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SLEEP QUALITY, ACADEMIC PERFORMANCE AND ANXIETY AMONG UNIVERSITY HOSTELITES AND NON-HOSTELITES STUDENTS

Original Research

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ABSTRACT

Background: Sleep quality is a critical determinant of students' psychological well-being and academic success. Poor sleep not only impairs memory and concentration but also contributes to heightened anxiety, which can further disrupt academic performance. In developing countries like Pakistan, university students—particularly those residing in hostels—face unique environmental and psychological stressors that can adversely impact sleep and mental health. However, limited research has addressed this triadic relationship within the regional academic context.

Objective: This study aimed to examine the relationship between sleep quality, academic performance, and anxiety levels among hostelite and non-hostelite university students in Punjab, Pakistan.

Methods: Using a purposive random sampling technique, data were collected from 310 university students (155 males and 155 females), aged 19–40 years (M = 2.01, SD = 0.60). Participants completed a demographic form, the Sleep Quality Scale (SQS), the Generalized Anxiety Disorder-7 (GAD-7), and the Academic Performance Scale (APS). Data were analyzed using Pearson product-moment correlation, linear regression, and independent samples t-tests.

Results: A moderate negative correlation was observed between sleep quality and academic performance ($r = -0.37$, $p < .01$). Academic performance was also inversely correlated with anxiety ($r = -0.19$, $p < .01$). A strong positive correlation was found between poor sleep quality and anxiety ($r = 0.83$, $p < .001$). Hostelites reported better sleep quality ($M = 77.80$, $SD = 8.17$) than non-hostelites ($M = 39.80$, $SD = 12.83$), $t(309) = -7.74$, $p < .001$, but performed worse academically ($M = 26.60$, $SD = 5.15$) than non-hostelites ($M = 29.00$, $SD = 4.60$), $t(309) = -2.89$, $p < .01$.

Conclusion: The findings emphasize that poor sleep and elevated anxiety significantly affect academic performance. Institutional interventions promoting mental health and sleep hygiene could benefit university students, particularly hostel residents.

Keywords: Academic performance, Anxiety, Hostelites, Mental health, Sleep quality, Students, Universities

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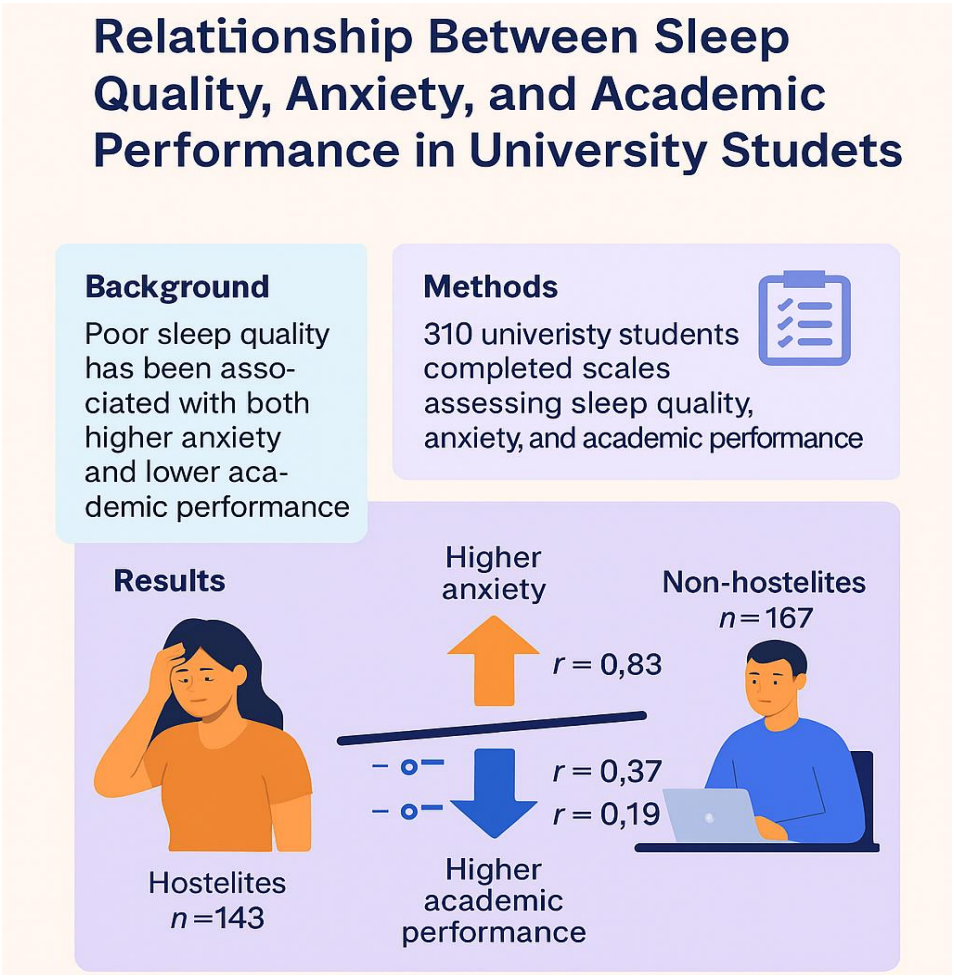

INTRODUCTION

Sleep, often described as the golden thread that ties health and body together, is a fundamental physiological need that significantly influences an individual's cognitive, emotional, and physical well-being. Among university students, sleep disturbances are increasingly common due to a complex interplay of academic demands, social pressures, and lifestyle disruptions. A mounting body of evidence has linked poor sleep quality with heightened levels of anxiety, reduced cognitive function, impaired memory, and diminished academic performance (1,2). In particular, students navigating the university environment—especially those living away from home in hostels—often face additional stressors such as shared accommodations, noise, lack of privacy, financial strain, and the absence of parental support. These environmental and psychosocial factors can significantly impact sleep patterns, exacerbate anxiety, and hinder academic success (3,4). Anxiety, characterized by persistent worry, restlessness, and physiological arousal, is a growing mental health concern in academic institutions worldwide. It has been shown to not only disturb sleep but also impair concentration, motivation, and overall scholastic achievement (5). Living arrangements may play a critical role in modulating these effects. Hostelites are often exposed to environmental unpredictability and interpersonal stressors that non-hostelites—those living with family or in private housing—may be better protected against (6). Non-hostelites generally benefit from greater autonomy, more structured routines, and a quieter environment, all of which may contribute to better sleep hygiene, lower anxiety levels, and improved academic functioning (7,8).

The interconnection between living conditions, sleep quality, anxiety, and academic performance is an underexplored area, particularly in the context of higher education settings in developing countries. While some studies have touched upon the individual effects of sleep or anxiety on academic outcomes, there remains a significant gap in understanding how residential status mediates these relationships in university populations (9,10). Given the escalating academic pressures and mental health challenges faced by students, it is imperative

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to examine these variables in an integrated manner. This research seeks to bridge that gap by investigating the influence of living arrangements—specifically, hostelites versus non-hostelites—on sleep quality, anxiety, and academic performance. It further aims to explore the interrelationships among these variables to provide actionable insights that can inform institutional support systems and promote student well-being. Therefore, the study is guided by the following objectives: to assess differences in sleep quality, anxiety levels, and academic performance between hostelite and non-hostelite students, and to examine the relationship between sleep quality, anxiety, and academic achievement.

METHODS

The present study employed a cross-sectional correlational research design to investigate the relationship between sleep quality, anxiety levels, and academic performance among university students residing in hostels (hostelites) and those living outside the hostel environment (non-hostelites). This approach was selected to enable the assessment of the associations among variables at a single point in time, which is well-suited for understanding behavioral patterns in a student population. Participants were recruited using a purposive random sampling technique, drawing from the registered student population of multiple universities. The final sample included 310 students, comprising 155 males and 155 females, aged between 19 and 40 years. The inclusion criteria required participants to be currently enrolled as undergraduate, master's, or PhD students and to clearly self-identify as either hostelites or non-hostelites. Only individuals who expressed willingness to participate were included. Students were excluded if they had been clinically diagnosed with chronic physical or mental health conditions, including generalized anxiety disorder, sleep disorders, or major depressive disorder, that could confound the measured variables. Additionally, participants who reported regular use of medications such as antidepressants, stimulants, or recreational drugs that could alter sleep quality, anxiety, or academic functioning were excluded to minimize bias and preserve internal validity (11,12).

Data collection was initiated following approval from the Ethical Review Board and the Board of Studies of the Department of Applied Psychology, University of Okara. Written permission was obtained from the original authors of the assessment tools used in the study. Data were collected through an online survey distributed via Google Forms to institutional student groups. Participants were briefed on the purpose and nature of the study, and informed consent was obtained electronically prior to participation. Out of the 310 responses initially collected, only 288 were deemed complete and valid after excluding 20 forms with errors and 5 that were submitted blank. The study utilized standardized and validated instruments. The Sleep Quality Scale (SQS) was employed to assess subjective sleep quality. This 28-item scale used a Likert-type response format ranging from “rarely” to “almost always” to evaluate difficulties such as sleep latency and maintenance. The scale demonstrated excellent internal consistency with a reported reliability coefficient of 0.973. Anxiety levels were measured using the Generalized Anxiety Disorder-7 (GAD-7) scale, a 7-item screening tool using a 4-point Likert scale ranging from “not at all” to “nearly every day.” The GAD-7 has demonstrated robust psychometric properties, with a reliability of 0.862. Academic performance was assessed through the Academic Performance Scale (APS), which consists of 8 items measuring study habits, class participation, and academic engagement using a 5-point Likert scale. The APS showed acceptable reliability, with a coefficient of 0.702 (13,14).

Demographic data were collected through a self-constructed demographic questionnaire that captured relevant background variables such as age, gender, year of study, type of residency, and academic discipline. Once the data were collected, they were transferred to SPSS (Statistical Package for the Social Sciences) for analysis. Statistical methods included Pearson correlation to explore relationships among variables, independent samples t-tests to compare groups, and regression analyses to examine predictive relationships. The statistical significance threshold was set at $p < 0.05$. Ethical considerations were rigorously upheld throughout the research process. The study received ethical clearance from the Departmental Review Committee of the Department of Applied Psychology, University of Okara. Participants were fully informed about the voluntary nature of the study, assured of their right to withdraw at any point without penalty, and guaranteed confidentiality and anonymity of their responses. All procedures conformed to the ethical standards of the Declaration of Helsinki.

RESULTS

The study investigated the relationships among sleep quality, anxiety, and academic performance in university students, comparing hostelites and non-hostelites. Descriptive statistics showed that the Sleep Quality Scale scores ranged from 34 to 87 with a standard deviation of 21.85. Academic performance scores varied between 15 and 32, and Generalized Anxiety Disorder-7 scores ranged from 3 to 17, with a standard deviation of 4.26. Internal consistency was confirmed through reliability analysis. The Sleep Quality Scale demonstrated a high Cronbach’s alpha of 0.97, the GAD-7 scale yielded 0.86, and the Academic Performance Scale showed a reliability coefficient of 0.70, indicating that all instruments were suitable for data collection in this population. Pearson correlation analysis revealed a significant negative relationship between sleep quality and academic performance ($r = -0.37$, $p < 0.01$), indicating that poorer sleep quality was associated with reduced academic performance. There was also a significant negative correlation between academic

performance and anxiety (r = -0.19, p < 0.01), suggesting that students with higher academic achievement experienced lower levels of anxiety. A strong positive correlation was observed between sleep quality and anxiety (r = 0.83, p < 0.01), implying that poor sleep quality was strongly associated with higher anxiety levels.

Linear regression analysis showed that sleep quality significantly predicted anxiety, explaining 69% of the variance ($R^2 = 0.69$, F(1,308) = 703.83, p < 0.001). The unstandardized coefficient was B = 4.26 and the standardized beta coefficient was β = 0.83, indicating that increased sleep disturbance strongly predicted elevated anxiety symptoms. Another regression model demonstrated that academic performance significantly predicted anxiety levels ($R^2 = 0.37$, F(1,308) = 12.67, p < 0.001), with B = -1.71 and β = -0.37, confirming that higher academic performance was associated with reduced anxiety. Comparative analysis between hostelites (n = 143) and non-hostelites (n = 167) showed significant differences across all measured variables. Hostelites had higher sleep disturbance scores (M = 77.80, SD = 8.17) compared to non-hostelites (M = 39.80, SD = 12.83), t(309) = -7.74, p < 0.001, with a large effect size (Cohen's d = 3.53). Academic performance was higher among non-hostelites (M = 29.00, SD = 4.60) than hostelites (M = 26.60, SD = 5.15), t(309) = -2.89, p < 0.01, Cohen's d = 0.13. Anxiety scores were also significantly lower in non-hostelites (M = 4.60, SD = 2.42) compared to hostelites (M = 11.00, SD = 2.55), t(309) = -0.20, p < 0.01, with a large effect size (Cohen's d = 2.57).

Table 1: Descriptive statistics items of scales

Scales	N	Minimum	Maximum	S.D
Academic Performance Scale	8	15	34	4.78
Sleep Quality Scale	28	32	87	21.85
GAD 7 Anxiety	7	3	17	4.26

N=Number, S. D=Standard deviation

Table 2: Descriptive statistics and Cronbach's Alpha of Study scales

Scales	*N*	*M*	*R*	*S*	□□
Academic Performance Scale	8	3.5	19	-.88	.70
Sleep Quality Scale	28	2.09	55	.14	.97
GAD 7 Anxiety	7	1.129	14	.44	.86

Note: N=No. of items, M=Means, R=Range, S=Skewness □□Cronbach's alpha

Table 3: Pearson Product Moment Correlation between Sleep Quality, Academic Performance and anxiety (N=310)

Measures	1	2	3
Sleep Quality Scale	-		
Academic Performance Scale	-.37**	-	
GAD 7	-.19**	.83**	-

Correlation is significant at the 0.01 level (2-tailed).

Table 4: Linear Regression Showing Sleep quality as predictor of Anxiety (N=310)

Variables	Model		
	B	*β*	*SE*
Constant	23.65**		.37
GAD	4.26***	.83	.01
R^2	.69		

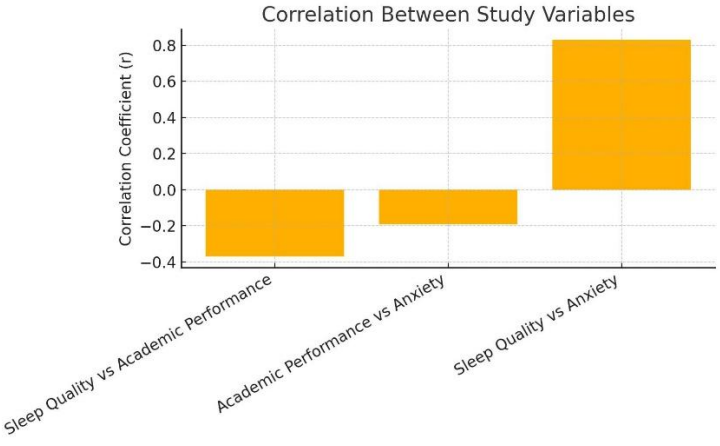
Table 5: Linear Regression Showing Academic Performance as predictor of Anxiety (N=310)

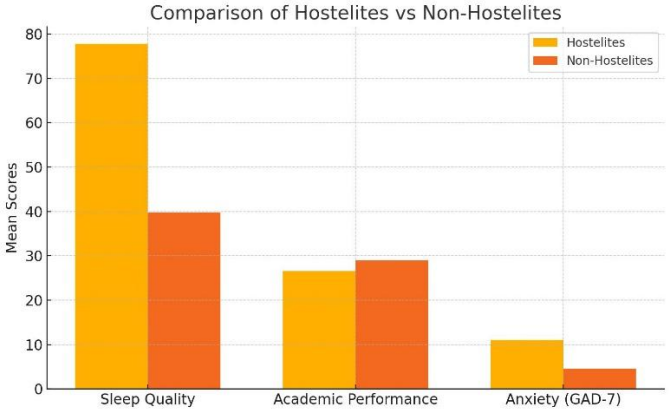
Variables	Model		
	B	*β*	*SE*
Constant	105.84**		6.90
AP	-1.71**	-.37	.24
R^2	.37		

Table 6: Mean Comparison of Hostelites and Non-Hostelites on Sleep Quality, Academic performance and anxiety.

Measures	Hostelites		Non-Hostelites				
	(n=143)		(n=167)				Cohen's D
	M	SD	M	SD	*T* (309)	*P*	
Sleep Quality	77.80	8.17	39.8	12.83	-7.74	.001	3.53
Academic Performance	26.60	5.15	29.0	3.37	-2.89	.01	0.13
GAD	11.00	2.55	4.6	2.42	-.20	.83	2.57

**p<.01, ***p<.001





DISCUSSION

The findings of the present study provide important insights into how living arrangements among university students—specifically hostelites and non-hostelites—are associated with variations in sleep quality, anxiety levels, and academic performance. Results indicated a significant negative correlation between sleep quality and academic performance, suggesting that students experiencing poor sleep are likely to demonstrate lower academic achievement. Moreover, a strong positive relationship between poor sleep quality and elevated anxiety was evident, reinforcing existing literature that identifies sleep disturbances as both a contributor to and a consequence of heightened anxiety symptoms (15,16). Additionally, academic performance showed a significant negative association with anxiety, highlighting the possibility that students who perform better academically tend to experience lower levels of anxiety. These results are aligned with earlier research conducted in university settings, where academic stress, environmental conditions, and irregular routines were found to significantly impact sleep quality and, in turn, students' psychological and academic functioning (17). Previous investigations have documented that, environmental stressors such as noise, uncomfortable accommodations, and social demands contribute to poor sleep among hostel-dwelling students, often more prominently than among those residing at home. This supports the current study's finding that hostelites reported significantly worse sleep quality and higher anxiety than non-hostelites, along with

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comparatively lower academic performance. The associations observed among these variables also reflect international patterns, such as those reported in the United States, where chronic sleep deprivation has been linked to long-term mental and physical health concerns (18-21).

Despite the observed correlations, the cross-sectional nature of the study limited the ability to infer causal relationships among sleep, anxiety, and academic performance. Longitudinal designs would allow future researchers to assess changes over time and establish more definitive directional effects. The study's sample was limited to two cities in Punjab—Okara and Sahiwal—with a modest sample size of 310, restricting the generalizability of findings to the broader university population in Pakistan. Furthermore, potential confounding variables such as age, gender, socioeconomic status, and academic discipline were not controlled, which may have influenced the observed associations. Another limitation was the exclusive reliance on quantitative instruments, which, while statistically robust, may not fully capture the subjective experiences and contextual factors influencing students' psychological states and academic functioning. A mixed-methods or qualitative approach could yield richer, more nuanced insights. Additionally, participant responses in self-report questionnaires are subject to bias, particularly under-reporting or over-reporting, which may affect the reliability of the findings.

Nonetheless, the study contributes meaningfully to a limited body of research within the Pakistani context, especially regarding the differential impact of living environments on student well-being. The validated scales employed demonstrated high internal consistency, strengthening the reliability of the data. Moreover, the use of comparative analysis between hostelites and non-hostelites allowed for a more differentiated understanding of how environmental context influences psychological and academic outcomes. Future research should aim to include larger and more diverse samples across multiple provinces and cultural backgrounds to enhance the representativeness of findings (22). It is also recommended that future studies examine additional variables such as coping strategies, time management skills, and social support, which may mediate the relationships among sleep, anxiety, and academic outcomes. Interventions focusing on sleep hygiene, mental health support, and academic stress management should be integrated into campus-based health services, with special attention to the unique needs of hostel-dwelling students. Tailored educational programs and well-being initiatives could foster healthier routines and improve overall academic success and psychological resilience among university populations.

CONCLUSION

The present study concludes that sleep quality, anxiety, and academic performance are interlinked aspects of university students' well-being, with poor sleep and heightened anxiety contributing to diminished academic outcomes. The findings emphasize that living arrangements play a role in shaping these experiences, and although hostelites exhibited better sleep quality, their academic performance was comparatively lower than non-hostelites. These insights point to the urgent need for universities and policymakers to implement mental health and sleep management interventions, fostering healthier routines and emotional resilience among students. By addressing these factors, academic success and overall well-being can be significantly improved, ultimately contributing to a more productive and empowered youth population.

AUTHOR CONTRIBUTIONS

Author	Contribution
Kainat Rashid	Conceptualization, Methodology, Formal Analysis, Writing - Original Draft, Validation, Supervision
M. Abdullah Baloch	Methodology, Investigation, Data Curation, Writing - Review & Editing
Ayesha Jabbar	Investigation, Data Curation, Formal Analysis, Software
Sameen Sadaqat	Software, Validation, Writing - Original Draft
Tauseef Ahmad	Formal Analysis, Writing - Review & Editing
Shahnawaz	Writing - Review & Editing, Assistance with Data Curation
Eazzad Yaar	Methodology, Investigation, Data Curation, Writing - Review & Editing
Faisal Ijaz	Investigation, Data Curation, Formal Analysis, Software
Muqadas Zahid	Software, Validation, Writing - Original Draft
Washma Ahmad	Formal Analysis, Writing - Review & Editing
Fatima Saeed	Writing - Review & Editing, Assistance with Data Curation

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