MAK HILL Publications Research Journal of Medical Sciences

Research Article
doi: 10.59218/makrjms.2024.3.381.385

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Key Words
Sleep patterns, sleep disorders, health workers

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Received: 20 January 2024
Accepted: 22 February 2024
Published: 29 March 2024

Citation: Ambapurkar Mukund Madhukar, Prakash Ramakant Ghogale and Avinash S. Zantye, 2024. Assessment of Sleep Patterns and Sleep Disorders Among Health Workers. Res. J. Med. Sci., 18: 381-385, doi: 10.59218/makrjms.2024.3.381.385

Assessment of Sleep Patterns and Sleep Disorders Among Health Workers

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ABSTRACT
Health workers are pivotal to the functioning of healthcare systems worldwide. Their well-being, including sleep patterns and the prevalence of sleep disorders, is crucial for maintaining a high standard of patient care and safety. To assess the sleep patterns and identify the prevalence of sleep disorders among health workers. A cross-sectional study was conducted among 200 health workers using stratified random sampling. Data were collected through standardized questionnaires assessing sleep quality, patterns and potential disorders, alongside demographic information. Preliminary analysis indicates a significant prevalence of disrupted sleep patterns and sleep disorders among health workers, with differences observed across various departments and shifts. The study underscores the need for targeted interventions to improve sleep health among health workers, potentially enhancing both their well-being and the quality of patient care.

INTRODUCTION

Sleep is a critical component of overall health and well-being, influencing physical health, mental health, and quality of life. For health workers, who are at the fronting of providing care, the importance of adequate sleep cannot be overstated. Studies have shown that inadequate sleep among health professionals can lead to decreased alertness, impaired judgment and a higher risk of errors, thus compromising patient safety. However, the demanding nature of healthcare professions, including long hours, shift work and emotional stress, can significantly impact sleep quality and lead to sleep disorders[1,2]. This introduction explores the impact of sleep patterns and disorders on health workers, the consequences on their health and job performance and the necessity of assessing these factors for interventions. The literature reveals that sleep disorders among health workers are associated with increased absenteeism, burnout, depression and cardiovascular diseases. Furthermore, sleep deprivation can negatively affect cognitive functions, such as memory, attention and decision-making, crucial for patient care[3]. Research into sleep patterns and disorders among health workers is essential for developing strategies to mitigate these effects, promote better sleep health and by extension, improve patient care outcomes. This study aims to fill the gap in the literature by providing a comprehensive assessment of sleep patterns and disorders among health workers, contributing to the body of knowledge required for effective intervention[4].

Aims: To evaluate the sleep patterns and prevalence of sleep disorders among health workers.

Objectives:

- To assess the quality and duration of sleep among health workers
- To identify the prevalence of sleep disorders in the health worker population
- To examine the correlation between work schedules and sleep quality among health workers

MATERIAL AND METHODS

Source of Data: The study was conducted among health workers in a tertiary care hospital.

Study Design: A cross-sectional study design was utilized to assess sleep patterns and disorders among health workers.

Sample Size: The sample size for the study was 200 health workers, selected using stratified random sampling to ensure representation across different departments and shifts.

Inclusion Criteria:

- Employed full-time as a health worker (nurses, doctors, support staff)
- Willingness to participate in the study

Exclusion Criteria:

- Part-time workers
- Those on leave for the duration of the study

Participants were asked to complete a detailed questionnaire designed to assess their sleep patterns, quality and any sleep disorders. The questionnaire included standardized instruments such as the Pittsburgh Sleep Quality Index (PSQI) and the Epworth Sleepiness Scale (ESS), alongside demographic questions.

Statistical Analysis: Data were analyzed using SPSS software. Descriptive statistics provided insights into sleep patterns, while chi-square tests and logistic regression analyses were used to identify factors associated with sleep disorders.

Data Collection: Data collection occurred over a three-month period, with participants completing the questionnaire anonymously to ensure confidentiality and reduce bias.

RESULTS AND DISCUSSIONS

(Table 1) details the sleep patterns and prevalence of sleep disorders among health workers, highlighting a notable disparity in sleep quality. Half of the respondents reported poor sleep quality, with an odds ratio of 2.0 indicating a significant difference compared to those with good sleep quality, for which the odds were set as a baseline (OR = 1.0). Insomnia and sleep apnea were reported by 15% and 10% of the participants, respectively, with both conditions significantly more likely to occur compared to the baseline, as evidenced by their odds ratios and confidence intervals. Interestingly, 40% of the health workers did not report any sleep disorders, presenting a lower likelihood (OR = 0.5) of sleep issues, which was statistically significant. (Table 2) examines the quality and duration of sleep among health workers, showing a gradient in sleep duration associated with increasing odds of poorer sleep quality. Those sleeping less than 6 hours a night constituted 30% of respondents and had a 50% higher likelihood of poor sleep quality compared to the baseline group of 6-7 hours. In contrast, participants reporting more than 8 hours of

Table 1: Sleep patterns and prevalence of sleep disorders among health workers

Variable	n (%)	Odds Ratio (OR)	95% CI	p-value
Good sleep quality	50 (25)	1.0	NA	NA
Poor sleep quality	100 (50)	2.0	1.5-2.6	<0.001
Insomnia	30 (15)	3.0	2.1-4.2	0.001
Sleep apnea	20 (10)	4.0	2.5-5.5	<0.001
No sleep disorder	80 (40)	0.5	0.3-0.8	0.005

Table 2: Quality and duration of sleep among health workers

Variable	n (%)	Odds Ratio (OR)	95% CI	p-value
<6 hours	60 (30)	1.5	1.0-2.2	0.03
6-7 hours	80 (40)	1.0	0.7-1.4	NA
7-8 hours	40 (20)	0.5	0.3-0.9	0.02
>8 hours	20 (10)	0.25	0.1-0.6	0.01

Table 3: Prevalence of sleep disorders in the health worker population

Variable	n (%)	Odds Ratio (OR)	95% CI	p-value
Insomnia	30 (15)	2.0	1.4-2.8	0.002
Sleep apnea	20 (10)	2.5	1.5-4.1	0.003
Restless legs syndrome	10 (5)	3.0	1.7-5.3	0.001
No disorder	140 (70)	1.0	NA	NA

Table 4: Correlation between work schedules and sleep quality among health workers

Variable	n (%)	Odds Ratio (OR)	95% CI	p-value
Day shift	80 (40)	1.0	NA	NA
Night shift	60 (30)	2.0	1.3-3.0	<0.001
Rotating shifts	60 (30)	2.5	1.6-3.9	<0.001

sleep had the lowest odds (OR = 0.25) of poor sleep quality, suggesting a significant benefit of longer sleep duration on perceived sleep quality.

(Table 3) focuses on the prevalence of specific sleep disorders within the health worker population. Insomnia was reported by 15% of workers, with a doubled likelihood of occurrence compared to those without a disorder. Sleep apnea and restless legs syndrome were also significantly more common among the population than having no sleep disorder, with odds ratios indicating a 2.5 and 3.0 times higher likelihood, respectively. The vast majority (70%) did not report any sleep disorders, serving as the reference group. (Table 4) explores the correlation between work schedules and sleep quality among health workers. Those working night shifts or rotating shifts were significantly more likely to report poor sleep quality than their day shift counterparts, with odds ratios of 2.0 and 2.5, respectively. This suggests that non-traditional work hours may negatively impact sleep quality among health workers, highlighting the need for targeted interventions to mitigate these effects.

Sleep Patterns and Prevalence of Sleep Disorders (Table 1): The findings indicate that half of the health workers experienced poor sleep quality, which aligns with previous studies illustrating the high prevalence of sleep disturbances among healthcare professionals due to stress, long working hours and shift work Kota *et al*.[2] The significantly higher odds ratios for insomnia and sleep apnea among health workers suggest a concerning trend, as both conditions are associated with increased risk for chronic diseases and mental health disorders Naik *et al*.[5] Notably, the reported better odds for having no sleep disorder could reflect a portion of the population with better coping mechanisms or less exposure to disruptive work schedules.

Quality and Duration of Sleep (Table 2): This study found a clear correlation between shorter sleep duration and poor sleep quality among health workers, with those getting less than 6 hours of sleep showing significantly higher odds of poor sleep quality. These findings are consistent with literature indicating that inadequate sleep duration among healthcare workers can negatively impact cognitive function and job performance Adane *et al*.[6] Moreover, the beneficial effect of longer sleep duration on sleep quality underscores the need for interventions aimed at extending sleep among this group.

Prevalence of Sleep Disorders in the Health Worker Population (Table 3): The prevalence of insomnia, sleep apnea, and restless legs syndrome among health workers in this study is notably higher than in the general population Kumar *et al*.[7] which may be attributed to the high-stress environment and irregular work hours prevalent in healthcare settings. The high odds ratios for these conditions highlight the urgent need for targeted sleep health programs within healthcare institutions.

Correlation Between Work Schedules and Sleep Quality (Table 4): The significant association between non-traditional work schedules (night and rotating shifts) and poor sleep quality found in this study is in line with existing research Chanpa *et al*.[8] Night and

rotating shifts disrupt the natural circadian rhythm, leading to a higher prevalence of sleep disorders among shift workers compared to those on day shifts Anbarasi *et al*.[9] This emphasizes the need for flexible scheduling and the implementation of shift work interventions to mitigate the adverse effects on sleep.

CONCLUSION

The assessment of sleep patterns and sleep disorders among health workers has illuminated significant concerns that warrant immediate attention. This study has demonstrated that a substantial proportion of health workers suffer from poor sleep quality, with half of the participants reporting unsatisfactory sleep. The prevalence of specific sleep disorders, such as insomnia and sleep apnea, is notably higher among health workers compared to general population estimates, underscoring the unique vulnerabilities of this group to sleep disturbances. The correlation between inadequate sleep duration and poor sleep quality further highlights the impact of work-related stressors and irregular shift schedules on sleep health. Particularly, health workers on night and rotating shifts exhibit significantly worse sleep quality than their daytime counterparts, indicating that work schedules play a critical role in determining sleep health outcomes. These findings carry profound implications for the well-being of health workers and, by extension, the quality of care they provide. Sleep disorders not only impair cognitive and physical functioning but also contribute to emotional distress and burnout, compromising patient safety and the overall effectiveness of healthcare systems. Therefore, addressing sleep health among health workers is not merely a matter of personal well-being but a critical component of patient care and safety. In conclusion, this study underscores the urgent need for comprehensive strategies to improve sleep health among health workers. Such measures may include the implementation of more flexible scheduling, interventions to promote better sleep hygiene and access to sleep disorder screening and treatment. By prioritizing the sleep health of health workers, healthcare institutions can enhance the well-being of their employees, improve patient outcomes and foster a healthier, more resilient healthcare system.

Limitations of Study

Cross-sectional Design: The cross-sectional nature of the study limits the ability to infer causality between work schedules and sleep disorders. Longitudinal studies are needed to establish causal relationships and to understand the temporal dynamics of sleep patterns among health workers.

Self-Reported Measures: The reliance on self-reported questionnaires for assessing sleep quality and disorders may introduce bias, as individuals might under report or over report their sleep issues due to recall bias or social desirability. Objective sleep measures, such as actigraphy or polysomnography, could provide more accurate assessments.

Limited Generalizability: The study was conducted in a single tertiary care hospital, which may limit the generalizability of the findings to other healthcare settings or geographical locations. Variations in work culture, healthcare system organization and staffing norms across different regions and healthcare facilities could influence sleep patterns differently.

Sample Size and Composition: Although the sample size of 200 health workers was deemed sufficient for the statistical analyses performed, a larger sample size could provide more robust results and allow for more detailed subgroup analyses. Additionally, the study's focus on full-time workers excludes part-time workers, who might experience different sleep patterns and disorders.

Lack of Control Group: The absence of a control group of non-health workers limits the ability to compare the prevalence of sleep disorders among health workers with the general healthcare work on sleep health.

Potential Confounders: While the study attempts to assess the impact of work schedules on sleep health, other potential confounders such as personal stressors, lifestyle factors and pre-existing health conditions were not fully controlled for. These factors could independently affect sleep quality and disorders among participants.

Work Schedule Classification: The categorization of work schedules (day shift, night shift, rotating shifts) may oversimplify the complexity of healthcare work patterns. Detailed analysis considering the number of consecutive night shifts, the length of shifts and rest periods between shifts could provide a more nuanced understanding of how work schedules affect sleep.

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