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Vol. 02, No. 1, February 2025, 20-26
e-ISSN: **3047-8839**

The Relationship between Shift Work Patterns and Mental Health of Health Workers in Hospitals

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Article Information
Received: February 04, 2025
Revised: February 21, 2025
Online: February 25, 2025

Keywords
Anxiety, Depression, Sleep Disorder

ABSTRACT

Employees in the healthcare industry are crucial to guaranteeing that patients receive high-quality care. The shift work pattern used in hospitals to provide 24-hour service is one of the biggest issues facing healthcare professionals. In addition to identifying mitigating strategies that might be used to enhance healthcare workers' well-being, this study intends to investigate the link between shift work patterns and the mental health of hospital healthcare professionals. Techniques. Health professionals who worked in hospitals with shift work arrangements participated in a cross-sectional research. Logistic regression and the chi-square statistical test were used to analyze the data. The bivariate analysis's findings demonstrated a strong correlation between the health worker's mental health and their shift patterns. Compared to individuals who worked regular hours, health workers with irregular shift patterns experienced greater levels of moderate sadness (58.3%), high anxiety (66.7%), and sleep disruption (83.3%). There is a statistically significant correlation between shift patterns and mental health, as indicated by the significant p value (0.05). Conclusions. Working irregular shifts can have a detrimental effect on a health worker's health, increasing their risk of anxiety, depression, and sleep issues.

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http://dx.doi.org/10.69855/miracle
https://gpijournal.com/index.php/miracle
PUBLISHED BY : GPress Indonesia

INTRODUCTION

The shift work patterns used in hospitals to ensure 24-hour service are one of the major issues encountered by healthcare personnel, who are crucial to assuring the quality of treatment for patients. While this system is necessary for continuity of care, research shows that shift work, especially night shifts and irregular rotations, can negatively impact the mental health of healthcare workers. Disruptions in circadian rhythms due to irregular working patterns contribute to sleep problems and an increased risk of cognitive impairment. A study in Indonesia revealed that healthcare workers with irregular shift work patterns had a 5.4 times higher risk of cognitive impairment than those working on a fixed pattern, confirming that hospital management policies need to consider this impact in an effort to create a healthier work environment and support the well-being of healthcare workers (Malau et al., 2024).

In addition to cognitive impairment, the negative impact of shift work is also seen in the mental health aspect of health workers. Studies in India show that health workers Compared to people who work normal hours, shift workers experience higher levels of occupational stress and emotional weariness. However, the study also found that social support can be a protective factor that reduces the negative impact of shift work on work performance (Din & Baba, 2021).

Another study conducted in Jordan confirmed that health workers who work night shifts tend to experience poorer sleep quality and higher levels of anxiety and depression. The study also indicated an association between low job satisfaction and increased risk of mental health disorders (Batat et al., 2024). The impact of shift work is not only felt individually, but also impacts the social life and well-being of healthcare workers. A multi-site study in the United States showed that shift workers, especially those working night shifts and 12-hour days, had higher levels of chronic fatigue and lower life satisfaction. The study also noted that excessive fatigue from shift work increases the risk of driving accidents (McElroy et al., 2020).

Differences in shift patterns between health workers in metropolitan areas and rural areas also show different impacts on mental health. An Australian study showed that health workers in metropolitan areas were more susceptible to anxiety disorders due to high work demands and longer travelling times compared to health workers in rural areas (Booker et al., 2023). Previous research conducted by Iswari & Putri, 2023 showed that 7.27% of health workers experienced mild depression, 34.55% experienced mild anxiety, and 23.64% experienced mild stress due to work demands during the pandemic (Iswari & Putri, 2023).

In addition, a longitudinal study conducted over eight years found that the mental health of healthcare workers tended to decline as shift work hours increased. This study showed that long shift work patterns were associated with increased psychological stress, sleep disturbances, as well as a tendency to reduce working hours or stop working earlier than planned (Ervasti et al., 2022).

Even in special circumstances such as the COVID-19 pandemic, the impact of shift work on the mental health of healthcare workers is becoming more apparent. A Korean study found that health workers who worked shifts during the pandemic had higher levels of anxiety than those who worked regular hours (Park et al., 2021).

In light of these findings, it is important for hospitals and healthcare institutions to consider the negative effects of shift work on healthcare professionals' mental health. Efforts such as more flexible shift patterns, the provision of psychosocial support and the promotion of work-life balance may help to reduce the negative effects of this work system. Therefore, In addition to identifying mitigation strategies that might be used to enhance healthcare workers' well-being, this study attempts to investigate the link between shift work patterns and the mental health of hospital healthcare professionals.

METHODS

This study used a quantitative approach with a *cross-sectional* design to explore the connection between hospital healthcare personnel' mental health and shift work schedules. The population in this study were healthcare professionals that worked in hospitals that used a shift work schedule. The sampling technique was carried out by purposive sampling with the inclusion criteria of health workers who have worked for at least one year in the shift system.

The research instrument was a questionnaire consisting of three main sections, namely the demographic characteristics of the respondents, their shift work patterns, and mental health conditions measured using standardised scales such as the Patient Health Questionnaire-9 (PHQ-9) and the General Anxiety Disorder-7 (GAD-7) to measure anxiety and depression levels. The data obtained were examined using logistic regression and the chi-square statistical test to determine the link between the dependent variable, mental health, and the independent variable, shift work patterns. The results of the study are expected to provide deeper insight into the effect that shift work schedules have on health workers' wellbeing as a basis for recommendations for hospital management policies in creating a healthier and more supportive work environment.

RESULTS

Table1 . Distribution of Respondents Based on Demographic Characteristics and Shift Work Patterns

Gender	Frequency	Percentage (%)
Male	55	40
Female	70	60

Age	Frequency	Percentage (%)
30 < years	55	44
30 ≥ years	70	56

Shift	Frequency	Percentage (%)
Reguler	65	52
Irreguler	60	48

The results of univariate analysis showed the distribution of respondents based on demographic characteristics and shift work patterns. The majority of respondents were female (60%) and over 30 years old (56%). In addition, the distribution of health workers with regular and irregular shifts was almost equal, with 52% working in regular shifts. This data suggests that health workers with various characteristics experience diverse impacts due to shift work patterns

Table 2. The connection between health workers' mental health and shift work schedules in

Variables	Regular shifts	%	Irregular shifts	%	p-value
High anxiety	15	23,1	40	66,7	0,001
Moderate depression	10	15,5	35	58,3	0,002
Sleep disturbance	20	30,8	50	83,3	0,000

Bivariate analysis results indicated a substantial correlation between health workers' mental health and shift work patterns. Compared to those who worked regular shifts, health personnel who had irregular shift work patterns experienced greater levels of moderate sadness (58.3%), high anxiety (66.7%), and sleep disruption (83.3%). There is a statistically significant correlation between shift work patterns and health workers' mental health, as indicated by the significant p value (<0.05). Thus, better shift management policies are needed to reduce the negative impact on the mental health of health workers.

DISCUSSION

Bivariate analysis results indicated a substantial correlation between health workers' mental health and shift work patterns. Based on the results of bivariate analysis, it was found that irregular shift work patterns were significantly associated with increased compared to employees who worked normal shifts, experienced anxiety (66.7%), sadness (58.3%), and sleep difficulties (83.3%). The p-value that is significant (<0.05) indicated a strong statistical association between these variables.

Irregular shift work patterns can indeed disrupt circadian rhythms - the internal biological system that regulates sleep-wake cycles and various physiological processes over 24 hours (Camargo & Otávio Toledo Nóbrega, 2023; Okechukwu, 2022). This disruption occurs because shift work conflicts with natural light signals (zeitgebers) that guide the body's biological clock (Singh et al., 2024). This disruption can lead to increased production of cortisol (stress hormone) as well as decreased levels of melatonin which plays a role in sleep regulation, ultimately increasing the risk of anxiety, depression and sleep disorders

Anxiety is an emotional response to stress that can be heightened by disrupted sleep patterns and prolonged fatigue. The study by Sweeney et al. (2021) showed that shift workers have higher levels of anxiety than workers with a fixed work schedule (Sweeney et al., 2021)

Depression in shift workers may be caused by circadian rhythm disturbances that inhibit the production of neurotransmitters such as serotonin and dopamine. Shift workers, especially those who work nights, experience significant changes in sleep patterns. This can disrupt the circadian rhythm of the organism, which controls the sleep-wake cycle and a number of other physiological functions. When these rhythms are disrupted, the production of neurotransmitters such as serotonin and dopamine can be affected, which contributes to feelings of depression and anxiety (Asliawati, 2010; Yani et al., 2016).

Maranden et al., 2023 showed that workload and social support have a significant relationship with nurses' job stress, while work shifts do not have a significant relationship with job stress (Maranden et al., 2023). This is supported by research by Malaka et al., 2022 found that workload, work demands, and social support are related to nurses' work stress in mental hospitals (Malaka et al., 2022). Ginting & Malinti, 2021 examined the relationship between work shifts and nurses' fatigue levels in hospitals, finding that there was no significant relationship between work shifts and fatigue (Ginting & Malinti, 2021).

CONCLUSIONS

Healthcare professionals' mental health may suffer from irregular shift work schedules, which may raise their risk of anxiety, sadness, and sleep disturbances. Therefore, strategic steps are needed to minimise these impacts, such as implementing more flexible work schedules and structured shift rotations. In addition, education on stress management and mental health needs to be improved so that health workers are better prepared to face work challenges. Providing support facilities, such as comfortable rest rooms and mental well-being programmes, are also important aspects in maintaining their physical and psychological balance. With better interventions, the well-being of health workers in the shift work system can be better maintained, so that they can work optimally.

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