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SLEEP QUALITY AMONG CRITICAL CARE NURSES: A SCOPING REVIEW OF GLOBAL AND PAKISTANI EVIDENCE ON CONTRIBUTING FACTORS, IMPACTS, AND COPING STRATEGIES

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Abstract

Background and Objective: Sleep quality is a critical determinant of nurses' physical health, emotional well-being, and professional performance. Critical care nurses (CCNs) are particularly vulnerable to poor sleep quality due to rotating shifts, high workloads, and psychological stressors inherent in intensive care environments. This scoping review explores global and Pakistani literature on sleep quality among CCNs, focusing on contributing factors, associated health and professional impacts, and coping strategies.

Methods and Materials: A systematic literature search was conducted across four databases: CINAHL, PubMed, Google Scholar, and ResearchGate, focusing on studies published between 2018 and 2024. The search strategy employed Medical Subject Headings (MeSH) in combination with Boolean operators to enhance precision and relevance. Inclusion criteria were restricted to peer-reviewed articles published in English within the last seven years. Following the application of relevance and accessibility filters, a total of 34 studies were deemed eligible for inclusion in the review.

Results: Findings indicate that between 40% and 80% of nurses experience poor sleep quality, with the highest prevalence observed among night-shift workers. Contributing factors identified include occupational stress, emotional exhaustion, high workload intensity, and irregular shift patterns. Poor sleep quality was consistently associated with increased fatigue, impaired cognitive performance, a higher incidence of clinical errors, elevated risk of burnout, and a decline in the overall quality of patient care.

Conclusion: Poor sleep quality is highly prevalent among nurses, especially night-shift workers, and is linked to occupational stressors and sociocultural factors, particularly in the Pakistani context. These findings highlight the urgent need for organizational and policy-level interventions to improve nurses' well-being and ensure safe patient care.

INTRODUCTION

Sleep is a fundamental biological process essential for physiological restoration, emotional regulation, and cognitive performance. In healthcare settings, particularly among nurses, adequate sleep is critical for ensuring safe, effective, and compassionate patient care. However, nurses frequently experience sleep disturbances due to irregular shift work, high workloads, and emotional stress that are especially pronounced in high-acuity environments such as intensive care units (ICUs) and emergency departments.

The World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) have identified insufficient sleep as a significant global public health concern (Yuan et al., 2019; CDC, 2023). Among nurses, sleep deprivation has been consistently linked to increased medical errors, impaired clinical judgment, reduced empathy, and compromised patient safety (Zeng et al., 2020). Critical care nurses (CCNs) face distinct occupational challenges, including frequent exposure to life-threatening situations, emotional exhaustion, and rotating shift patterns, all of which contribute to poor sleep quality (Mobarak et al., 2023).

Sleep quality is a multidimensional construct encompassing sleep duration, latency, continuity, depth, and subjective restfulness (Fang et al., 2019). Poor sleep among nurses has been associated with fatigue, cognitive decline, mood disturbances, and decreased motivation (Zdanowicz et al., 2020). These impairments can reduce psychomotor vigilance, hinder critical thinking, and elevate the risk of clinical errors (Van Nguyen & Liu, 2022). Furthermore, chronic sleep deprivation contributes to emotional exhaustion, depersonalization, and burnout. Key components of occupational stress that adversely affect job satisfaction, retention, and overall well-being (Amaral et al., 2021).

Globally, the prevalence of poor sleep quality among nurses ranges from 40% to 80%, with higher rates observed among those working night or rotating shifts (Fang et al., 2019; Park et al., 2018; Khatony et al., 2020). Environmental stressors such as noise, artificial lighting, and workload intensity, along with psychosocial pressures like emotional demands, interpersonal conflict, and role overload, further exacerbate sleep disturbances (Suleiman et al., 2020). In low-resource settings, including developing countries, additional challenges such as understaffing, inadequate institutional support, and lack of rest facilities worsen sleep-related outcomes (Alam et al., 2023).

In the Pakistani context, cultural expectations, gender roles, and dual domestic-professional responsibilities contribute to chronic sleep debt and psychological strain among nurses, particularly women (Arif, 2020). Despite growing recognition of occupational fatigue, there remains a lack of focused research and policy interventions addressing sleep health among critical care nurses in Pakistan.

Emerging evidence underscores the link between poor sleep quality and long-term health consequences, including cardiovascular disorders, hormonal dysregulation, obesity, and compromised immune function (Hsu et al., 2021; Díaz Ramiro et al., 2020). Psychologically, insufficient sleep is associated with heightened anxiety, irritability, depression, and diminished coping capacity (Albakri et al., 2024). As frontline healthcare providers, nurses' well-being is directly tied to healthcare system performance, patient safety, and institutional sustainability.

Given these implications, addressing sleep quality among CCNs must be recognized as a core occupational health priority. This scoping review synthesizes global and regional evidence on sleep quality among CCNs identifies key contributing factors and outcomes, highlights research gaps, and offers implications for healthcare systems and policymakers.

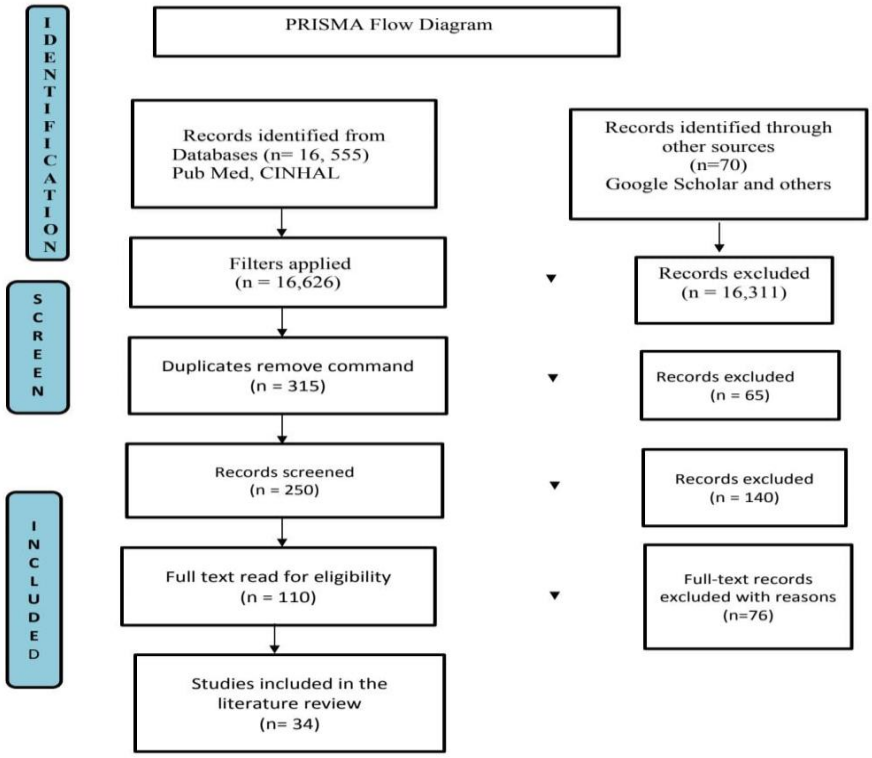
Search Strategy and Selection Criteria

A structured literature search was conducted using CINHAL, PubMed, Google Scholar, and ResearchGate. Search terms included “sleep quality,” “critical care nurses,” “sleep disturbance,” “shift work,” and “stress among nurses.” The inclusion criteria comprised empirical, peer-reviewed articles published

between 2018 and 2024, written in English, and focusing on sleep quality among nurses in hospital settings. Excluded were dissertations, non-peer-reviewed reports, and studies conducted outside the healthcare workforce.

The initial search yielded 16,625 records. After removing duplicates, titles and abstracts were screened for relevance, followed by full-text review. In total, 34 studies met the eligibility criteria and were included for detailed analysis. The study selection process was guided by the PRISMA framework to ensure transparency and reproducibility.

Fig-1: PRISMA Flow Chart



Global Evidence on Sleep Quality Among Nurses

Globally, the prevalence of poor sleep quality among nurses ranges from 40% to 80%, varying by measurement tools and clinical settings. For example, Fang et al. (2019) reported that 45.9% of oncology nurses in China experienced poor sleep quality, while Zeng et al. (2020) found that 61% of nurses exhibited insomnia-like symptoms. In South Korea, Park et al. (2018) revealed that nearly 80% of clinical nurses suffered poor sleep quality, which was linked to workload and emotional distress. Similarly, Suleiman et al. (2020) reported that 92.1% of emergency nurses in Jordan experienced poor sleep. In Iran, Khatony et al. (2020) found that 77% of nurses, particularly those working night shifts, reported poor sleep quality. These findings consistently highlight occupational stress, extended working hours, and irregular shift patterns as key global determinants of sleep deprivation among nurses.

Regional and Pakistani Evidence

In South Asia, including Pakistan, studies reveal a concerning prevalence of poor sleep quality among nurses. In Karachi, Alam et al. (2023) reported that 65% of nurses experienced low sleep quality, largely due to work-related stress and cultural expectations placed on female nurses. Similarly, in Peshawar, Arif (2020) found that

74.9% of nurses reported significant sleep disturbances, with rotating-shift workers being particularly affected. Comparable trends have been observed in neighboring countries, including India (46.3%), Bangladesh, and Nepal, indicating a broader regional occupational health concern (Van Nguyen & Liu, 2022).

These studies highlight the impact of sociocultural and institutional constraints such as inadequate rest facilities, limited access to psychological support, and inconsistent shift schedules on nurses' sleep and overall well-being.

Contributing Factors to Poor Sleep Quality

Several interrelated factors contribute to poor sleep quality among critical care nurses (CCNs). Occupational stress and emotional strain are among the most frequently reported determinants (Huang et al., 2018). Long working hours and rotating shift schedules disrupt circadian rhythms, leading to sleep disturbances (Kang et al., 2021). Additionally, high workload intensity and the cognitive demands of critical decision-making contribute to mental fatigue and insomnia. Environmental factors, including excessive noise, daytime light exposure, and the absence of adequate rest areas, further exacerbate sleep disruption (Díaz Ramiro et al., 2020). In South Asia, cultural expectations and traditional gender roles add an extra burden, particularly on female nurses who often juggle household responsibilities after night shifts (Alam et al., 2023).

Impacts of poor sleep on health and performance

Poor sleep among nurses is linked to significant physical, cognitive, and psychological consequences. Research indicates increased fatigue, emotional instability, and reduced clinical accuracy among sleep-deprived nurses (Mobarak et al., 2023). Such impairment elevates the risk of errors, including medication mistakes and delayed patient responses (Van Nguyen & Liu, 2022). Psychological effects commonly reported include irritability, depression, and emotional disengagement (Suleiman et al., 2020). Physically, chronic poor sleep has been associated with cardiovascular strain and immune system dysfunction (Hsu et al., 2021). Collectively, these outcomes not only jeopardize patient safety but also contribute to higher nurse turnover and reduced workforce retention.

Coping Mechanisms and Institutional Support

Nurses utilize a variety of coping strategies to manage sleep deprivation, including sleep hygiene practices, relaxation techniques, and spiritual activities such as prayer and meditation (Albakri et al., 2024). Behavioral modifications such as reducing screen time before bed, using blackout curtains, and maintaining optimal room temperature have also been reported to improve sleep quality (Zeng et al., 2020). However, the effectiveness of these individual strategies is often constrained by irregular shift patterns and organizational limitations.

Institutional support plays a critical role in addressing sleep-related challenges. Interventions such as structured shift scheduling, availability of designated rest areas, and access to mental health counseling have been associated with improved sleep quality among nurses (Hsu et al., 2021). Hospitals that implement such measures report not only enhanced staff well-being and job satisfaction but also better clinical performance and patient outcomes (Tarhan et al., 2018).

Research Gaps and Future Directions

Although considerable research has investigated nurses' sleep quality globally, there remains a paucity of studies addressing the specific contextual challenges faced by Pakistani critical care nurses. Future research should focus on the complex interplay between cultural expectations, institutional policies, and occupational stressors within this population. Employing mixed-methods and longitudinal designs would enable a comprehensive assessment of both subjective experiences and objective measures of sleep quality. Moreover, intervention-based studies evaluating the effectiveness of organizational reforms such as shift standardization and scheduled recovery breaks are essential to inform evidence-based practices for hospital administrators and policymakers.

Conclusion

Sleep quality is a vital determinant of nurses' health, well-being, and clinical performance, yet it remains significantly compromised in critical care settings worldwide. This review highlights the urgent need for organizational and policy-level interventions that support adequate rest, emotional resilience, and predictable work schedules. Enhancing sleep quality among critical care nurses is essential not only for safeguarding their physical and mental health but also for improving patient care outcomes and strengthening the overall resilience of healthcare systems.

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