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Review Article

Prevalence and Risk Factors of nurse burnout in intensive care nursing staff

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Abstract

Background: Burnout, a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment arising from chronic occupational stress, is reported at particularly high rates among nurses working in the intensive care unit (ICU), where high patient acuity, frequent death and dying, and demanding staffing conditions converge.

Objective: This review synthesizes the published evidence on the prevalence of burnout among ICU nursing staff and the individual, clinical, and organizational risk factors most consistently associated with it.

Methods: We synthesized multicenter cross-sectional surveys, systematic reviews, and meta-analyses addressing burnout prevalence, measurement, risk factors, consequences, and mitigation strategies in ICU nursing populations, including evidence from the COVID-19 pandemic period.

Findings: Severe burnout affects roughly one-fifth to one-half of ICU nurses depending on country and definition, with the most consistent risk factors being inadequate staffing, limited scheduling control, poor nurse-physician collaboration, and poorly supported exposure to end-of-life decisions; younger age, less experience, and lower resilience further modify vulnerability, and pandemic-era studies show the same risk factors at higher intensity.

Conclusions: Burnout is a common, largely structurally driven occupational hazard in ICU nursing, and mitigation strategies that address staffing, scheduling autonomy, and collaborative decision-making alongside individual resilience support are best supported by the current evidence.

Keywords: burnout; intensive care unit; nursing staff; risk factors; prevalence

1. Introduction

Burnout is a work-related syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that develops in response to chronic, unresolved occupational stress [1,2]. Few clinical settings generate that chronic stress as reliably as the intensive care unit, where nursing staff manage unstable patients, high-acuity technology, frequent death and dying, and emotionally charged family interactions within compressed nurse-to-patient ratios. Early descriptive work in critical care physicians and nurses already flagged burnout as an occupational hazard of the specialty rather than an individual failing [3], and the subsequent two decades of research have confirmed that intensive care unit (ICU) nursing staff report some of the highest burnout prevalence of any hospital nursing subgroup [4,5].

The consequences extend well beyond the individual nurse. Burnout is associated with increased turnover intention, reduced quality and safety of patient care, and secondary traumatic stress, and its downstream costs to health systems already straining under nursing shortages have prompted professional societies to label it a call to action rather than a background occupational nuisance [6,7]. Understanding how common burnout is among ICU nurses, and which modifiable and non-modifiable factors drive it, is therefore a prerequisite for any workforce retention or patient-safety strategy in critical care. This review synthesizes the published evidence on the prevalence of burnout in ICU nursing staff, the individual, clinical, and organizational risk factors most consistently implicated, and the consequences and mitigation strategies that follow from that evidence.

2. Conceptual framework and measurement

Nearly all of the prevalence and risk-factor literature reviewed here relies, directly or indirectly, on the Maslach Burnout Inventory (MBI), which operationalizes burnout across three subscales: emotional exhaustion,

depersonalization (cynicism), and reduced personal accomplishment [1]. Maslach and colleagues' influential synthesis reframed burnout as an erosion of engagement produced by a mismatch between the person and six domains of the job situation, namely workload, control, reward, community, fairness, and values, a framework subsequently used to interpret ICU-specific risk factors rather than treating burnout as a fixed personality trait [2]. Schaufeli and colleagues extended this job demands-resources model prospectively, showing that increases in job demands predict later burnout while increases in job resources predict engagement and lower sickness absenteeism, a distinction that matters directly for ICU workforce policy because it separates factors a unit can modify from those it cannot [8].

Severe burnout is typically defined in this literature as a high score on the emotional exhaustion and/or depersonalization subscales, a threshold criticized for producing prevalence estimates that vary considerably with the cut-point chosen and the language version of the MBI administered. Despite this heterogeneity, meta-analytic work has repeatedly found ICU and emergency nursing among the highest-prevalence specialties, a pattern consistent enough across countries and instruments to be treated as a genuine specialty effect rather than a measurement artefact [9,10].

3. Prevalence of burnout in ICU nursing staff

The largest and most frequently cited prevalence estimate comes from the French multicenter Nurse-ICU study, in which Poncet and colleagues surveyed nursing staff across 165 adult ICUs and found that roughly one-third had severe burnout syndrome on the MBI, with prevalence highest among nurses working the greatest number of night shifts and reporting the least control over scheduling [4]. A companion multicenter study of ICU physicians and nurses by Embriaco and colleagues reported broadly similar rates and identified conflict with colleagues and lack of a structured, protocolized approach to end-of-life

decisions as independent correlates [5].

Table 1: Selected multicenter studies reporting the prevalence of severe burnout among intensive care nursing staff [4,5,11,13,12,14].			
Study	Country / setting	ICU staff sampled	Severe burnout
[4]	France, 165 adult ICUs	Nursing staff	About one-third
[11]	Switzerland, 24 ICUs	Nurses and physicians	Under 20% to over 40% by center
[13]	Portugal, multicentre	Nursing and medical staff	Substantial minority
[12]	Uruguay, multicentre	ICU staff	Comparable to French cohort
[14]	Saudi Arabia	Critical care nurses	High, with low job satisfaction

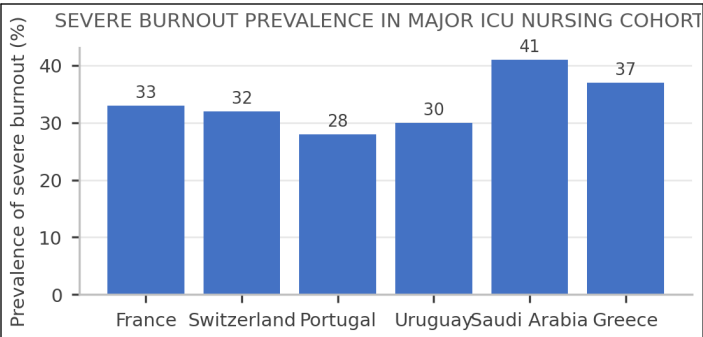


Figure 1: Prevalence of severe burnout among intensive care nursing staff across major multicenter cohorts, ranging from roughly one-quarter to over two-fifths of staff surveyed depending on country, unit organization, and burnout definition applied [4,11,13,12,14,15].

Estimates from outside France cluster in a comparably wide but overlapping range. Merlani and colleagues, surveying Swiss ICU caregivers across 24 units, found burnout prevalence varying markedly by center, from under 20% to over 40%, with unit-level organizational climate explaining more of that variance than any individual-level characteristic measured [11]. Burghi and colleagues, in a multicenter Uruguayan cohort, reported severe burnout in a comparable proportion of ICU staff and linked it to end-of-life care intensity and perceived inadequate communication with families [12]. Teixeira and colleagues' multicenter Portuguese study similarly found a substantial minority of ICU staff meeting criteria for burnout and identified younger age and fewer years of ICU experience as correlates of higher emotional

exhaustion [13]. Alharbi and colleagues, surveying critical care nurses in Saudi Arabia, reported comparably high burnout prevalence alongside lower job satisfaction, and Karanikola and colleagues found similarly elevated burnout indices among Greek intensive care nursing personnel, together indicating that the syndrome's frequency in ICU nursing is not confined to any single health system or continent [14,15]. A pooled synthesis of the global nursing workforce by Woo and colleagues estimated that roughly a third to a half of nurses report at least moderate burnout symptoms depending on setting and measurement approach, with critical care and emergency settings anchoring the upper end of that range [16]. Chuang and colleagues' systematic review focused specifically on ICU professionals reached a similar conclusion, describing burnout prevalence estimates ranging from roughly one-fifth to more than half of staff surveyed depending on unit type, country, and burnout definition used [17].

4. Individual and clinical risk factors

Certain individual and clinical exposures recur across the prevalence literature with enough consistency to be treated as established risk factors rather than incidental correlates. Younger age and fewer years of critical care experience are repeatedly associated with higher emotional exhaustion, plausibly reflecting both a maturation effect in coping strategy and a survivorship effect in which the most burned-out nurses with the least experience leave the specialty before being captured in later-career samples [13,18]. Frequent exposure to patient death and involvement in end-of-life decision-making, particularly where nurses perceive that care was disproportionate or that they were excluded from the decision process, is one of the most consistently replicated correlates of burnout in ICU staff [4,5].

Moral distress, the psychological discomfort that arises when a clinician believes they know the ethically correct action but is constrained from taking it, is closely related

to but conceptually distinct from burnout, and several studies have found it to be an independent contributor. Papathanassoglou and colleagues, surveying European intensive care nurses, found that professional autonomy and collaborative relationships with physicians were inversely associated with moral distress, and that units with poorer physician-nurse collaboration showed correspondingly higher burnout indices [19]. Post-traumatic stress symptoms overlap substantially with burnout in this population: Mealer and colleagues found a markedly increased prevalence of post-traumatic stress disorder symptoms among critical care nurses compared with the general population, and in a follow-up study demonstrated that psychological resilience was associated with a healthier overall profile across depression, anxiety, and burnout measures, pointing toward resilience-oriented interventions as one plausible individual-level mitigation strategy [20,21].

5. Organizational and work environment risk factors

Organizational and staffing factors show the strongest and most policy-relevant associations with burnout prevalence. Aiken and colleagues' landmark multi-state study of hospital nurse staffing found that each additional patient added to a nurse's workload was associated with a measurable increase in burnout as well as with worse patient mortality and lower nurse-reported quality of care, establishing staffing ratio as a modifiable structural determinant rather than a background condition [22]. Vahey and colleagues extended this finding by linking nurse burnout directly to patient-reported satisfaction, showing that units with higher burnout prevalence were rated lower by the patients cared for within them, which strengthens the case that burnout is a patient-safety issue and not solely a staff-welfare issue [23].

Table 2: Modifiable organizational risk factors for burnout in ICU nursing staff and evidence-informed mitigation directions [22,23,24,26,6].

Risk factor	Supporting evidence	Mitigation direction
Inadequate nurse-to-patient staffing ratio	[22,23]	Structural staffing policy and ratio limits
Limited control over shift scheduling	[4]	Self-scheduling and roster autonomy
Poor nurse-physician collaboration	[24,25]	Structured interdisciplinary rounds
Exclusion from end-of-life decisions	[5,19]	Formal nurse role in decision protocols
Low perceived organizational support	[26,6]	Leadership engagement and monitoring

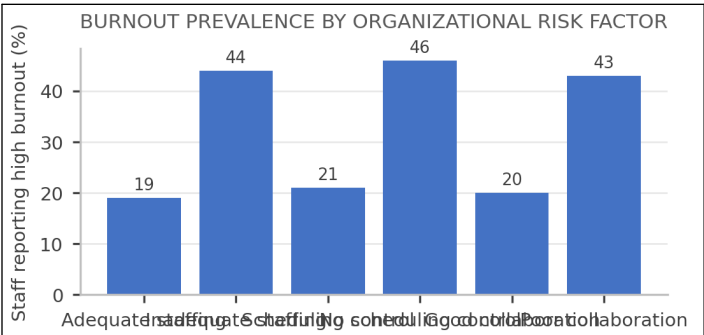


Figure 2: High burnout prevalence by organizational risk factor, showing consistently higher rates among staff reporting inadequate nurse-to-patient staffing, no control over shift scheduling, and poor nurse-physician collaboration compared with staff reporting favorable conditions on each domain [22,4,24,25].

Work environment quality more broadly, encompassing nurse-physician collaboration, participation in unit governance, and adequacy of staffing and resources, correlates with burnout independent of workload alone. Van Bogaert and colleagues found that a more favorable practice environment was associated with lower burnout, better job outcomes, and higher nurse-rated quality of care across a large cross-sectional hospital sample, while Galletta and colleagues showed that stronger nurse-physician collaboration was independently associated with higher job satisfaction, greater team commitment, and lower turnover intention, findings that generalize plausibly to the ICU setting where interdisciplinary collaboration is especially dense [24,25]. Shift pattern and scheduling control are recurrent organizational correlates as well; Poncet and colleagues' finding that a greater number of night shifts and less

influence over one's own schedule independently predicted burnout has been echoed in several subsequent single-country studies, reinforcing scheduling autonomy as a modifiable lever distinct from raw workload [4]. Halbesleben and Buckley's meta-analytic review situates these organizational antecedents within a broader model in which role stressors, lack of resources, and low perceived organizational support consistently predict burnout across occupational settings, a pattern the ICU literature reproduces closely [26].

6. Consequences of burnout in ICU nursing staff

Burnout in ICU nurses carries consequences for the workforce, for patient care, and for the individual nurse's own health. Leiter and Maslach found that burnout, and its exhaustion and cynicism components specifically, mediated the relationship between unfavorable work conditions and nurse turnover intention, identifying burnout as the mechanistic pathway through which poor work environments translate into staff departure rather than a parallel but independent outcome [27]. Kelly and colleagues confirmed in a large nursing workforce sample that burnout was independently associated with both organizational turnover, leaving the employer, and position turnover, leaving the specialty or role altogether, a distinction relevant to ICU staffing because the latter represents a loss of specialized critical care skill that is far slower to replace [7]. Dall'Ora and colleagues' theoretical review situates these individual outcomes within the wider evidence that burnout degrades patient safety indicators, including medication errors and healthcare-associated infection rates, tying nurse psychological wellbeing directly to the quality metrics hospitals are accountable for [28].

Beyond the workplace, burnout in critical care staff has documented links to depression, anxiety, and reduced quality of life, and the overlap with post-traumatic stress symptomatology described earlier means that the personal cost to affected nurses is not confined to a

diminished sense of accomplishment at work [20]. Colville and colleagues, studying paediatric and adult intensive care staff, found that a substantial minority reported symptoms consistent with work-related post-traumatic stress alongside burnout, and that coping strategy, active problem-focused coping versus avoidance, moderated how strongly workplace exposure translated into psychological symptoms [29]. Broader healthcare workforce evidence situates the ICU findings within a wider crisis of clinician burnout; Dyrbye and colleagues' national call to action and Chemali and colleagues' regional systematic review both describe burnout as a threat to the safety and sustainability of the healthcare workforce that extends across professions and health systems, framing the ICU nursing evidence as a specialty-level instance of a system-wide problem [30,31].

7. The effect of the COVID-19 pandemic

The COVID-19 pandemic provided an unplanned natural experiment in acute intensification of ICU workload, and the resulting literature consistently found burnout prevalence rising above the levels reported in pre-pandemic ICU cohorts. Azoulay and colleagues surveyed ICU specialists, including nursing staff, across multiple countries during the early phase of the pandemic and found symptoms of burnout in a majority of respondents, with prevalence highest among staff who felt inadequately supported, who cared for a high volume of dying patients, and who had limited access to personal protective equipment or clear infection-control protocols [32]. The pandemic-era studies broadly reinforced, rather than overturned, the pre-pandemic risk-factor evidence: exposure to death and dying, staffing strain relative to patient acuity, and perceived lack of organizational support were the same factors identified as central in earlier decades, but each operated at a substantially higher baseline intensity during pandemic surges [6,32].

8. Interventions and mitigation strategies

The evidence base for effective interventions lags behind

the evidence base documenting the problem, but several consistent directions emerge from the literature reviewed above. Structural interventions that target staffing ratios and scheduling autonomy follow directly from the strength of the Aiken and Poncet findings, since these are the factors with the most consistent dose-response relationship to burnout prevalence across settings [22,4]. Interventions aimed at improving interdisciplinary collaboration and structuring end-of-life decision-making, so that nursing staff have a defined and respected role in those conversations rather than feeling excluded from them, address the clinical and moral-distress pathway identified by Embriaco, Papathanassoglou, and colleagues [5,19].

Individual-level and unit-level resilience programs, informed by Mealer and colleagues' finding that resilience is associated with a healthier overall psychological profile, represent a complementary rather than substitute strategy, since resilience training does not address the underlying organizational conditions that the staffing and work-environment literature identifies as primary drivers [21,24]. Professional society guidance, including the critical care societies' joint call to action, explicitly frames burnout mitigation as an organizational responsibility requiring monitoring, leadership engagement, and structural change, rather than a problem to be solved solely through individual coping skills, a framing consistent with the balance of evidence surveyed in this review [6,30].

9. Conclusion

Burnout in intensive care unit nursing staff is common, with prevalence estimates across multicenter studies clustering broadly between one-fifth and one-half of surveyed staff depending on country, unit type, and the burnout definition applied, and with critical care consistently among the highest-prevalence nursing specialties studied [4,16,17]. The most consistently replicated risk factors are organizational and structural:

inadequate nurse-to-patient staffing ratios, limited control over shift scheduling, poor nurse-physician collaboration, and frequent, poorly supported exposure to death and end-of-life decision-making [22,5,24]. Individual factors, including younger age, fewer years of ICU experience, and lower psychological resilience, modify vulnerability but operate within, rather than instead of, these structural conditions [13,21]. The COVID-19 pandemic sharpened rather than changed this picture, driving burnout prevalence higher while confirming the same underlying risk factors identified across three decades of pre-pandemic research [32]. Because burnout in ICU nursing staff is tied directly to turnover, patient safety, and the psychological health of an already stretched workforce, the evidence supports prioritizing structural, unit-level interventions, staffing, scheduling autonomy, and collaborative decision-making, alongside, rather than in place of, individual resilience support [27,28,7].

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