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ORIGINAL RESEARCH

Impact of Sleep and Psychological Well-Being on the Academic and Clinical Performance of Nursing Students in Saudi Arabia

Lizy Sonia Benjamin[1], Eddieson Pasay-an[2], Petelyne Pangket[3], Aidah Sanad Alqarni[4], Ferdinand Gonzales[4], Lailani Sacgaca[5], Dawlat Ahmed Mahmoud[1], Maysa M Mohsen[4], Yahya Showkan Ali Hamdi[6], Sumathi Robert Shanmugam[7]

[1]Department of Medical-Surgical Nursing, College of Nursing, King Khalid University, Abha, Saudi Arabia; [2]Department of Nursing Administration, College of Nursing, King Khalid University, Abha, Saudi Arabia; [3]Department of Medical Surgical Nursing, University of Hail, Hail City, Saudi Arabia; [4]Department of Fundamental of Nursing, College of Nursing, King Khalid University, Abha, Saudi Arabia; [5]Department of Nursing, Prince Sultan Military College of Health Sciences, Dhahran, Saudi Arabia; [6]Nursing Service, Aseer Central Hospital, Aseer, Saudi Arabia; [7]Department of Maternity and Pediatric Nursing, Princess Nourah Bint Abdulrahman University, Riyadh, Saudi Arabia

Correspondence: Sumathi Robert Shanmugam, Department of Maternity and Pediatric Nursing, Princess Nourah Bint Abdulrahman University, Riyadh, Saudi Arabia, Email srshanmugm@pnu.edu.sa

Introduction: Nursing students frequently encounter the challenge of balancing their studies with the demanding requirements of hands-on practice and this can greatly affect their mental wellbeing. This study aimed to investigate the impact of sleep and psychological well-being on the academic and clinical performance of nursing students in Saudi Arabia.

Methods: This study used a cross-sectional approach with 218 student nurses selected through convenience sampling from King Khalid University, Abha, Saudi Arabia. The sleep quality, psychological wellbeing, academic performance and clinical performance questionnaires were adopted to measure the variables. The Google Forms survey was used to gather the data, which were collected in August through October 2023. *t*-test and chi-square were used to analyze the data.

Results: The sleep quality was higher with good/very good performers ($p < 0.001$). There was a significant difference with academic performance on positive relations ($p < 0.007$) and purpose in life ($p < 0.004$). Additionally, there was a significant difference in autonomy ($p < 0.01$), environmental mastery ($p < 0.026$), positive relations ($p < 0.001$), and purpose in life ($p < 0.001$) with clinical performance. Among students with good academic performance, those who were older than 25 years of age ($p < 0.043$) and level 3 students ($p < 0.001$) were found to have a significant correlation. Furthermore, those who were 25 years of age ($p < 0.012$) and level 3 students ($p < 0.001$) were also found to have a significant correlation with clinical performance.

Conclusion: The sleep quality, positive relations, purpose in life, autonomy, and environmental mastery are all important factors for academic and clinical success. Moreover, older students and level 3 students may be more likely to have the skills and knowledge necessary to succeed in these areas. Further research exploring factors influencing academic and clinical success must be conducted.

Keywords: sleep quality, psychological well-being, academic performance, clinical performance, nursing students, Saudi Arabia

Introduction

Sleep and mental wellbeing play a role in the practical performance of nursing students.[1] It can be challenging for these students to find a balance, between their studies and clinical experience which can take a toll on their mental health. Prioritizing sleep habits and psychological wellbeing is crucial for nursing students to excel.[2] However, due to the demands of nursing education and clinical practice, it can be difficult for them to prioritize self-care. The American Nurses Association (ANA)[3] highlights the significance of hands on experience in providing care across settings. These clinical rotations can be physically and emotionally demanding, involving shifts, exposure to patients and the emotional burden of caring for others. The demanding nature of nursing education and clinical practice can have effects on the sleep patterns well as mental health of students. Factors such as late night study sessions, irregular sleep schedules, stress,

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anxiety related to rotations can disrupt sleep patterns which contribute to feelings of stress, anxiety and depression, among students.[4]

Sleep disorders, along with psychopathology, may percolate toward the deeper levels of the life of nursing students.[5] This can cause damage to memory, attention fatigue, and less successful study.[1] It is of note that sleep is vital to good overall health, and it is known to be critical for cognitive functioning, memory consolidation, and learning.[6] Deficits in cognitive performance have been associated with inadequate sleep, decreased attention, and memory.[7] For example, a previous study[8] found that sleep deprivation is "a cardinal risk factor for the development of cognitive dysfunction" (p. 956), because it had pronounced negative effects on different cognitive processes such as attention, memory, and problem solving. Another investigation revealed that the length of sleep was directly related to brain activity and educational superiority. According to Edinger and Grandner,[9] sleep is essential for optimal cognitive performance and academic functioning in college students.

Lack of sleep can negatively affect the performance of nursing students during their rotations, where they are tasked with assessments, administering medications and planning care.[10] To excel in these responsibilities nursing students need to be mentally sharp and attentive, to details. However, a lack of sleep can compromise these abilities. Various studies have investigated the correlation between sleep and clinical performance among nursing students. For example, Hamaideh et al[11] discovered that nursing students who reported sleep quality exhibited clinical performance compared to those with good sleep quality. Similarly, Alhaddad et al's[12] study also indicated that nursing students with sleep quality had clinical performance than those with good sleep quality. These findings suggest that the quality of one's sleep plays a role, in predicting the performance of nursing students.

Several studies have investigated the link, between sleep and academic achievement in nursing students. The study by Hamaideh et al[11] found that nursing students who experienced sleep quality had academic scores compared to their peers who reported good sleep quality. Similarly, Alhaddad et al[12] discovered that nursing students with sleep quality performed poorly when compared to those with sleep patterns based on an analysis within the same country. These findings strongly support the argument that sleep quality plays a role, in determining performance especially for nursing students who must balance demanding academic workloads and clinical practice. By adopting sleeping habits and prioritizing rest nursing students can enhance their learning abilities improve memory retention and ultimately excel academically[11,12]

Psychological wellbeing refers to how individuals perceive one's life.[13,14] Research suggests that having a sense of wellbeing is associated with academic performance specifically in terms of motivation, engagement and perseverance.[15] Numerous studies have explored the relationship, between being and academic achievement among nursing students. For example, Almalki et al[16] found that nursing students with levels of wellbeing tend to have Grade Point Averages compared to those with lower levels of wellbeing. Similarly, Alzayyat and Al Gamal[17] observed that nursing students who possess a sense of wellbeing excel compared to their counterparts with levels. These findings underscore the significance of wellbeing as an indicator of performance, among nursing students.

While similar studies have been conducted, they focused primarily on academic outcomes and directed little attention to clinical performance indicators. Correspondingly, the relationships between sleep quality and psychological well-being could facilitate a deeper understanding of how they affect nursing students' development in general, including their clinical skills, patient care attitudes, and professional behavior. By identifying the underlying factors for poor sleep and psychological distress, nursing educators could develop interventions to enhance proper sleeping practices and the maintenance of mental health, which is a proven path toward improved academic and clinical performance. Therefore, from a broader perspective, understanding how sleep and psychological well-being influence academic/clinical performance can help to obtain evidence for developing targeted interventions to improve student well-being, thus more effective teaching. Sleep deprivation and psychological distress are common among nursing students globally, including in Saudi Arabia. Identifying the contributing factors and establishing relevant interventions may help significantly in enhancing the general health status and well-being of nursing students. Hence, this study aimed to explore the impact of sleep and psychological well-being on the academic and clinical performance of nursing students in Saudi Arabia.

Materials and Methods

Design

This study used a cross-sectional approach to examine the impact of sleep and psychological well-being on the academic and clinical performance of nursing students in Saudi Arabia.

Participants/Setting

Nursing students studying at King Khalid University, Abha, Saudi Arabia, served as participants in this study. Selected through the results of convenience sampling, a total of 218 nursing students participated. Inclusion criteria were student nurses aged between 18 and 40 years who were willing to participate. The number of samples was determined according to the Rao software online sample calculator. The standard deviation was set at a 95% confidence interval. The response distribution was 50%, and the margin of error was ±5%. The recommended sample size was 218.

Data-Gathering Procedure

The researchers used a Google Forms survey to gather the data. The survey was sent to student representatives. They were also sent a reminder message, through WhatsApp, to complete their responses. The participants' anonymity was maintained, and the data were collected from August through October 2023.

Questionnaires

Participants completed a brief demographic questionnaire as well as the following instruments. This research utilized three questionnaires.

Sleep Quality Scale

The sleep quality scale (SQS)[18] consisted of 28 items was used to assess six aspects of the quality of sleep. This includes: symptoms throughout the day, recovery from sleep, trouble falling asleep and staying asleep, difficulties waking up, and satisfaction with sleep. Respondents will answer how frequently they exhibited specific sleep patterns on a 4-point Likert-type scale (0 = infrequently, 1 = occasionally, 2 = often, and 3 = very usually). Prior to tallying, the scores on the items related to criteria 2 and 5 (restoration after sleep and contentment with sleep) were reversed. Higher scores indicated more severe sleep issues. The total score ranged from 0 to 84.

Psychological Well-Being Scale

The 18-item version of Ryff's Psychological Well-being Scale[19] is a self-report instrument comprised 18 items measuring six dimensions of psychological wellbeing: *Autonomy* (eg, "I have confidence in my opinions, even if they are contrary to the general consensus"), *Environmental Mastery* (eg, "In general, I feel I am in charge of the situation in which I live"), *Personal Growth* (eg, "I think it is important to have new experiences that challenge how you think about yourself and the world"), *Positive Relations With Others* (eg, "People would describe me as a giving person, willing to share my time with others"), *Purpose in Life* (eg, "Some people wander aimlessly through life, but I am not one of them"), and *Self-Acceptance* (eg, "When I look at the story of my life, I am pleased with how things have turned out"). The items were rated on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). The score totals were in the range of 18 to 108, with higher scores representing greater well-being.

Academic and Clinical Performance

The approached by Terry and Peck[20] to measure the level of academic and clinical performance as used in the study of Luthans and colleagues[21] and Peltzer and Pengpid[22] was followed in this study. One item question for academic performance states, "Over the past semester, how would you rate your academic performance/effectiveness as compared with your peers?" Another item question for clinical performance was, "Over the past semester, how would you rate your clinical nursing performance/effectiveness during the Bachelor's degree as compared with your peers?" These questions

were rated on a 3-point Likert scale from very poor to very good.[20] In this study, the median rating is considered "acceptable" while higher ratings were categorized as good/very good.

Ethical Consideration

Ethical approval was obtained from the Institutional Ethical and Review Board of King Khalid University, Abha (ECM # 2023–904). Participation in the study was voluntary and anonymous. Participants were asked to complete the questionnaire. Confidentiality was maintained, and informed consent was obtained from all subjects involved in the study. This research complied the standards set in the Declaration of Helsinki for studies involving human subjects.

Data Analysis

Data from the administration of the questionnaire were extracted on an Excel worksheet and associated with alphanumeric variables to identify the items and their responses. The subsequent statistical analysis of the variables was carried out using SPSS Statistical Software version 19. Quantitative measurements were summarized in terms of mean (standard deviation) and median (inter quartile range). Qualitative variables were expressed as frequency (percentages).

The Shapiro–Wilk test result was found to be normally distributed. Hence, the Student's *t*-test was used to compare the means of two independent groups. The participants' socio-demographics were presented using descriptive statistics. The chi-square test was used to find the association between the two categorical variables.

Results

Table 1 presents the frequency and percentage distribution of demographic variables. This study included 218 nursing students with a mean age of 25.67 ± 7.06; approximately 199 (91.3%) were female. The ages of the students varied, for

Table 1 Frequency and Percentage Distribution of Demographic Variables. *N* = 218

Variables		Frequency	Percentage
Gender	Female	199	91.3
	Male	19	8.7
Marital Status	Divorce/Widow	4	1.8
	Married	62	28.4
	Unmarried	152	69.7
Level of Study	1	69	31.7
	3	1	0.5
	4	33	15.1
	5	61	28.0
	6	29	13.3
	7	16	7.3
	8	9	4.1
Academic Performance	Acceptable	38	17.4
	Good/ Very good	180	82.6
Clinical Performance	Acceptable	59	27.1
	Good/ Very good	159	72.9

example, 69 (31.7%), 34 (15.6%), 90 (41.3%), and 25 (11.5%) in Years I, II, III, and IV, respectively. The academic and clinical performance of all participants were collected and categorized as good/very good and acceptable performance. In both academic and clinical performance, most were good/very good performance with 82.6% and 72.9%, respectively.

Table 2 presents the comparison of sleep and psychological well-being with academic performance. The sleep quality score was higher among the good/very good performance than it was with the acceptable performance ($p < 0.001$). However, concerning subdomains of psychological well-being, there was a significant difference in positive relations ($p < 0.007$) and purpose in life ($p < 0.004$) with academic performance, but there was no statistical significance between good/very good and acceptable performance with respect to overall psychological well-being ($p > 0.18$).

Table 3 presents the comparison of sleep and psychological well-being with clinical performance. The sleep quality score was higher among the good/very good performance than the acceptable performance ($p < 0.001$). On the subdomains of psychological well-being, there was a significant difference between clinical performance and autonomy ($p < 0.01$), environmental mastery ($p < 0.026$), positive relations ($p < 0.001$), and purpose in life ($p < 0.001$). However,

Table 2 Comparison of Sleep and Psychological Well-Being with Academic Performance

	Academic Performance				t-value	p-value
	Acceptable (*n* = 38) Mean	*SD*	Good/Very Good (*n* = 180) Mean	*SD*		
Total Scores Sleep Median (IQR)	6	18	26	39	−3.31	0.001
Autonomy	14.74	0.76	14.45	1.60	0.071	0.097
Environmental Mastery	14.71	1.35	14.33	1.63	1.306	0.185
Personal Growth	14.82	1.49	14.62	1.65	−0.554	0.504
Positive Relations	9.5	1.5	10.31	2.06	−2.60	0.007
Purpose in Life	9.55	1.39	10.41	2.33	1.943	0.004
Self-Acceptance	14.66	0.94	14.91	1.89	0.697	0.421
Overall Psychological Wellbeing	77.97	3.86	79.03	6.22	0.228	0.18

Table 3 Comparison of Sleep and Psychological Well-Being with Clinical Performance

Domain	Clinical Performance				t-value	p-value
	Acceptable (*n* = 59) Mean	*SD*	Good/Very Good (*n* = 159) Mean	*SD*		
Total Scores Sleep	6	9	30	40	−3.243	<0.001
Autonomy	14.8	0.64	14.39	1.69	−4.781	0.01
Environmental Mastery	14.73	1.14	14.28	1.72	0.897	0.026
Personal Growth	14.83	1.19	14.59	1.75	0.333	0.252
Positive Relations	9.46	1.33	10.43	2.13	1.943	<0.001
Purpose in Life	9.46	1.33	10.55	2.4	3.20	<0.001
Self-Acceptance	14.76	0.82	14.91	2	1.61	0.455
Overall Psychological Wellbeing	78.03	3.10	79.14	6.60	0.293	0.095

there was no statistical significance between good/very good and acceptable performance with respect to overall psychological well-being ($p > 0.095$).

Table 4 presents the association between demographic variables with academic and clinical performance. Accordingly, students who were older than 25 years of age ($p < 0.043$) and level of study, particularly level 3 good/very good performance ($p < 0.001$), were found to have significant correlations with academic performance. Similarly, 25 years of age ($p < 0.012$) and level of study, particularly level 3 good/very good performance ($p < 0.001$), were found to have significant correlations with clinical performance. However, there was no statistical significance between good/very good performance and acceptable performance with respect to overall psychological well-being ($p > 0.095$).

Table 4 Association Between Demographic Variables with Academic and Clinical Performance

Variables		**Academic Performance**		**Chi Square Value**	***p*-value**
		Acceptable *f* (%)	**Good/Very good *f* (%)**		
Age	**<25**	30 (21.3%)	111 (78.7%)	4.101	0.043
	≥25	8 (10.4%)	69 (%) 89.6		
Gender	**Male**	8 (42.1%)	11 (57.9%)	0.039	0.122
	Female	51 (25.6%)	148 (74.4%)		
Marital status	**Married**	11 (17.7%)	51 (82.3%)	3.396	0.055
	Unmarried	48 (31.6%)	104 (68.4%)		
	Divorce/Widow	0 (0%)	4 (100%)		
Level of Study	**I Year**	7 (18.1)	62 (89.9%)	18.460	<0.001
	II Year	13 (38.2%)	21 (61.8%)		
	III Year	18 (20%)	72 (80%)		
	IV Year	0 (0%)	25 (100%)		
Variables		**Clinical Performance**		**Chi Square Value**	***p*-value**
		Acceptable *f* (%)	**Good/Very good *f* (%)**		
Age	**<25**	46 (32.6%)	95 (67.4%)	6.253	0.012
	≥25	13 (16.9%)	64 (83.1%)		
Gender	**Male**	8 (42.1%)	11 (57.9%)	2.385	0.122
	Female	51 (25.6%)	148 (%)		
Marital Status	**Married**	11 (17.7%)	51 (82.3%)	5.783	0.055
	Unmarried	43 (31.6%)	104 (68.4%)		
	Divorce/ Widow	0 (0%)	4 (100%)		
Level of Study	**I Year**	11 (15.9%)	58 (84.1%)	24.595	<0.001
	II Year	20 (58.8%)	14 (41.2%)		
	III Year	25 (27.8%)	65 (72.2%)		
	IV Year	3 (12%)	22 (88%)		

Discussion

The purpose of this research was to investigate the impact of sleep and psychological well-being on the academic and clinical performance of nursing students in Saudi Arabia. The findings indicated that students who performed well-exhibited sleep quality, positive relationships and a sense of purpose in life compared to their counterparts with performance. However, there were no differences in wellbeing between the two groups. These results imply that factors like sleep quality and specific aspects of one's life such as relationships and having a sense of purpose may have an impact on performance than psychological wellbeing alone. Previous research consistently suggests that successful students prioritize sleep quality maintain connections and have a clear sense of direction and meaning in their lives.[23,24] Positive relationships and a sense of purpose seem to play a role in performance significantly, than overall psychological wellbeing.[25] Positive relationships involve building connections fostering support networks and creating a sense of belongingness; they have been found to reduce stress levels enhance resilience and boost motivation.[26–29] Therefore, addressing these factors could potentially benefit educators by improving both student wellbeing and academic performance. For instance, teachers can offer guidance on maintaining sleep habits while encouraging students to cultivate relationships and supporting them in finding purpose within their studies. Teachers should aim to establish an environment that places an emphasis on the welfare of students enabling them to flourish and unlock their full potential.

Sleep quality and the subdomains within the psychological well-being domain (positive relations, purpose) were higher for good/very good performers in comparison to acceptable performance. Therefore, these factors might be influential to clinical performance. Nevertheless, in relation to general psychological well-being, the findings were not significant for good/very good performance versus acceptable performance. This indicates that general psychological well-being might not be extremely relevant for clinical performance, while particular psychological well-being is. The modulational principle naturally coincides with the findings of previous studies that emphasized sleep quality and psychological well-being influencing academic and clinical performance. Xie and Barnes,[24] for instance, established that the quality of sleep was substantially high among nursing students with superior academic performance, which directly affects the performance in health practicums. Voderholzer and Matthews[30] also established that quality sleep contributed to enhanced cognition in students of nursing. Researchers additionally found that students with higher clinical performance had significantly better sleep quality.[23] Hence, the authors postulate that nursing students may benefit from interventions targeting sleep quality and psychological well-being. These findings imply that attempts to improve sleep quality and psychological well-being in nursing students could have wider implications for their achievement. Some of the interventions that nursing schools could implement to address these factors include: sleep hygiene education—which is about teaching students why they need to sleep, how they can sleep well, and provide some ideas that can help them improve the quality of their daily sleep, aiding and creating a supportive environment leading with such as allowing for social support, providing ample quiet space for sleeping, and flexible scheduling.

It is noteworthy that the two demographic variables of age and level of study were found to relate significantly to both academic and clinical performance in nursing students. Some researchers discovered that the older nursing students had higher academic GPAs and performed well in clinical evaluations; this may be attributed to a myriad of factors including, but not limited to a greater level of maturity, life experience, and motivation.[31] Park and Chung[23] also discovered that older nursing students attained higher scores than the young students in a clinical performance evaluation. Similarly, the study by Voderholzer and Matthews[30] revealed that older nursing students, unlike their younger counterparts, experienced higher cognitive function, which is significant for clinical performance. Xie and Barnes[24] also observed better scores, in a clinical skills examination, by older nursing students in comparison to their younger counterparts. By recognizing and dealing with these factors, nursing educators and practitioners contribute to the success of students in this specific profession. Nursing educators should address a curriculum for different age sets of students at distinct levels of study. For instance, specialized mentoring and individual attention may be beneficial to the older students while clinical activities beyond being static will favor the high-level learners. In addition, support services should be extended to learners such as older students who might be switching from a different profession and to higher-level learners who may face escalated academic requirements. Some such services might include tutoring, consultation on academic issues, and stress prevention workshops.

It is important to note that there was no difference, between students who performed well or very well and those who performed at an acceptable level in terms of their overall psychological wellbeing. Unlike some studies that found a link between the two[25,30] this current study did not find any significant correlation. However, Deci and Ryan[28] argued that basic psychological needs have an impact on wellbeing because they also influence achievement. This suggests that solely focusing on wellbeing may not result in a strong or consistent relationship, between nursing students psychological wellbeing and their academic performance. When it comes to supporting students nursing educators should provide assistance while adopting an approach that takes into account their academic, emotional, social and physical wellbeing.[30,31] Moreover, nursing educators should also. Address psychological needs that can be reflected through various aspects like managing stress enhancing self-esteem and providing resilience training.

Implications to Behavior Management

This research examines how sleep and psychological wellbeing impact the clinical performance of nursing students, in Saudi Arabia. It provides insights from the perspective of sciences. The findings suggest that applying science interventions can effectively enhance sleep psychological wellbeing and academic and clinical performance among nursing students. For example, educating students about sleep hygiene practices like maintaining sleep schedules and creating a sleeping environment can be helpful. Additionally, providing comprehensive health support services such as counseling, therapy and support groups can promptly address students psychological wellbeing. Implementing peer support programs can also foster a sense of belonging, empathy and mutual assistance among students as they navigate the challenges of nursing education and practice. By incorporating science principles into nursing education and practice, we can promote sleep habits, psychological wellbeing, as well as academic and clinical performance, among nursing students. Ultimately, this prepares them to become resilient healthcare professionals.

Study Limitations

This study, which examines the relationships, between sleep, wellbeing and academic and clinical performance has some limitations. First due to its sectional nature it cannot establish causality. In words, it cannot determine whether changes in clinical performance are influenced by sleep and psychosocial wellbeing or vice versa. Additionally, relying on self-reported measures to assess sleep quality and psychological wellbeing may introduce biases and errors in recall. To obtain data, objective measures like actigraphy could be used for assessing sleep along with standardized measures for evaluating psychological wellbeing.

It is important to note that this study was conducted in Saudi Arabia with a sample comprising nursing students from one university. Therefore, the findings may not be applicable to nursing students in countries or healthcare professions due to cultural differences and variations, in educational systems. To address these limitations effectively, future research should consider probability sampling techniques and conduct studies that involve universities. Having access, to data would give researchers the opportunity to observe how sleep patterns and psychological wellbeing evolve over time. By doing they can better understand the connection between these factors and changes in clinical performance. This kind of research would provide evidence regarding causation. Although there are some limitations to consider this study offers insights into the correlation, between sleep, psychological wellbeing and the academic and clinical performance of nursing students.

Conclusion

The sleep quality, positive relations, purpose in life, autonomy, and environmental mastery are all important factors for academic and clinical success. Moreover, older students and level 3 students may be more likely to have the skills and knowledge necessary to succeed in these areas. Further research exploring factors influencing academic and clinical success must be conducted.

Institutional Review Board Statement

Ethical approval was obtained from the Institutional Ethical and Review Board of King Khalid University, Abha (ECM # 2023-904). Participation in the study was voluntary and anonymous. Informed consent was obtained from all subjects involved in the study.

Data Sharing Statement

The data presented in this study are available on request from the corresponding author.

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Disclosure

The authors declare no conflicts of interest in this work.

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