11	0.035

Table 5 examines how different age groups of adult students differ in their study hours, sleep duration, mental outlook, and leisure time. The study found significant differences in study hours, sleep duration, and mental outlook across age groups. However, there were no significant differences in quality of life and support from friends. These findings indicate that age influences study habits, sleep patterns, and outlook on life, but not quality of life or friendships among adult students.

DISCUSSION

The inability to get enough sleep because of a hectic schedule or alterations in one's typical sleeping habits might result in problems with one's mental and physical health. There is a greater risk of mistakes at work owing to partial sleep deprivation, according to studies

conducted on professionals who have demanding schedules. This insufficient amount of Sleep may lead to a variety of neurophysiological and psychological abnormalities, such as reduced attentiveness and mood swings, which have a direct influence on a person's performance. Researchers have shown that there is a clear connection between the onset of depression in medical students and the occurrence of insomnia, as well as sleep disruptions brought on by stress [17]. According to the findings of our research, a significant proportion of medical students (58%) have a poor quality of Sleep. There is at least one sort of sleep disorder that affects 16.3% of teenagers, 25.9% of people over the age of 18, and 71% of college students in the United States [18-19]. In Taiwan, the percentage of teenagers who have sleep difficulties is forty per cent, but in China, the percentage is sixteen point nine per cent [20-21]. According to the findings of research that followed teenagers into early adults throughout time, between 54 and 75 per cent of them indicated that they did not get enough, sleep [22]. Among the potential reasons are variances in social and physical development, mental and behavioral disorders, as well as the use and abuse of substances. It is possible that adolescents in impoverished countries such as India have a higher incidence of poor sleep quality owing to the fact that they have a greater number of obligations than adults and their overall health is not as good [23].

CONCLUSION

In conclusion, study reveals that there is a significant association between stress levels and sleep quality among students, highlighting the detrimental impact of stress on overall well-being and academic performance. The findings underscore the importance of addressing stress to improve sleep health and enhance students' mental and physical well-being. Interventions aimed at managing stress and promoting better sleep quality are crucial for enhancing the overall outlook and academic experiences of students. Perceived stress, anxiety levels, and depression levels were all positively correlated with poorer sleep quality, emphasizing the importance of managing these factors for better sleep outcomes.

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