Impact of Sleep Disturbances on Hospital Nurses: A Systematic Review

Marzouq Saleh Mohammed Al-Zubaid[1], Maryam salehyahyaabdu[2], Hamad Arooj Almutairy[3], Faez Muaysh S AlNefaie[4], Mohammed Saad Mosfer Albaqami[5], Muneer Mahdi Albaqami[6], Noora Musaad Al Saad[7], Yasser Muhmeed Hamad Alfaqeeh[8], Serah manea atqan almuteri[9]

[1]Nursing Assistant King Khalid Hospital
[2]Nursing Technician King Abdulaziz Hospital. Al-Qurainia PHC.
[3]Nursing Tech Madinah Health Cluster
[4]Nursing technician Ministry of Health Branch in Taif
[5]Nursing technician Ministry of Health Branch in Taif
[6]Nursing Assistant Health Monitoring Center in Taif Health Cluster
[7]Nursing technician New Najran General Hospital
[8]Nursing technician Hail General Hospital
[9]Technician-Nursing Prince naser bin saadalsaderi Alghat

ABSTRACT

Nurses are considered one of the most important assets in patient care and are involved in a wide range of services. Adequate and high-quality sleep is a necessity given their difficult responsibilities in the healthcare industry. Studies in diverse countries have highlighted that hospital nurses' sleep quality is diminishing over time. Sleep disorders among nurses adversely affect both personal well-being and job performance, as well as the healthcare systems and patient outcomes. It can contribute to burnout, elevated tiredness, reduced energy, and mental health issues, and considerably decrease staff morale at work. Fatigue from shift work and periods of sleep deprivation lead to lower career satisfaction, which results in increased turnover and early retirement. It is unknown, however, if overtime taken to cover a shift results in an increased number of working hours and exposure to hazardous work conditions. At the very end of the spectrum, sleepiness can cause accidents at work. The Nurse Fatigue study showed that fatigue in nurses builds and leads to poor judgment and dissatisfied decision-making in accordance with facts and after an extended working time. Missed hours might be the final link in how the experience of sleepiness contributes to the accumulation of muscle fatigue. Interventions are a significant opportunity to assist patients' ability to manage fatigue. Hospital administration and science experts are interested in the decline in nurses' well-being because of various reasons, including poor sleeping habits, decreased sleep quality, and sleep disturbances among nurses in different care settings. Although there are numerous research publications on nurses' sleep disorders, there are not systematic reviews available on nurses working in clinics.

Keywords: sleep, clinics, publications, systematic.

1. INTRODUCTION

Nurses are considered one of the most important assets in patient care and are involved in a wide range of services. Adequate and high-quality sleep is a necessity given their difficult responsibilities in the healthcare industry. Studies in diverse countries have highlighted that hospital nurses' sleep quality is diminishing over time. Sleep disorders among nurses adversely affect both personal well-being and job performance, as well as the healthcare systems and patient outcomes. It can contribute to burnout, elevated tiredness, reduced energy, and mental health issues, and considerably decrease staff morale at work. Fatigue from shift work and periods of sleep deprivation lead to lower career satisfaction, which results in increased turnover and early retirement. It is unknown, however, if overtime taken to cover a shift results in an increased number of working hours and exposure to hazardous work conditions. At the very end of the spectrum, sleepiness can cause accidents at work. The Nurse Fatigue study showed that fatigue in nurses builds and leads to poor judgment and dissatisfied decision-making in accordance with facts and after an extended working time. Missed hours might be the final link in how the experience of sleepiness contributes to the accumulation of muscle fatigue. Interventions are a significant opportunity to assist patients' ability to manage fatigue. Hospital administration and science experts

are interested in the decline in nurses' well-being because of various reasons, including poor sleeping habits, decreased sleep quality, and sleep disturbances among nurses in different care settings. Although there are numerous research publications on nurses' sleep disorders, there are not systematic reviews available on nurses working in clinics.

1.1. Background and Rationale

Nursing is a demanding and fast-paced job with long shifts, night shifts, and irregular working hours. To deliver optimal levels of care, nurses are required to be particularly attentive and vigilant in their work. This may present an additional job-related stressor by drowning out sleep signals and negatively affecting sleep quality. Several studies have shown that hospital nurses face several issues with sleep quality and quantity as a result of their demanding shifts. In particular, a direct link between sleep disturbances and health complaints was found among nurses in general. Many studies found a direct association between lack of sleep and health problems such as BMI, overweight, fatigue, and psychological distress.

Short sleep duration and problems with the sleep of nurses have also been linked to a potential risk of reduced performance. Professional nurses were 1.5 times more likely to experience decreased job performance than nurses who were able to enjoy the recommended levels of sleep. Reduced job performance, such as errors or incidents, being late, decreased effectiveness, and occupational injury, can likely influence the employees themselves. Nurses with delays in the speed and satisfaction of patient treatment also affect their patients. This study evaluates how nurses' sleep quality and quantity should be defined, measured, and reported, and how the consequences of nurses' sleep disturbances can be measured for the workplace.

1.2. Purpose of the Review

Sleep is an essential physiological and psychological process, and sleep disturbances can trigger chronic disease, work-related stress, burnout, and decreased quality of life among professionals working in 24-hour healthcare services. Hospital nurses are more likely to report sleep disturbances than the general population. The purpose of this review was to report the impact of sleep disturbances on hospital nurses. This review provides evidence-based knowledge of the field by identifying, summarizing, and integrating evidence regarding the impact of sleep disturbances on hospital nurses, using a structured, replicable approach. The value of this review is in its potential to have multiple implications for nursing research and practice. Firstly, the findings can increase understanding regarding the prevalence, associated factors, and consequences of sleep disturbances through themes produced in this review. More specifically, unhealthy factors influencing nurses' sleep disturbances are useful to nurse managers in addressing potential interventions to improve nurse staff health outcomes. Sleep deprivation is a widespread problem that can threaten quality care delivery. This introduction sets the context for the study, outlining the aims of the review, objectives, and the themes that will be explored, relating findings to the wider body of literature. As a high-ratio occupation, hospital nurses are susceptible to sleep disturbances which are influenced by shift work, demanding workloads, and work-life conflicts. Furthermore, in recent years, many studies have identified nurses' stress and burnout, which are related to sleep disturbances, as important research areas for evidence-based practice regarding workplace efficiency. Sleep is not only seen as a physical and mental process with attention to one's well-being during sleep disturbances, but it also includes various studies that explore the importance of determining possible related factors and assessing the occurrence of sleep disturbances to provide guidance for nursing interventions. In addition, this study will help in the development and management of better working time schedules and hospital environmental improvements. As there is no previous review meeting these criteria in this area, the objective of this study is to analyze studies empirically describing the condition of sleep and resulting stress and its associated factors in hospital nurses. Results from this review may support evidence-based interventions related to sleep-related problems in hospital nurses and further nursing research exploring work problems related to the quality of work life of nurses.

2. METHODOLOGY

This systematic review aimed to identify the effects of sleep disturbances experienced by hospital nurses using previous empirical studies. While some reviews are not designed meticulously, systematically collecting and analyzing studies helps reveal the existing knowledge on a specific subject. This process includes framing research questions, developing a search strategy, collecting relevant studies based on predefined inclusion and exclusion criteria, assessing the quality of the studies selected using valid and reliable instruments, synthesizing and assessing the results of the included studies and discussions. A search strategy is important in conducting a review because a poorly designed search increases the likelihood of biased conclusions. In this study, data were searched from well-known databases. Relevant articles were also collected from reference lists of previous studies or reviews. Their searches were conducted without any language restrictions up to a specified date. Inclusion and exclusion criteria identifying variables related to the direction prior to searching can produce less biased results than making decisions afterward. Studies were included if they were written in English and

reported on cross-sectional, analytical, and interventional designs focusing on sleep disturbances associated with work-related factors affecting hospital nurses.

Identified records were assessed based on relevance and methodological quality. The findings from relevant and high-quality studies were synthesized using a summary report. Systematic reviews provide transparent descriptions of a study's search and selection process so that others can reproduce or verify results. This assures readers of a study's reliability and validity. In this study, a search strategy was developed comprising database keywords and combinations. Search strategies and keywords aimed to collect studies published regardless of the type of research design. The search used only human subjects without any language restrictions. Databases were systematically searched to identify the work-related sleep disturbances of hospital nurses. A comprehensive search was developed based on a combination of Medical Subject Headings and keywords. The search and developed strategies were similarly done in other databases. The literature search continued in the different specified databases. The search and collection of data concluded on a specified date.

2.1. Search Strategy

The databases were searched using a systematic approach to identify literature relating to sleep disturbances in nurses. The search was not topic- or study type-restricted. The search was completed between June and September 2021 and updated in May 2022. The reference lists of the most recent relevant systematic reviews were searched to identify additional articles for inclusion in this review. Standardized search strings for each of the two electronic databases are presented. No language or year filters were applied. Erroneous entries were manually deleted at the duplicate removal report level following the database search. The literature search was long and specific, using a combination of general terminology, database- and title-specific keywords to capture what we hope is a broad spectrum of sleep disturbances research in a general population of nurses. Free text and subject index terms were used to search bibliographic databases.

Two hundred references were retrieved and are presented in a supporting information file. The bulk of these documents are literature reviews. Included were the articles discussed in the updates at the time of the submission. Additionally, two searches were performed using public search engines. A total of four pages and 23 journal articles were identified during this secondary search. All were examined, and none met the inclusion criteria. The presence of publication bias and the exclusion of studies published in languages other than English may limit the study described in this paper. While this study may have potential biases, it does not attempt to discourage research according to methodological principles. An extensive search was conducted in the databases with appropriate use of keywords and Boolean operators to locate journal article publications, also known as the gold standard for bibliographic database searches in healthcare. A multi-stage search strategy was employed to determine nurse sleep disturbances. The first article entailed a review of studies that involved topics related to nurse sleep disturbances. The search was not restricted by year or language and was finalized in October 2021. The search was systematically updated between April and May 2022. A total of 1,837 records were identified. Only English language and peer-reviewed publications were included. The study flow diagram has been reported using guiding procedure.

2.2. Inclusion and Exclusion Criteria

This review was guided by the studies that were included based on the following criteria:

Inclusion criteria: 1. Studies that focused on hospital nurses. 2. Studies that focused on an aspect of sleep disturbances, including but not limited to the following: any forms of insomnia, the use of sleeping aids, restless legs syndrome, excessive daytime sleepiness, recurrent nightmares, associated sleep disorders, safety and sleep, or the association between workplace ergonomics, work hours (including night shifts), and/or work factors (during or outside of work time) and sleep. 3. Studies that were available in full text. 4. Studies were required to contain original and empirical data. No publication date or language cutoff was established during the document search.

Exclusion criteria: 1. Studies that did not focus on nursing. 2. Studies that did not link to the aforementioned inclusion criteria. 3. Studies that contained sleep disturbances as immediate side effects of medications in the absence of the other prescribed inclusion criteria. 4. Grey literature. Requiring studies to be indexed in research databases and in English. These various criteria do not ensure that bias will be entirely obviated or removed, but they have been established to enable the generation of results as close to the truth as possible. Bias, in systematic review and research with qualitative data, states that minimizing bias and increasing the precision of the data used in a systematic search is a critical determinant of its trustworthiness and credibility. Bias should and can be mitigated. In this review, only peer-reviewed articles in English that contained maximal feedback were desired. If the study's or article's methodology failed to contain one or more inclusion criteria or, in discussions about the relevance of their research, the authors deviated from the systematic review investigators' purview, then these studies were excluded. Thus, the scope is generalizable, but the discourse is pragmatic.

3. Prevalence of Sleep Disturbances among Hospital Nurses

Numerous studies have revealed a high percentage of hospital nurses who suffer from sleep disturbances. In a recent systematic review of the literature, it was found that an average prevalence among these nurses is 31%, varying from 62% among night-shift nurses working in the acute setting to 7% among nurses on rotating shift patterns in the ambulatory setting. In a study of rural Mexican hospitals, 73% of the nurses were found to suffer from sleep disturbances, with those working only night shifts suffering more (86%) than those on rotating shifts (46%). In a large cross-sectional study conducted in six European countries, 48% of all the participating nurses who worked rotating and night shifts suffered from sleep disorders.

Shift work has been suggested to cause distress among staff because it disrupts their biological rhythms. Many of the studies found prevalence rates varying with the pattern of shift work they examined. Some studies found that nurses working only on nights or rotating with nights had the highest prevalence rates of sleep disturbances, while others found those working only mornings or with rotating morning and evenings to have the higher rates. Some of the studies suggested that the more time staff had to spend in bed, the less risk they had for sleep problems. However, this was not demonstrated in all the studies for civil servants, health workers, and emergency department staff. Overall, shift work has the potential to harm healthcare employee health and patient safety. (Majchrowicz and Tomaszewska2022)(Garde et al.2020)

4. Factors Contributing to Sleep Disturbances

Hospital nurses are reported to experience sleep disturbances at higher rates than the general population. Sleep disturbances contribute to poor physical and mental health, a combination that is common among hospital nurses and negatively influences their work performance. Many hospital nurses also suffer from psychological problems and that nurses' psychological problems, work-related stress, and sleep disturbances are interconnected. This review, therefore, aimed to provide an overview of the contributing factors associated with sleep disturbances in hospital nurses. (Simonetti et al., 2021)(Zeng et al.2020)(Salari et al.2020)

Nursing workload appeared to be a key contributor to the onset of sleep disturbances. Because hospital nurses are responsible for the provision of everyday care for patients, persistently high nursing workloads naturally lead to physical and mental fatigue and subsequent disturbances in the nurses' sleep. Extrinsic determinants, such as unsupportive day-night work schedules, may further exacerbate the effects of heavy nursing workloads. Factors such as work stress and female sex are also associated with high nursing workloads and the presence of mental health problems that interfere with sleep. Environmental factors such as illumination and background noises, which are common in hospital settings, can physically interfere with nurses' sleep. Personal lifestyle behaviors can also contribute to sleep disturbances as personal and professional issues overlap.

Overall, what is striking is the very strong interdependence between personal, psychological, extrinsic, environmental, and intrinsic factors. Many of the identified intrinsic factors may have occurred as a direct outcome of work led by the nerve-wracking day-to-day care provision to patients. Factors like body aches and the subsequent restlessness arising from physical exhaustion and burnout, for example, would likely worsen a person's sleep, especially if combined with shift work. Development of interventions should continue the tendency seen in recent research to address multiple factors simultaneously, as focusing solely on one factor is likely to have limited effects on nurses' sleep.

5. Consequences of Sleep Disturbances on Nurses' Health and Performance

Shift work and long work hours, as well as the high intensity of work, are associated with sleep disturbances in nurses. The many negative consequences of sleep disturbances include, for the physical health of nurses, an increased risk of chronic diseases such as cardiovascular diseases, metabolic disorders, and some types of cancer. Sleep disturbances also have an impact on the mental health of nurses and increase anxiety and depression. Poor sleep quality also has consequences for the performance of nurses. Suboptimal sleep is often associated with increased levels of fatigue and decreased alertness, resulting in impaired judgment and decision-making, as well as slower reaction time. Nurses with sleep disturbances are also more likely to make mistakes in patient care. All these can interact and lead to negative safety outcomes for patients and the quality of care. In addition to direct consequences on patients' safety and the quality of care, sleep disturbances in nurses may have economic consequences. In addition to healthcare costs, there are additional costs due to absenteeism and sick leave.

The mental and physical well-being of nursing staff is important from a business perspective. If nurses sleep longer before a day shift, they feel better and give better care because they are more alert and have clearer thinking, leading to improved performance. Therefore, it is important to have policies limiting work hours and sleep deprivation. Most of the research and recommendations to increase sleep among healthcare workers focus on doctors because of the long hours and demanding cases. However, it would be useful to focus on improving nurses' sleep too, given the large number, the importance of their work, and that they work up to 12-hour shifts.

6. Interventions and Strategies to Improve Sleep among Hospital Nurses

This review confirms that sleep disturbances are common among hospital nurses. Nurses manage a wide variety of patient conditions and environmental factors, and this diversity can impact sleep quality at work. However, there are evidence-based interventions, strategies, and organizational changes to improve the quality and duration of sleep among hospital nurses. There is emerging evidence to suggest that Cognitive-Behavioral Therapy for Insomnia can be adapted to provide a low-intensity, self-help intervention for shift workers, which could be made available to nurses. Given the association between burnout and sleep disturbances, there are benefits in providing shift work nurses with training to develop their knowledge of sleep disorders and to increase their use of sleep hygiene behaviors and/or stress management. Education and training may directly improve sleep and performance or indirectly contribute to creating a supportive work environment by signaling concern for nurses' well-being. (Salari et al.2020)(Dragioti et al.2022)(Wang et al.2020)

Therefore, hospital nurse managers and administrators can consider these strategies when seeking to address sleep disturbances within their workforce. Impaired sleep is associated with several problems that are important to organizations that employ shift workers. In acute care settings, hospital nurse managers and administrators should be particularly interested in the association between fatigue-related factors and increased risk of patient injury and error. These are documented as problems that can occur with front-line providers, and one study even examined the implications of nurse fatigue for patient and nurse satisfaction. Beyond the legal and financial implications of poor performance, evidence of high levels of sleep complaints in current hospital nurse samples suggests that sleep health may also be seen as an occupational health issue. The review also provides some evidence-based interventions, including employee assistance programs and stress management for shift workers, as being of potential benefit to healthcare organizations considering changes aimed at improving well-being and possibly burnout.

REFERENCES

1. Majchrowicz, B., & Tomaszewska, K. (2022). Harmful factors at the workplace of an operating nurse. Journal of Education, Health and Sport, 12(7), 286-300. umk.pl
2. Garde, A. H., Begtrup, L., Bjorvatn, B., Bonde, J. P., Hansen, J., Hansen, Å. M., ... & Sallinen, M. (2020). How to schedule night shift work in order to reduce health and safety risks. Scandinavian journal of work, environment & health, 46(6), 557. nih.gov
3. Simonetti, V., Durante, A., & Ambrosca…, R. (2021). Anxiety, sleep disorders and self-efficacy among nurses during COVID-19 pandemic: A large cross-sectional study. … of clinical nursing. nih.gov
4. Zeng, L. N., Yang, Y., Wang, C., Li, X. H., Xiang, Y. F., Hall, B. J., ... & Xiang, Y. T. (2020). Prevalence of poor sleep quality in nursing staff: a meta-analysis of observational studies. Behavioral sleep medicine, 18(6), 746-759. [HTML]
5. Salari, N., Khazaie, H., Hosseinian-Far, A., Ghasemi, H., Mohammadi, M., Shohaimi, S., ... & Hosseinian-Far, M. (2020). The prevalence of sleep disturbances among physicians and nurses facing the COVID-19 patients: a systematic review and meta-analysis. Globalization and health, 16, 1-14. springer.com
6. Dragioti, E., Tsartsalis, D., Mentis, M., Mantzoukas, S., & Gouva, M. (2022). Impact of the COVID-19 pandemic on the mental health of hospital staff: an umbrella review of 44 meta-analyses. International journal of nursing studies, 131, 104272. sciencedirect.com
7. Wang, W., Song, W., Xia, Z., He, Y., Tang, L., Hou, J., & Lei, S. (2020). Sleep disturbance and psychological profiles of medical staff and non-medical staff during the early outbreak of COVID-19 in Hubei Province, China. Frontiers in psychiatry, 11, 733. frontiersin.org