

CARING UNDER STRAIN: A SCOPING REVIEW OF BURNOUT IN INTENSIVE CARE UNIT NURSES

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ABSTRACT

Nurses in intensive care unit (ICUs) experience significant levels of stress due to the complex and emotionally challenging nature of providing critical care, which often involves high stakes. Over time, this stressful environment can lead to burnout, a mental health condition that causes feelings of emotional exhaustion, detachment, and reduced effectiveness. This scoping investigation examine existing studies on the prevalence and risk factors of burnout among ICU nurses. A planned search method was used to look through four main databases: PubMed, ScienceDirect, CINAHL, and Scopus. The search included articles published from 2015 to 2025. This review uses the PRISMA-ScR method, which is built on an Arksey and O'Malley framework. Only studies specifically addressing burnout in ICU nurses were included. Important findings were organized and grouped into various themes. Ultimately, 14 studies were included in the final analysis. Burnout prevalence among ICU nurses varied substantially across settings, ranging from 7.3% in Indonesia to 76.4% in China, with most studies reporting rates exceeding 50%. Emotional exhaustion consistently emerged as the most prominent dimension. Risk factors included younger age, female gender, psychological distress, depression, heavy workload, night shifts, do-not-resuscitate patient care, limited autonomy, workplace violence, and weak supervisory support. Burnout among ICU nurses is a serious problem that impacts the length of time healthcare professionals work and the kind of care they provide. It presents a global, multifaceted challenge with serious implications for the sustainability of the healthcare workforce and patient outcomes.

Keywords: burnout; ICU; intensive care unit; nurses

INTRODUCTION

Burnout has become a critical challenge within modern healthcare systems, reflecting the cumulative toll of chronic occupational stress on healthcare professionals. The symptoms of burnout include depersonalization, emotional weariness, and a decline in one's own performance (Maslach et al., 2001). It represents a substantial danger to healthcare personnel's well-being, as well as the healthcare system's efficacy and viability. Over recent years, attention toward burnout has intensified due to its rising prevalence among nurses, who comprise the majority of the health service profession, routinely experience the physical, emotional, and ethical constraints of caring for patients (Dall'Ora et al., 2020).

Nurses at critical care units (ICUs) are especially susceptible. ICUs represent highly complex environments where patient acuity is elevated, clinical demands are continuous, and exposure to critical or end-of-life situations is routine. Such conditions not only heighten psychological and emotional strain but also amplify ethical dilemmas and moral distress, placing ICU nurses at significant risk for burnout (Edú-valsania et al., 2022; E. G. Oliveira et al., 2019). Studies across multiple countries have consistently reported high rates of burnout in this population, often

exceeding 50%, and the main part of this burnout is emotional strain (Hu et al., 2021; Li et al., 2015).

Recent studies indicate that burnout among ICU nurses is influenced by various factors, including socio-demographic, individual, occupational, and organizational domains. Younger age, female gender, psychological distress, hard workload, and frequent night shifts are all risk factors, whereas resilience, religion, and interpersonal support have been demonstrated to reduce risk (Johnson et al., 2020; Purvis et al., 2019). The impact of organizational issues, particularly those related to nurses' work environments, is significant. Supportive practice environments characterized by adequate resources, managerial backing, teamwork, and professional autonomy have been shown to reduce burnout, whereas environments lacking these attributes exacerbate it (S. M. de Oliveira et al., 2019; Liu et al., 2025; Möller et al., 2021; Wang et al., 2023).

Burnout has far-reaching implications, affecting not just individuals but also organizations and patients. It has been linked to depression, frustration, and ethical problems among nurses, as well as to reduced job satisfaction, higher turnover intention, and threats to patient safety (Abbas et al., 2019; Storm & Chen, 2021; Vincent et al., 2019). Given these far-reaching effects, addressing burnout is not only a matter of individual well-being but also an ethical and strategic priority for healthcare systems striving to deliver high-quality and sustainable care.

Despite the extensive literature, existing studies are often fragmented, examining isolated risk factors or outcomes in specific settings, thereby limiting comprehensive understanding. Variability in measurement tools further complicates cross-context comparisons and hinders the development of cohesive strategies. Accordingly, there is a pressing need for reviews that systematically map the evidence, synthesize determinants and consequences, and highlight protective factors in ICU nursing.

The purpose of this study is to investigate the incident of burnout among ICU nurses as well as identify factors might lead to burnout. It also discusses how burnout affects nurses, their workplaces, and patients. The research analyzed provides a comprehensive account of burnout among ICU nurses, providing guidance on how to avoid it while maintaining the strength of the nursing team.

METHOD

The framework developed by Arksey and O'Malley (Arksey & O'Malley, 2005), revised and supplemented by Levac et al. (2010) and the Joanna Briggs Institute (JBI) served as the basis for the review of the scope technique employed in this study, and organized using the PRISMA-ScR criteria (Levac et al., 2010; Peters et al., 2020; Tricco et al., 2018).

Examining and mapping the literature on burnout among ICU nurses was the aim of this study. Four primary databases were used to conduct a research search: PubMed, ScienceDirect, CINAHL, and Scopus. The following keywords were use in the investigation: burnout AND nurs* AND (ICU OR "intensive care unit" OR "critical care unit"). Nurses in ICU are the subject of this study's Population Concepts Context (PCC) framework, which places special attention on burnout. A subjective measure of burnout is included in this context; self-reported data or other subjective methods will be used to assess it.

The study includes original research articles that were authored in English and releases from 2015 to 2025. These articles must talk about burnout in ICU nurses. Articles that are not in English, are reviews of existing literature, or focus on people who are not intensive care nurses are not included in the study.

RESULTS AND DISSCUSION

The total number of articles discovered was 1.014. The final evaluation had 14 papers after duplicates were eliminated, titles and abstracts were screened, and the complete text was reviewed. Figure 1 presents the selection procedure for included research.

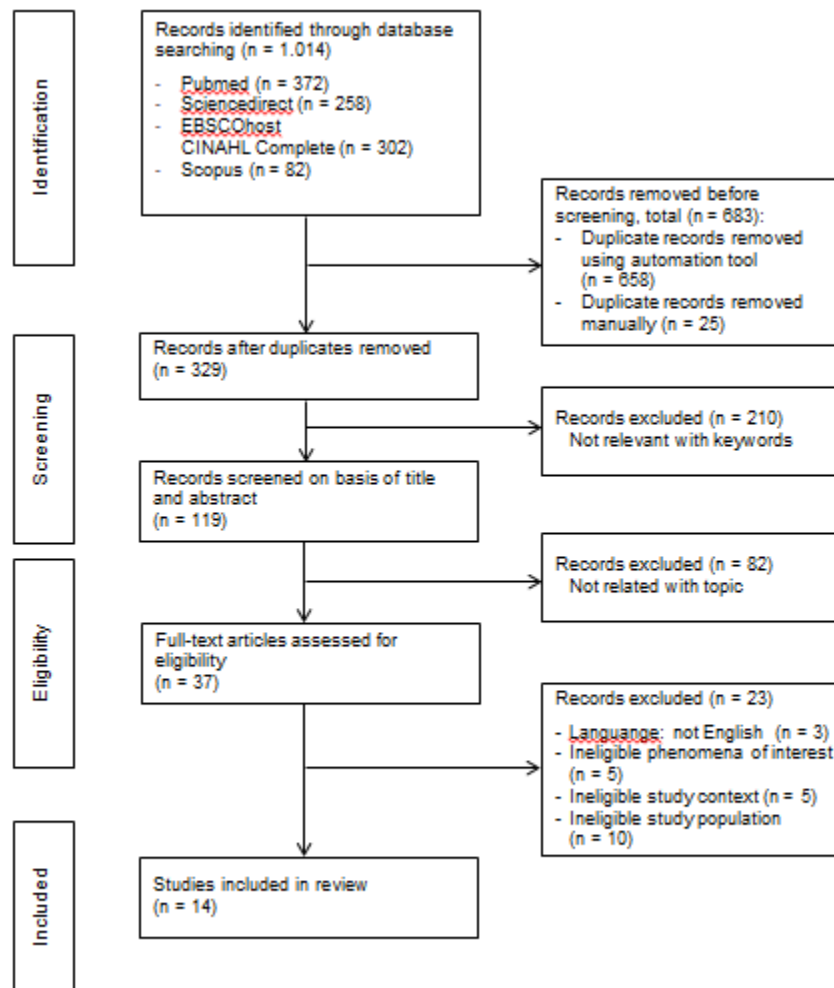


Figure 1. Flowchart of study search and selection

Prevalence of Burnout

Burnout prevalence varied significantly between research. In South America, Brazilian studies reported a prevalence of 53.6% among ICU nurses (de Aragão et al., 2021) and between 19.7%–62.9% among ICU nursing technicians depending on the diagnostic criteria applied (Alves et al.,

2021). Middle East and Africa were known for their frequent burnout. in Egypt, 53.8% of nurses experienced emotional fatigue, and 59.8% showed signs of depersonalization (Abbas et al., 2019), while in Saudi Arabia, the rate of nurses being emotionally exhausted was 84%, and 77% experienced depersonalization (Alharbi et al., 2016). In Asia, prevalence reached 68.3% in mainland China (Hu et al., 2021) and 59.4% in the post-pandemic period (Liu et al., 2025). A multicenter study in 16 Asian countries reported 52% overall prevalence (See et al., 2018). In contrast, the prevalence in Indonesia was notably lower at 7.3% (Juanamasta et al., 2024). Across the United Kingdom, 33% nurses in ICUs were found to be at a high risk of burnout (Vincent et al., 2019), and in Poland, mean burnout scores suggested moderate levels, with 43% reporting high stress (Wudarczyk et al., 2025). The risk of burnout was moderate for ICUs nurses across the United States (Storm & Chen, 2021).

Table 1.
An overview of studies

Author and Year	Country	Sample	Research Design	Result (Key Finding)
de Aragão et al., 2021	Brazil	65 nurses	ICU Cross sectional	Prevalence: 53.6%. Significant factors: smoking (PR=1.84; p<0.05), alcohol consumption (PR=1.45; p<0.05). Non-significant: age, marital status, children, physical activity, work relationships, night shifts, ≥36h workload, second job, ICU specialization, >10 patients/shift, type of ICU, income.
Juanamasta et al., 2024	Indonesia	900 nurses	ICU Cross sectional	Prevalence: 7.3% burnout; ~1% full burnout risk. Significant factors (p<0.05): age, basic salary, incentives, additional responsibilities, motivation, job satisfaction, competence. Non-significant: gender, marital status, education.
Hu et al., 2021	China (Tiongkok)	1289 nurses	ICU Cross sectional	Prevalence: 68.3%. Significant factors: lack of exercise (OR=0.52; p=0.001), comorbidity (OR=1.49; p<0.001), tertiary hospital (OR=1.83; p=0.019), longer experience, more night shifts, fewer annual leave days (p<0.001). Non-significant: weekly working hours, number of children.
Alharbi et al., 2016	Arab Saudi	150 nurses	ICU Cross sectional	Prevalence (ICU focus): high EE 84%, high DP 77%, low PA 42%. Significant factor: workplace (PICU vs adult ICU; p<0.05). Non-significant: age, gender, education, years of experience. Burnout negatively correlated with job satisfaction (r = -0.24 to -0.34, p<0.01).
Abbas et al., 2019	Mesir	234 nurses	ICU Cross sectional	Prevalence: 53.8% high EE, 59.8% high DP, 29.9% low PA; 77.8% moderate overall burnout. Significant factors: conflict with supervisors (p=0.01), conflict with patients/families (p=0.009), ICU type (p<0.001), high patient mortality (p=0.001). Non-significant: working hours, night shifts, marital status.

Author and Year	Country	Sample	Research Design	Result (Key Finding)
Vincent et al, 2019	UK	157 nurses	ICU Cross sectional	Prevalence (nurses): ~1/3 high risk burnout. Significant factors: nurses higher EE vs physicians ($p<0.0005$), younger nurses higher DP ($p<0.0005$), gender differences (female → higher EE $p=0.026$; male → higher DP $p=0.013$). Non-significant: PA across groups.
See et al., 2018	16 countries in Asia	3100 nurses	ICU Cross sectional	Prevalence: 52% (range 34.6–61.5%). Significant factors: religiosity protective ($p=0.003$), work-life balance protective ($p=0.025$), higher education associated with increased burnout ($p<0.05$). Non-significant: length of service, age, gender.
Li et al., 2015	China (Tiongkok)	356 nurses	ICU Cross sectional	Prevalence: EE 76.4%, DP 39.6%, PA 94.9%. Risk factors: low supervisor support (EE & PA, $p=0.001–0.037$), coworker support associated with EE ($p=0.049$), family support associated with DP ($p=0.024$). Protective: older age, longer leave time.
Sok et al, 2020	Korea Selatan	115 nurses	ICU Cross sectional	Prevalence: High burnout (mean CBI score 64.0). Risk factors: sadness ($p < 0.001$), job stress ($p < 0.001$), female gender ($p=0.028$), younger age. Non-significant: older age, longer experience.
Liu et al, 2025	China (Tiongkok)	771 nurses	ICU Cross sectional	Prevalence: 59.4%. Significant factors: teaching hospitals (OR=1.67; $p<0.01$), longer patient ICU stay (OR=1.79; $p<0.01$). Protective: female gender (OR=0.698; $p<0.05$), active participation in epidemic prevention (OR=0.547; $p<0.05$). Non-significant: age, marital status.
Wudarczyk et al., 2025	Polandia	282 nurses	ICU Cross sectional	Prevalence: mean MBI 39.78/100; 43% high stress. Significant factors: high stress associated with burnout; active coping strategies protective. Non-significant: age, gender, education.
Storm & Chen, 2021	USA	52 nurses	ICU Cross sectional	Prevalence: moderate burnout risk. Significant factors: alarm fatigue, compassion fatigue, high nurse-patient ratio, younger age ($p<0.05$). Non-significant: shift type, work experience.
Yanbei et al., 2023	China	479 nurses	ICU Cross sectional	Prevalence: mean burnout score 55.79 (SD=17.20). Risk factors: high work frustration, low income satisfaction, shorter work experience, lower professional title. Protective: perception of support from the organizational ($p = 0.007$)
Alves et al., 2021	Brazil	122 nurses	ICU Cross sectional	Prevalence: 19.7% (Maslach test) and 62.9% (Grunfeld test). Risk factors: connected to depression ($p=0.004$) and comorbidities ($p=0.033$). Non-significant: age, gender, work experience, education, weekly hours, religion, smoking, sedentary lifestyle.

Several socio-demographic variables were associated with burnout. Younger age consistently predicted higher burnout across multiple settings (Javorac et al., 2019; Sok et al., 2020; Vincent et al., 2019). Female gender was significantly associated with greater emotional fatigue (Sok et al., 2020; Vincent et al., 2019), while male nurses reported higher depersonalization (Vincent et al., 2019). Other demographic characteristics like marriage status, level of education, including parental status were inconsistently associated, with several studies reporting no significant effects (de Aragão et al., 2021; Juanamasta et al., 2024).

Individual health behaviors and psychological states played a critical role. Smoking and alcohol consumption were associated with higher burnout prevalence (de Aragão et al., 2021). Nurses who are depressed or under a lot of stress reported significantly elevated burnout rates (Sok et al., 2020). Another risk factor that was found was comorbidities (Alves et al., 2021; Hu et al., 2021). Conversely, older age and longer professional experience were protective factors, reducing susceptibility to burnout (Li et al., 2015; Sok et al., 2020).

Work-related determinants were among the most prominent. High workload, frequent night shifts, and reduced leave were closely linked to burnout (Hu et al., 2021; Liu et al., 2025). Working in teaching or tertiary hospitals posed a greater risk compared with non-teaching settings (Hu et al., 2021; Liu et al., 2025). ICU type was also relevant: pediatric and neonatal units had higher burnout compared with adult ICUs (Alharbi et al., 2016). Care responsibilities involving do-not-resuscitate (DNR) patients were linked to increased burnout (Sok et al., 2020). Additionally, a high number of patients per nurse, alarm fatigue, and compassion fatigue contributed significantly to burnout (Storm & Chen, 2021).

Organizational determinants further shaped burnout outcomes. Conflicts with supervisors, patients, and families were strong predictors of burnout (Abbas et al., 2019). Low perceived organizational support was associated with higher burnout, while supportive environments served as protective buffers (Yanbei et al., 2023). Similarly, dissatisfaction with income and lower professional titles increased vulnerability. In contrast, religiosity and work-life balance functioned as protective organizational-level factors, particularly in multinational Asian contexts (See et al., 2018).

This analysis shows burnout among ICU nurses as a worldwide phenomenon, with prevalence rates frequently surpassing 40–50% across diverse healthcare settings. Emotional exhaustion consistently emerged as the most pronounced dimension, followed by depersonalization and reduced personal accomplishment, reflecting a multidimensional burnout concept (Maslach et al., 2001). However, significant variation in prevalence, from 7.3% in Indonesia to more than 70% in China, underscores the influence of contextual factors, measurement differences, and systemic pressures unique to ICU practice (Choudhary et al., 2022; Edú-valsania et al., 2022). This aligns with Bianchi and Schonfeld's (2023) critique that burnout, while widely studied, remains inconsistently defined and overlaps substantially with depression, highlighting the need for standardized and validated measurement (Bianchi & Schonfeld, 2023).

Risk factors identified in this review encompass socio-demographic, individual, occupational, and organizational domains. Burnout was consistently connected with youth, female gender, and limited work experience (Sok et al., 2020; Vincent et al., 2019; Zeng et al., 2020). Psychological pressure, depression, and low self-esteem intensified vulnerability (Johnson et al., 2020). Resilience and coping skills, on the other hand, are protective against the negative consequences

caused by the strain and demands on emotions (Purvis et al., 2019; Wudarczyk et al., 2025). The facts demonstrate how burnout is not only a result of exposure to external stressors but also of individual differences in coping and psychological resources, suggesting that interventions should simultaneously target both stress reduction and resilience building.

Occupational factors, including heavy workload, frequent night shifts, high patient acuity, and ethical stressors such as do-not-resuscitate care, further exacerbated burnout. These determinants mirror Maslach's six areas of job–person mismatch, namely “workload, control, reward, community, fairness, and values”, which are still at core of theoretical models explaining burnout (Dall'Ora et al., 2020; Maslach et al., 2001). Organizational factors such as weak supervisory support, poor remuneration, interpersonal conflicts, and workplace violence amplified these risks (Abbas et al., 2019; Liu et al., 2025; Wang et al., 2023). Conversely, perceived organizational support, religiosity, and work-life balance emerged as protective buffers (See et al., 2018; Yanbei et al., 2023). The outcomes demonstrate that burnout experienced by ICU nurses is a multifaceted occupational health challenge shaped by the intersection of personal vulnerabilities and systemic conditions.

Importantly, several studies in this review explicitly examined the impact of burnout, providing critical insights into its consequences. Nurses who were burned out had a higher likelihood of leaving their jobs and deteriorating care services (Hu et al., 2021; Abbas et al., 2019), diminished job satisfaction and retention (Alharbi et al., 2016), and increased moral distress and threats to patient safety (Vincent et al., 2019). The individual level of burnout was correlated with depression, stress, compassion fatigue, and decreased empathy abilities (Sok et al., 2020; Storm & Chen, 2021). Moreover, psychological distress arising from burnout contributes to poor organizational commitment and exacerbates workforce shortages (Yanbei et al., 2023). This underscores the ethical necessity of preventing burnout, which is vital for both the well-being of patients and the safety of healthcare professionals.

Collectively, the evidence supports a multilevel approach to burnout prevention: enhancing resilience and coping at the individual level, optimizing staffing and workload distribution at the workplace level, and building supportive, ethical organizational cultures. As Mealer (2020) and Purvis et al. (2019) argue, resilience promotion must be embedded within institutional policies, combining psychological support with systemic reforms (Mealer, 2020; Purvis et al., 2019). Without such comprehensive strategies, the cyclical impact of burnout, lower well-being, and staff turnover rate, as well as a further worsening of patient outcomes, will persist.

CONCLUSION

ICU nurses around the world often experience burnout, a complicated and common issue that arises from various factors including socio-demographic challenges, emotional stress, high expectations in their profession, and problems within the healthcare system. Its effects go beyond human well-being to workforce sustainability and patient safety, resulting in despair, compassion fatigue, moral anguish, turnover, and lower care quality. To address this issue, multilayered interventions are required, including increased individual resilience, improved workload and staffing, and the development of supportive organizational cultures. Burnout must be recognized as both a personal and systemic problem. Future study should improve measurement, use longitudinal and cross-cultural techniques, and assess resilience-promoting and organizational initiatives to assure long-term, high-quality critical care.

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