RJNMSR
Review Journal of Neurological & Medical Sciences Review

Volume 3, Issue 2, 2025

THE RELATION BETWEEN SLEEP QUALITY AND ACADEMIC PERFORMANCE OF NURSING STUDENTS IN CLINICAL ROTATIONS

Muhammad Zahid[*1], Hina Bibi[2], Umar Zeb[3], Dr. Muhammad Anwar[4], Dr. Shah Hussain[5]

*[*1]BSN, Nursing officer, Saidu Teaching Hospital, Saidu Sharif, Swat.*
[2]PRN, BSN, Nursing officer, surgery ward, Farwanyia Region, Kuwait.
[3]MSN, Principal/ Assistant Professor, Eagle College of Health Sciences/College of Nursing, Swat.
[4]PhD, MSN, Principal/ Assistant Professor, Medtec College of Nursing, KPK.
[5]PhD, MSN, Principal/ Assistant Professor, Zalan College of Nursing, Swat.

[*1]zahidsahilzahid56@gmail.com

Corresponding Author: *
Muhammad Zahid

DOI: https:/doi.org/10.5281/zenodo.15773171

Received	Accepted	Published
21 May , 2024	21 June, 2025	30 June, 2025

ABSTRACT

Background: *Sleep quality is a crucial factor affecting cognitive function, academic success, and clinical performance, particularly among nursing students engaged in demanding clinical rotations. Poor sleep has been linked to reduced concentration, memory impairment, and increased stress factors that may compromise academic and professional outcomes.*

Aim: *This study aimed to examine the relationship between sleep quality and academic performance among nursing students during their clinical rotations at Saidu Teaching Hospital, Swat.*

Methods: *A quantitative correlational study design was used. The study included 270 nursing students selected through convenience sampling. Data were collected using a self-administered questionnaire comprising demographic details, GPA records, and the Pittsburgh Sleep Quality Index (PSQI) to assess sleep quality. Statistical analysis was performed using SPSS version 27. Descriptive statistics summarized demographic data, and Pearson correlation was used to assess the relationship between sleep quality and academic performance.*

Results: *Findings revealed that 72.6% of students had poor sleep quality (PSQI > 5), while only 27.4% reported good sleep quality. Academic performance data showed that 56.3% of students had a moderate GPA, 30% had a high GPA, and 13.7% had a low GPA. A statistically significant negative correlation ($r = -0.321$, $p = 0.001$) was found between sleep quality and GPA, indicating that poor sleep is associated with lower academic achievement.*

Conclusion: *Poor sleep quality is prevalent among nursing students in clinical training and significantly impacts academic performance. Educational and institutional strategies are necessary to enhance students' sleep health and academic performance.*

Keywords: *Sleep quality, academic performance, nursing students, clinical rotations, PSQI, GPA, student well-being.*

INTRODUCTION

Sleep quality is the state of the sleep of an individual, including duration, latency, depth, and continuity. Academic performance refers to the quantifiable results of the learning process of the student, usually in the form of grades or evaluations (Adam, et al., 2021). Clinical rotations are experiential, practical experiences in a hospital or clinical setting that nursing students must complete as a part of their schooling (Agyapong-Opoku, et al., 2025). In these rotations, students experience first-hand patient care through supervision, which is often taxing, alertness and critical thinking (Barbato, 2021). It is crucial to

understand the impact of sleep on academic performance in this challenging period since improper sleep significantly harms concentration, decision-making, and learning (Berhe & Gebretensaye, 2021).

Sleep disturbances in nursing students are on the rise globally, especially during clinical training. Investigations show that stress, long working hours, and shifts can cause up to 6070 nursing students to not sleep well during clinical rotations (Berhe & Gebretensaye, 2021). Students in nations such as Pakistan, India, and the Philippines have been stated to experience less sleep when they are on hospital postings, night duties, or examination periods, which may negatively impact academic and clinical performance (Carrión-Pantoja et al., 2022). The World Health Organization declares sleep deprivation as a major public health issue among the youth sector, as well as students, because it is related to mental fatigue, reduced productivity, and error rates in medical establishments (Gallego-Gómez et al., 2021).

Nursing training itself is a challenging experience, involving coursework, followed by competitive clinical training. Clinical rotations involve students in new environments, interaction with healthcare teams, and administration of patient care with assessment alongside them. These responsibilities can cause anxiety and disrupt sleep cycles (Hyndych, El-Abassi, & Mader Jr, 2025). Consistent sleep impairment leads to a reduction in cognitive capacities among students, such as memory retention, problem solving, and concentration levels, which instantly affects their academic achievement and clinical proficiency. Therefore, the connection between sleep quality and performance is particularly important to examine when it comes to clinical education (Jalali et al., 2025). Physiologically, insufficient sleep interferes with the brain's consolidation of memory and emotional control. Since clinical rotations often have emotionally charged experiences and decisions that need to be made within a time limit, mental clarity and emotional stability will be of the utmost importance to nursing students (Ju, 2023). The lack of good sleep can affect the quality of academic performance in addition to the patient's and the person's well-being. The lack of sleep may cause burnout, loss of motivation, and even serious mental conditions like anxiety and depression in severe cases (Lima, et al., 2022).

A number of studies found that more academically successful students demonstrate good sleep quality, and students who have superior sleep describe better satisfaction in their clinical learning processes (Liyanage et al., 2024). To illustrate the point, studies of European and North American universities have repeatedly reported that good sleep hygiene is associated with a higher GPA, less stress, and better critical thinking ability (Meeks, 2022). Poor sleepers, on the other hand, exhibit worse performance in school, lower rates of clinical effectiveness and higher rates of absenteeism. Beyond this evidence, little localized study has been done into this relationship in South Asian and specifically Pakistani nursing education contexts (Medikonda, 2023).

Sleep problems are found in students who live in developing countries as a result of a lack of awareness about sleep, academic stress, socio-economic challenges, and poor time management. Nursing students, especially, encounter peculiar adversities such as unpredictable duty hours, emotional fatigue, and intensive study workload. This demonstrates the value of specific research to assess the specific impact of these sleep-related issues on academic performance at times of clinical rotations (Migliaccio, 2023).

This research, therefore, seeks to investigate the connection between sleep quality and grades among nursing students on clinical rotations. Recognizing patterns and associations, the study may lead to evidence-based interventions, including sleep hygiene education, schedule changes, and stress management measures. The results might play a critical role in guiding educational establishments, clinical supervisors, and nursing faculty to help students excel academically and retain their physical and emotional wellbeing during phases of clinical training.

Methodology

The study involved a quantitative correlational study design to determine the correlation between sleep quality and academic performance among nursing students on clinical rotations. This research took place at Saidu Teaching Hospital, Swat, which is a major tertiary care and teaching facility in the study area.

There were about 900 nursing students in total on clinical training. The required sample size of 270 students was calculated using the Raosoft sample size calculator at a 95 % confidence level and a margin of error of 5 %. The recruitment of eligible participants included a non-probability convenience sampling technique, which allowed the study to recruit participants who were actively involved in the clinical rotations at the time of the study.

Nursing students who were enrolled in an accredited program of nursing and were undergoing clinical rotations were considered inclusive criteria. Participants with a diagnosed sleep disorder or those

who could not cooperate were not included in the study.

Data Collection Procedure:

Data were collected using a structured, self-administered questionnaire. Part I consist of demographic information and academic measures, including grade point average (GPA) and clinical assessment scores. The second measure was the quality of sleep through the Pittsburgh Sleep Quality Index, a well-validated and reliable instrument to evaluate different aspects of sleep.

The ethical approval was sought through the relevant body Wen the Saidu Teaching Hospital. Each participant gave informed consent before data collection occurred. All responses were anonymous and confidential.

Data Analysis:

Data were analyzed using SPSS version 27. Descriptive statistics were deployed to summarize demographic details, and Pearson correlation analysis was implemented to evaluate the correlation between sleep and academic performance. The statistical significance level $p < 0.05$ was achieved.

Results and Analysis

Demographic Characteristics of Participants

The majority of participants were male (65.9%), while females made up 34.1% of the sample. Most students were between 22–24 years old (52.6%), followed by 18–21 years (31.1%) and 25+ years (16.3%). The sample was nearly evenly distributed across academic years, with 34.1% in the 3rd year, 33.3% in the 2nd year, and 32.6% in the 4th year. This distribution reflects a balanced representation of nursing students undergoing clinical rotations [Table 1].

Table 1: Demographic Characteristics of Participants (N = 270)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	178	65.9%
	Female	92	34.1%
Age Group	18–21 years	84	31.1%
	22–24 years	142	52.6%
	25+ years	44	16.3%
Year of Study	2nd Year	90	33.3%
	3rd Year	92	34.1%
	4th Year	88	32.6%

Figure 1: Sleep Quality Scores Based on PSQI (N = 270)

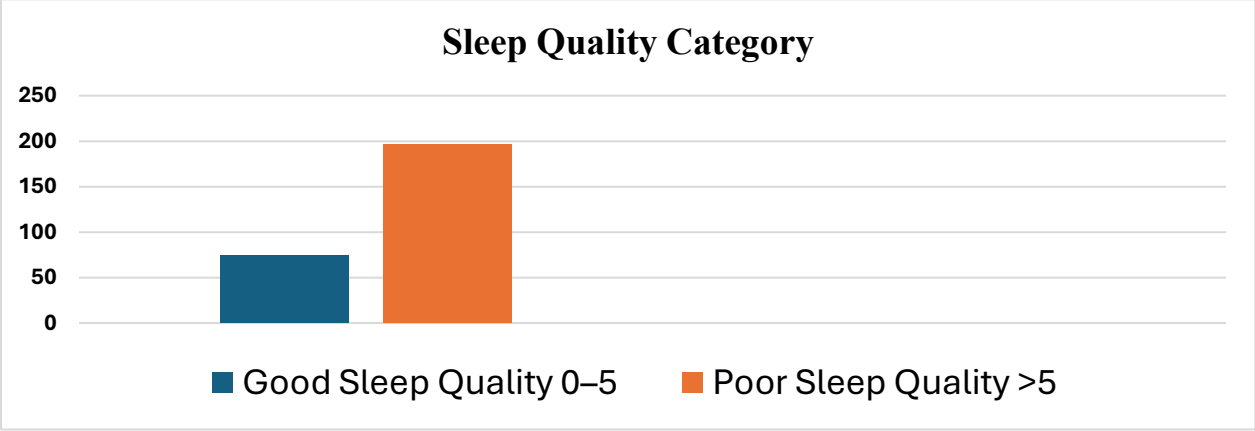

Figure 1 shows that the majority of nursing students (72.6%) reported poor sleep quality, as indicated by PSQI scores above 5. Only 27.4% of participants had good sleep quality, with scores ranging from 0 to 5. This highlights a high prevalence of sleep disturbances among students during clinical rotations.

Academic Performance

More than half of the students (56.3%) had a moderate GPA ranging from 2.5 to 3.49, while 30% achieved a high GPA of 3.5 or above. A smaller proportion, 13.7%, had a low GPA below 2.5. This distribution suggests that most students maintained average academic performance during their clinical rotations [Table 2].

Table 2: Academic Performance of Participants (N = 270)

GPA Category	Score Range	Frequency (n)	Percentage (%)
High (≥3.5)	3.5–4.0	81	30.0%
Moderate (2.5–3.49)	2.5–3.49	152	56.3%
Low (<2.5)	<2.5	37	13.7%

Correlation Between Sleep Quality and Academic Performance

The Pearson correlation analysis showed a moderate negative correlation (r = –0.321) between PSQI scores and GPA, with a statistically significant p-value of 0.001. This indicates that poorer sleep quality is significantly associated with lower academic performance among nursing students [Table 3].

Table 3: Correlation Between Sleep Quality and Academic Performance

Variable Correlation	Pearson r	p-value	Significance
PSQI Score × GPA	–0.321	0.001	Significant (p < 0.05)

Discussion

The current research investigated the relationship between academic performance and sleep quality among nursing students undergoing clinical rotations at Saidu Teaching Hospital, Swat. Results indicated that a large group of students (72.6%) had poor quality of sleep, with one-fourth (27.4%) recalling good sleeping. Also, the study revealed that there is a strong negative correlation between sleep quality and GPA (r = -0.321, p = 0.001). This means that GPA decreased as sleep quality improved. This highlights what effects that sleep disturbance might have on student performance and clinical effectiveness at what may be the most stressful point of their education.

These results are consistent with previous studies conducted globally. As an example, Negm et al. (2024) conducted a study on nursing students in Saudi Arabia and identified that insufficient sleep quality had a significant negative correlation to both a lower grade point average and more reported clinical errors. Likewise, an Ethiopian study by Olanrewaju (2024) also found that problems with sleeping are linked to poor academic performance in university students, which corroborates the findings of the current study. The two studies emphasize the importance of sleep in ensuring cognitive equilibrium, concentration, and emotional stability, which are fundamental to the learning of nursing students involved in intricate clinical procedures.

Conversely, a study by Rassolnia & Nobari (2024)carried out on medical students in Germany showed that although impaired sleep quality was not uncommon, its association with GPA varied because of the individual differences in coping and resiliencies. This could be why, given the negative correlation in the current study, some students with bad sleep had moderate or even high GPAs. This type of variability indicates that other factors are involved, including time management skills, stress resilience, and support networks.

The significant level of poor sleep in this study could be explained by a range of stresses that accompany clinical rotations, such as disruptions in the shift schedule, workload, performance pressure, and exposure to the emotional distress of patients. These results are consistent with those of Riyaz (2024), who discovered that clinical training settings are significantly psychologically and physically draining on students, who frequently lose their sleep patterns and overall well-being. The clinical environment, being an abundant source of learning, can be another point of burnout as well unless handled efficiently.

Moreover, the research established that the majority of students were in the moderate GPA group (56.3%), whereas 30 per cent of the students had high GPAs, and 13.7 had low GPAs. This distribution reveals that among those students who experienced high rates of inadequate sleep, a significant number of students still achieved fairly good academic results. This is backed by the research done by Schmickler et al. (2023), who indicated that even though sleep influenced performance, there were students who adapted compensating behaviors in the form of strategic napping or intensive pre-examination revision, which temporarily reduced the consequences of insufficient sleep.

It should be mentioned that sleep quality is not merely an object of scholarly interest but also a significant predictor of clinical safety. Nursing students tend to be swift decision-makers, on duty to respond to an emergency, as well as in patient care. Students who have not slept possibly face increasing risks of making errors that can affect their studies and patient outcomes. As Xiong et al. (2021) mentioned, sleep

deprivation directly affects executive functioning of the brain, which impairs memory, attention, and critical reasoning, three fundamental elements in clinical settings.

To conclude, the results of the research support the substantial correlation between academic performance and sleep quality among nursing students. Poor sleep and its quantifiable effects on GPA are far too prevalent to ignore, and institutional solutions to increasing sleep hygiene, mental health resources, and easier clinical schedules will be necessary. More sleep education time and formulating interventions to change stress and time management issues may both increase academic and clinical success. The changes are crucial not just to the personal well-being of the students but also the quality and safety of patient care in nursing practice in the future.

Conclusion

The research established that the relationship between the quality of sleep and academic performance among nursing students during clinical rotations in Saidu Teaching Hospital, Swat, is significantly negative. Most students (72.6%) had poor sleep with lowered academic performance, as per their GPA. The results of this article demonstrate that proper sleep and quality sleep is crucial in maintaining cognitive ability, good grades, and safe practice in clinics. Clinical rotations are providing a significant strain on sleep, and irregular schedules and other academic pressures provide a probable contributing to sleep disturbance in this population. These issues are critical to resolve to improve the well-being of students and their academic performance.

Recommendations

1. Integrate Sleep Hygiene Education

Complement nursing curricula with a progression of sleep health and time management content to increase awareness of healthy sleep habit.

2. Adjust Clinical Schedules Where Feasible

Institutions ought to address the need to reduce consecutive night duties or long duty days during clinical placements so as to permit sufficient rest and recovery.

3. Offer Mental Health and Counseling Services

Offer stress management programs and psychological support to assist students in mitigating sleep impairments due to academic and clinical stress.

4. Promote Regular Monitoring and Assessment

Periodically review the sleep patterns of the students and their academic performance to identify those who are at risk and intervene early.

5. Encourage Self-Care Practices

Clinical supervisors and faculty members are expected to advise students to develop balanced schedules that integrate relaxation, well-balanced diets, and exercise with academic work.

6. Further Research

Other research is encouraged to determine the potential causes of sleep disturbances and the effectiveness of institutional interventions on student outcomes.

References

Adam, A. B., Druye, A. A., Kumi-Kyereme, A., Osman, W., & Alhassan, A. (2021). Nursing and midwifery students' satisfaction with their clinical rotation experience: the role of the clinical learning environment. *Nursing research and practice*, 2021(1), 7258485.

Agyapong-Opoku, F., Agyapong-Opoku, N., & Agyapong, B. (2025). Examining the Effects of Sleep Deprivation on Decision-Making: A Scoping Review. *Behavioral Sciences*, *15*(6), 823.

Barbato, G. (2021). REM sleep: an unknown indicator of sleep quality. *International journal of environmental research and public health*, *18*(24), 12976.

Berhe, S., & Gebretensaye, T. (2021). Nursing students challenges towards clinical learning environment at the school of nursing and Midwifery in Addis Ababa University. A qualitative study. *International Journal of Africa Nursing Sciences*, *15*, 100378.

Carrión-Pantoja, S., Prados, G., Chouchou, F., Holguín, M., Mendoza-Vinces, Á., Expósito-Ruiz, M., & Fernández-Puerta, L. (2022). Insomnia symptoms, sleep hygiene, mental health, and academic performance in Spanish university students: A cross-sectional study. *Journal of Clinical Medicine*, *11*(7), 1989.

Gallego-Gómez, J. I., González-Moro, M. T. R., González-Moro, J. M. R., Vera-Catalán, T., Balanza, S., Simonelli-Muñoz, A. J., & Rivera-Caravaca, J. M. (2021). Relationship between sleep habits and academic performance in university Nursing students. *BMC nursing*, *20*(1), 100.

Hyndych, A., El-Abassi, R., & Mader Jr, E. C. (2025). The Role of Sleep and the Effects of Sleep Loss on Cognitive, Affective, and Behavioral Processes. *Cureus*, *17*(5), e84232.

Jalali, A., Fashi, F. M., Karami, M., Kalhory, P., Taghvostani, N. M., & Moradi, K. (2025). Assessment of psychometric properties of the Persian version of the spiritual care competency self-assessment tool. *Palliative & Supportive Care*, *23*, e37.

Ju, Q. R. (2023, March). Navigating Night: Behavioral Economics Strategies to Improve Sleep Patterns Among College Students. In *Annual Conference of the Asian Criminological Society* (Vol. 14, No. 1, pp. 4-21).

Lima, N. C., Kirov, R., & de Almondes, K. M. (2022). Impairment of executive functions due to sleep alterations: An integrative review on the use of P300. *Frontiers in Neuroscience*, *16*, 906492.

Liyanage, G., Rajapakshe, D. P. R. W., Wijayaratna, D. R., Jayakody, J. A. I. P., Gunaratne, K. A. M. C., & Alagiyawanna, A. M. A. D. K. (2024). Psychological distress and sleep quality among Sri Lankan medical students during an economic crisis. *Plos one*, *19*(6), e0304338.

Meeks, M. C. (2022). *The Role of Academic Stress in the Relationship Between the Quality of Sleep and Academic Performance*. Northcentral University.

Medikonda, J. (2023). A clinical and technical methodological review on stress detection and sleep quality prediction in an academic environment. *Computer methods and programs in biomedicine*, *235*, 107521.

Migliaccio, G. M. (2023). *The Science of Deep Sleep, Towards success: Unleashing energies in sports and life thanks to quality sleep*. Sport Science Lab srl.

Negm, L. M. M. A., Mersal, F. A., Fawzy, M. S., Rajennal, A. T., Alanazi, R. S., & Alanazi, L. O. (2024). Challenges of nursing students during clinical training: A nursing perspective. *AIMS public health*, *11*(2), 379.

Olanrewaju, J. I. (2024). *Evaluating Sleep Characteristics of Adults in Sub-Saharan Africa* (Master's thesis, North Dakota State University).

Rassolnia, A., & Nobari, H. (2024). The impact of socio-economic status and physical activity on psychological well-being and sleep quality among college students during the COVID-19 pandemic. *International Journal of Sport Studies for Health*, *7*(2).

Riyaz, K. F. (2024). *A Comprehensive Analysis of Work-Life Dynamics in North Indian Nurses* (Doctoral dissertation, Debreceni Egyetem (Hungary)).

Schmickler, J. M., Blaschke, S., Robbins, R., & Mess, F. (2023). Determinants of sleep quality: a cross-sectional study in university students. *International journal of environmental research and public health*, *20*(3), 2019.

Xiong, W., Huang, J., & Zhu, A. (2021). The relationship of sleep quality among internship nurses with clinical learning environment and mental stress: a cross-sectional survey. *Sleep medicine*, *83*, 151-158