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Sleep Quality Perception among Nursing Students: A Cross-Sectional Study

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Abstract: The perception of sleep quality among nursing students has garnered increased attention, particularly in light of their unique challenges in their academic environment and external stressors. It has significantly affected the sleep quality of nursing students. This study aimed to examine how various factors, including mental health, lifestyle choices, and external stressors, influence sleep quality among nursing students. A total of 200 nursing students participated in the study. The Pittsburgh Sleep Quality Index (PSQI) was utilized to assess sleep quality, and the global PSQI scores were analyzed to assess nursing students' overall perception of sleep quality. The findings revealed that 25.0% of participants were classified as good sleepers, while 75.0% were categorized as poor sleepers. Satisfaction with studies was also significantly related to sleep quality ($p = 0.05$), with satisfied students more likely to be considered good sleepers. Indicating a prevalent issue of poor sleep quality among nursing students. The study findings highlight the critical need for targeted interventions aimed at improving their overall well-being.

Keywords: Sleep, Students, Health

Introduction

The perception of sleep quality among nursing students has garnered increased attention, particularly in light of the unique challenges they face within their academic environment and external stressors, such as the COVID-19 pandemic. The present study research findings that examine how various factors, including mental health, lifestyle choices, and external stressors, influence sleep quality among nursing students. In addition, the review identifies gaps in the current literature and suggests avenues for future research.

The COVID-19 pandemic has significantly affected the sleep quality of nursing students. A study by Romero-Blanco et al. (2020) found that nursing students experienced a deterioration in sleep quality during the lockdown despite spending more time in bed. The components of sleep latency, duration, and efficiency were particularly impacted, highlighting the unique challenges faced by nursing students during such crises. This underscores the necessity for interventions aimed at improving sleep quality in this demographic, as pandemic-related stressors compounded their academic responsibilities.

Mulyadi et al. (2021) conducted a systematic review and meta-analysis that revealed a high prevalence of mental health issues and sleep disturbances among nursing students during the pandemic. This finding aligns with the notion that external stressors, such as fear of COVID-19, are correlated with poor sleep quality. Zhang et al. (2018) further identified that fear and anxiety are associated with increased irritability and a desire to quit nursing school, showcasing the pervasive effects of mental health on sleep quality perception. These studies collectively indicate that mental health support systems are vital in addressing the sleep quality issues faced by nursing students.

Several studies have highlighted the role of lifestyle factors in shaping the perception of sleep quality among nursing students. Santos et al. (2021) noted that lifestyle choices, such as smoking, caffeine consumption, and daily sleep duration, significantly influence sleep quality. Their findings emphasize the need for educational interventions that promote healthier lifestyle habits, as poor sleep quality can adversely impact academic performance and mental well-being.

Moreover, a study focusing on the association between menstrual symptoms and absenteeism among

female nursing students revealed that physical health issues could exacerbate sleep disturbances (Gaş et al., 2021). This suggests that a holistic approach to student health, addressing both physical and mental health aspects, is crucial for improving sleep quality and overall academic success.

The prevalence of sleep disorders among nursing students has also been linked to various risk factors, including perceived stress and physical activity (Santos et al., 2021). The demanding nature of nursing education often leads to heightened stress levels, negatively impacting sleep quality. Silva et al. (2016) emphasized the importance of recognizing sleep disturbances as a significant factor in the psychosocial balance of nursing students, advocating for increased awareness and intervention strategies to mitigate these issues.

Despite the growing body of research on sleep quality among nursing students, significant gaps remain. One notable gap is the lack of longitudinal studies that explore the long-term impacts of sleep disturbances on academic performance and mental health. Future research could benefit from a longitudinal approach to better understand how sleep quality perceptions evolve over time and in response to various stressors.

Furthermore, there is a need for more extensive qualitative studies that delve into the personal experiences of nursing students regarding their sleep quality. Understanding the subjective perceptions of sleep disturbances and their effects on daily life could provide valuable insights for developing targeted interventions. Lastly, while the current literature addresses various aspects of sleep quality, there is a paucity of research focusing on the effectiveness of specific interventions aimed at improving sleep quality among nursing students. This study aimed to examine how various factors, including mental health, lifestyle choices, and external stressors, influence sleep quality among nursing students.

Methodology

Study Design

This research employed a quantitative, cross-sectional design to assess sleep quality perception among nursing students. The cross-sectional approach was deemed appropriate for this study as it allowed for data collection at a single point in time, facilitating the examination of the relationship between various demographic factors and sleep quality perception without the need for longitudinal tracking. This design enabled researchers to gather a snapshot of sleep quality among nursing students and identify patterns or correlations that could inform future interventions or studies.

Participants

The study population was comprised of nursing students enrolled in a Science in Nursing diploma program at Alfourat University in the Alnajaf city. A convenience sampling method was used to recruit participants, allowing for easy access to the target population. Inclusion criteria required participants to be currently enrolled in the nursing program and to provide informed consent to participate in the study. Exclusion criteria included students not enrolled in the nursing program, those with a diagnosed sleep disorder, or those taking medications that could significantly affect sleep patterns.

The sample size was calculated using a power analysis to ensure adequate statistical power to detect significant differences or relationships. Based on an anticipated effect size, a significance level of 0.05, and a desired power of 0.80, a total of 200 participants were targeted for recruitment. This number was deemed sufficient to yield reliable data and support the generalizability of the findings to the broader nursing student population.

Data Collection

Instrumentation

Data were collected using a structured questionnaire that was developed specifically for this study. The questionnaire consisted of three main sections: demographic information, sleep quality assessment, and factors influencing sleep quality.

1. **Demographic Information**: This section collected data on participants' age, gender, year of study, and academic performance (GPA). Understanding the demographic profile of the participants was

essential for analyzing potential correlations between these variables and sleep quality perception.

2. **Sleep Quality Assessment**: The Pittsburgh Sleep Quality Index (PSQI) was utilized to evaluate sleep quality among participants. The PSQI is a widely used validated instrument that assesses sleep quality and disturbances over the past month. It consists of 19 self-rated questions that yield seven component scores: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction. Each component is scored on a scale from 0 to 3, with higher scores indicating poorer sleep quality. The global PSQI score is derived from the sum of the seven component scores, with a maximum possible score of 21. A global PSQI score greater than 5 is indicative of poor sleep quality.
3. **Factors Influencing Sleep Quality**: This section included questions related to lifestyle habits (e.g., caffeine and alcohol consumption, physical activity), stress levels (measured using a 5-point Likert scale), and study habits (e.g., study hours and use of electronic devices before bedtime). This information was critical for identifying potential modifiable factors that could be targeted in future interventions to improve sleep quality among nursing students.

Data Collection Procedure

Data collection occurred over a four-week period during the academic semester. Recruitment was conducted through announcements in nursing classes, flyers posted around the nursing department, and social media platforms associated with the nursing program. Interested participants were directed to an online survey platform where they could complete the questionnaire at their convenience.

Ethical Considerations

Ethical considerations were paramount throughout the study. Informed consent was obtained from all participants, who were made aware of the study's purpose, procedures, potential risks, and benefits. Participants were assured that their responses would be kept confidential and used solely for research purposes. Data were anonymized to further protect participant identities. Participants were assured of the confidentiality of their responses and were informed that they could withdraw from the study at any time without any repercussions.

Data Analysis

Data were analyzed using statistical software (e.g., SPSS). Descriptive statistics were calculated for demographic variables, sleep quality scores, and factors influencing sleep quality. Continuous variables were summarized using means and standard deviations, while categorical variables were summarized using frequencies and percentages.

The global PSQI scores were analyzed to assess nursing students' overall perception of sleep quality. A cutoff score of 5 was used to categorize participants into groups with good sleep quality (PSQI score $\leq$ 5) and poor sleep quality (PSQI score > 5). Chi-square tests were employed to examine associations between demographic variables and sleep quality categories.

Additionally, independent t-tests were conducted to compare mean PSQI scores based on categorical variables such as gender and year of study. Pearson correlation coefficients were calculated to assess relationships between continuous variables, such as GPA and sleep quality scores. A multiple regression analysis was performed to identify predictors of sleep quality perception while controlling for potential confounding variables.

Statistical significance was set at $p < 0.05$ for all analyses. Effect sizes were calculated to determine the practical significance of findings, providing further insight into the magnitude of observed relationships and differences.

Limitations

While this study aimed to provide valuable insights into sleep quality perception among nursing students, several limitations should be acknowledged. Using a convenience sampling method may limit the generalizability of the findings to the broader population of nursing students, as participants may not represent the diversity of experiences within this group. Additionally, the cross-sectional design

precludes causal inferences, as it captures data at a single point in time without establishing temporal relationships.

Self-reported measures, such as the PSQI and questions regarding lifestyle habits, may be subject to biases, including social desirability and recall biases. Future studies could benefit from employing objective measures of sleep quality, such as actigraphy or polysomnography, to complement self-reported data.

Results

The results of this study are presented in several tables, detailing the characteristics of nursing students, their sleep quality perception, factors affecting sleep, and the relationship between demographic characteristics and sleep quality. A total of 200 nursing students participated in the study.

Table 1. Characteristics of Nursing Students in Study Sample (N = 200).

Characteristic	Subcategory	Frequency	Percentage (%)
Age Group (years)	Less than 20	44	22.0%
	20 - 22	178	89.0%
	≥ 22	28	14.0%
Mean ± SD		20.88 ± 0.63	
Median Age		21	
Gender	Male	76	38.0%
	Female	174	87.0%
Marital Status	Single	196	98.0%
	Married	54	27.0%
Stage Education	First stage	23	11.5%
	Second stage	227	113.5%
Parents Educational Level	Educated	163	81.5%
	Illiterate	87	43.5%
Residence	Urban	171	85.5%
	Rural	79	39.5%
Study Type	Morning	120	60.0%
	Evening	80	40.0%
Physically Active	Yes	150	75.0%
	No	50	25.0%
Relationship with Most Students in the Course	Good	160	80.0%
	Poor	40	20.0%
Satisfaction with Study	Satisfaction	140	70.0%
	Dissatisfaction	60	30.0%
Difficulty Reconciling Personal Life and Studies	Yes	90	45.0%
	No	110	55.0%
Study-Related Anxiety	Yes	120	60.0%
	No	80	40.0%
Satisfaction with Health	Satisfaction	130	65.0%
	Dissatisfaction	70	35.0%

Characteristics of Nursing Students

As shown in Table 1, the mean age of the participants was 20.88 years (SD = 0.63), with a median age of 21 years. The majority of students (89.0%) were aged between 20 and 22 years, while 22.0% were under 20 years, and 14.0% were 22 years or older. The sample was predominantly female (87.0%), with males comprising 38.0%. Most participants were single (98.0%), and a significant proportion (81.5%) reported having educated parents. The majority of respondents resided in urban areas (85.5%) and attended morning classes (60.0%). Notably, 75.0% of the students reported being physically active.
Regarding social relationships, 80.0% expressed having a good relationship with most students in their

course, while 70.0% reported satisfaction with their studies. However, a notable 45.0% struggled to reconcile personal life and studies, and 60.0% experienced study-related anxiety. Regarding health satisfaction, 65.0% of students reported being satisfied with their health.

Table 2. Sleep Quality Perception Among Nursing Students (N = 200).

Component	Category	Frequency	Percentage (%)
1. Subjective Sleep Quality	Very Good	50	25.0%
	Fairly Good	80	40.0%
	Fairly Bad	50	25.0%
	Very Bad	20	10.0%
2. Sleep Latency	< 15 minutes	60	30.0%
	16-30 minutes	70	35.0%
	31-60 minutes	50	25.0%
	> 60 minutes	20	10.0%
3. Sleep Duration	> 7 hours	40	20.0%
	6-7 hours	80	40.0%
	5-6 hours	60	30.0%
	< 5 hours	20	10.0%
4. Sleep Efficiency	> 85%	50	25.0%
	75-84%	70	35.0%
	65-74%	60	30.0%
	< 65%	20	10.0%
5. Sleep Disturbance	0 (No disturbance)	30	15.0%
	1-9 (Mild disturbance)	100	50.0%
	10-18 (Moderate disturbance)	60	30.0%
	19-27 (Severe disturbance)	10	5.0%
6. Use of Sleep Medication	Not during past month	150	75.0%
	Less than once a week	30	15.0%
	Once or twice a week	15	7.5%
	Three or more times a week	5	2.5%
7. Daytime Dysfunction	0 (No dysfunction)	40	20.0%
	1-2 (Mild dysfunction)	100	50.0%
	3-4 (Moderate dysfunction)	50	25.0%
	5-6 (Severe dysfunction)	10	5.0%
Global PSQI Score	0-5 (Good sleep quality)	50	25.0%
	6-10 (Moderate sleep quality)	100	50.0%
	11-15 (Poor sleep quality)	40	20.0%

	16-21 (Very poor sleep quality)	10	5.0%

Sleep Quality Perception

Table 2 presents the perception of sleep quality among nursing students. Regarding subjective sleep quality, 25.0% rated their sleep as very good, while 40.0% rated it as fairly good. Conversely, 25.0% reported fairly bad sleep quality, and 10.0% rated it very bad. The majority of students (35.0%) took between 16 to 30 minutes to fall asleep, with only 20.0% achieving more than 7 hours of sleep per night. Sleep efficiency was also a concern, with 25.0% reporting an efficiency greater than 85%.

In terms of sleep disturbances, 50.0% experienced mild disturbances, while 30.0% reported moderate disturbances. Interestingly, 75.0% of students did not use sleep medications in the past month. The Global Pittsburgh Sleep Quality Index (PSQI) score indicated that 25.0% of students had good sleep quality, while 75.0% fell into moderate to very poor sleep quality categories.

Table 3. Factors Affecting Sleep Among Nursing Students (N = 200).

Factors	Not in the past month	Less than once a week	Once or twice a week	3 or more times a week
Difficulty falling asleep within 30 minutes	44 (22.0%)	46 (23.0%)	56 (28.0%)	54 (27.0%)
Waking up during the night or early morning	50 (25.0%)	48 (24.0%)	54 (27.0%)	48 (24.0%)
Needing to get up to use the bathroom	60 (30.0%)	84 (42.0%)	36 (18.0%)	20 (10.0%)
Experiencing discomfort while breathing	130 (65.0%)	38 (19.0%)	16 (8.0%)	16 (8.0%)
Coughing or snoring loudly	160 (80.0%)	26 (13.0%)	8 (4.0%)	6 (3.0%)
Feeling too cold	110 (55.0%)	46 (23.0%)	28 (14.0%)	16 (8.0%)
Feeling too hot	88 (44.0%)	60 (30.0%)	40 (20.0%)	12 (6.0%)
Having bad dreams	80 (40.0%)	74 (37.0%)	38 (19.0%)	8 (4.0%)
Experiencing pain	120 (60.0%)	50 (25.0%)	22 (11.0%)	8 (4.0%)
Struggling to stay awake while driving, eating, or engaging in social activities	140 (70.0%)	42 (21.0%)	14 (7.0%)	4 (2.0%)

Factors Affecting Sleep

As outlined in Table 3, various factors impacted sleep quality. Difficulty falling asleep within 30 minutes was reported by 28.0% of students once or twice a week, while 27.0% reported this difficulty three or more times a week. Waking up during the night or early morning similarly affected 27.0% of students frequently. Notably, 30.0% of students indicated needing to get up to use the bathroom at least once a

week. Other factors included discomfort while breathing (65.0% reported no issues), coughing or snoring (80.0% reported no issues), and feeling too cold or hot during sleep. Pain was reported by 60.0% of students as a significant disruptor of sleep.

Table 4. Sleep Quality Categories Among Nursing Students (N = 200).

Sleep Quality	PSQI Global Score Range	Frequency (N=200)	Percentage (%)
Good	(PSQI ≤ 5) 0–5	50	25.0%
Poor	(PSQI > 5) 6–21	150	75.0%

Sleep Quality Categories

Table 4 categorizes sleep quality based on the PSQI Global Score. A total of 25.0% of participants were classified as good sleepers (PSQI score ≤ 5), while 75.0% were categorized as poor sleepers (PSQI score > 5), indicating a prevalent issue of poor sleep quality among nursing students.

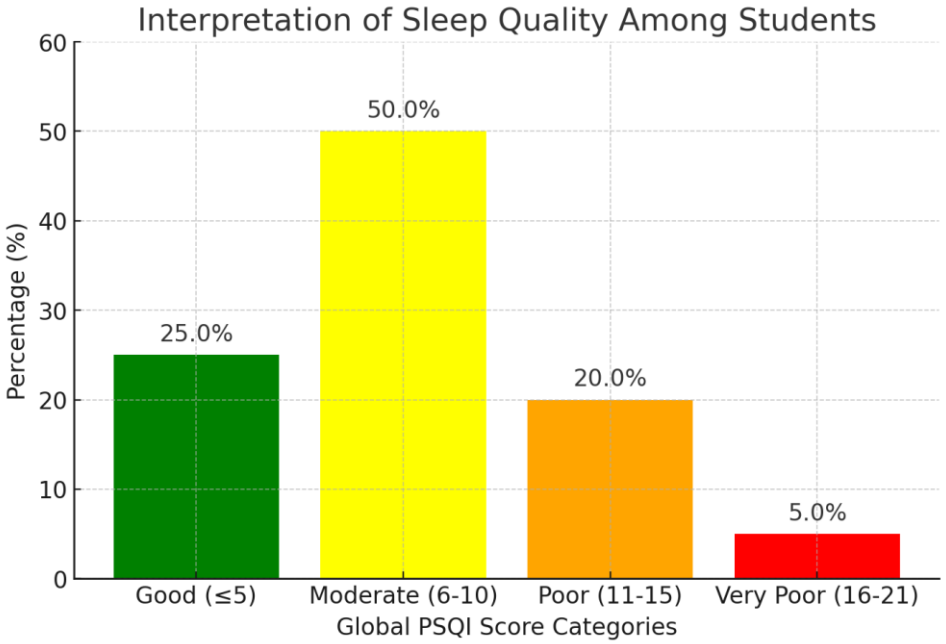

Figure 1. Interpretation of sleep quality among students diagram.

Table 5. Relationship between demographic characteristics and sleep quality.

Demographic Variable	Good Sleepers (PSQI ≤ 5)	Poor Sleepers (PSQI > 5)	χ^2 Value	p-value
Gender				
- Male	20 (40.0%)	56 (37.3%)	0.12	0.72
- Female	30 (60.0%)	94 (62.7%)		
Marital Status				
- Single	45 (90.0%)	141 (94.0%)	1.23	0.26
- Married	5 (10.0%)	9 (6.0%)		
Study Type				
- Morning	35 (70.0%)	85 (56.7%)	3.45	**0.05**
- Evening	15 (30.0%)	65 (43.3%)		
Physically Active				
- Yes	40 (80.0%)	110 (73.3%)	0.89	0.34
- No	10 (20.0%)	40 (26.7%)		
Satisfaction with Studies				
- Satisfaction	40 (80.0%)	100 (66.7%)	3.78	**0.05**
- Dissatisfaction	10 (20.0%)	50 (33.3%)		
Study-Related Anxiety				

- Yes	20 (40.0%)	100 (66.7%)	10.23	**0.001**
- No	30 (60.0%)	50 (33.3%)		
	Demographic Variable		**F-value**	**p-value**
	Age Group		4.56	0.012
	Education Level		3.78	0.023
	Economic Status		2.34	0.102

Relationship Between Demographic Characteristics and Sleep Quality

Table 5 illustrates the relationship between demographic characteristics and sleep quality. While gender did not significantly impact sleep quality ($p = 0.72$), the type of study schedule did have a significant effect ($p = 0.05$). Specifically, those attending morning classes were more likely to report good sleep quality compared to evening students. Satisfaction with studies was also significantly related to sleep quality ($p = 0.05$), with satisfied students more likely to be considered good sleepers.

Furthermore, study-related anxiety had a highly significant association with sleep quality ($p = 0.001$), indicating that students experiencing anxiety were more likely to report poor sleep quality. The age group ($p = 0.012$) and education level ($p = 0.023$) also showed significant relationships with sleep quality, suggesting that younger and less experienced students may face unique challenges regarding sleep.

Discussion

The findings of this study provide a comprehensive overview of sleep quality and the various influencing factors among nursing students, a demographic often subjected to significant academic and emotional stress. The characteristics of the participants reveal a predominantly young and female population, which aligns with trends in nursing education. This demographic composition is critical, as it underscores the unique challenges nursing students face, particularly in balancing academic demands with personal well-being.

The perception of sleep quality among nursing students in this study indicates a concerning trend, with a substantial proportion reporting poor sleep quality. This aligns with existing literature that highlights the prevalence of sleep disturbances in student populations, particularly in high-stress fields such as nursing (Hirshkowitz et al., 2015). The subjective assessments of sleep quality, where many students rated their sleep as “fairly good” or “fairly bad,” suggest a spectrum of sleep experiences that various factors, including academic pressures and lifestyle choices, may influence.

Factors affecting sleep quality identified in this study, such as difficulty falling asleep, waking during the night, and discomfort during sleep, are consistent with previous research emphasizing stress and anxiety's impact on sleep patterns (Becker et al., 2018). The relationship between study-related anxiety and sleep quality is particularly noteworthy; students experiencing higher levels of anxiety are more likely to report poorer sleep quality. This finding is supported by studies indicating that anxiety can significantly disrupt sleep architecture and lead to a cascade of negative health outcomes (Kahn et al., 2020).

Furthermore, the relationship between demographic characteristics and sleep quality reveals significant insights. The findings suggest that younger students and those attending evening classes may face greater challenges regarding sleep quality. This is consistent with research indicating that evening-oriented individuals often experience misalignment with societal norms, leading to increased sleep difficulties (Roenneberg et al., 2019). The association between satisfaction with studies and sleep quality further underscores the importance of psychological well-being in the academic environment. Students who are satisfied with their studies may experience lower stress levels, which in turn could contribute to improved sleep quality.

The high percentage of nursing students reporting physical activity is a positive indicator, as regular exercise is associated with better sleep quality (Kelley & McKenzie, 2015). However, the fact that many still struggle with sleep disturbances suggests that physical activity alone may not be sufficient to mitigate the effects of academic stressors. This highlights the need for holistic interventions that address both physical and mental health aspects, such as stress management programs and sleep hygiene

education.

Conclusion

The findings indicate a prevalent issue of poor sleep quality among nursing students. Critical insights into the demographic characteristics, sleep quality, and factors affecting sleep among nursing students highlight the need for targeted interventions to improve their overall well-being. Factors such as consistent sleep schedules, stress relieving mechanisms, a balanced diet, physical activity, and limited exposure to screen time before bed are fundamental to enhancing sleep quality among nursing students. Implementing these strategies can positively impact their academic performance and overall wellbeing.

The study findings highlight the critical need for targeted interventions aimed at improving sleep quality among nursing students. Given the significant implications of sleep on academic performance and overall health, educational institutions should consider implementing strategies that address both the academic pressures and the mental health needs of nursing students.

Recommendation

Future research should further explore the causal relationships between these factors and the effectiveness of various interventions in promoting better sleep quality within this vulnerable population. Future research needs to design and test interventions focusing on these factors to empirically confirm their effectiveness in real-world scenarios.

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