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A systematic review to assess Sleep Disturbances among Hospital Nurses

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Abstract
Background: Nurses, who form a significant portion of the healthcare workforce, are frequently exposed to physical and psychological stressors, particularly due to shift work, which leads to sleep disturbances and adverse health outcomes. Sleep disturbances among hospital nurses are common, especially among those working night shifts, contributing to fatigue, burnout, and decreased work performance, all of which negatively impact patient care.
Methods: A systematic review was conducted to explore the prevalence and factors contributing to sleep disturbances among hospital nurses. Searches were performed on PubMed and Embase using keywords related to sleep disturbances, shift work, nurses, and workload. A total of 55 studies were selected for inclusion, and the findings were synthesized to examine sleep patterns, physiological and demographic influences, and coping strategies among nurses.
Results: The review revealed that a significant number of nurses experience sleep disturbances, with night shift workers particularly affected. Studies from various countries, including Thailand, the U.S., India, and Saudi Arabia, reported that nurses averaged less than seven hours of sleep per night, leading to chronic sleep deprivation and associated health issues. Factors such as shift work, age, gender, caffeine consumption, and poor dietary habits were identified as contributing to sleep disturbances. The COVID-19 pandemic further exacerbated these issues, with increased stress and fatigue. Sleep deprivation was linked to cognitive and behavioral impairments, including errors in patient care, burnout, and increased injury rates.
Conclusion: Sleep disturbances among hospital nurses are a significant issue that requires targeted interventions. Strategies such as bright light exposure, brief naps, shift reorganization, and behavioral interventions may help alleviate sleep problems. However, further research is needed to tailor these interventions to the specific needs of nurses working in diverse healthcare settings.

Introduction

Nurses form a substantial part of the healthcare workforce, providing continuous, direct care to patients across various healthcare environments. They are often the first point of contact for patients, which places them in situations where they are exposed to both physical and psychological stressors [1]. According to the World Health Organization (WHO), nurses make up around half or more of the total healthcare workforce globally [2].

A significant portion of a nurse's workday is spent delivering direct patient care, requiring them to maintain high levels of focus and readiness, especially during emergencies or urgent situations [3]. Research has demonstrated that shift work significantly impacts sleep patterns, leading to negative health outcomes, with nurses being among the most affected in healthcare settings [4]. A scoping review on strategies to manage fatigue risks in healthcare workers, including nurses and midwives, revealed that approximately half of the workforce works shifts, contributing to sleep disturbances and fatigue, which can subsequently compromise the quality of patient care [5].

Healthcare systems are designed to address the health needs of the population, often necessitating night shifts and extended hours to ensure continuous service [6]. Due to the nature of their profession, nurses frequently work rotating shifts, including nights, as well as extended shifts of twelve to twenty-four hours, rather than the standard eight-hour shifts [5]. Reports have confirmed that longer shifts are linked to sleep disturbances and long-term negative health consequences [4, 7-9]. Moreover, a significant number of nurses working night shifts experience sleep-related issues and face chronic health problems as a result [5].

Methods

A systematic search was performed on PubMed and Embase databases using the keywords "sleep disturbances," "sleep issues," "shift work," "nurses," and "workload." This search yielded 150 articles. The reference lists of the retrieved articles and reviews were examined for additional relevant studies. After removing irrelevant, duplicate, and review articles, a total of 55 studies were selected for inclusion in the review, as they fulfilled the established inclusion criteria.

Results and Discussion

Numerous studies have explored sleep patterns and their impact on nurses and other healthcare professionals. A study in Thailand found that 76% of nurses averaged less than seven hours of sleep per night [10], which aligns with findings from a U.S. study, where nurses similarly averaged less than seven hours of sleep daily [11]. In India, sleep deprivation affected two-thirds of nurses working in hospitals [12]. Additionally, research in Saudi Arabia has shown that many nurses working night shifts experience sleep disturbances that have both physical and physiological consequences [13, 14]. This literature review aims to synthesize existing knowledge on sleep disturbances among hospital nurses and to examine potential strategies and interventions to address this issue. Furthermore, it seeks to identify demographic factors that influence sleep patterns among nursing staff.

Sleep disturbance is characterized by reduced alertness and productivity due to inadequate or poor-quality sleep [15]. Several factors have been identified as influencing the sleep patterns of nurses. Nurses working day shifts tend to have better sleep quality than those on night shifts [16, 17]. Night shift nurses often experience chronic sleep deprivation, leading to long-term health issues such as weight gain, elevated blood pressure, and psychological problems [18]. Working night shifts in healthcare presents significant challenges but is sometimes a necessary requirement. Healthcare workers are increasingly expected to work varied shifts, including nights, weekends, and extended hours. According to the American Academy of Sleep Disorders, nurses working rotating shifts or night shifts are at a higher risk of developing shift work sleep disorder [19]. Such conditions may result in sleep deprivation or excessive sleepiness during working hours. The negative effects of insufficient sleep can disrupt circadian rhythms, hormonal secretions, body temperature regulation, and blood pressure [20].

In Saudi Arabia, nurses constitute about two-thirds of the total healthcare workforce [21]. Local studies on sleep issues among nurses highlight the impact of night shifts on psychological and physiological health. For example, a study by Alsharari (2019) found that a significant number of hospital nurses experienced psychological problems due to night shifts [13]. Another study in the region revealed that night shift nurses faced both patient safety concerns and various physiological issues [14]

Physiological elements such as body temperature, blood pressure, and heart rate also play a role in sleep disturbances among nurses [22-24]. These factors can interfere with work performance, leading to mistakes, errors, and insufficient patient care. Consequently, sleep disturbances may become a recurring issue for nurses [24], contributing to negative outcomes and reduced productivity.

Demographic characteristics such as age, gender, eating habits, caffeine consumption, social behaviors, and alcohol intake are known to influence nurses' sleep patterns [22, 23]. Although some studies, including those conducted with Australian healthcare workers, did not find strong links between these factors and sleep disturbances [25, 26], other research has shown a clear association with sleep deprivation and related health consequences [16, 18, 27, 28]. For instance, alcohol consumption, particularly before bedtime, has been identified as a factor negatively impacting sleep quality among nurses [29]. Moreover, nurses with poor dietary habits or those working night shifts are at a higher risk of sleep deprivation [30].

The COVID-19 pandemic and other infectious disease outbreaks have added new stressors for nurses, further exacerbating sleep disturbances. Nurses on the frontline were subjected to heightened psychological stress, fatigue, and physiological changes due to the increased demands of their work. Studies from Oman and the United States reported that nurses working during the pandemic experienced significant sleep problems [31, 32].

The negative effects of sleep disturbances on nurses' cognitive and behavioral functions are well-documented [33-35]. Sleep deprivation leads to an increased likelihood of errors, accidents, and injuries, which in turn jeopardizes patient safety [5, 10]. Numerous studies have linked inadequate sleep among nurses to medication administration errors [36]. Furthermore, sleep-deprived nurses are more prone to needle-stick injuries and exposure to bloodborne diseases [37]. These issues, coupled with an increase in human errors, reduce the quality of nursing care provided [38].

Lack of sleep can also lead to unsafe behaviors. According to the National Sleep Foundation, insufficient sleep results in higher cortisol levels, contributing to drowsiness, fatigue, irritability, and even delusional behaviors [40]. Another significant consequence of sleep deprivation is nurse burnout, which is more prevalent in the nursing profession than in other healthcare sectors due to the high stress involved [41]. A study on nurse burnout during the COVID-19 pandemic found a strong link between insomnia and burnout levels among nurses [42].

Sleep disturbances are common among hospital nurses and have detrimental effects on both their physical and mental well-being [43]. To mitigate the impact of sleep deprivation, nurses utilize various coping strategies, which include instrumental, self-adjustment, avoidant, task-oriented, and emotion-oriented approaches [44-46].

Coping with stress is a critical aspect of managing the effects of sleep deprivation, and it plays an essential role in nurses' overall well-being. Research indicates that effective coping strategies can reduce the adverse impacts of sleep loss, based on different theoretical frameworks [47]. Two primary types of coping mechanisms are widely adopted: instrumental coping, which involves problem-solving by altering behavior or changing the environment, and self-adjustment, where individuals aim to regulate themselves and make necessary modifications [44]. According to Endler and Parker, other coping strategies include avoidant, task-oriented, and emotion-oriented approaches [45, 46].

While there is limited research on specific coping strategies employed by nurses to manage sleep issues, some studies have examined how both nurses and nursing students deal with sleep disturbances. It was found that nurses with shorter sleep durations tend to rely more on emotion-oriented coping strategies compared to those with longer sleep times [48]. Avoidant coping strategies were also mentioned by Sadeh and Gruber, who suggested that such methods could be effective for nurses working shifts and struggling to get adequate rest [49]. Emotion-oriented strategies are also recommended as they can help reduce physiological tension and promote quicker sleep onset [50].

Conclusion

Addressing sleep-related issues among hospital nurses requires targeted interventions to alleviate their effects. Several strategies have been proposed to help manage sleep problems in this group, including bright lighting techniques, short naps, shift reorganization, and behavioral interventions.

The first recommended intervention is the use of bright lighting, which is particularly effective for improving alertness during night shifts and ensuring quality sleep afterward. Exposure to bright light helps suppress melatonin production, making it easier for nurses to fall asleep when needed. Another intervention is the practice of brief naps, which have been shown to reduce feelings of sleepiness and enhance sleep quality. Rescheduling shifts is another intervention that has proven effective in supporting better sleep for nurses by balancing work and rest periods. Finally, behavioral-based approaches have been found to be beneficial in reducing insomnia among nurses, who often face high levels of stress in their work environments. However, these interventions require further research to ensure they are adaptable to individual needs and can effectively address sleep disturbances in nurses' unique work contexts.

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