

Sleep Quality Of Medical And Engineering Aspirants: Role Of Test Anxiety And Emotional Exhaustion

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Abstract:

Background: There is increasing competition among students in India to get a good rank in entrance exams for getting admission to medical and engineering colleges. This creates test anxiety among students to perform well in the exam. Rigorous preparation also makes the students emotionally exhausted, and these factors can affect their mental and physical health, including sleep quality. Since very few studies have explored how these factors can affect sleep quality of the students, in this study we investigate the impact of Test Anxiety and Emotional Exhaustion on the Sleep Quality of students preparing for medical and engineering entrance tests.

Materials and Methods: A sample size of 100 students within the age group 18 to 20 years, consisting of 54 males and 46 females, belonging to the science stream, having completed 12th and who have taken gap year for preparation, were selected for the study. The participants were evaluated with the Westside Test Anxiety scale, Emotional Exhaustion Scale and Sleep Quality Scale. A 2*2 factorial design and descriptive statistics were used for the study. Data were quantitatively analyzed with the help of two-way ANOVA and independent sample t test.

Results: 14% and 11% of the students were highly test anxious and extremely test anxious respectively, 72% of the students had high emotional exhaustion and 46% of the students reported poor sleep quality. Using ANOVA it was found that test anxiety and emotional exhaustion significantly affect the sleep quality of the students. Independent sample t test indicated that there is no significant gender difference in test anxiety ($p > .05$), whereas there is a significant gender difference in the emotional exhaustion and sleep quality of students ($p < .05$).

Conclusion: Interventions should be developed to reduce test anxiety and emotional exhaustion among students which can further help to improve sleep quality.

Key Word: Student; Entrance exam; Gender; Test anxiety; Emotional exhaustion; Sleep quality

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I. Introduction

In India, most students have the ambition or are expected to pursue medical science and engineering after completing their 12th. To do so, the medical and engineering aspirants must qualify for entrance exams to get admission to their desired college. These entrance exams are held every year to check the relative performance of the students and thus decide whether the students are eligible to pursue the career they want. However, large number of aspirants appear for the exam every year and there is limited number of seats present in reputed colleges and universities, as a result of which students go through a lot of stress and mental health issues while preparing for the test. Competition is essential as it motivates students to strive for excellence, but increasing competition among students often becomes unhealthy and affects their mental health. This is especially true of younger students aged between 15-21 years who aren't equipped well to handle the academic demands. Performance pressure among students is high as they compete with many other students in such competitive exams, due to which the fear of rejection is high among these students. Depression, anxiety, decreased appetite and sleep, and even suicidal ideations are increasing among students who cannot cope with the stress and academic demands. Additionally, parental pressure, financial pressure, fear of failure and society's expectation takes a curb on these students.

To do well in the entrance exams, many students enroll themselves in coaching institutions where regular tests are held in short duration to keep a check on how the student is performing during the preparatory phase. It is usual for students to feel nervous while giving exams and undertaking various tests; however, extreme anxiety before and during exams can affect students' performance irrespective of their preparation and hard work. Research studies have found that a moderate level of anxiety is essential to perform well in a test¹.

Still, test anxiety can be problematic when it prevents the students from performing well in the exams, making them feel anxious all the time, which results in high test anxiety. Not only test anxiety but persistent stress to perform well in exams and rigorous preparation often makes the students emotionally drained because of the high expectation and academic demands on them, leading to emotional exhaustion. Continuous overwork and overextension lead to emotional exhaustion². Test anxiety and emotional exhaustion can lead to poor academic performance and academic decline; however, the consequences of test anxiety and emotional exhaustion can go beyond the classroom and are correlated with poor health behaviors, one of which includes poor sleep quality³. To perform well in exams, students study all night, but in this process they do not gain more information as inadequate and poor sleep quality affect memory, and also the ability to process study materials gets affected⁴. Sleep is vital for students as while sleeping physical changes occurs in the brain which strengthens memory⁵. It also help the students to reserve energy, which heals body for better mental functioning. Thus, a good quality of sleep is essential for the students to maintain cognitive skills as well as helps in recovering from stress and fatigue.

In Indian context, no relevant studies have been done to see the role of test anxiety and emotional exhaustion on the sleep quality of students. Therefore, the objective of the present study is to investigate the sleep quality, test anxiety and emotional exhaustion of medical and engineering aspirants and to assess the impact of test anxiety and emotional exhaustion on sleep quality. The present study also aims to look at the gender difference in the level of test anxiety and emotional exhaustion on the sleep quality of the students preparing for medical and engineering entrance tests.

II. Material And Methods

To assess the role of Test anxiety and Emotional Exhaustion on the Sleep Quality of Medical and Engineering aspirants a cross sectional study has been done. There are two independent variables in this study, i.e. Test anxiety and Emotional Exhaustion and one dependent variable in the study, i.e. Sleep quality. All of them were evaluated using the Westside Test Anxiety Scale⁶, Emotional Exhaustion Scale⁷ and Sleep Quality Scale⁸.

Study Design: Quasi-experimental 2*2 factorial design

Study Location: Bhubaneswar, Odisha

Sample size: 100 students (54 males, 46 Females)

Subjects & selection method: A total of 100 students (54 males and 46 females) preparing for medical and engineering entrance exams in Bhubaneswar were selected through purposive sampling method

Inclusion criteria:

1. Students who have taken drop year after completing 12th
2. Either sex
3. Aged \geq 18 years,

Exclusion criteria:

1. Students studying in class 12th and simultaneously preparing for entrance exams
2. Aged <18 years

Procedure methodology:

Data was collected by giving questionnaires to the students in printed form from different coaching institutions in Bhubaneswar, Odisha that were providing coaching to the students who have dropped a year or more to qualify engineering and medical entrance exams. Consent for collecting data was taken from both the coaching institution head and students. Participants were informed and ensured that the responses that they gave would be kept strictly confidential. After getting the approval and consent from the participants, the investigator explained to them the purpose of the study. The printed questionnaires were then given to the subjects to fill in the requisite information and rate themselves on the items that were there in the questionnaire. It took around one month to collect data from 100 students. The investigator then scored the data collected as per the scoring criteria. Participants scoring higher than the median score on WTAS and ECE constituted the high test anxiety group and high emotional exhaustion group, respectively, whereas the participants scoring lower than the median score on WTAS and ECE constituted the low test anxiety group and low emotional exhaustion group, respectively.

Statistical analysis

Data were first analyzed with descriptive statistics to find out the mean, median and standard deviation. Two-way ANOVA was carried out to assess the main effect and interaction effect of Test Anxiety and Emotional Exhaustion on the Sleep Quality of the participants. Further independent sample t test was carried out to examine the gender difference in Sleep Quality, Test Anxiety and Emotional Exhaustion. For the study, a ($p < 0.05$) was fixed for statistical significance. Statistical analysis was done using the SPSS (Version 20.0) software.

III. Result

Table 1 shows the percentage of students having poor sleep quality, high emotional exhaustion and high test anxiety. Among the participants, 46% reported poor sleep quality. It was also found that 72% of the participants reported high emotional exhaustion. The study also found that 11% of the participants reported extremely high test anxiety, 14% and 30% of the participants were found to have high test anxiety and moderately high test anxiety respectively.

Table no 1: Sleep Quality, Test Anxiety and Emotional Exhaustion among students

Variables	Categories	Numbers (%)
Sleep Quality	Poor	46
	Good	54
Test Anxiety	Comfortably Low	5
	Average	18
	High Normal	22
	Moderately High	30
	High	14
Emotional Exhaustion	Extremely High	11
	High	72
	Low	28

Table 2 shows the impact of test anxiety and emotional exhaustion on the sleep quality of the participants. The impact of Test anxiety on sleep quality of participants was found to be statistically significant ($F= 15.522, p < .05$). Further it is also seen that F value of Emotional Exhaustion is 11.875, which implies emotional exhaustion also has a statistically significant impact on the sleep quality of the participants ($p < .05$). The interaction effect of Test Anxiety and Emotional Exhaustion is also found to be significant as evident from the F value of 4.239 with significance value .043 ($p < .05$) which implies the effect of test anxiety on the sleep quality of students also depends on the level of emotional exhaustion.

Table no2: Summary of 2 (Test Anxiety) * 2 (Emotional Exhaustion) ANOVA for Sleep Quality

Source	Type III Sum of Squares	df	Mean Square	F	P value
Test anxiety	1071.962	1	1071.962	15.522	.000
Emotional Exhaustion	820.094	1	820.094	11.875	.001
Test Anxiety * Emotional Exhaustion	292.744	1	292.744	4.239	.043
Error	5939.06	86	69.059		
Total	145120.00				

Note: df = degree of freedom; p = significance value

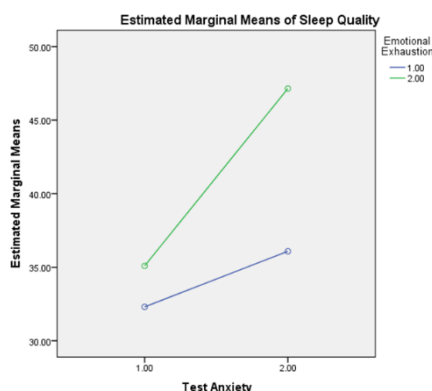


Table 3 shows the gender difference in sleep quality, test anxiety and emotional exhaustion of the students. At 95% confidence interval, it is found that there is a significant gender difference in the sleep quality of participants ($p < .05$), with females reporting poor sleep quality as compared to males. A significant gender

difference was found in emotional exhaustion, with females being more emotionally exhausted as compared to males ($p < .05$). However, no significant gender difference was found for test anxiety ($p > .05$).

Table no 3: Shows t-test comparing gender difference in Sleep Quality, Test Anxiety and Emotional Exhaustion

Variable	Male (n=54)		Female (n=46)		df	t	p
	Mean	SD	Mean	SD			
Sleep Quality	36.42	7.72	41.30	12.48	98	2.386	.019
Test Anxiety	2.91	0.624	3.18	0.817	98	1.838	.069
Emotional Exhaustion	28.76	6.70	32.54	8.89	98	2.422	.017

IV. Discussion

The study shows that 46% of students reported poor sleep quality; 14% of the students reported high test anxiety and 11% of the students reported extremely high-test anxiety; 72% of the students had high emotional exhaustion. Lack of time management, anticipation of results and future consequences of it, high academic pressure leads students to face stress and frustration, as a result of which students tend to have disturbed sleep schedules. It was also found from the study that test anxiety had a significant role in determining the sleep quality of students. High test anxiety among students can negatively affect their sleep quality as internal perceptions such as thinking about the consequences of failure and doubt about oneself to achieve and excel cause greater panic among students, which leads to difficulty in sleeping, frequent awakening, early awakening and insomnia which results in poor sleep quality. It was also found from the study that there is a significant impact of emotional exhaustion on the sleep quality of students. It is possibly because students with high emotional exhaustion often feel stressed and worried and may develop psychosomatic illnesses resulting in poor sleep quality. The present study also indicated a significant gender difference ($p < .05$) in sleep quality, with female students reporting poor sleep quality as compared to male students. A significant gender difference was also found in emotional exhaustion as compared to male students. This could be possibly because females are more academically stressed as compared to males. Research studies have also shown that the rate and types of stress among female students are more than male students due to their emotional and sensitive characteristics. In Indian society, the pressure to perform well in entrance exams are much more on girls than the boys as they receive less encouragement and less social support as compared to boys, due to which they become much more determined to prove themselves and give much more effort to perform well. However, no significant gender difference was found between male and female students in test anxiety ($p > .05$), which is inconsistent with the previously done research⁹. The difference could probably be because both male and female students are exposed to equally stressful testing and evaluation situations.

V. Conclusion

Having moderate level of anxiety and stress is normal for students, however, worrying excessively and continuously with or without justified cause can be detrimental for both mental and physical health of the students. It is especially true of those students who are preparing for competitive exams, as the competition is high these days to get a seat in desired college. Therefore, appropriate measures like providing counseling and psychological support can help the students cope with the challenges so that factors like poor sleep quality, high test anxiety and high emotional exhaustion in students can be managed. Further, intervention programs can be developed to help identify students with mental health issues.

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