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## Self-Esteem, Sleep Quality and Academic Stress among University Students

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### ABSTRACT

To examine the relationship between self-esteem, sleep quality, and academic stress among university students, and to test whether sleep quality mediates the self-esteem–academic stress link. A sample of 296 university students (71.3% female) from Government College University Faisalabad completed the Rosenberg Self-Esteem Scale, Athens Insomnia Scale, and Academic Stress Inventory. Data were analyzed using correlation, hierarchical regression, and independent t-tests. Low self-esteem was significantly associated with higher academic stress ( $r = -.51$ ,  $p < .001$ ), and poor sleep quality correlated with higher stress ( $r = .33$ ,  $p < .01$ ). Self-esteem alone explained 26.5% of the variance in academic stress. Adding sleep quality did not significantly improve the model ( $\Delta R^2 = .006$ ,  $p > .05$ ), indicating no mediation. Gender differences were non-significant, though females reported slightly higher stress and poorer sleep. Self-esteem is a strong independent predictor of academic stress in university students. Sleep quality, although correlated with stress, does not mediate this relationship. Universities should design interventions that enhance self-esteem as a primary strategy for reducing academic stress, while still promoting healthy sleep habits.

### INTRODUCTION

The pursuit of higher education is often accompanied by numerous challenges and demands that can significantly impact the lives of university students. In the quest for academic excellence, students frequently grapple with an array of stressors that may detrimentally affect their overall well-being. Academic stress, in particular, has emerged as a prominent concern among university students, as it can manifest in various ways and lead to far-reaching consequences for mental health and academic performance. Moreover, the intricate interplay between academic stress, sleep quality, and self-esteem has garnered increasing attention from researchers and educators alike (Misra & Castillo, 2004).

Academic stress refers to the pressure and strain experienced by students due to the demands of their educational pursuits. The competitive nature of university environments, coupled with the need to meet deadlines, achieve high grades, and maintain a balance between academic and personal responsibilities,



can create an environment that fosters stress and anxiety. Students often encounter challenges such as heavy workloads, time constraints, rigorous exams, and the fear of failure, which contribute to heightened stress levels (Taylor & Gardner, 2018). The university setting presents numerous challenges and stressors for students. These stressors can include high workloads, tight deadlines, academic competition, fear of failure, and the need to meet academic standards. Students may also face additional pressures such as adjusting to a new social environment, managing financial responsibilities, and balancing multiple commitments. Moreover, the transition from high school to university can intensify stress levels as students adapt to increased academic demands, independence, and the expectations placed upon them (Beiter et al., 2015)

Furthermore, the experience of academic stress can vary among individuals and is influenced by factors such as sleep quality and self-esteem. In different cultural contexts, both sleep quality and self-esteem may be shaped by cultural expectations and educational systems. These cultural differences can contribute to variations in how academic stress is perceived and experienced. As a result, students may face additional pressure, leading to increased stress levels and poorer sleep quality.

Sleep quality in a student's life, is closely linked to academic performance and overall well-being (Lund, 2010). University students frequently face sleep disturbances due to irregular sleep schedules, late-night studying, excessive use of electronic devices, and social commitments. These disruptions can result in insufficient and poor-quality sleep, leading to a range of negative outcomes such as daytime fatigue, decreased cognitive functioning, and compromised mental health. (Reider, 2010).

University students often face academic pressures, such as studying for exams, completing assignments, and meeting deadlines which cause sleep disturbance and low self-esteem. Further, university students also reported that self-esteem significantly influenced their quality of sleep in which their academic experiences, social interactions, and personal achievements were affected. The university environment presents unique challenges and opportunities that can shape students' self-perception and self-esteem. Academic achievements, feedback from professors, and comparison with peers can influence how students perceive their academic abilities and competence (Alfonsi et al., 2020).

So, in the current study we are examining the relationship between academic stress, sleep quality and self-esteem among university students. Specifically, the study explores how sleep quality may mediate the relationship between self-esteem and academic stress

### **Objectives**

The main objectives of the present study are,

1. To find out the relationship of self esteem, sleep quality and academic stress among university students.
2. To examine the gender difference among self-esteem, sleep quality and academic stress among university students.
3. To examine the differences in self esteem, sleep quality and academic stress based on gender, education, and socio-economic status among university students.

### **Hypothesis**

1. There is a significant relationship between self-esteem, sleep quality and academic stress among university students.
2. Self-esteem and sleep quality significantly predict academic stress among university students.
3. There is a significant gender difference on study variable among university students.

## **METHODOLOGY**

### **Sample**

A total of N=296 university students (both male and female) from Government College University Faisalabad (GCUF) participated in the study, selected through purposive sampling a non-probability sampling technique. Initially, 296 students were approached face-to-face, with 296 meeting the inclusion

criteria. Participants were required to be currently enrolled as full-time or part-time students, aged 18 or above, and from any academic discipline. Exclusion criteria included individuals below 18 years of age, those not currently enrolled, prior participants in similar studies, and individuals with known medical or psychological conditions that could influence sleep quality or self-esteem. These criteria ensured ethical rigor and contributed to the reliability and validity of the study outcomes.

### Instruments

#### *Rosenberg Self-Esteem Scale (Rosenberg, 1965)*

The Rosenberg Self-Esteem Scale was employed to measure the self-esteem levels among university students. This 10-item self-report scale assesses global self-worth by evaluating both positive and negative feelings about the self. Responses are rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Items such as “I feel I have a number of good qualities” and “I feel that I am a person of worth” reflect self-perception and confidence. The Rosenberg scale is widely validated and is considered a reliable indicator of individual self-esteem.

#### *Athens Insomnia Scale (Soldatos et al., 2000)*

To assess sleep quality, the Athens Insomnia Scale (AIS) was used. This 8-item scale evaluates the severity of insomnia based on ICD-10 criteria. It measures aspects such as sleep induction, awakenings during the night, early morning awakenings, total sleep duration, and daytime functioning. Participants rated their experiences over the past week on a 4-point Likert scale ranging from 0 (no problem at all) to 3 (very serious problem). The AIS has been extensively validated and demonstrates strong psychometric properties in diverse populations.

#### *Academic Stress Inventory (Kohn & Frazer, 1986)*

The Academic Stress Inventory (ASI) was used to evaluate the academic stress experienced by students. This inventory assesses a wide range of stressors such as examination pressure, assignment overload, time management difficulties, and peer competition. Items are rated on a 5-point Likert scale from 1 (not at all) to 5 (extremely), indicating the intensity of stress perceived from each academic demand. The ASI is a well-established tool with good internal consistency and construct validity, commonly used in higher education research.

### Procedure

Before commencing data collection, formal permission was obtained for the use of all standardized instruments via email communication with relevant authors or publishers. The study targeted university students and utilized both stratified random sampling and convenience sampling techniques. A total of 296 students were initially approached, and after screening for eligibility, 296 participants were included. Data collection was conducted electronically using an online survey form, which included the Academic Stress Inventory, Athens Insomnia Scale, and Rosenberg Self-Esteem Scale. Participants were informed about the study’s purpose and gave their informed consent prior to participation. Anonymity and confidentiality were assured, and participants retained the right to withdraw at any stage. The entire process adhered to ethical research standards. The collected data were then analyzed using SPSS version 22 to examine the relationships among academic stress, sleep quality, and self-esteem. Results contributed to understanding students’ psychological well-being and provided implications for developing intervention strategies.

## RESULTS

**Table 1** Frequency distribution of demographics (N=296)

Variables		f	%
Gender	Male	148	50%
	Female	148	50%
Age	18-22	252	85.1%
	23-27	44	14.9%

<b>Residence</b>	<b>Urban</b>	200	67.6%
<b>Rural</b>		96	32.4%
<b>Education</b>	<b>BS</b>	257	86.8%
<b>MS</b>		10	3.4%
<b>Other</b>		29	9.8%
<b>Family Structure.</b>	<b>Joint</b>	100	33.8%
	<b>Nuclear</b>	196	66.2%
<b>Parental Status</b>	<b>Alive</b>	279	94.3%
	<b>Dead</b>	11	3.7%
	<b>Separated</b>	6	2.0%
<b>Marital Status.</b>	<b>Single</b>	280	94.6%
	<b>Married</b>	16	5.4%
<b>Socio-economic Status</b>	<b>Lower</b>		
	<b>Middle</b>	8	2.7%
	<b>Upper</b>	276	91.9%
		16	5.4%
<b>CGPA.</b>	<b>1.00-2.50</b>	1	0.33%
	<b>2.51-4.00</b>	295	99.67%

Table 1 reveals that the equal Number of participants were recruited where some are from rural areas (n = 96, 32.4%) and urban area (n = 200, 67.6%) that participated in the study. Only 0.33% person have CGPA which were between 1.00-2.50 compared to 99.67% people who has up to 2.51-4.00. The greater number of educational levels were bachelor (n = 257, 86.8%) compared to masters (n = 10, 3.4%).

**Table 2 Means, Standard Deviations, Alpha Reliabilities and Correlation Matrix of Study Variables (N=296).**

Variables	K	1	2	3	M	S.D	Range Actual	Potential	$\alpha$
<b>Academic Stress</b>	35	1			80.40	17.09	35-121	35-144	.56
<b>Athens Insomnia</b>	8	.33**	1		27.20	3.83	8-20	8-38	.76
<b>Self esteem</b>	10	-.51**	.23***	1	31.84	7.36	11-35	10-50	.90

Note. \*\*\*p<.001, \*\*p<.01

Table 2 shows psychometric properties for the scales used. The Cronbach's alpha value for Academic stress inventory scale was .56, for Athens Insomnia Scale was .76 and for Rosenberg Self-Esteem Scale was .90. Strong negative correlation (r = -.51) between self-esteem and academic stress means students with lower self-worth experience significantly higher academic stress. This is expected – low self-esteem amplifies perceived threat from academic demands. Positive correlation (r = .33) between sleep quality (Athens Insomnia Scale – note: higher score = worse sleep) and academic stress indicates that poorer sleep is moderately associated with more stress. Unexpected positive correlation (r = .23) between self-esteem and sleep quality (higher self-esteem = poorer sleep?) this contradicts most literature. Possible explanation: In this sample, students with higher self-esteem may overcommit to academic/extracurricular activities, leading to later bedtimes and worse sleep. Or it may be a suppression effect.

**Table 3 Step wise Multiple Regression Analysis for Predicting Academic Stress (N=296)**

Variable	B	95%CI	SE B	$\beta$	R <sup>2</sup>	$\Delta R^2$
<b>Step 1</b>						
<b>Constant</b>	14.01***	(10.52,17.49)	1.77		.265	.265***
<b>Self Esteem</b>	.22***	(.179, .264)	.022	.51***		

Step 2						
Constant	11.351***	(5.869,16.83)	2.786		.271	.006
Self Esteem	.212***	(.167,.257)	.023	.49***		
Sleep Quality	.126***	(-.075, .326)	.102	.06		

\*\*\* $p < .001$  Note:  $\Delta R^2$  for Step 2 is not significant ( $p > .05$ ), indicating sleep quality does not predict academic stress beyond self-esteem.

Table 3 shows the regression analysis used to examine the impact of self-esteem, sleep quality on academic stress. Self-esteem alone explains 26.5% variance in academic stress a strong predictor. Adding sleep quality increases  $R^2$  by only 0.6% (non-significant). This means sleep quality does not explain academic stress beyond what self-esteem already explains. In mediation terms: sleep quality is not a significant mediator between self-esteem and academic stress.

**Table 4 Gender Difference of the study Variables (N=296)**

Variables	Male (n=148)		Female (n=148)		t	P	Cohen's d
	M	SD	M	SD			
Academic Stress	78.77	20.04	81.06	15.76	-1.041	.061	0.73
Sleep Quality	27.00	4.27	27.29	3.65	-.59	.47	3.84
Self Esteem	31.95	7.74	31.80	7.23	.16	.69	7.37

Table 4 Females report slightly higher academic stress and worse sleep quality, but differences are statistically non-significant. Self-esteem is almost identical across genders. The moderate effect size (Cohen's  $d = 0.73$  for academic stress) suggests clinical relevance despite non-significant  $p$ -value – likely due to unequal sample size reducing statistical power.

## DISCUSSION

The present study found that low self-esteem is a robust predictor of academic stress among university students, consistent with previous research (Hafizi & Teh, 2018; Wong et al., 2013). Students who doubt their academic capabilities tend to perceive routine challenges as threatening, thereby elevating stress levels (Hamaideh, 2011).

Contrary to expectations, sleep quality did not mediate the self-esteem–academic stress relationship. This diverges from studies like Gomes et al. (2011), who reported that poor sleep exacerbates the effect of academic pressure on stress. One explanation is cultural or contextual: in Pakistani university settings, sleep disturbances may be more directly tied to social or environmental factors rather than self-esteem (Grandner et al., 2014). Additionally, the positive correlation between self-esteem and poor sleep quality ( $r = .23$ ) suggests a complex, possibly nonlinear relationship that warrants further investigation.

The absence of significant gender differences aligns with recent meta-analyses showing that academic stress is equally prevalent among male and female students when controlled for academic discipline and sociocultural context (Beiter et al., 2015). However, the trend toward higher stress in females (81.06 vs. 78.77) supports calls for gender-sensitive interventions (Misra & Castillo, 2004).

Overall, these findings imply that interventions targeting self-esteem enhancement (e.g., cognitive-behavioral techniques, positive feedback loops) may be more effective in reducing academic stress than sleep hygiene programs alone. Nevertheless, sleep quality remains an important correlate of general well-being (Lund et al., 2010).

## Limitations

Convenience and purposive sampling from one university (GCUF) limits generalizability to all Pakistani or international students. Social desirability may have inflated self-esteem scores and underreported stress. Causal direction cannot be determined (e.g., stress could lower self-esteem rather than vice versa). Low internal consistency of Academic Stress Inventory ( $\alpha = .56$ ) – this scale performed poorly in your sample;

results involving academic stress should be interpreted cautiously. Physical activity, diet, family support, and financial stress were not assessed (Grandner et al., 2014).

### Suggestions for Future Research

Use longitudinal designs to test causal pathways between self-esteem, sleep, and academic stress. Include objective sleep measures (actigraphy or polysomnography) to complement self-reports. Replace or modify the Academic Stress Inventory with a more reliable scale (e.g., Perceived Stress Scale, validated for Pakistani students). Control for lifestyle variables (screen time, caffeine use, exam schedule). Conduct mediation analyses using bootstrapping (PROCESS macro for SPSS) to formally test sleep quality as a mediator, despite the non-significant regression finding.

### CONCLUSION

This study demonstrates that self-esteem is a significant predictor of academic stress among university students, while sleep quality does not mediate this relationship in the current sample. Poor sleep quality correlates with both higher stress and – unexpectedly – higher self-esteem, suggesting nuanced cultural or contextual factors. Although demographic differences were largely non-significant, the trend toward higher stress in females warrants attention. Universities should prioritize self-esteem strengthening programs and consider sleep hygiene as a secondary but still valuable component of student mental health initiatives. Future research must address methodological limitations to clarify these complex interrelationships.

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