

Impact of Shift Schedules on Sleep Quality and Cognitive Function Among Student Nurses

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Abstract

Clinical rotations provide invaluable experience to student nurses. However, irregular and rotating schedules often disrupt sleep quality, negatively affecting their physical and mental health, academic performance, and cognitive functioning. These impacts may compromise their ability to deliver safe and effective patient care. This study employed a quantitative approach using a descriptive correlational research design. A total of 272 respondents participated, 136 Level III and 136 Level IV student nurses from Lorma Colleges, College of Nursing. Most respondents were between 21 and 23 years old. The distribution between year levels was equal, with 50% from each level. Findings revealed a high impact of shift schedules on sleep quality, indicating that sudden and rotating shifts significantly affect students' daily functioning. In contrast, cognitive function has a moderate impact, suggesting that although mental acuity is affected, it is not as severely impaired as sleep quality. Furthermore, most demographic profiles showed no significant relationship with the impact of shift schedules on sleep quality and cognitive function. However, a weak but statistically significant negative relationship was found between the profile regarding year level and the impact of shift schedules on sleep quality. Based on these results, student nurses may promote self-care strategies and offer institutional programs on sleep hygiene and stress management. Implementing peer mentoring programs, where student nurses share coping strategies that can help others adapt better to shift changes.

Keywords: *Clinical Rotation, Cognitive Function, Coping strategies, Mental Health, Sleep Quality*

1. Introduction

Student nurses acquired useful experiences during clinical rotations, but the irregular nature of shifts disrupted their sleep. This often affected both their mental and physical wellness, as well as their academic performance and cognitive functions. It was essential to consider how these shifts impacted student nurses' ability to provide secure and efficient patient care, particularly as concerns about their well-being arose when students' health was at risk in a medical sector that often relied on these trainees during their learning phase.

Clinical exposure consisted of an 8-hour day every three days over two weeks, comprising three days of related learning experience (RLE) and three days of lectures. Each rotation had a different schedule; depending on the rotation, it began at 6 - 2, 2 - 10, 7 - 3, or 3 - 11 p.m. The intended rotation and abrupt scheduling adjustments concerned the student nurses. As a result, student nurses were more likely to have had poor sleep hygiene and insufficient sleep, raising concerns about their sleep patterns. Generally, shift schedules impact the student nurses' body clock regarding sleep quality. They might have impaired their cognitive functions, which has resulted in poor performance in both academic and clinical duties.

Clinical practice was a requirement for student nurses to undergo and experience to enhance their clinical skills. Shift schedules pertained to unconventional working hours. It included the night and early morning shifts. Working irregular hours disrupted the individuals' sleep schedule in unconventional circadian phases (Lecca et al., 2021). However, student nurses often experience sudden shift schedules, affecting their physiological and psychological well-being. Furthermore, the continuous demand for productivity, patient safety, and alertness during a shift lasting eight hours or longer became mentally and physically strenuous and might have led to workplace errors (Gaspar, M., 2019).

Sleep plays a very important role in promoting organs' overall health and well-being. The sleep patterns of student nurses must be prioritized if they want to succeed academically (Benjamin et al., 2024). In addition to performing well academically, students must have good sleep habits. Sleep was said to enhance one's neurocognitive skills, resulting in improved performance in school if it is appropriately optimized (Sofyana et al., 2022). However, because of the requirements of nursing education and clinical care, it was tough for them to prioritize self-care (Benjamin et al., 2024). Thus, they had difficulty balancing their academic performance and clinical duties.

According to Pooladgar et al. (2022), enough and healthy sleep is one of humans' physiological needs and an important component in health and survival. Sleeping for the appropriate amount regulates the cardiovascular system, including blood pressure and heart rate. It also boosts hormone production, accelerates cell regeneration and synthesis processes, immune system function, and all activities involved in thinking and learning. However, no clear evidence exists for how a lack of sleep impacts brain functioning.

Cognitive function was an advanced neural activity function of the human brain's functional cortex that obtained, converted, and conducted external objective information. It was mainly composed of memory, calculation, visual space ability, execution ability, and other fields (Liao et al., 2022). However, sleep disturbances or poor sleep quality reduced performance in memory, attention, and decision-making (Leso et al., 2021).

According to Peri (2021), sleep is necessary for people's cognitive capacities. Lack of sleep could delay one's thought process and concentration, which are crucial in hospital duties. This hampered the capacity to perform duties that involved logical reasoning or complicated cognition, and decision-making was more complicated, attributable to the inability to appraise situations or decide on the appropriate behavior. Furthermore, the nerve connections were strengthened during sleep. Mr. Avelino Verceles, MD, also supported this, and he stated that "Sleep embeds the things that we have learned and experienced over the day into our short-term memory." Furthermore, memory played a crucial role for student nurses owing to the high demands of the medical profession, which required retaining and using vast amounts of evidence, such as medical terminology, human body structure, and procedures regarding patient care. Therefore, sleep loss also impacts the ability to learn and memory.

The National Sleep Foundation (NSF) also recognized that sleep quality was a crucial aspect of sleep health. Above 85 percent of sleeping time for people who slept in bed should have gone to sleep; sleeping should not have taken more than thirty minutes from lying down to sleep; not getting up more than once and only being awake not more than twenty minutes each night should have characterized good sleeping habits (Pacheco, D. & Rehman, A., 2023). Therefore, a relationship exists between sleep quality and optimum functioning and well-being.

According to Setyowati et al. (2023), sleep disturbances were serious and strongly linked to concentration problems, particularly for nurses and other healthcare workers, affecting cognitive impairments. In the modern era, shift work has become a new problem for healthcare workers, impacting their cognitive abilities, health, and well-being. Moreover, An et al. (2022) also claimed that shift work was frequently a unique need for nurses and student nurses to deliver continuous patient care service. In this way, student learners regularly formed awful sleep habits that differed from the suggested sleep time and rest period, leading to poor performance in both clinical and academic fields. Additionally, a study by Min et al. (2020) showed that shift nurses with longer response times, reduced vigilance, problems with judgment, impaired concentration, and memory processing resulted in increased errors in medicine. This implied a danger to the patient's health and safety.

Attentiveness, information processing speed, and working memory were some of the various psychological characteristics that made up cognitive function and were essential for individuals' executive functioning throughout their daily activities and jobs. As a result, even a momentary reduction in cognitive function might significantly impact an individual's performance, especially among nurses who rely on accuracy and speed when executing their duties (Pooladgar et al., 2022). Shift work had a nexus with drowsiness and low performance. For many tasks, working memory, focus, and speed of information processing were critical cognitive abilities. Temporary failures in cognitive and mental performance could have had severe consequences for people who had to respond accurately as quickly as possible (Perkins, D., 2024).

Shiftwork means employment outside the established workday, typically 8 am to 4 pm. An important requirement for institutions that function around the clock, like hospitals, requires an extension of work hours more than physiologic sleep hours (Andaya, K., 2022). This practice has also been applied to student nurses to prepare them for hospital duty settings before completing and finishing their degree. Additionally, according to Andaya (2022), shift work affects sleep quality, wherein current or past performance of shift work was significantly associated with poor sleep quality among 18% of shift work nurses at the Lung Center of the Philippines who had Shift Work Disorder (SWD). Most of this was attributed to abnormal

working times where individuals had to conform to certain working hours out of sync with their biological clocks, which can impact people's general health.

According to Velasco et al. (2022), sleep is an essential physiological function for mental health, memory, and learning. This importance is heightened because sleep loss is linked to exhaustion, daytime sleepiness, and poor neurocognitive performance. Furthermore, sleep deprivation impairs a nurse's intellect, providing a risk of affecting not just work productivity but also themselves and their patients. Sleep deprivation can cause nurses to lose empathy and raise their risk of burnout and despair, jeopardizing the quality of care provided (Nelson, 2019).

According to Manalo (2023), rotational shifts became indispensable in healthcare and were crucial in ensuring hospitals provided continuity of care. Nurses needed to have had enough rest, as it would have helped manage and aid patients with excellent patient care. Hence, it was evident that nurses and student nurses had to have adequate rest for their psychological well-being to function properly and avoid any medical errors in the workplace and clinical exposure.

Though the wide-ranging consequences of shift schedules among healthcare professionals had been studied before, there was not enough specific research addressing the impact of shift schedules on sleep quality and cognitive function among student nurses in terms of local aspects. Hence, there was a research gap in this study. The research gap in this study was the lack of explicit studies addressing specific studies about the impact of shift schedules on sleep quality and cognitive function among student nurses within the local context. The researchers based their findings on their direct experience as student nurses, pointing out how these changes drastically impacted their sleep and cognitive capacities.

Moreover, they emphasized the necessity for the research to be more explicit in understanding such impacts in a local environment. The study further emphasized the research gap in terms of content, as the focus was on local aspects since the research was held at Lorma Colleges, City of San Fernando, La Union, and its specific experience among student nurses. Through their experiences, which were used as a narrative, researchers illustrated the need for this study because a lack of research corresponded to their specific concerns. Drawn from personal experiences and focusing on the local context, the study aimed to bridge this gap and thus highlighted valuable insights into the unique challenges that student nurses might have faced in their particular settings.

One of the researchers' points of view narrated that sudden shift schedules impacted a student nurse's sleep and cognitive aspects. Especially when the schedule was from 6 - 2 p.m., it suddenly changed into a schedule of 3 - 11 p.m. for a new rotation. Since she was far from school to the hospital, she had to arrive earlier than everyone, which also led her to be sleep-deprived and have a problem regulating her body clock. Occasionally, she did not get enough sleep, and during her clinical duties, she would fall asleep without realizing it and had a problem focusing on what she had to do. She could not think and comprehend well as much when she was having her quizzes because she fought the urge to sleep. During those stages, the narrator realized how much sleep mattered and how it could affect her as a student nurse in the clinical area.

Conversely, from the perspective of another researcher, it was linked that during the examination week, he had been scheduled to report for his shifts, which made him unable to cope and affected his sleep quality and cognitive function. Fulfilling clinical exposures and attending lectures as a student nurse had left him drained and exhausted, with little time to prepare for the examination. The pressure created by the tasks and duties that had to be completed within the

clinical period and the scheduled examination after the rotation caused significant stress. As a result, getting only four to five hours of sleep each night with limited time to review had left him unfocused and tired during the exams. His demanding duties in the clinical area, coupled with exam preparation, had mentally exhausted him. It had become a vicious cycle in which a lack of sleep made it difficult for him to study, further impacting his focus and worsening his sleep. Because of this, they experienced difficulty balancing their duties and responsibilities as student nurses.

2. Objectives

The primary objective of this study was to investigate the impact of shift schedules, frequent occurrences on the nursing education system, which could disrupt student nurses' sleep quality and cognitive function. Furthermore, the researcher believed these shift schedules had a ripple effect on sleep quality, leading to poor cognitive performance and reduced effectiveness in clinical duties. This made it increasingly difficult for student nurses to balance their clinical and academic responsibilities.

3. Materials and Methods

This study employed a quantitative approach, utilizing a descriptive correlational research design. Quantitative research systematically investigates phenomena using numerical data collection and computational, mathematical, or statistical techniques (Bhandari et al., 2021). According to Apreccia et al. (2022), the variables in a descriptive correlational study design were described, and the degree of relationships between and among the variables was measured. The researchers employed this research design as it is intended to determine the interrelationships among variables in terms of the respondents' demographic profiles, the impact of shift schedules on sleep quality and cognitive function among student nurses, and the significant relationship between the profile and the impact of shift schedules on sleep quality and cognitive function among student nurses.

The study was conducted at Lorma Colleges, where third-year and fourth-year student nurses from the Bachelor of Science in Nursing program in Carlatan, City of San Fernando, La Union, were surveyed. The researchers set criteria for selecting the respondents. The following were the inclusion criteria: (1) Third and fourth-year student nurses officially enrolled in Lorma Colleges; (2) enrolled in clinical courses; and (3) willing to participate in the study. Irregular students and those not enrolled in clinical courses were excluded. The researchers employed a simple random sampling method to select student nurses enrolled in the Bachelor of Science in Nursing (BSN) program at Lorma Colleges, with a focus on third- and fourth-year student nurses. Using the Raosoft online calculator with 95% confidence and a 5% margin of error, two hundred seventy-two (272) student nurses, and who matched these characteristics were invited to participate in the research study.

To gather information necessary for addressing the study's specific problem and proposing a possible solution, the researchers developed a questionnaire based on the relevant literature reviews. This way, the previously mentioned research tool was tested for validity and reliability. To ascertain its validity, the researchers ensured that the questionnaire underwent a validity assessment by three validators and experts from Lorma Colleges, specifically faculty members from the College of Nursing. To test for its reliability, the researchers first sought

approval from the Dean of Lorma Colleges, College of Nursing, to do a pilot study at Lorma Colleges wherein twenty (20) respondents who were not included as respondents of the study were pre-tested from the Bachelor of Science in Nursing at Lorma Colleges, Carlatan, City of San Fernando, La Union, to conduct a preliminary investigation to assess the reliability and effectiveness of the instruments. Moreover, Cronbach's alpha was used to ascertain the reliability of the questionnaire set of questions

Before commencing data collection activities, the proposal underwent validation by three faculty members from Lorma Colleges, approval from the Campus for Health Sciences – Research Institute (CCHS – RI), and review by the Research Ethics Committee (REC). Subsequently, researchers obtained authorization from the Dean of Lorma Colleges, College of Nursing. Following the acquisition of approvals, the researchers engaged with the level head representatives of third- and fourth-year students to secure the roster of respondents and obtain consent for conducting the research study.

The researchers conducted a pilot study with the approval of the Dean of Lorma Colleges, College of Nursing at Lorma Colleges. After the pilot testing, the result of Cronbach's alpha was 0.9568, indicating that the pilot testing result was excellent, and obtaining the required approvals, the researchers began data collection using an online survey platform through Google Forms. They included the informed consent as well as the objectives of the research study to ensure the respondent's autonomy about the study. Furthermore, the researchers included their email accounts on the online survey questionnaire form for the respondents inquiring about the research study. After collecting the respondents' responses, the gathered data were recorded, compiled, explained, and evaluated as needed.

By thoroughly outlining the objectives, advantages, significance, and people who might access the study's findings, the researchers protected the respondents' autonomy. Additionally, during the data collection process, the researchers eliminated biases and treated every respondent fairly. Moreover, an informed consent process was implemented before the data collection. Every respondent was provided with thorough information via the Google form, ensuring they fully understood all the details required to make an informed decision regarding their involvement. Moreover, the respondents were not required to participate in the study and were free to decline if they did not wish to participate. Lastly, the researchers ensured that the research study did not cause harm to the respondents because no treatment was involved in the study except answering the questionnaire from the Google form, and the data collected was securely saved in a private Google Drive with a password for security purposes and will be safely disposed of after 3 to 5 years.

4. Results

4.1 Demographic Profile of the Respondents

The data presented in Table 1 shows the demographic profile of the respondents in terms of age, categorized by age groups ranging from 18 years to 26 years and above. The highest percentage of the respondents fell within the age range of 21 - 23 years old, which resulted in 71.3%, and those between 18 - 20 years old constituted the second-highest percentage, which resulted in 25.4%. The data showed that most respondents were in their early twenties, particularly between 21 and 23 years old. Furthermore, the results also indicate that the category

of respondents older than 26 years old had the least number, with a percentage of 1.1%, and the category of 24 to 26 years old had a percentage result of 2.2%.

On the other hand, the equal distribution of year levels suggested that the study's findings would capture views from different academic experiences, namely, Level III and Level IV student nurses, with precisely 50% (136 respondents) from each level, based on fair sampling methods. Moreover, the balanced representation of respondents across levels ensured that the study did not favor one group's experiences over another.

Table 1. Demographic Profile of the Respondents

Profile		Frequency (f)	Percentage (%)
Age	18 – 20 years old	69	25.4%
	21 – 23 years old	194	71.3%
	24 – 26 years old	6	2.2%
	> 26 years old	3	1.1
Year Level	Level III	136	50.0%
	Level IV	136	50.0%
Total		N = 272	100%

4.2 Impact of Shift Schedules on Sleep Quality among Student Nurses

Table 2 presents the impact of shift schedules on sleep quality, with an overall mean result of 3.49, with the descriptive equivalence a high impact. The data presented in Table 2 showed the highest mean in the indicators “I often feel tired during the day due to a few hours of sleep,” with a mean of 3.92 and a descriptive equivalent of high impact, the indicator “I find it difficult to maintain a regular sleep schedule,” with a mean of 3.88 and a descriptive equivalent of high impact, and both “I have a hard time getting up every morning due to inadequate sleep,” and “I often experience headaches due to inadequate sleep,” each with a mean of 3.71 and a descriptive equivalent of high impact.

Table 2. Impact of Shift Schedules on Sleep Quality

Indicators	WM	DE
I tend to doze off during my clinicals without realizing it.	2.94	Moderate Impact
I find it hard to adjust my body clock with the clinical duty schedules.	3.41	High Impact
I find myself yawning during my clinical duty.	3.65	High Impact
I find it difficult to maintain a regular sleep schedule	3.88	High Impact
I have a hard time getting up every morning due to inadequate sleep.	3.71	High Impact
I often wake up in the middle of the night and then have difficulty falling back asleep.	3.20	Moderate Impact
I feel dazed or confused for a while right after waking up and during clinical duty.	3.09	Moderate Impact
I find it difficult to fall asleep after a sudden shift in my schedule.	3.35	Moderate Impact
I often feel tired during the day due to a few hours of sleep.	3.92	High Impact
I often experience headaches due to inadequate sleep.	3.71	High Impact
Overall Weighted Mean:	3.49	High Impact

Legend: WM – Weighted Mean, DE – Descriptive Equivalent, 4.21 - 5.00 – Very High Impact, 3.41- 4.20 – High Impact, 2.61 – 3.40 – Moderate Impact, 1.81 – 2.60 – Fair Impact, 1.00 – 1.80 – No Impact

On the other hand, it could also be gleaned from the results that the lowest means were found in the indicators “I tend to doze off during my clinical without realizing it,” with a mean of 2.94, the indicator “I feel dazed or confused for a while right after waking up and during clinical duty,” with a mean of 3.09, and “I often wake up in the middle of the night and then have difficulty falling back asleep,” with a mean of 3.20, all of which fell under the moderate impact category.

4.3 Impact of Shift Schedules on Cognitive Function among Student Nurses

Table 3 presents the impact of shift schedules on cognitive function, with an overall mean result of 3.26 and a descriptive equivalence of moderate impact. It showed that many respondents agreed with certain statements, resulting in the three highest means. These specifically belonged to the indicator "I find myself feeling exhausted and easily drained after clinical duty," with a mean of 3.96 and a descriptive equivalent of high impact, the indicator "I find it harder to study right after clinical duty due to rotational shifts," with a mean of 3.70 and a descriptive equivalent of high impact, and the indicator "I find it hard to recall things, and it affects my memory due to rotational shifts," with a mean of 3.40 and a descriptive equivalent of moderate impact.

Table 3. Impact of Shift Schedules on Cognitive Function

Indicators	WM	DE
I find it hard to recall things, and it affects my memory due to rotational shifts.	3.40	Moderate Impact
I find myself dazed and it is difficult to stay alert during my clinical duty.	3.07	Moderate Impact
I cannot focus and concentrate well during my clinical duties when I do not have enough sleep.	3.28	Moderate Impact
I tend to make small mistakes, forget things, and make unanticipated errors during my clinical duty.	3.05	Moderate Impact
I find it harder to study right after clinical duty due to rotational shifts.	3.70	High Impact
I find it harder to process new information associated with memorization after a rotational shift.	3.38	Moderate Impact
I find myself feeling exhausted and easily drained after clinical duty.	3.96	
I feel less confident in my ability to perform my clinical duties effectively due to rotational shifts.	3.02	Moderate Impact
I cannot thoroughly comprehend what my Clinical Instructors are discussing.	2.81	Moderate Impact
I find it challenging to maintain a positive attitude and motivation during my clinical duties.	2.92	Moderate Impact
Overall Weighted Mean:	3.26	Moderate Impact

Legend: WM – Weighted Mean, DE – Descriptive Equivalent, 4.21 - 5.00 – Very High Impact, 3.41- 4.20 – High Impact, 2.61 – 3.40 – Moderate Impact, 1.81 – 2.60 – Fair Impact, 1.00 – 1.80 – No Impact

It could also be gleaned from the results that the lowest means were associated with the indicators "I find it challenging to maintain a positive attitude and motivation during my clinical duties," with a mean of 2.92, the indicator "I cannot thoroughly comprehend what my Clinical Instructors are discussing," with a mean of 2.81, and "I feel less confident in my ability to perform my clinical duties effectively due to rotational shifts," with a mean of 3.02. All of these fell under the moderate impact category.

4.4 Significant Relationship between the Profile of the Respondents and the Impact of Shift Schedules on Sleep Quality

It can be gleaned from the table 4 that there is no significant relationship between the demographic profile of the respondents in terms of age and the impact of shift schedules on sleep quality ($r = -0.119$, $p = 0.050$) among Level III and Level IV student nurses, therefore, the decision is accepted null (H_0). However, is a weak but statistically significant negative relationship between the profile of respondents in terms of year level and the impact of shift schedules on sleep quality ($r = -0.136$, $p = 0.024$), therefore, the decision is rejected null (H_0).

Table 4. Significant Relationship between the Profile of the Respondents and the Impact of Shift Schedules on Sleep Quality

	Correlation coefficient	p value	Decision	Interpretation
Sleep Quality vs				
Age	-0.119	0.050	Accept H_0	Not Significant
Year level	-0.136	0.024	Reject H_0	Significant

**Correlation is significant at the 0.05 level (2-tailed).*

4.5 Significant Relationship between the Profile of the Respondents and the Impact of Shift Schedules on Cognitive Function

It can be inferred from Table 5 that there is no significant relationship between the demographic profile of the respondents in terms of age and the impact of shift schedules on cognitive function ($r = 0.023$, $p = 0.700$), and year level and the impact of shift schedules on cognitive function ($r = -0.073$, $p = 0.227$), therefore, the decision is accepted null (H_0).

Table 5. Significant Relationship between the Profile of the Respondents and The Impact of Shift Schedules on Cognitive Function

	Correlation coefficient	p value	Decision	Interpretation
Cognitive Function vs				
Age	0.023	0.700	Accept H_0	Not Significant
Year level	-0.073	0.227	Accept H_0	Not Significant

**Correlation is significant at the 0.05 level (2-tailed).*

4.6 Proposed Webinar on Enhancing Sleep Quality and Cognitive Function for Student Nurses

The basis of the proposed webinar is the findings of the impact of shift schedules on sleep quality and cognitive function among Level III and Level IV student nurses. Based on the salient

findings of the study, the researchers proposed a webinar for the student nurses, and also collaborating with the student leaders of the official nursing organization and the College of Nursing academic leadership. During the webinar, students will receive insightful experience and practical techniques for improving their sleep hygiene, effective stress management, and optimizing study habits for better cognitive functioning. An interactive trivia, questions and answer session, and peer-to-peer learning would set up a safe and supportive environment whereby student nurses feel comfortable sharing experiences and learning from one another. The inclusion of a guest speaker would allow for a deeper exploration of complex topics and allow student nurses the opportunity to engage with the guest speaker for the nursing field. This webinar aimed to provide insightful ideas, strategies, and coping mechanisms to enhance sleep quality and cognitive function for student nurses in the clinical setting as well as their academic performances.

Content

Title: Enhancing Sleep Quality and Cognitive Function for Student Nurses.

Platform: Zoom (via College of Nursing)

Target Participants: Student nurses

Speaker: [Guest Speaker]

The webinar will be implemented in collaboration with the College of Nursing to minimize costs. The College's licensed Zoom account will be used, and organizing tasks will be done by student volunteers

Time/Segment	Activity of the Program
1	Prayer
2	Opening Ceremony and Welcome Remarks
3	Brief Introduction of the Study
4	Introduction to the Guest Speaker
5	Webinar Proper
6	Questions & Answer Portion
7	Awarding of Certification to the Guest Speaker
8	Closing Remarks

5. Discussions

4.1 Demographic Profile of the Respondents

The results showed that most respondents were in their early twenties, particularly between 21 and 23 years old. This implied that this age group typically experienced a high academic workload and clinical responsibilities. Additionally, they had better adaptation to sudden shift schedules but still experienced sleep disruptions, increasing their vulnerability to poor sleep quality, which could impair their cognitive function due to shift schedules. Furthermore, younger student nurses aged 18 - 20 might have struggled with rotational shifts as their sleep-wake cycles adapted to professional responsibilities. Moreover, the balanced representation of respondents across year levels (50% at level III, 50% at level IV) ensured that the study did not favor one group's experiences over another. Such equal representation helped

guard against biases, such as the tendency to overemphasize problems associated with Level IV students or overlook the barriers faced by Level III students with limited clinical exposure.

4.2 Impact of Shift Schedules on Sleep Quality among Student Nurses

These indicators which were rated to have high impact indicated that the cumulative effect of sudden rotating shift schedules severely disrupted the individuals' performance and daily lives. The issue of insufficient sleep emerged as a significant concern, affecting their performance and overall well-being. Beyond merely disrupting routines and responsibilities, the severity of disturbed sleep patterns suggested underlying systemic issues that required attention. This was especially critical in demanding professions where health and efficiency depended heavily on sleep quality. Furthermore, the individuals were likely experiencing considerable stress, increasing the risk of burnout, reduced productivity, and various health problems. The findings, therefore, indicated a significant impairment in their physical, mental, and academic well-being. Student nurses were particularly vulnerable, as they were required to manage rigorous academic schedules alongside intense clinical training, often in real hospital settings where they were expected to perform under pressure. This mismatch caused many student nurses to struggle with falling asleep, staying asleep, or achieving restful sleep.

The discussion was corroborated by the research conducted by Gallego-Gómez et al. (2021), which found that poor sleep habits and short sleep durations were significantly associated with low academic performance among university student nurses. The study found that nearly one-third of the participants exhibited poor sleep behaviors, which increased their likelihood of underperforming academically. However, the present study contradicts the findings of Belingheri et al. (2022), in which stated that specific factors might have minimized the potential impact of sudden scheduling shifts on sleep. First, the student's dedication and motivation during clinical shifts may have contributed to their ability to remain vigilant during duties and adapt to unexpected schedule changes.

4.3 Impact of Shift Schedules on Cognitive Function among Student Nurses

Shift schedules moderately impacted the respondents' cognitive functioning. This meant that while cognitive performance was occasionally affected by various work schedules, particularly in terms of memory, attention, and alertness, such effects were moderate and not overly disruptive. The moderate rating indicated that the respondents experienced mental fatigue or cognitive slowness, especially during or after irregular shifts, but were generally able to cope with these effects. The results indicated that shift schedules posed a significant challenge to student nurses' mental acuity and productivity, even though they did not substantially impair cognitive function. Even a mild decline in cognitive function affected their quality of care, as clinical tasks demanded critical thinking, attention to detail, and prompt decision-making. Long-term exposure to irregular shifts leads to cognitive strain, characterized by attention problems, slower information processing, and an increased risk of errors.

The study was corroborated by the research of Tian et al. (2022) found that night shift workers exhibited lower brain functional connectivity, which reflected poor mental performance due to irregular sleep patterns. However, this was contradicted by the study of Leso et al. (2021), which claimed that verbal ability, spatial abilities, memory recall, and processing speed were among the cognitive functions that did not seem to have been significantly impacted by shift or

night employment. The study suggested that the excessive length of work shifts may have been a more critical factor in negatively affecting cognitive function.

4.4 Significant Relationship between the Profile of the Respondents and the Impact of Shift Schedules on Sleep Quality

There is no significant relationship between the demographic profile of the respondents in terms of age and the impact of shift schedules on sleep quality which implies that age does not affect sleep quality regarding the sudden scheduling shifts within this developmental age range. Moreover, both academic levels experience the same high-pressure environment, which includes having similar workloads, participating in clinical rotating hours, and other similar psychological stressors like completing academic deadlines, preparing for board exams, and completing their clinical duties. These stressors are strong sleep disruptors that may overwhelm any little variations that age may generally cause.

On the other hand, there is a weak but statistically significant negative relationship between the profile of respondents in terms of year level and the impact of shift schedules on sleep quality, which implies that their sleep quality decreases somewhat as students move up in their nursing education from Level III to Level IV. The volume of work and its complexity increase as student nurses progress in their education. Student nurses in Level III and Level IV are more likely to take advanced courses, participate in more elaborate clinical skills training, and fulfill academic research activities such as thesis and case studies. These student nurses, especially those in the upper years, often have to pull long study hours, sometimes even into the evening, which leads to sleep deprivation.

4.5 Significant Relationship between the Profile of the Respondents and the Impact of Shift Schedules on Cognitive Function

There is no significant relationship between the demographic profile of the respondents in terms of age and year level and the impact of shift schedules on cognitive function suggests that there is little variation in the respondents' cognitive performance across age groups. Students' cognitive abilities seem to stay largely consistent regardless of their age. This could indicate that their age does not solely determine students' cognitive ability to handle the demands of shift schedules. The lack of correlation implies that all age groups are equally capable of adapting and using their minds to complete academic tasks and responsibilities. This suggests that factors like stress, sleep patterns, or personal coping strategies have a bigger impact on cognitive function than age. Furthermore, a student's academic performance, regardless of their early or later years, has little direct bearing on their cognitive capacity. Different year-level students could be equally impacted by shift schedules, implying that academic experience or progression does not always result in improved cognitive performance.

4.6 Proposed Webinar on Enhancing Sleep Quality and Cognitive Function for Student Nurses

The proposed webinar aimed to provide insightful ideas, strategies, and coping mechanisms to enhance sleep quality and cognitive function for student nurses in the clinical setting as well as their academic performances. The basis of the proposed webinar is the findings of the impact of shift schedules on sleep quality and cognitive function among Level III and Level IV student nurses.

One of the numerous difficulties faced by student nurses is their abrupt shift schedules, which significantly affect their ability to sleep and think clearly. Students frequently suffer from chronic sleep deprivation as a result of the demands of nursing school, extended clinical practice hours, and extremely serious responsibilities. This impairs their academic performance and clinical judgment and increases their vulnerability to burnout. By offering pertinent tactics and answers for both academic and professional success, the webinar on sleep quality and cognitive function gets right to the core of these urgent problems of our day. The guest speaker, a leading authority in the medical profession, undoubtedly gives the program's contents a great deal of depth and valuable legitimacy, providing the students with current and reliable knowledge. To address these growing concerns, the researchers are proposing a webinar titled "Enhancing Sleep Quality and Cognitive Function for Student Nurses." This practical and engaging session is designed to help student nurses regain control over their sleep, sharpen their cognitive abilities, and manage stress more effectively. Through expert-led discussions, interactive strategies, and evidence-based solutions, this webinar aims to equip participants with actionable tools to balance their demanding academic and clinical schedules while prioritizing their physical and mental health.

6. Conclusions

Based on the findings, the study concludes that shift schedules have a high impact on the sleep quality of student nurses and a moderate impact on their cognitive function, especially those exposed to rotating and sudden shift schedules. Poor sleep quality leads to fatigue, reduced alertness, and impaired memory, affecting both academic and clinical performance. Despite the moderate effect on cognition, challenges with memory, focus, and information processing were still evident, especially after clinical duties. On the other hand, while age shows minimal influence on sleep quality and cognitive function, academic year level slightly correlates with declining sleep quality due to increased responsibilities. Regardless of age or year level, student nurses face similar cognitive challenges under irregular shift conditions.

Based on the results and findings from the research study, the researchers recommend that student nurses may promote self-care techniques such as regular exercise activities and proper nutrition to improve resilience against it, may offer programs on sleep hygiene and stress management to help student nurses improve their rest despite busy schedules and may implement peer mentoring programs where they may share coping strategies that can help others adapt better to shift changes.

Moreover, family members are encouraged to provide emotional support, patience, and a sleep-conducive home environment, clinical instructors may implement flexible clinical scheduling, when possible, particularly during high-stress academic periods, the school coordinator may create an organized transition program to help student nurses adapt to rotated and unexpected shifts, the institution may integrate regular sessions on sleep hygiene, mental health, stress, and time management to reduce student stress, fatigue, and improve sleep quality through guided techniques. Additionally, the institution may integrate regular sessions on sleep hygiene, mental health, stress, and time management to reduce student stress, fatigue, and improve sleep quality through guided techniques. For the proposed webinar to conduct, the researchers may collaborate with the Student Leaders in Nursing Organizations and the institution, and will make use of an online platform such as Facebook to encourage student nurses to join the webinar to provide insightful experiences and intervention that may contribute to their incoming

year level. Lastly, future researchers may use this research study for future studies by examining other factors such as shift workloads, stress levels, academic burnout, and personal influences on sleep quality and cognitive performance.

7. Acknowledgement

The researchers would like to express their sincere appreciation and gratitude to those who contributed to and supported them in completing this study.

First, to thank Almighty God, who has been their constant source of wisdom, courage, and perseverance throughout the process. In moments of uncertainty and exhaustion, it was through prayer and unwavering faith that they found clarity, motivation, and the strength to move forward. His presence gave them peace at times of worry and satisfaction at times of advancement.

To Mrs. Araceli F. Surat, MAN, their research adviser, for every possible support, patience, and guidance extended throughout the study development process. Her recommendations and thorough reviews were insightful, and she is an expert and competent academically. In motivating the researchers to raise their acts to standards, her promise of excellence and encouragement played a key role. The successful completion of this study would not be possible without her dedication to mentoring.

To Dr. Gemma L. Pagulayan, PhD, their research instructor, for her invaluable guidance and support for this study. Her expertise, commitment, and suggestions have contributed significantly to the improvement and completion of this research.

To Dr. Analita G. Gonzales, MAN, MPH, PHDs, the chairperson, for her valuable insights, encouragement, and support during the entire research period. Her guidance contributed heavily to clarifying and redirecting this study. The researchers found her commitment encouraging, and she urged them to continue their work. Working and learning under her leadership is a big honor for many reasons.

To Mrs. Marina G. Jumalon, MN, for her valuable comments and reflections during the defense. Her comments helped the researchers understand better the strengths and weaknesses of their work.

To Mrs. Teresita A. Ferrer, MAN, panel member and Dean of the College of Nursing, is deeply acknowledged by the researchers for her insightful comments and meticulous suggestions during the evaluation of this study. Her invaluable advice significantly contributed to the refinement of the research and encouraged the researchers to develop a more critical and analytical perspective. Furthermore, the researchers sincerely thank her for granting permission to conduct the study. Her trust, guidance, and unwavering support served as a constant source of inspiration and motivation throughout the completion of this research.

The researchers sincerely extend their most profound appreciation to the Level III and Level IV respondents, who placed their trust in the research team. The success of this research work was greatly aided by their candid comments and willingness to participate, for which they are truly thankful.

To Family and friends, they greatly aided in the success and completion of this study with their constant advice and guidance. Their encouragement, understanding, and sacrifices have grounded and inspired the researchers. Whether through kind words, shared laughter, or silent support, their help and presence during times of hardship served as a significant source of strength, motivation, and inspiration for the researchers to continue and finish the study.

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9. Appendices

APPENDIX A

APPROVAL LETTER FROM THE RESEARCH ETHICS COMMITTEE

LORMA
COLLEGES

LC REC Form #001
APPROVAL LETTER
REC Reference #: 2025-012

January 23, 2025

To: Joyce Abaya, Anne Lorraine Angeles, Raven Joy Arca, Edjean Cabebe, Veah Flaminia Callejo, Wendy Domingail, Kirsten Josephy Lau, Jawrelle Sania Navalta and Voltaire Obena
LORMA Colleges, College of Nursing

Subject: Approval of the Research Study "THE IMPACT OF SHIFT SCHEDULES ON SLEEP QUALITY AND COGNITIVE FUNCTION AMONG STUDENT NURSES" by the Research Ethics Committee (REC).

Dear Researchers,

The Research Ethics Committee (REC) has reviewed your application to conduct the above-mentioned research study in the LOCALE OF STUDY with you as the Principal Investigators within the duration of January 23, 2025 to January 23, 2026.

The following documents have been reviewed and approved:

1. Letter of Intent to Conduct the Study
2. Endorsement of the Research Technical Panel
3. Title and Statement of the Problem/ Objective
4. Literature Review
5. Methods and Procedures
6. Population and Locale
7. Exclusion/Inclusion Criteria
8. Data Analysis
9. Ethical Considerations

We approve the study to be conducted in the presented form provided the following are integrated in the final research protocol:

1. SOP #6 should be converted into a question.
2. Specify and elaborate who can get access to the results of the study.
3. In the population of the study, indicate the cognitive status of the participants of the study.

None of the investigators participating in this study took part in the decision making and voting procedure for this study.

The Institutional REC expects to be informed about the progress of the study, any revision in the protocol before implementation and participants'/respondents' information/informed consent. Likewise, you are required to provide the Board a copy of the final report.

Yours Sincerely,

RYAN JAY S. DOMINGAIL, MASE, RMT
Interim Chair, Lorma Colleges Research Ethics Committee

10. Author(s) Biodata

Ms. Anne Lorraine E. Angeles, a recent Bachelor of Science in Nursing graduate from Lorma Colleges, leads a team of passionate peers alongside their research adviser, Mrs. Araceli F. Surat, MAN, in determining the impact of shift schedules on sleep quality and cognitive function among student nurses, the researchers exhibit a strong commitment to advancing knowledge in this area. Their work provides meaningful insights into how irregular shift schedules affect student nurses and identifies practical coping strategies to address the adverse effects on sleep quality and cognitive performance.