

Impact of Stress on Sleep and Appetite in College Students During Examination

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ABSTRACT

Background: Academic examinations are among the most significant stressors experienced by college students. Examination-related stress can adversely affect sleep quality and eating behavior through physiological and psychological mechanisms. Sleep disturbances and altered appetite are commonly reported during periods of academic pressure and may negatively influence students' overall well-being and academic performance.

Objective: To determine the correlation between stress, sleep quality, and appetite among college students during examinations.

Methodology: A cross-sectional study was conducted among 501 college students aged 18–22 years. Participants were selected based on examination perspective and fulfilled the inclusion and exclusion criteria. Data were collected using the Perceived Stress Questionnaire (PSQ), Pittsburgh Sleep Quality Index (PSQI), and Council on Nutrition Appetite Questionnaire (CNAQ). Statistical analysis was performed using SPSS version 21.0. Pearson's correlation test was used to determine the relationship

among stress, sleep, and appetite variables. Statistical significance was set at $p < 0.005$ with a 95% confidence interval.

Results: Among the participants, 66.5% were female, 33.1% were male, and 0.4% belonged to other gender categories. Correlation analysis demonstrated a significant relationship between stress and sleep ($r=0.412$, $p=0.000$), sleep and appetite ($r=-0.317$, $p=0.005$), and stress and appetite ($r=-0.124$, $p=0.005$). Increased stress levels during examinations were associated with decreased sleep quality and reduced appetite.

Conclusion: The study concluded that examination-related stress significantly affects sleep quality and appetite among college students. Higher stress levels were associated with poorer sleep quality and decreased appetite during examinations.

Keywords: Stress, Sleep Quality, Appetite, College Students, Examination Stress, PSQI, PSQ

INTRODUCTION

Sleep is a normal physiological state characterized by reduced consciousness and responsiveness to external stimuli, allowing

restoration of physical and mental functions.

⁽¹⁾Adequate sleep duration varies across different age groups, with young adults requiring approximately 7–9 hours of sleep daily. Stress, on the other hand, is the body's response to environmental, psychological, or physiological challenges and involves activation of multiple biological systems.⁽²⁾

Adolescence and early adulthood are periods during which academic stress becomes increasingly prominent. Examination periods represent a major source of stress among college students.⁽³⁾ Stress activates the cortisol response pathway, which has been associated with altered eating behaviour, appetite disturbances, and sleep problems. Previous research has demonstrated that chronic stress contributes to poor sleep quality, sleep deprivation, and sleep disturbances among students.^(4, 5)

Higher education students often experience irregular sleep schedules due to academic responsibilities, social commitments, and lifestyle factors. Academic demands, extended study hours, caffeine consumption, and excessive smartphone use have been associated with poor sleep quality and daytime fatigue.⁽⁶⁾ In addition, stress-related changes in appetite may result in unhealthy eating habits such as meal skipping, reduced food intake, or increased consumption of energy-dense foods.⁽⁷⁾

Every year about 25,000 students in the age group of 18 to 20 years commit suicide during the examination month (i.e march to june). Due to high examination stress, students spend less time in socializing and get engaged in passive and active leisure which may further magnify the effect of examination stress.⁽⁸⁾ According to national health and morbidity (2015), 29% of Malaysians had depression and anxiety disorder compared with 12% in 2011.⁽⁹⁾

As reported at an architecture school in the Mid-west, only 4% of students obtained atleast 7 hours of sleep at night; the average sleep duration was 5.7 hours, with 2.7 “all-nighters” per month. 82% of college students believe that inadequate sleep and

sleepiness impact their school performance. Students rank sleep problems second only to stress in factor that negatively impact academic performance.⁽¹⁰⁾

Day time sleepiness is a major problem, exhibited by 50% of college students compared to 36% of Adolescents and adults. At least 3 days a week, 60% of students report that they are dragging, tired or sleepy.⁽¹⁰⁾ Generally, the students who suffer from exam phobia have a strong fear of one or more exam performance situation. They fear that they will perform in a way that is humiliating or embarrassing and the others will judge them negatively.⁽¹¹⁾

Therefore, this study aimed to determine the correlation between stress, sleep quality, and appetite among college students during examinations.

METHODOLOGY

A cross-sectional study was conducted over a six-month period at S.S. Agrawal Institute to investigate the study variables among college students. The study population comprised undergraduate and postgraduate students enrolled at the institute during the data collection period. A total of 501 participants were recruited using a simple random sampling technique, ensuring that each eligible student had an equal probability of selection and thereby enhancing the representativeness of the sample. All participants were informed about the objectives of the study. A consent form was signed before that participation. A standardized questionnaire was used as the survey instrument

INCLUSION CRITERIA

- Students aged 18–22 years.
- Students preparing for examinations.

EXCLUSION CRITERIA

- Recent musculoskeletal disorders.
- Neurological conditions.
- Depression.
- Hyperthyroidism.
- Diabetes mellitus.
- Anorexia nervosa.

OUTCOME MEASURES

1. Pittsburgh Sleep Quality Index (PSQI): The order of the PSQI items has been modified from the original in order to fit the first 9 items (which are the only items that contribute to the total score) on a single page. Item 10, which is the second page of the scale, does not contribute to the PSQI score. In scoring the PSQI, seven component scores are derived, each scored 0 (no difficulty) to 3 (severe difficulty). The component scores are summed to produce a global score (range 0 to 21). Higher scores indicate worse sleep quality.⁽¹²⁾
2. Perceived Stress Questionnaire (PSQ): A PSQ index can be found by subtracting 30 from the raw score and dividing the result by 90, yielding a score between 0 and 1. PSQ index = (raw score-30/90)⁽¹³⁾
3. Council on Nutrition Appetite Questionnaire (CNAQ): Total the score by adding the numbers associated with the patient's response. A score of less than 28 is cause for concern. If the total is 8-16 The patient is at risk for anorexia and needs nutrition counseling. 17-28 The patient needs frequent reassessment.

>28 The patient is not at risk at this time.⁽¹⁴⁾

PROCEDURE

Participants were informed about the objectives of the study and written informed consent was obtained. Standardized questionnaires were distributed to eligible participants. The PSQI assessed sleep quality, the PSQ measured stress levels, and the CNAQ evaluated appetite status. Completed questionnaires were collected and analyzed statistically.

Statistical Analysis

Data were analysed using SPSS version 21.0. Pearson's correlation test was used to determine the correlation among stress, sleep quality, and appetite. Statistical significance was considered at $p < 0.005$ with a 95% confidence interval.

RESULTS

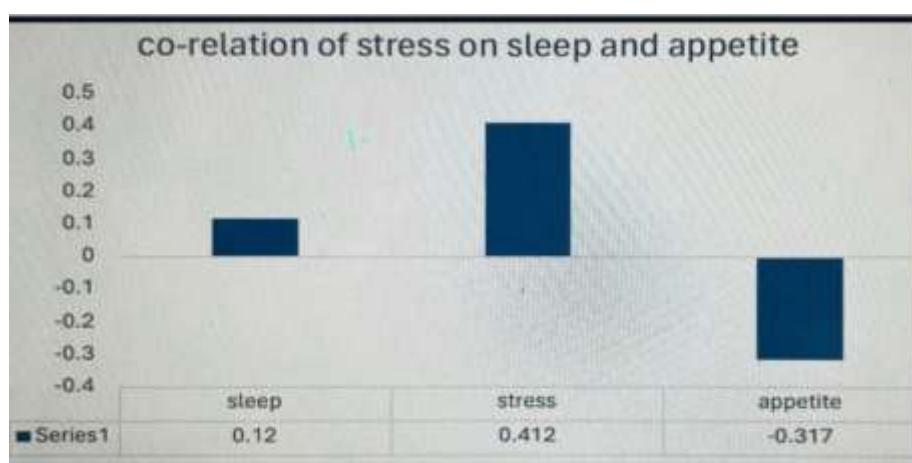
A Total of 501 college students aged 18–22 years participated in the study. Among them, 66.5% were female, 33.1% were male, and 0.4% belonged to other gender categories.

Table 1. Distribution of Participants According to Gender

Distribution	Male	Female	Other
Percentage	33.1%	66.5%	0.4%

Table 2. Shows correlation values of stress, sleep and appetite.

Sleep	Stress	Appetite
0.12	0.412	-0.317



Graph 1. Shows correlation of stress on sleep and appetite.

Table 3. Shows correlation coefficient of sleep with stress and appetite.

Correlation coefficient	Stress	Appetite
R	0.412	-0.317
P	0.000	0.005
N	501	501

Table 4. Shows correlation coefficient of stress with sleep and appetite.

Correlation coefficient	Sleep	Appetite
R	0.412	-0.124
P	0.000	0.005
N	501	501

Table 5. Shows correlation coefficient of appetite with sleep and stress.

Correlation coefficient	Sleep	Stress
R	-0.317	-0.124
P	0.000	0.005
N	501	501

Summary of Findings

The correlation analysis revealed that increased stress levels during examinations were significantly associated with poorer sleep quality and reduced appetite among college students. A moderate positive correlation was observed between stress and sleep disturbance ($r = 0.412$), whereas appetite showed a negative correlation with both stress ($r = -0.124$) and sleep quality ($r = -0.317$).

DISCUSSION

The present study investigated the relationship between stress, sleep quality, and appetite among college students during examinations. Examination periods are recognized as major academic stressors and can substantially influence students' physical and psychological health.⁽¹⁵⁾

The findings demonstrated increased stress levels during examinations accompanied by reduced sleep quality and decreased appetite. These findings support the concept that stress and sleep interact through multiple physiological mechanisms involving the central nervous system and the hypothalamic–pituitary–adrenal axis. Stress-induced hormonal alterations may disrupt normal sleep patterns and influence appetite regulation.⁽¹⁰⁾

The present findings are consistent with the study conducted by Guilen SUNA, Nilgun SEREMET KURKLU et al., who reported

significantly increased stress levels and poorer sleep quality during examination periods among dietetics students.⁽⁵⁾ Similarly, Ibrahim et al. observed a high prevalence of poor sleep quality among medical students.⁽¹⁶⁾ The present study also supports the findings of Claudia Hunot et al., who reported alterations in appetite-related behaviors and eating patterns.⁽¹⁷⁾

The observed decrease in appetite during examinations may be explained by stress-related hormonal responses that alter hunger and satiety mechanisms. Likewise, increased stress may contribute to difficulties in initiating and maintaining sleep, resulting in poor sleep quality.

Overall, the findings suggest that examination stress has a significant impact on both sleep quality and appetite among college students and highlight the importance of stress-management interventions within educational settings.

CONCLUSION

The present study concluded that college students aged 18–22 years' experience increased stress during examinations, which is associated with decreased sleep quality and reduced appetite. Significant correlations were observed among stress, sleep, and appetite, indicating that examination stress negatively influences both sleeping patterns and eating behaviour.

Limitations

- The study population was limited to students from Gujarat

Future Recommendations

- Future studies should include a wider age range of college students.
- Further studies should include students preparing for different competitive examinations.
- Comparative studies should be conducted among different student populations.
- Future research should be conducted with larger sample sizes to improve generalizability.

Declaration by Authors

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