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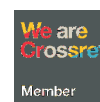
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Shift work and sleep pattern disturbances of nurses at bua health center : a correlation study

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ABSTRACT

Shift work is an essential aspect of healthcare services, particularly in facilities such as the BUA Health Center. However, it has been widely documented that shift work can disrupt sleep patterns, leading to significant health issues for workers, including nurses. This study aims to examine the relationship between shift work and sleep pattern disturbances among nurses at the BUA Health Center. Utilizing a qualitative approach and a literature study methodology, this research explores existing academic literature, case studies, and surveys from healthcare workers to understand the extent of sleep disturbances among nurses working various shifts. The analysis identifies that irregular sleep patterns, sleep deprivation, and poor quality of sleep are prevalent among nurses working rotating or night shifts. These disturbances have been shown to negatively affect both physical health and mental well-being, contributing to increased fatigue, decreased cognitive function, and a higher risk of burnout. Furthermore, the literature suggests that shift work impacts job performance and overall work satisfaction. This study underscores the need for effective strategies to mitigate the negative effects of shift work, including improved scheduling, better sleep hygiene practices, and organizational interventions. Recommendations include more flexible work schedules and the incorporation of regular sleep assessments to monitor the health of nurses. This research calls for further studies to develop interventions and policies that address the specific needs of healthcare professionals in shift-based roles.

Keywords:

Shift work
Sleep disturbances
Nurses

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Introduction

Good sleep quality is an essential component in maintaining a person's physical and mental health. Adequate and quality sleep plays an important role in the body's recovery process, strengthening the immune system, and improving cognitive and emotional function (Chiu & Law, 2024). In addition, sleep disorders can cause various health problems, including an increased risk of cardiovascular disease, metabolic disorders and decreased cognitive function (Rahayu et al., 2021). This condition is further exacerbated in professions that require irregular working hours, such as nurses who work shifts.

Nurses play a crucial role in the healthcare system, especially in inpatient rooms and Emergency Rooms (IGD) (Poormoosa et al., 2024). They are responsible for providing direct care to patients, often in demanding situations and under time pressure. Shift work that includes nights, weekends and holidays is an integral part of the nursing profession. This irregular work schedule can disrupt

the body's circadian rhythm, which in turn affects the quality and quantity of nurses' sleep (Foster, 2020).

The American National Safety Administration (2020) has calculated that work accidents due to drowsiness have killed 1,500 people and tens of thousands more have been injured and permanently disabled. It is estimated that every year 20% - 40% of adults experience sleep quality disorders and 17% of them are health workers. In Indonesia, the prevalence of sleep disorders among shift nurses is 52.50% (Okechukwu, 2023). The prevalence of sleep quality disorders in nurses working in hospitals with a 2-shift work pattern per day is 63.9% and 43% with a 3-shift work pattern per day (Yu et al., 2025).

Nurses who work night shifts or rotations tend to experience more frequent sleep pattern disturbances than those who work normal working hours (Alston-Jackson, 2022). These sleep disturbances not only affect the physical and mental health of nurses, but can also affect their performance in providing care to patients. Decreased alertness and increased fatigue can lead to errors in drug administration and patient care (Knap et al., 2022). In the context of the Bua Health Center, identifying this problem is considered important considering the workload and demands faced by nurses in the inpatient ward and emergency room which may be different from other health facilities (Alhrbee et al., 2024). Therefore, proactive steps are needed to address and prevent sleep disturbances in nurses in order to maintain the quality of health services.

The problem of sleep disturbances in nurses working in shifts has become a serious concern at the Bua Health Center. Initial observations showed that many nurses complained of difficulty sleeping, poor sleep quality and prolonged fatigue (Mohd Azmi et al., 2020). This phenomenon was more prominent in nurses working in inpatient rooms and the Emergency Department (IGD), where work demands are often more intensive and rest time is very limited. Internal data from the Bua Health Center showed an increase in reports of fatigue and health complaints related to sleep disturbances from nurses working in night shifts or rotations (Tang et al., 2024).

This issue is further complicated by individual variation in how they respond to shift work schedules. Some nurses may be better able to adapt to irregular work schedules, while others may experience more severe sleep disturbances (Wu et al., 2020). Factors such as age, sleep habits, health conditions, and work environment can influence the extent to which shift work affects a person's sleep patterns. In addition, differences in workload and type of tasks between nurses in the inpatient and emergency departments may also play a significant role in influencing their sleep patterns (Jiang et al., 2024).

This problem not only impacts the health of individual nurses, but also has serious implications for the quality of health care they provide (Schuster & Dwyer, 2020). Nurses who experience sleep disturbances tend to be at higher risk of making medical errors, have decreased productivity and show decreased quality of interactions with patients (An et al., 2022). In addition, chronic sleep disturbances can lead to long-term health problems, such as cardiovascular disorders, depression and metabolic disorders, which can ultimately reduce the ability of nurses to carry out their duties effectively (Alanazi et al., 2024).

Research on the relationship between work shifts and sleep pattern disorders in nurses has been widely conducted, but there are still significant differences in findings and gaps that need to be further identified. Several studies have shown that work shifts, especially night shifts, have a significant relationship with sleep pattern disorders (Norouzinia et al., 2020). This is caused by disruptions to the body's circadian rhythm, which functions as a biological clock to regulate sleep and wake cycles. Night shifts often force the body to sleep at times that are not in accordance with the natural circadian rhythm, which can result in difficulty sleeping and decreased sleep quality (Norouzinia et al., 2020).

However, not all studies have found consistent results. There are studies that show that shift work has no significant relationship with sleep pattern disorders (Alshammari et al., 2023). These

differences in results may be caused by various factors, such as different research methods, sample sizes and other variables that affect sleep (Limungi et al., 2025).

Based on results studies introduction through observation And interviews conducted by researchers at Bua Health Center , found that 3 out of 5 nurses working in the Bua Health Center Emergency Department experienced problem disturbance Sleep consequence shift night (Costa et al., 2021). Therefore, this study is interested in to analyze sleep pattern disorders in nurses at the Bua Health Center, and to explore the relationship between work shifts and sleep pattern disorders in nurses, especially nurses in the inpatient ward and the ER. By understanding these problems in depth, this study is expected to provide a significant contribution to efforts to improve the welfare and performance of nurses through more targeted policy recommendations (Lakioti et al., 2025).

Based on the description of the background presented above, the researcher is interested in conducting further research related to night shifts and their relationship with sleep pattern disorders in nurses (Wakefield et al., 2021). The title of the research that the researcher will conduct is: "The Relationship between Work Shifts and Sleep Pattern Disorders in Nurses at the Bua Health Center Regency "Luwu "(Søvold et al., 2021).

Methods

Type of Research

Study This using cross-sectional study For see the relationship between variables studied (Hussein et al., 2021).

Place and Time of Research

Study This conducted at the Bua Health Center, Bua Regency Luwu, on September 16- October 29, 2024.

Population and Sample

The population used was all nurses at the Bua Health Center who had ever undergo a shift system as much as possible 33 people (Xue et al., 2025). The sampling technique used in this research is the total sampling technique (Richemond et al., 2022).

Data Collection

Data collection using questionnaires with scale Likert . The work shift questionnaire consists of statements about work disruption (Zeng et al., 2024). pattern Sleep experienced on moment work shifts. The sleep pattern disorder questionnaire used was the Sleep Disorders Questionnaire (SDQ) containing 16 statements to identify individuals at high risk of having sleep disorders (Al-Worafi, 2024).

Data Analysis and Processing

Grouping involves calculating the total score of each component of the questionnaire assessment and the average value (Hockenberry et al., 2021). Data analysis uses frequency distribution and correlation analysis using the chi-square statistical test.

Results and Discussion

General data includes respondent characteristics such as age, education, gender, and length of service. Meanwhile, specific data includes work shift characteristics. And disturbance pattern Sleep (Feng et al., 2021).

Respondent Characteristics

Age Characteristics

Based on table 1, it shows that the majority of respondents in this study were aged 20-29 years, as many as 13 respondents (39.4 %).

Table 1.1 Characteristics Responden Based on Age

Age	Frequency	Percentage (%)
20-29 years	13	39.4
30-39 years	11	33.3
40-49 years	7	21.2
> 50 years	2	6.1
Total	33	100.0

Source : Data *Primary* 2024

Gender Characteristics

Table 2 Characteristic based on Gender

Gender	Frequency	Percentage (%)
Man	9	27.3
Woman	24	72.7
Total	33	100.0

Source : Data *Primary* 2024

Based on table 5.2, it shows that the majority of respondents in this study were female, as many as 24 respondents (72.7 %).

Characteristics of Education

Table 3.3 Characteristics of the Character Responden Based on Education

Education	Frequency	Percentage (%)
D3 Nursing	4	12.1
Profession Nurse	29	87.9
Total	33	100.0

Source : Data *Primary* 2024

Based on table 5.3, it shows that the majority of respondents in this study had a final education as a nurse, namely 29 respondents (87.9 %).

Characteristics of Working Period

Table 4.4 Characteristics of the Character Responden Based on Years of Service

Years of service	Frequency	Percentage (%)
< 3 years	8	24.2
3-6 years	17	51.5
> 6 years	8	24.2
Total	33	100.0

Source : Data *Primary* 2024

Based on table 5.4, it shows that the majority of respondents in this study have a working period of between 3-6 years, as many as 17 respondents (51.5 %).

Characteristics of Work Shifts

Table 5. Characteristics Responden Based on Shift Work

Work Shift	Frequency	Percentage (%)
Morning	1	3.0
Afternoon	4	12.1
Evening	28	84.8
Total	33	100.0

Source : Data *Primary* 2024

Based on table 5.5, it shows that the majority of respondents in this study who experienced sleep pattern disorders were during the night shift, as many as 28 respondents (84.8 %).

Characteristics of Disorders Pattern Sleep

Table 6. Characteristics Responden Based on Disturbance Pattern Sleep

Disturbance Pattern Sleep	Frequency	Percentage (%)
Normal	3	9.1
Light	9	27.3
Currently	21	63.6
Total	33	100.0

Source : Data Primary 2024

Based on table 5.6, it shows that the majority of respondents in this study had experienced moderate sleep pattern disorders, as many as 16 respondents (63.6 %).

Shift Relationship Work with Disturbance Pattern Sleep

Table 7. Tabulation Connection Shift Work with Disturbance Pattern Sleep

Shift Work	Disturbance Pattern Sleep						Total	
	Normal		Light		Currently			
	F	%	F	%	F	%	F	%
Morning	1	3.0	0	0.0	0	0.0	1	3.0
Afternoon	1	3.0	2	6.1	1	3.0	4	12.1
Evening	1	3.0	7	21.3	20	60.6	28	84.9
Total	3	9.0	9	27.4	21	63.6	33	100.0
Chi -Square =0.007								

Chi -Square =0.007

Source : Data Primary 2024

Table 5.7 shows that respondents who work the morning shift and do not experience sleep pattern disturbances as much as 1 person (3.0%) (Good et al., 2020). Respondents who have 4 afternoon shifts people (12.1%) received 1 person (3.0%) never experienced sleep pattern disorders, and 2 people (6.1 %) had experienced mild sleep pattern disorders and 1 person (3.0%) had experienced moderate sleep pattern disorders. While the respondents which is a night shift of 28 people (84.9%) received 1 person (3.0%) never experienced sleep pattern disorders, 7 people (21.3 %) had experienced mild sleep pattern disorders, and 20 people (60.6%) had experienced moderate sleep pattern disorders.

Data analysis was carried out using statistical tests chi square in the role a significant case number (0.007) Which more low from standar significant (0.05) or ($<$), then H_0 rejected And H_a accepted Which It means There is a relationship between work shifts and sleep pattern disorders in nurses at Bua Health Center Regency Luwu.

Work Shift

Based on the research results contained in table 5.5, it shows that the majority of respondents in this study who experienced sleep pattern disorders were during the night shift, as many as 28 respondents (84.8 %). This is in line with the results of research conducted which showed that night shifts are related to sleep pattern disorders of nurses in the inpatient ward of Pancaran Kasih GMIM Manado Hospital. This is in line with research which states that most nurses in hospitals work shifts, and nurses who experience the most sleep disorders are shift workers. Of the three shifts, the night shift is the shift that causes the most nurses to experience sleep disorders, namely 75.8%, this can occur due to disruption of the circadian rhythm of the body of someone who works the night shift.

Shift work is a work pattern in which workers perform their tasks based on predetermined time settings, such as morning, afternoon and night shifts. This system allows companies to run their

operations efficiently throughout the day, accommodating diverse operational needs in various working hours. This shift arrangement also takes into account the need to ensure continuity of service or production without being disrupted by time factors (Suma'mur, 2014).

Health centers with inpatient services must also always operate 24 hours. In addition, inpatient health centers are also expected to provide good health services to the community, and nurses are one of the medical personnel in hospitals who provide services to support patient healing. With the service and dedication of nurses given to patients, nurses must be willing to work in shifts, even though this can cause sleep pattern disorders in the nurses themselves.

Nurses are health service officers in hospitals/inpatient health centers who work in shifts. Work shifts in hospitals/health centers in Indonesia generally consist of three shifts, namely: morning shift working for 7 hours starting at 7:00-14:00; afternoon shift working for 7 hours starting at 14:00-21:00; and night shift working for 10 hours starting at 21:00 7:00. This situation shows that the night shift has the longest working hours.

Sleep Pattern Disorders

Based on the research results contained in table 5.6, it shows that the majority of respondents in this study had experienced moderate sleep pattern disorders as many as 16 respondents (63.6 %). This is supported by the results of a study conducted which showed that most respondents experienced sleep pattern disorders with a total of 61 respondents with a percentage of 67.8% compared to those who did not experience sleep pattern disorders as many as 29 people with a percentage of 32.2%. Also supported by research conducted by at Abdul Moeloek Bandar Lampung Hospital where most respondents experienced moderate sleep pattern disorders, namely 58.2%, then mild 34.0% and did not experience sleep disorders, either mild or moderate 7.8%.

Sleep pattern disorders are conditions in which a person experiences problems related to the amount, quality, or time of sleep that can cause insomnia, waking up in the middle of the night and experiencing excessive fatigue during the day (Perry and Potter, 2015) . External factors such as an unsupportive sleep environment, changes in work schedules or activities, and emotional or physical stress can significantly affect a person's sleep patterns. external (SDKI DPP PPNI Working Group Team, 2016) .

In accordance with results study This that disturbance pattern experienced sleep by part nurse at Bua Health Center Regency Luwu consequence from existence factor environment sleep that is not support And changes in work schedule or activities specifically at night day . Impact from disturbance pattern Sleep This can be very detrimental, including reducing quality of life, disrupting physical and mental health, and affecting daily productivity. This study is also in line which states that work shifts can affect the body's circadian rhythm, which can be seen from the time of the division of work shifts, namely morning, afternoon, evening, and night shifts which have the most influence on circadian rhythms and body health.

Shift Relationship Work with Disturbance Pattern Sleep

Hasil penelitian yang disajikan pada Tabel 5.7 menunjukkan bahwa responden yang bekerja pada shift pagi dan tidak mengalami gangguan pola tidur sebanyak 1 orang (3,0%). Responden yang bekerja pada shift sore berjumlah 4 orang (12,1%), terdiri dari 1 orang (3,0%) yang tidak pernah mengalami gangguan pola tidur, 2 orang (6,1%) yang mengalami gangguan pola tidur ringan, dan 1 orang (3,0%) yang mengalami gangguan pola tidur sedang. Sementara itu, responden yang bekerja pada shift malam berjumlah 28 orang (84,9%), terdiri dari 1 orang (3,0%) yang tidak mengalami gangguan pola tidur, 7 orang (21,3%) yang mengalami gangguan pola tidur ringan, dan 20 orang (60,6%) yang mengalami gangguan pola tidur sedang.

Berdasarkan hasil analisis data menggunakan uji statistik Chi-square, diperoleh nilai signifikansi sebesar 0,007 yang lebih kecil dari batas signifikansi yang ditetapkan ($\alpha = 0,05$), atau ($\rho < \alpha$). Oleh karena itu, H_0 ditolak dan H_a diterima, yang berarti terdapat hubungan antara shift kerja dengan gangguan pola tidur pada perawat.

Hasil penelitian ini sejalan dengan penelitian yang dilakukan oleh Rivelino Spener Hamel, yang menunjukkan adanya hubungan antara shift kerja dengan gangguan pola tidur pada perawat, dengan nilai $p = 0,012$. Temuan ini juga didukung oleh penelitian lain yang menunjukkan bahwa pola shift kerja dapat memengaruhi kualitas tidur perawat di Instalasi Gawat Darurat Rumah Sakit Pelamonia, dengan tingkat signifikansi $p = 0,037$ ($p < 0,05$).

Sleep pattern disorders are conditions in which a person experiences or is at risk of experiencing changes in the duration or quality of their sleep, which can cause discomfort or disrupt their desired lifestyle (Wungouw & Hamel, 2018). Sleep pattern disorders can be caused by various factors such as stress, mental health disorders, certain medical conditions, or unhealthy sleep habits. In addition, external factors such as an unsupportive sleep environment, changes in work schedules or activities, and emotional or physical stress can significantly affect a person's external sleep patterns. Changes timetable Work or activity in study This is Because existence timetable shift Work .

Said that workers with shift work will experience various health problems, including around 60-80% will experience sleep disorders. In addition, shift workers will also experience 4-5 times more stomach problems and 5-15 times more emotional disorders and depression. Shift workers also generally experience more sleep pattern disorders due to sleep schedule disorders (sleep wake schedule disorders) , namely disorders where sufferers cannot sleep and wake up at the desired time, even though the amount of sleep remains the same. This disorder is closely related to the normal circadian sleep rhythm.

Every human body has a rhythm of life which is an internal process in the body to regulate the time of waking up for 24 hours , this process is commonly called the circadian rhythm . The circadian rhythm is a physiological and behavioral cycle that occurs continuously for 24 hours, which is produced by the suprachiasmatic nucleus or SCN located in the anterior hypothalamus. This rhythm is always influenced by signs of time changes outside the human body. This rhythm follows the stimulation of time signals in a day that follow the rotation of the earth or is called zeitgeber, and light is the strongest and most important stimulation in these changes.

Circadian rhythms control various biological processes, such as the sleep-wake cycle, body temperature, eating, hormone secretion, glucose homeostasis and cell cycle regulation. The division of time in this physiological rhythm can change, causing changes in the rhythm phase between one and another, and potentially causing internal desynchronization. If the coordination of this rhythm is lost, it has the potential to have a negative impact on the rest-activity cycle and other physiological functions. One of the factors causing this rhythm to change or disappear is due to changes in activity/work habits which are commonly called work shifts, especially night shifts. In addition, work shifts also cause psychosocial effects for workers which are a major problem because they disrupt family life, lose free time, have little opportunity to interact with friends, and disrupt group activities in society.

Conclusion

Based on the research results and discussion in the previous chapter regarding the relationship between work shifts and sleep pattern disorders in nurses at the Bua Health Center. Regency Luwu , can concluded that: (1) Of the 33 respondents, the majority of respondents in this study who experienced sleep pattern disturbances were during the night shift, namely 28 respondents (84.8 %); (2) Of the 33 respondents, the majority of respondents in this study had experienced moderate sleep pattern disorders, namely 16 respondents (63.6 %); (2) Of hypothesis testing and analysis d at a dila kuka n with a n uji statistic analysis found that there is a relationship between work shifts and sleep pattern disorders in nurses at the Bua Health Center Regency Luwu year 2024.

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