



Shift Work as a Predictor of Fatigue Levels Among Inpatient Nurses: A Cross-Sectional Analysis

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ABSTRACT

Intorduction: Hospitals operate continuously to provide essential healthcare services, relying heavily on nurses who often work rotating shifts. These shift patterns, particularly night shifts, can lead to fatigue, which negatively impacts nurses' health, performance, and patient safety.

Objective: This study aimed to analyze the relationship between work shifts and nurse fatigue in the inpatient department of Dr. A. Dadi Tjokrodipo Hospital in 2024.

Method: A quantitative analytical survey with a cross-sectional design was conducted. The study population included all inpatient nurses, with a total of 57 respondents selected using total sampling. Data were collected using validated questionnaires and analyzed using Chi-Square tests to determine associations.

Result: The findings revealed that nurses working under shift schedules were more likely to experience fatigue compared to those on regular schedules. The statistical analysis demonstrated a significant association between shift work and nurse fatigue ($p < 0.05$).

Conclusion: Shift work is significantly associated with increased nurse fatigue. Hospital administrators should consider implementing better shift management strategies to reduce fatigue and improve both nurse well-being and the quality of patient care.

Keywords: hospital, inpatient care, nurse fatigue, occupational health, work shift

Introduction

Hospitals serve as a critical component of the healthcare system, providing essential services to improve public health on a continuous, 24-hour basis. According to Government

Regulation of the Republic of Indonesia Number 49 of 2013, a hospital is defined as a healthcare institution offering comprehensive individual health services, including inpatient, outpatient, and emergency care (Inayatullah Kusuma & Hikmat Ramdan, 2023). To maintain quality healthcare delivery, enhancing work productivity among healthcare professionals is essential, and one of the contributing factors to productivity is work motivation (Agata et al., 2023).

Hospital employees, particularly nurses, are constantly exposed to occupational hazards that can negatively impact their health and safety. If these risks are not properly mitigated, they may lead to various work-related problems (Sihombing et al., 2021). In Indonesia, nurses commonly work under a three-shift system: morning, afternoon, and night. Each shift typically lasts around eight hours. However, extended working hours or poorly managed schedules can result in fatigue and work-related stress, ultimately reducing nurse productivity (Setiyadi et al., 2023).

Shift work, characterized by scheduled rotations across different times of the day, is increasingly common in the healthcare sector to meet the demands of continuous service. While necessary, this system can pose significant challenges for nurses, particularly for those unable to adapt to irregular hours. Shift work has been associated with various adverse outcomes, including sleep disorders, psychological stress, physical strain, and disruptions to family and social life (Sesrianty & Marni, 2021). Physiological and psychological changes resulting from shift work—such as fatigue—are widely reported. Fatigue manifests in different ways among individuals but generally leads to impaired concentration and reduced performance at work (Suryadi et al., 2022; Panghestu et al., 2024).

Excessive shift work, especially night shifts, tends to be detrimental to nurses. It increases the risk of sleep disturbances and cumulative fatigue, thereby jeopardizing both health and work safety (Setiyadi et al., 2023). Fatigue in nurses is often triggered by a combination of factors such as monotonous tasks, long work hours, insufficient rest, environmental stressors, and emotional burden (Sesrianty & Marni, 2021). Compared to night shifts, morning shifts typically cause fewer disruptions in sleep patterns, and therefore may result in less fatigue. However, night shifts, which coincide with normal rest hours, often lead to circadian rhythm disturbances and sleep deprivation, particularly among nurses under 20 years of age or those above 40, who are more vulnerable to such disorders (Work et al., 2023).

A pre-survey conducted on November 16, 2024, at Dr. A. Dadi Tjokrodipo Hospital revealed that many nurses were experiencing symptoms associated with fatigue. Among 15 respondents, seven reported symptoms such as heavy-headedness, drowsiness, thirst, and leg pain during work. The remaining eight described more intense symptoms, including severe head pressure, shoulder stiffness, eye strain, difficulty concentrating, overwhelming fatigue, and the urge to lie down. These findings emphasize the need for a more in-depth analysis of the relationship between shift work and fatigue among hospital nurses.

Objective

This study aimed to analyze the relationship between work shifts and nurse fatigue in the inpatient department of Dr. A. Dadi Tjokrodipo Hospital in 2024.

Method

This type of quantitative research is based on an analytical survey design and a cross-sectional approach. The population of this study is nurses at RSD Dr.A. So Tjokrodipo who was in the inpatient room. The number of samples was 57 samples using the total sampling technique. Data collection using questionnaires and data were analyzed univariate and bivariate

Result

Relationship of Work Shifts to Work Fatigue of Nurses in the Inpatient Room of Dr. A. Dadi Tjokrodipo Hospital.

Table 1. Association Between Work Shifts and Nurse Fatigue

Work shift (agreement)	Not tired n (%)	Tired n (%)	Total n (%)	p-value	OR (95% CI)
Disagree	12 (66.7)	6 (33.3)	18 (31.6)	0.030	3.57 (1.10–11.60)
Agree	14 (35.9)	25 (64.1)	39 (68.4)		
Total	26 (45.6)	31 (54.4)	57 (100.0)		

Note:

Percentages for Not tired and Tired are row percentages (they sum to 100% within each row). Total (%) is the percentage of the overall sample (n = 57). The OR (95% CI) and p-value shown correspond to the association between work-shift agreement (Disagree vs Agree) and work fatigue.

Based on table above it is known that in Dr. A. Dadi Tjokrodipo Hospital, A. Dadi Tjokrodipo In 2024, out of 18 respondents in the work shift category who disagreed, 12 respondents (66.7%) experienced non-fatigue work fatigue, while out of 39 respondents in the work shift category who agreed, 25 respondents (64.1%) experienced fatigue that was tiring. Based on the results of the statistical test, a p-value of 0.030 or p-value <0.05 was obtained, meaning that there was a relationship between work shifts and work fatigue at Dr. A. Dadi Tjokrodipo Hospital in 2024. With an OR value of 3.571, it means that nurses who agree have a 3.57 times greater chance of experiencing fatigue than nurses who disagree.

Discussion

Hospitals are healthcare institutions that provide comprehensive medical services to individuals in need, with the primary goal of addressing the health needs of the population within a defined geographic region (Panghestu et al., 2024). Among the services offered, inpatient care plays a crucial role, as it accommodates patients who require hospitalization for at least one day for treatment, diagnosis, or rehabilitation. Nurses working in inpatient units are often subjected to repetitive and monotonous routines, compounded by extended work hours and demanding workloads, particularly for those on night shifts. These conditions contribute significantly to physical and mental fatigue.

The findings of this study are consistent with the research conducted by Sesrianty and Marni (2021), who found a significant relationship between work shifts and nurse fatigue at Adnaan WD Payakumbuh Hospital. Their study emphasized that nurses working morning shifts often engage in numerous physical activities—such as accompanying physicians, assisting patients with diagnostic procedures, and preparing for surgeries—which can lead to fatigue. However, morning shift nurses benefit from the ability to rest at night, potentially reducing prolonged exhaustion.

Similarly, Oktavianti et al. (2019) observed a significant correlation between shift work and nurse fatigue in the emergency room of UPTD Manembo-Nembo Hospital. Their study reported a p-value of 0.00, reinforcing the notion that shift work, particularly in high-intensity environments such as emergency departments, exacerbates fatigue among nurses.

Another study by Siregar and Wenehenubun (2019) at Budhi Asih Hospital in East Jakarta also reported a significant association ($p = 0.01$) between shift work and nurse fatigue. Their findings highlighted that fatigue—while experienced differently across individuals—universally leads to a reduction in work capacity and endurance, thereby compromising job performance and patient safety.

Conversely, Ginting and Malinti (2021) presented a different perspective, reporting no significant relationship between shift work and fatigue among nurses. They attributed this to effective shift scheduling and a supportive work environment, which allowed adequate rest and minimized stress.

Despite varying conclusions across studies, the cumulative evidence suggests that irregular and poorly managed shift schedules can disrupt nurses' circadian rhythms, leading to sleep disturbances, increased physical strain, and prolonged fatigue. These conditions, if unaddressed, can impair nurses' concentration, elevate the risk of clinical errors, and negatively affect the quality of patient care.

Based on the results of this study, it is evident that shift work remains a significant predictor of nurse fatigue. The odds ratio of 3.571 indicates that nurses working under shift schedules are over three times more likely to experience fatigue compared to those on regular schedules. This reinforces the need for healthcare institutions to re-evaluate staffing patterns, promote proper rest periods, and implement preventive strategies aimed at reducing occupational fatigue among nursing staff.

Conclusion

The findings of this study indicate a significant relationship between work shifts and nurse fatigue in the inpatient department of Dr. A. Dadi Tjokrodipo Hospital. Nurses working under shift schedules were more likely to experience fatigue compared to those with regular work patterns. This suggests that irregular or extended shifts can contribute to physical and mental exhaustion, potentially impacting the quality of nursing care and overall patient safety. Therefore, it is essential for hospital management to evaluate and implement more effective shift scheduling strategies that support nurses' well-being and optimize their performance.

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Authors' contribution

Each author contributed equally in all the parts of the research. All authors have critically reviewed and approved the final draft and are responsible for the content and similarity index of the manuscript.

Conflict of interest

The researchers stated that there is no conflict of interest related to the implementation and publication of the results of this research. The entire research process, from planning, data collection, analysis, to report preparation, was carried out independently without any influence or pressure from any third party. A commitment to research ethics is upheld throughout the research process, ensuring transparency, accuracy and honesty in reporting results. Respondents' participation was voluntary with informed consent, and their confidentiality and privacy were maintained in accordance with applicable research ethics standards. With this statement, researchers hope that the research results can be trusted and used as a valid reference for the development of science and health practices related to ethnomedicine and reproductive health.

Ethical consideration

Not applicable.

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