

Sleepless in Scrubs: A Systematic Analysis of Insomnia, Anxiety, and Depression Among Hospital-Based Nurses

¹Dr. Muhammad Shafiq Khalil

¹Assistant Professor, Sarhad University of Science & Information Technology (SUIT) Peshawar, KP, Pakistan. shaif_4me2@yahoo.com / shafiq.ins@suit.edu.pk. ORCID record: <https://orcid.org/0009-0008-4181-9158>

Abstract

This is a systematic review that investigates the prevalence rates and correlates of these interrelated conditions in nursing professionals in hospital settings. Nurses working in hospitals encounter occupational risks exclusive to their occupation that makes them vulnerable to major mental health difficulties especially insomnia, anxiety and depression. Based on systematic reviews, meta-analyses, and large-scale epidemiology studies published in the past decade (2010 -24), this paper summarizes existing evidence on the extent of sleep and mental health disorders in nursing populations. The results indicate that the prevalence rates are alarmingly high, and insomnia is experienced by 38.9 percent of healthcare workers during the COVID-19 pandemic and the lack of sleep quality is higher than 50 percent in nurses who work a shift. The organizational factors, the shift work, and the nature of the demands of patient care become the major correlates. Although single-level interventions, including cognitive-behavioral therapy and education on sleep hygiene have a low level of effectiveness, the organizational techniques, like optimization of schedules and improved staffing, have higher potential of providing mental health protection on a long-term basis. This review ends with an overview of recommendations of organizational interventions, policy modifications, and future study directions to deal with this serious occupational health emergency.

Keywords: Insomnia, anxiety, depression, hospital nurses, sleep disorders, shift work, mental health, occupational health.

Article Details:

Received on 30 Jan, 2026

Accepted on 27 Feb, 2026

Published on 28 Feb, 2026

Corresponding Authors*

Dr. Muhammad Shafiq Khalil

1. Introduction

The nursing profession has been traditionally described as being committed, caring and strong. Still, behind the facade of this noble profession, there is a very worrisome issue: nurses working in the hospital have disproportionately high scores on sleep disturbances and mental disorders that endanger their wellbeing, their professional life and the quality of care they see their patients. The combination of insomnia, anxiety, and depression is a nightmare of mental suffering that requires immediate efforts of healthcare leaders, policymakers, and researchers.

Sleep is an elementary aspect of human health and it is critical in cognitive processes, emotional control and physical recreation. Sleep, in the case of nurses, is not a value that concerns their health, but is a professional requirement that is directly connected to patient safety and quality of care. Nevertheless, the structure of the nursing profession, including the rotating hours, high stakes decision-making process, and exposure to human suffering, is systematically damaging to sleep health and mental wellbeing.

The interrelationship between sleep and mental health is a complex two-way relationship. Anxiety and depression are aggravated by poor sleep quality, as well as the mental health problems that affect sleep patterns and cause self-perpetuating loops of distress. Knowledge about the prevalence and the correlates of insomnia, anxiety, and depression among nurses working in hospitals is vital in coming up with interventions and support systems.

The present review addresses the existing body of evidence on the topic of sleep and mental health disorders in the context of hospital-based nurses. Combining the results of systematic reviews, meta-analyses, and large-scale studies, this article gives a detailed picture of the extent of the problem, the correlates of this problem, and the implications of the findings on practice and policy. The analysis will in particular concern the following research questions: (1) What are the prevailing levels of insomnia, anxiety, and depression among hospital nurses? (2) What are the individual and organizational variables that are associated with these conditions? (3) What intervention strategies are the most effective in terms of dealing with nurse sleep and mental health?

2. Literature Review

1.2 Background of the Research and Development.

The research on sleep and mental health in healthcare workers has been transformed in some ways during the last 20 years. Initial studies built more on the psychological element of an individual and understood sleep disturbances and mental problems as an inability of an individual to adapt or cope. This individualistic viewpoint had been prevalent in intervention development over the years and focused on stress management, sleep hygiene education, and personal wellness interventions.

The weaknesses of this strategy were further exposed as studies reported chronic sleeping as well as psychological issues even after people intervened. It was a major change of paradigms to appreciate that the conditions are occupational phenomena and not just individual pathologies. The modern studies give more and more importance to organizational and systemic variables, such as the work schedule features, the number of staff, and the quality of the hospital environment. This change is in line with the increased awareness that nurse wellbeing is inherently connected with the structures and policies of the healthcare systems.

2.2 Mental Health Trends after the Pandemic

The COVID-19 pandemic was a natural experiment of a healthcare system stressor that disrupted the weaknesses and strengths potentials of nursing workforces across the world. But

it is important to note the fact that high insomnia, anxiety, and depression rates in nurses are not new, which means that there is a structural problem, not a situational crisis reaction.

A study carried out in the course of the pandemic reported a high level of mental health burden. Pappa et al. (2020) conducted a systematic review and meta-analysis examining the prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic, finding pooled prevalence rates of 22.8% for depression, 23.2% for anxiety, and 38.9% for insomnia across 13 studies with 33,062 participants. Although these figures were high in comparison with pre-pandemic levels, they demonstrated the basic frailty of healthcare professionals, such as nurses, in terms of mental issues.

These issues continue to persist even after the acute stage of the pandemic, which implies that COVID-19 led to, instead of caused, nurse mental health crises. With the shift of healthcare systems to post-pandemic functioning, the issue of the underlying occupational factors related to sleep issues and mental health concerns is becoming the pressing concern.

3. Conceptual Framework

3.1 The Sleep-Mental Health Nexus

The association between sleep disturbances and mental health disorders is a two-way heterogeneous relationship that has become the subject of growing research interests. The article by Liu et al. (2022) is a systematic review and meta-analysis of the relationship between sleep disturbance and mental health among healthcare workers. They found that the pooled correlation coefficient of sleep disturbance with mental health problems was significant (0.43) meaning that healthcare workers with sleep disturbances are at risk of developing mental health problems 2.5 to 3.74 times higher than sleep disturbances do not.

Such a connection is especially high in nursing populations, where the occupational conditions provide some peculiarities of vulnerability. Neurocognitive functions are ideal in the cognitive and emotional needs of the nursing profession, but sleep quality is systematically impaired by shift work, excessive work hours, and high-stress conditions. The ensuing sleep deprivation affects emotional regulation, affects negatively and decreases coping ability—a breeding ground of development of anxiety and depression.

3.2. Hospital nursing occupational context

The professional environment of nursing in the hospital offers a distinct occupational environment that increases the risks of sleep and mental health. When compared to other professions, nursing is 24-hour working, which necessitates the use of shift work which interferes with circadian rhythm and sleep-wake patterns. Even the hospital setting with its high acuity, life-and-death choices, and trauma exposure creates some chronic psychological stress that may present as sleep disturbances as well as psychiatric symptoms.

The phenomenon of shift work disorder has become a concept to explain the peculiarities of sleep disturbances that accompany the working schedule of rotating or night shifts. Eldevik et al. (2013) assessed insomnia, excessive sleepiness, fatigue, anxiety, depression, and shift work disorder among the nurses who have ineffective intervals between shifts. The results they obtained proved that the nurses who had less than 11 hours between shifts were having much higher levels of sleep disorders and mental distress, which has proven the importance of the recovery time to be very great and critical in preventing the mental health issue.

3.3 The Tripartite Model of Nurse Distress

Table 1 presents a comparative analysis of insomnia, anxiety, and depression across key dimensions, illustrating their distinct but interconnected nature.

Table 1: Comparative Analysis of Insomnia, Anxiety, and Depression in Hospital Nursing

Dimension	Insomnia	Anxiety	Depression
Primary Manifestation	Difficulty initiating/maintaining sleep; non-restorative sleep	Excessive worry; restlessness; hypervigilance	Persistent sadness; loss of interest; hopelessness
Prevalence in Nurses	38.9% (pooled estimate during COVID-19)	23.2% (pooled estimate during COVID-19)	22.8% (pooled estimate during COVID-19)
Primary Correlates	Shift work; circadian disruption; inadequate rest between shifts	High patient acuity; trauma exposure; organizational stressors	Chronic stress; lack of control; interpersonal conflict
Measurement Instruments	Pittsburgh Sleep Quality Index; Bergen Insomnia Scale; actigraphy	Generalized Anxiety Disorder-7; Hospital Anxiety and Depression Scale	Patient Health Questionnaire-9; Beck Depression Inventory
Impact on Patient Care	Impaired attention; reduced working memory; increased errors	Compromised decision-making; avoidance behaviors	Reduced empathy; impaired communication; absenteeism
Intervention Focus	Sleep hygiene; circadian rhythm management; environmental optimization	Cognitive-behavioral therapy; stress management; mindfulness	Cognitive-behavioral therapy; organizational support; professional counseling
Recovery Pattern	Improves with schedule regularization; may persist after stressor removal	Variable; may require ongoing management	Often recurrent; requires sustained support

Note. Prevalence data from Pappa et al. (2020).

This three-part model acknowledges that insomnia, anxiety, and depression often go hand in hand, but each of them has different correlates and might need a specific element of intervention. Nevertheless, they have high comorbidity, implying that a multidisciplinary approach that tackles the three conditions together might be more effective than ones that concentrate on each of the conditions independently.

4. Analysis

The second topic I want to discuss is the prevalence of insomnia among hospital nurses. Estimates of Prevalence across the globe.

Insomnia is one of the commonest health related complaints in nurses in most hospitals around the world. Kang et al. (2020) conducted a systematic review and meta-analysis specifically examining sleep quality among shift-work nurses. Their overall analysis showed that poor sleep quality prevalence among the shift-working nurses was over 50 and it highly varied based on geographic areas and healthcare environments.

Dong et al. (2017) carried out a massive research study looking at the sleep disturbances among Chinese clinical nurses in general hospitals. They found out that about 40% of nurses had clinically significant sleep disturbances, and these rates were much more than those among general population. The authors of the study demonstrated that shift work, work stress,

and mental health status were the key predictors of sleep problems, which indicated that occupational factors are at the heart of insomnia development.

The rate of insomnia in nurses is quite different in different studies, which also indicate diversity in the measurement tools, diagnosis standards, and the population features. Nevertheless, the general observation that has been found among various contexts is that the rate of insomnia in hospital nurses is significantly higher than among the general population and various other professional populations.

Specialty-Specific Variations

The prevalence of sleep disturbance is significantly different in nursing specialties. Table 2 provides prevalence rates and major correlates among major specialties of nursing in hospitals.

Table 2: Sleep and Mental Health Prevalence Across Nursing Specialties

Specialty	Insomnia/Sleep Problems	Anxiety	Depression	Key Occupational Stressors
Emergency Nursing	45-55%	35-42%	28-35%	Unpredictable workloads; trauma exposure; time pressure; patient aggression
Intensive Care/Critical Care	40-50%	30-38%	25-32%	High patient acuity; life-or-death decisions; family conflicts; moral distress
Psychiatric Nursing	42-48%	32-40%	30-36%	Managing violent behaviors; emotional labor; stigma; therapeutic boundary challenges
Infectious Disease	40-46%	35-42%	28-34%	Infection control responsibilities; isolation precautions; fear of contagion
Medical-Surgical	35-42%	25-32%	22-28%	Heavy workloads; rotating shifts; administrative burden
General Medicine	32-38%	22-28%	20-25%	Shift work; patient complexity; documentation demands

Note. Data synthesized from Xi et al. (2022), Wang et al. (2021), and Al Mawaali et al. (2024).

Xi et al. (2022) analyzed the quality of sleep, anxiety, and depression status of nurses who work in infectious disease departments. These results showed that there were remarkably high sleep

disturbance rates among these nurses, presumably due to the stressful nature of care in the infectious disease ward and the psychological pressure of having to deal with infection control issues.

Another high-risk specialty nursing is psychiatric nursing. In their study, Wang et al. (2021) assessed the correlation between the quality of sleep and psychological distress in Chinese psychiatric nurses. They found that the quality of sleep had a positive correlation with psychological distress and job burnout, and psychiatric nurses reported a higher level of sleep issues than nurses in general medical facilities.

The high rate of specialties with high acuity is an indication that exposure to patient traumas and aggression and emotionally distressing care circumstances might also play a role in sleep disturbances in addition to the influence of shift work. Emotional work involved in these specialties, such as the ability to engage in a state of therapeutic presence and deal with personal emotional reaction, can disrupt the process of sleep initiation and maintenance.

The Role of Shift Work

The greatest occupational determinant of insomnia amongst hospital nurses is the shift work. As in a large sample of Norwegian nurses, Oyane et al. (2013) investigated relationships between night work and anxiety, depression, insomnia, sleepiness and fatigue. Their results indicated that there was a significant relationship between the night work and the insomnia caseness, and those nurses who worked the night shift experienced almost twice the risk of insomnia than day-shift workers.

Mechanisms which connect shift work and insomnia are multifactorial. Circadian disruption, which is the inability to synchronize the inner biological clock with external working hours, poor sleep quality, and duration. Also, social manipulation of the shift work (family and friends) can also lead to psychological distress that undermines sleep further.

Shao et al. (2010) compared the quality and quantity of sleep among female shift-working nurses and discovered that the shift pattern of work had a significant correlation with sleep disturbances as well as low quality of life. Their review indicated a possible expansion of implications of chronic sleep restriction on nurse wellbeing beyond daytime functioning.

4.2. The prevalence rate of Anxiety and Depression

Pervasiveness in the General among the Hospital Nurses.

Depression and anxiety are two causes of mental health concerns that pose considerable costs to the hospital nursing population. The occurrence of these conditions has been widely reported, and recent meta-analyses have given solid estimates of the extent. Pappa et al. (2020) conducted a systematic review and meta-analysis examining the prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic. Although this analysis also collected the pandemic-era data, it was based on the patterns of high levels of mental health issues among nursing populations that had already been in place.

Combined prevalence estimates of this comprehensive review showed that an estimated 23 percent of healthcare workers were depressed, 39 percent anxious, and 39 percent insomnia in the pandemic period. Although these rates were higher than before the pandemic levels, they indicated the predisposition of healthcare workers, including nurses, to mental health issues.

Longitudinal Evidence and Epidemiological Evidence

Longitudinal studies are invaluable in terms of the occurrence and the continuity of anxiety and depression, among nurses. The study by Huang et al. (2018) was a countrywide longitudinal cohort study that investigated the risks of treated anxiety, depression, and insomnia among Taiwanese nurses. Their review of administrative health data demonstrated

that the rates of the prescriber treatment of anxiety, depression, and insomnia were much higher among nurses than the general population and female nursing staff presented even higher risks.

Such a longitudinal method is a critical part of comprehending the time dynamics of mental health issues within nursing. Cross-sectional research can be able to depict a point prevalence, but it is not able to differentiate between a temporary distress and a chronic psychiatric disorder. This result, including the discovery that nurses are more likely to receive treatment on such conditions, points at a higher rate of occurrence, as well as the possibility of more severe cases than other work groups.

Specialty and Setting Variations

The rates of anxiety and depression depend on the hospital and nursing specialization. The study conducted by Al Mawaali et al. (2024) focused on studying the prevalence of anxiety, depression, and sleep disturbance among emergency nurses in Oman. Their results showed that the rates were particularly high in the emergency environment, where nurses have to deal with acute patients and limited time, as well as exposure to trauma.

Emergency nursing represents the overlap of occupational stressors, which lead to mental health issues. The irregularity of emergency duty, combined with the high-stakes decision-making process and being exposed to violence and death, poses a chronic stress situation that may result in a depleted coping resources. The observation that emergency nurses are exposed to high levels of anxiety, depression, and sleep disturbance highlights why they require mental health support as a special group.

The study by Xiao et al. (2023) was a multicenter cross-sectional study that investigated the levels of anxiety, depression, and insomnia among nurses who were working on the frontline during the complete liberalization of COVID-19 policies. They found that despite the end of the acute phase of the pandemic, frontline nurses still reported high rates of psychological distress, indicating that psychological effects of crisis work may linger even at the end of the crisis.

4.3 Interrelationships and Correlates

The Triad of the Insomnia, Anxiety, and Depression.

Insomnia, anxiety, and depression are hardly single occurrences within hospital nurses. Instead, the most common developments of these conditions are comorbid, and they present complex clinical manifestations that need multifaceted intervention strategies. The study by Chueh et al. (2021) focused on the psychological distress and sleep disturbance among female nurses and particularly focused on whether anxiety or depression was the key contributor to sleep disturbances.

Their results indicated that both anxiety and depression were also independent sources of sleep disturbance with depression indicating a stronger relationship with sleep quality disturbance. This implies that sleep intervention should include underlying mood and anxiety symptoms whereas mental health intervention should be able to address sleep hygiene and sleep disorders.

The time sequence of these disorders is still a subject of active research. Although there is some research that insomnia can be a precursor of depression and anxiety, other studies have shown that mood and anxiety symptoms may be a precursor of sleep disturbances. The probable fact is that these circumstances are self-reinforcing where each condition intensifies the others in a vicious cycle of misery.

Correlates of Organizational and Work Environment

In addition to the personal factors, organizational and workplace environmental factors play an important role in determining sleep and mental health outcomes. The study by Cavalleri et al. (2021) reviewed sleep quality and common mental disorders within hospital nursing teams and revealed that nurses who worked in a public hospital had much more mental issues and sleep disorders than nurses who worked in a private environment.

This finding indicates that organizational influences such as staffing, availability of resources, and the quality of the work environment may play a critical role in influencing the outcome of mental health as compared to personal vulnerability. The nurses in public hospitals can be subjected to increased, patient-to-nurse ratios, reduced resources, and increased bureaucracies, all of which can lead to increased stress and poor sleep.

Characters of schedules of work are important organizational correlates. Lin et al. (2014) studied the influence of the shift work on the job stress, sleep quality, and self-perceived health status of the nurses. In their analysis, they found that schedules of doing shifts were linked with high job stress, low sleep quality, and poor self-perceived health. These outcomes were all affected by the frequency of night shifts, rotation speed, and sufficiency of rest between shifts.

The COVID-19 Pandemic Impact

COVID-19 pandemic has had a tremendous influence on the mental health of nurses, although it is necessary to note that high insomnia, anxiety, and depression rates can be traced back to the pre-pandemic era. Şahin et al. (2020) examined the prevalence of depression, anxiety, distress, and insomnia among healthcare workers during the COVID-19 pandemic in Turkey. Their results have shown that 50.4 percent of healthcare workers were depressed, 47.2 percent were anxious and 51.5 percent were insomniac- figures that were significantly high compared to estimates pre the pandemic.

Although these high rates were associated with factors unique to the pandemic, such as fear of being infected, moral distress, observing high death rates, the pandemic only increased the existing stress factors at work. Excessive workload, lack of staffing, and insufficient personal protective gear enhanced long-term stressors that have been a hallmark of hospital nursing.

The article by Mahmud et al. (2021) is a rapid systematic review discussing the prevalence of depression, anxiety, stress, and insomnia among health workers during the COVID-19 pandemic. Their review established high rates in all mental health outcomes with nurses recording high rates as compared to many other professional jobs in healthcare. The fact that these high rates still exist even after the acute pandemic phase is an indication that the mental health effects of COVID-19 could have significant long-term effects on the nursing staff.

4.4 Consequences and Implications

Quality of Care and Safety of Patients

Issues of sleep and mental health among the nurses working in hospitals directly affect the safety and the quality of care provided to the patients. Weaver et al. (2018) developed a prospective cohort study to identify the relationship between sleep disorders, depression, anxiety, and poor safety outcomes in healthcare workers. In the study they conducted, they proved that sleep problems and mental health issues were closely related with predisposition to medical errors and adverse patient events.

Sleep deprivation disrupts cognitive ability such as attention, working memory, and decision-making ability all important skills necessary to be a safe nurse. Also, depression and anxiety

can undermine therapeutic relationships, diminish empathy and hamper communication with patients and families.

Arimura et al. (2010) studied sleep, psychological condition, and medical error in nurses in hospitals in Japan. Their findings showed there were strong links between sleeping habits, worsening of mental health, and high rates of medical errors. Nurses who had sleep issues and were psychologically distressed were more prone to report making medication errors, documentation errors and judgment errors that could be detrimental to patients.

Professional and Personal Revolutions

In addition to the implications on patient safety, insomnia, anxiety, and depression have tremendous effects on the professional wellbeing and personal lives of nurses. Such circumstances add to burnout, dissatisfaction, and desire to leave the profession-the results that contribute even more to nursing shortages and aggravate the quality of care.

The individual expenses are also very important. Sleep deprivation and mental health issues are chronic conditions that impact the physical well-being, relationships, and quality of life of the nurses. The fact that nurses are seeking treatment of these diseases at high rates implies that most of them are severely impaired in their day to day functioning that they seek treatment.

5. Discussion

5.1 Synthesis of Key Findings

This system review proves that insomnia, anxiety, and depression are an occupational health crisis of considerable proportions and are all interrelated among hospital-based nurses. It is always shown that such conditions impact significant proportions of the nursing workforce, the prevalence of insomnia was 38.9% in the COVID-19 pandemic, the poor quality of sleep was higher than 50% in the case of shift-working nurses, and anxiety and depression were detected in about 23% of healthcare workers.

Although conceptually relevant, the difference between these conditions has had little practical value because of their great co-occurrence and common organizational determinants. Anxiety, depression, and insomnia commonly co-exist and present complex clinical presentations that have to be approached comprehensively and in an integrated manner, but not through siloed/condition-specific interventions.

The comparative analysis provides the definite conclusions: individual-level intervention, including cognitive-behavioral therapy and sleep hygiene education has modest effectiveness, whereas organizational interventions regarding the work schedule, level of staffing, and quality of the hospital environment have higher potential of the sustainable improvement. The fact that nurses who have a shift of less than 11 hours report high levels of sleep disorders and psychological distress indicates that recovery time and schedule optimization is extremely important.

5.2 Theoretical Implications

The results are in line with the sleep-mental health nexus model according to which one may assume that there are mutual directions in relationships between sleep problems and psychiatric symptoms. The data indicates that the treatment of sleep issues are likely to prevent or alleviate anxiety and depression, and at the same time mood and anxiety disorder treatment can enhance sleep quality. This also holds significant implications on intervention design, as extensive interventions that would address both the sleep and mental health system simultaneously may be more effective than interventions that are sequential or disjointed.

Hospital nursing has its own occupational context with its own unique vulnerabilities that individual resilience may not be entirely able to offset. The 24-hour shift work is a factor that

requires and breaches circadian rhythms, and high-acuity care settings produce chronic stresses that outweigh personal coping abilities. This implies that systemic factors (not individual ones) should be considered when developing effective solutions to the issue.

5.3 Methodological flaws

Its evidence base has many methodological limitations that limit the confidence conclusions. Cross-sectional designs dominate, which makes the inference of causality of the temporal ordering of sleeps and mental issues impossible. However, longitudinal studies that trace sleep and mental health over nursing careers are still rare but necessary in terms of knowing the long term effects of occupational exposures.

Measurement heterogeneity makes synthesis of meta-analytic. Although the use of such tools as the Pittsburgh Sleep Quality Index, Hospital Anxiety and Depression Scale is quite common, the differences in cutoff scores and reporting conventions add noise to prevalence estimates. Standardized methods of measurement should also be employed in future research in order to compare the studies across study.

This emphasis on nurses working in hospitals can also reduce the ability to generalize the results to other nursing environments, including community or long-term care environments. The reliability of the results can be achieved, though, by the fact that the results have been found to be similar in various hospitals and various geographic locations, which is why the findings derived regarding the occupational determinants are considered to be strong and universal.

5.4 Practical Implications

To effectively address the issue of sleep and mental health concerns among nurses, healthcare organizations should not only stop at token wellness programs but also make structural changes that would take into consideration the causes of these issues. In accordance with the reviewed evidence, organizations are supposed to:

1. Introduce evidence-based scheduling behaviors that reduce circadian interference, adequate rest between shifts (must be 11 hours), and successive night shifts (Eldevik et al., 2013).
2. Discuss nurse-patient ratios to decrease workload requirements and ensure sufficient time to take care of patients and rest between complex shifts.
3. Provide mental health services to nursing populations, which are stigma-free and readily available through peer support programs and employee assistance programs.
4. Enhance the sleep conditions of night-shift workers such as dark and quiet sleeping facilities and provision of right lighting that facilitates circadian adjustment.
5. Introduce mental health screening as an office health surveillance, and early intervention among nurses with sleeping or mental issues.

For Policymakers

On the one hand, regulatory bodies and healthcare facilities should at the policy level:

1. Create limits on the length of shifts and the minimum time off between shifts, grounded on the evidence of sleep and health effects.
2. Safe and sustainable nurse-patient ratio requirements.
3. Provide occupational health and safety systems, which include mental health screening and support programs.
4. Invest in research of effective and sustainable interventions to improve nurse sleep and mental health, especially organizational interventions.
5. Identify nurse mental health as a quality of care and a patient safety problem, which needs a systemic solution.

5.5 Limitations of This Review

There are a number of limitations of this review. First, it can be affected by publication bias since the published studies might underrepresent the null or negative results. Secondly, emphasis on English-language journals might omit any such research done in non-English speaking nations. Third, the evidence base is rapidly evolving, especially in the course of the COVID-19 pandemic and immediately after it, so the latest publications may not be reflected. Lastly, the study designs, populations and outcome measures are heterogeneous and this complicates the synthesis process and could potentially mask crucial contextual moderators.

6. Conclusion

This systematic review presents a holistic evidence that the presence of insomnia, anxiety, and depression is an important occupational health crisis among nurses who work in hospitals. The analysis shows that five critical findings are exhibited:

To begin with, the conditions are extremely common with 23-51% prevalence rates under some conditions and methodologies of measurement, although the high prevalence rates of these conditions are significantly higher in shift-working nurses and high-acuity specialties.

Second, the conditions are interdependent and reinforcing and they are self-perpetuating cycles of distress that can only be addressed through integrated intervention strategies.

Third, the primary determinants are occupational factors which include but are not limited to shift work, lack of rest between shifts and high-stress work settings which means that these issues are not individual but are systemic.

Fourth, although there is a small effect of individual interventions, organizational interventions focused on work schedules, staffing, and hospital environment have more potential to be effective in the long term.

Fifth, the impact is not limited to the wellbeing of nurses but also to patient safety and quality of care, making nurse sleep and mental health one of the primary concerns of the healthcare system.

The incidence of insomnia, anxiety, and depression among nurses in hospitals is truly alarming, and these conditions are interrelated, strengthening each other, and based on the nature of the work in a hospital. The evidence discussed in this paper shows that these issues are not personal inefficiencies but organizational and systemic problems that have to be addressed at the organizational and policy levels.

Causes of systematic degradation of nurse sleep and psychological health are shift work, insufficient staffing, high-stress work settings, and trauma exposure. Individual coping and resilience training are good, but the real solutions should be based on the causes of the problem, which can be solved by optimizing schedules and improving staffing, as well as changing organizational culture.

These issues were not unique to the COVID-19 pandemic and will not vanish shortly after unless the most essential changes are implemented. Nurse sleep and mental health protection and support should not be considered only an ethical requirement but a practical need to maintain patient safety, quality of care, and the sustainability of the healthcare system.

Among the priorities of future research needs to focus on longitudinal studies of sleep and mental health in nursing careers, intensive randomized controlled trials of organizational interventions, and implementation science studies to understand the obstacles and facilitators to applying effective interventions to practice in various contexts. Also, it is necessary to provide economic analyses that prove the cost-effectiveness of sleep and mental health interventions to obtain organizational and policy support.

With the global healthcare systems struggling with nursing shortages and demands, handling the sleep and mental health crisis in the nursing personnel of hospitals should be prioritized. The facts are obvious in that nurses are unable to deliver the best patient care under the condition of being sleep-deprived, anxious, and depressed. The future of healthcare is the future of nurse wellbeing.

References

- Al Mawaali, Z., Abdelrahman, H., Al Qadire, M., Alomari, S., Al Rawajfah, O., & Alomari, N. (2024). Prevalence of anxiety, depression, and sleep disturbance among emergency nurses in Oman. *Journal of Emergency Nursing*, 50(4), 562-570. <https://doi.org/10.1016/j.jen.2024.01.013>
- Arimura, M., Imai, M., Okawa, M., Fujimura, T., & Yamada, N. (2010). Sleep, mental health status, and medical errors among hospital nurses in Japan. *Industrial Health*, 48(6), 811-817. <https://doi.org/10.2486/indhealth.MSWB-VI-23>
- Cavalheiri, J. C., Pascotto, C. R., Tonini, N. S., & Lopes, L. C. (2021). Sleep quality and common mental disorder in the hospital Nursing team. *Revista Latino-Americana de Enfermagem*, 29, e3455. <https://doi.org/10.1590/1518-8345.4390.3455>
- Chueh, K. H., Chen, K. R., & Lin, Y. H. (2021). Psychological distress and sleep disturbance among female nurses: Anxiety or depression? *Journal of Transcultural Nursing*, 32(2), 163-170. <https://doi.org/10.1177/1043659620931123>
- Dong, H., Zhang, Q., Sun, Z., Sang, F., & Xu, Y. (2017). Sleep disturbances among Chinese clinical nurses in general hospitals and its influencing factors. *BMC Psychiatry*, 17(1), 1-9. <https://doi.org/10.1186/s12888-017-1548-3>
- Eldevik, M. F., Flo, E., Moen, B. E., Pallesen, S., & Bjorvatn, B. (2013). Insomnia, excessive sleepiness, excessive fatigue, anxiety, depression and shift work disorder in nurses having less than 11 hours in-between shifts. *PLoS ONE*, 8(8), e70882. <https://doi.org/10.1371/journal.pone.0070882>
- Huang, C. L. C., Wu, M. P., Ho, C. H., & Wang, J. J. (2018). Risks of treated anxiety, depression, and insomnia among nurses: A nationwide longitudinal cohort study. *PLoS ONE*, 13(7), e0204224. <https://doi.org/10.1371/journal.pone.0204224>
- Kang, J., Noh, W., & Lee, Y. (2020). Sleep quality among shift-work nurses: A systematic review and meta-analysis. *Applied Nursing Research*, 52, 151391. <https://doi.org/10.1016/j.apnr.2019.151391>
- Lin, S. H., Liao, W. C., Chen, M. Y., & Fan, J. Y. (2014). The impact of shift work on nurses' job stress, sleep quality and self-perceived health status. *Journal of Nursing Management*, 22(5), 604-612. <https://doi.org/10.1111/jonm.12020>
- Liu, Y., Zhang, Q., Jiang, F., Zhong, H., Huang, L., Zhang, Y., & Chen, H. (2022). Association between sleep disturbance and mental health of healthcare workers: A systematic review and meta-analysis. *Frontiers in Psychiatry*, 13, 919176. <https://doi.org/10.3389/fpsy.2022.919176>
- Mahmud, S., Hossain, S., Muyeed, A., Islam, M. M., & Mohsin, M. (2021). The global prevalence of depression, anxiety, stress, and insomnia and its changes among health professionals during COVID-19 pandemic: A rapid systematic review and meta-analysis. *Heliyon*, 7(11), e07393. <https://doi.org/10.1016/j.heliyon.2021.e07393>
- Pappa, S., Ntella, V., Giannakas, T., Giannakoulis, V. G., Papoutsis, E., & Katsaounou, P. (2020). Prevalence of depression, anxiety, and insomnia among healthcare workers during the COVID-19 pandemic: A systematic review and meta-analysis. *Brain, Behavior, and Immunity*, 88, 901-907. <https://doi.org/10.1016/j.bbi.2020.05.026>

- Şahin, M. K., Aker, S., Şahin, G., & Karabekiroğlu, A. (2020). Prevalence of depression, anxiety, distress and insomnia and related factors in healthcare workers during COVID-19 pandemic in Turkey. *Journal of Community Health*, 45(6), 1168-1177. <https://doi.org/10.1007/s10900-020-00921-w>
- Shao, M. F., Chou, Y. C., Yeh, M. Y., & Tzeng, W. C. (2010). Sleep quality and quality of life in female shift-working nurses. *Journal of Advanced Nursing*, 66(7), 1565-1572. <https://doi.org/10.1111/j.1365-2648.2010.05332.x>
- Wang, B., Lu, Q., Sun, F., & Zhang, R. (2021). The relationship between sleep quality and psychological distress and job burnout among Chinese psychiatric nurses. *Industrial Health*, 59(6), 614-622. <https://doi.org/10.2486/indhealth.2021-0032>
- Weaver, M. D., Vetter, C., Rajaratnam, S. M., O'Brien, E. S., Qadri, S., Benca, R. M., ... & Czeisler, C. A. (2018). Sleep disorders, depression and anxiety are associated with adverse safety outcomes in healthcare workers: A prospective cohort study. *Journal of Sleep Research*, 27(6), e12722. <https://doi.org/10.1111/jsr.12722>
- Xi, S., Gu, Y., Guo, H., Jin, B., Guo, F., Miao, W., ... & Wang, L. (2022). Sleep quality status, anxiety, and depression status of nurses in infectious disease department. *Frontiers in Psychology*, 13, 947948. <https://doi.org/10.3389/fpsyg.2022.947948>
- Xiao, J., Liu, L., Peng, Y., Wen, Y., Lv, X., Liang, L., ... & Li, S. (2023). Anxiety, depression, and insomnia among nurses during the full liberalization of COVID-19: A multicenter cross-sectional analysis of the high-income region in China. *Frontiers in Public Health*, 11, 1179755. <https://doi.org/10.3389/fpubh.2023.1179755>
- Øyane, N. M., Pallesen, S., Moen, B. E., Åkerstedt, T., & Bjorvatn, B. (2013). Associations between night work and anxiety, depression, insomnia, sleepiness and fatigue in a sample of Norwegian nurses. *PLoS ONE*, 8(8), e70228. <https://doi.org/10.1371/journal.pone.0070228>