

Nursing Practice In Emergency And High-Risk Environments: A Review Of Clinical Effectiveness And Workforce Challenges

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Abstract

Nursing practice in emergency and high-risk environments is critical to ensuring timely, safe, and effective patient care under conditions of uncertainty, high acuity, and resource constraints. Nurses in these settings play a central role in rapid assessment, triage, continuous monitoring, emergency interventions, and coordination of care, while simultaneously facing significant occupational and psychological risks. This review aims to synthesize current evidence on the clinical effectiveness of nursing practice in emergency and high-risk environments and to examine the key workforce challenges that influence care quality and safety. A comprehensive review of recent literature was conducted across major healthcare databases, focusing on studies published in the last decade that evaluated nursing-led practices, patient outcomes, and workforce-related factors. The findings indicate that effective nursing practices are strongly associated with improved patient safety, reduced adverse events, and enhanced operational efficiency. However, persistent workforce challenges—including burnout, workplace violence, staffing shortages, and fatigue—negatively impact performance, retention, and care outcomes. Addressing these challenges through organizational support, training, and policy-level interventions is essential to sustaining high-quality emergency nursing care. The review highlights the need for integrated strategies that align clinical excellence with workforce wellbeing.

Keywords: emergency nursing, high-risk environments, clinical effectiveness, workforce challenges, patient safety, burnout, healthcare quality.

Introduction & Background

Emergency and high-risk healthcare environments represent some of the most complex and demanding settings within modern health systems. These environments—including emergency departments, trauma units, disaster response contexts, isolation and infectious disease units, and other high-acuity care areas—are characterized by unpredictable patient flow, time-critical decision-making, elevated risk of adverse events, and frequent exposure to occupational hazards. Within these settings, nursing practice plays a pivotal role in ensuring patient safety, continuity of care, and system responsiveness (WHO, 2020).

Nurses are often the first point of clinical contact in emergency and high-risk situations, responsible for rapid assessment, triage prioritization, continuous patient surveillance, and the initiation of life-saving interventions. Their ability to recognize early signs of clinical deterioration, coordinate multidisciplinary responses, and maintain adherence to evidence-based protocols directly influences patient outcomes such as mortality, morbidity, length of stay, and rates of preventable adverse events (Aiken et al., 2018; Considine et al., 2019). As healthcare systems face increasing demand due to population growth, aging, pandemics, and mass casualty incidents, the clinical effectiveness of emergency nursing practice has become a central concern for policymakers and healthcare leaders.

Despite their critical role, nurses working in emergency and high-risk environments face substantial workforce challenges that threaten both care quality and workforce sustainability. High patient acuity, overcrowding, understaffing, and exposure to workplace violence contribute to elevated levels of burnout, moral distress, and psychological fatigue among emergency nurses (Dall'Ora et al., 2020). Evidence suggests that chronic stress and inadequate staffing are associated with increased error rates, reduced patient satisfaction, and higher nurse turnover intentions, further exacerbating system strain (Shah et al., 2021). The COVID-19 pandemic has intensified these pressures, highlighting systemic vulnerabilities and underscoring the need to better support frontline nursing staff (Labrague & de los Santos, 2021).

In addition to psychological and physical demands, emergency nurses frequently operate in environments with heightened infection risk and ethical complexity. Balancing rapid decision-making with patient-centered care, maintaining infection prevention standards under pressure, and managing aggressive or distressed patients require advanced competencies and resilience (Goh et al., 2020). Organizational factors such as leadership support, safety culture, access to training, and availability of resources have been shown to moderate the impact of these stressors and influence both clinical and workforce outcomes (Duffield et al., 2019).

Given the dual importance of clinical effectiveness and workforce wellbeing, there is a growing need for integrative evidence that examines how nursing practice in emergency and high-risk environments affects patient outcomes while also addressing the challenges faced by the nursing workforce. Existing literature often examines clinical performance or workforce issues in isolation, limiting the development of comprehensive strategies for improvement. This review seeks to address this gap by synthesizing evidence on nursing practice effectiveness alongside workforce challenges, providing a holistic understanding to inform practice, leadership, and policy development in emergency and high-risk care settings.

Defining High-Risk Emergency Nursing Practice

High-risk emergency nursing practice refers to the provision of nursing care in settings characterized by extreme clinical uncertainty, high patient acuity, time-sensitive decision-making, and an elevated probability of adverse outcomes for both patients and healthcare providers. These environments demand advanced competencies, rapid clinical judgment, and sustained vigilance, positioning nurses as critical agents in safeguarding patient safety and system performance. Understanding what constitutes “high-risk” practice is essential for contextualizing the complexity of emergency nursing roles and the challenges inherent to these settings.

High-risk emergency environments typically include emergency departments (EDs), trauma and resuscitation units, disaster and mass casualty response contexts, isolation units during infectious disease outbreaks, and other acute care areas where patient conditions can deteriorate rapidly. These settings are distinguished by unpredictable patient volumes, overcrowding, limited resources, and frequent interruptions, all of which increase the likelihood of medical errors and compromise care quality if not effectively managed (Riley et al., 2018). Nurses working in such contexts must simultaneously manage multiple critically ill patients while maintaining situational awareness and adherence to evidence-based protocols.

The concept of risk in emergency nursing practice is multidimensional. Clinical risk arises from the severity and instability of patient conditions, where delayed recognition of deterioration or inappropriate prioritization can lead to life-threatening consequences. Emergency nurses are responsible for rapid assessment, triage categorization, initiation of urgent interventions, and continuous monitoring, often before definitive diagnoses are established (Considine et al., 2019). Their role in early warning recognition and escalation of care is therefore central to preventing adverse events.

Environmental and organizational risks further define high-risk emergency nursing practice. Overcrowding, staffing shortages, inadequate skill mix, and resource constraints place nurses under constant pressure, increasing cognitive load and reducing the margin for error (Morley et al., 2018). In addition, emergency departments are among the healthcare settings with the highest incidence of

workplace violence, exposing nurses to physical assault, verbal abuse, and psychological trauma (Pompeii et al., 2020). These hazards not only threaten personal safety but also impair concentration, decision-making, and job satisfaction.

Psychological and ethical risks are also prominent in high-risk emergency nursing. Nurses frequently encounter morally distressing situations, such as providing care under resource limitations, managing aggressive or distressed patients, and witnessing preventable harm or death. Prolonged exposure to such stressors contributes to moral distress, compassion fatigue, and burnout, which have been linked to reduced care quality and increased turnover intentions (Dall'Ora et al., 2020). The emotional labor involved in maintaining professionalism and empathy under crisis conditions is a defining feature of high-risk nursing practice.

From a competency perspective, high-risk emergency nursing practice requires a distinct skill set that extends beyond routine clinical care. Core competencies include advanced assessment skills, prioritization under pressure, proficiency in emergency procedures, effective crisis communication, and teamwork within multidisciplinary teams. Nurses must also demonstrate adaptability, resilience, and the ability to function effectively amid uncertainty and rapid change (Hassankhani et al., 2018). Ongoing training, simulation-based education, and experiential learning are therefore critical to maintaining preparedness in high-risk environments.

Importantly, high-risk emergency nursing practice cannot be understood in isolation from the systems in which it occurs. Organizational culture, leadership support, safety policies, and access to resources significantly influence how risk is managed and how effectively nurses can perform their roles. Health systems that fail to address these contextual factors may inadvertently amplify risk, undermining both patient outcomes and workforce sustainability (Aiken et al., 2021).

In summary, high-risk emergency nursing practice is defined by the convergence of clinical acuity, environmental hazards, psychological stressors, and ethical complexity. Nurses operating in these settings perform highly specialized and consequential roles that are essential to emergency care delivery. Clearly defining the nature of high-risk practice provides a foundation for evaluating clinical effectiveness, understanding workforce challenges, and developing targeted strategies to support nurses and enhance safety in emergency and high-acuity care environments.

Core Nursing Practices in Emergency and High-Risk Care

Core nursing practices in emergency and high-risk care settings form the backbone of safe, effective, and timely healthcare delivery under conditions of extreme pressure and uncertainty. These practices are distinguished by their immediacy, complexity, and potential impact on patient survival and system performance. Emergency nurses must integrate advanced clinical skills with rapid decision-making, teamwork, and risk management to respond effectively to dynamic and often life-threatening situations.

One of the most fundamental practices in emergency nursing is rapid assessment and triage. Triage is a critical nursing-led process that determines patient prioritization based on acuity, urgency, and resource availability. Accurate triage enables timely identification of critically ill patients, reduces waiting times for urgent care, and minimizes the risk of deterioration in overcrowded emergency departments. Evidence suggests that structured triage systems, when applied by trained emergency nurses, are associated with improved patient flow, reduced adverse events, and enhanced clinical outcomes (Considine et al., 2019; Hinson et al., 2020). In high-risk environments, triage is not a one-time task but a continuous reassessment process requiring constant vigilance as patient conditions evolve.

Continuous patient surveillance and early recognition of deterioration represent another core nursing practice in emergency settings. Emergency nurses are responsible for frequent monitoring of vital signs, neurological status, and clinical indicators, often across multiple patients simultaneously. Their ability to detect subtle changes and activate rapid response or escalation protocols is central to preventing cardiac arrest, sepsis progression, and other critical events (Massey et al., 2017). The use of early warning scores and standardized observation tools has strengthened this role, but clinical judgment remains indispensable, particularly in complex or atypical presentations.

Emergency interventions and protocol-driven care are also central to high-risk nursing practice. Nurses routinely initiate and deliver time-sensitive interventions such as oxygen therapy, medication administration, wound management, hemorrhage control, and cardiopulmonary resuscitation. In many emergency contexts, nurses act under standing orders or advanced protocols that allow rapid initiation of care prior to physician assessment. Studies have shown that protocol-based nursing interventions improve adherence to evidence-based care, reduce treatment delays, and enhance patient safety in emergency environments (Curtis et al., 2021). However, the effectiveness of such protocols depends heavily on adequate training, staffing, and organizational support.

Infection prevention and control (IPC) practices are particularly critical in high-risk emergency settings, where overcrowding, invasive procedures, and exposure to infectious diseases increase transmission risk. Emergency nurses play a leading role in hand hygiene compliance, use of personal protective equipment (PPE), environmental cleaning coordination, and isolation procedures. During infectious disease outbreaks, such as the COVID-19 pandemic, nursing adherence to IPC measures has been shown to be a key determinant of both patient and staff safety (Goh et al., 2020). Maintaining IPC standards under high workload and stress conditions remains a significant challenge, underscoring the importance of system-level support.

Effective communication, coordination, and handover practices are essential to managing risk in emergency care. Emergency nurses serve as central communicators within multidisciplinary teams, relaying critical information during handovers, trauma activations, and care transitions. Structured communication tools, such as SBAR (Situation–Background–Assessment–Recommendation), have been associated with reduced information loss and improved team performance in high-risk situations (Müller et al., 2018). In addition, nurses frequently act as coordinators of care, ensuring alignment between emergency physicians, ancillary services, and inpatient units during patient transfers.

Teamwork and crisis resource management are integral components of emergency nursing practice. High-risk situations often require synchronized action among multiple professionals under time pressure. Nurses contribute to team effectiveness by maintaining situational awareness, anticipating needs, and supporting shared decision-making. Simulation-based training has demonstrated positive effects on nurses' confidence, technical skills, and non-technical competencies such as leadership and communication in emergency scenarios (Cant & Cooper, 2017). These skills are particularly important during mass casualty incidents and disaster responses, where system strain is amplified.

Finally, psychological resilience and self-regulation can be considered essential, though often under-recognized, aspects of core emergency nursing practice. Nurses must manage emotional stress, exposure to trauma, and ethical dilemmas while maintaining professional performance. The ability to regulate stress responses, seek peer support, and engage in reflective practice contributes to sustained effectiveness and reduces the risk of errors linked to cognitive overload and fatigue (Dall'Ora et al., 2020).

In summary, core nursing practices in emergency and high-risk care encompass rapid assessment, continuous surveillance, protocol-driven interventions, infection control, effective communication, teamwork, and psychological resilience. These practices collectively shape clinical effectiveness and patient safety in some of the most demanding healthcare environments. Understanding and strengthening these core practices is essential for improving outcomes and supporting the nursing workforce operating at the frontline of emergency care.

Clinical Effectiveness of Emergency Nursing Practice

The clinical effectiveness of emergency nursing practice is a critical determinant of patient safety, care quality, and overall health system performance in high-risk environments. Emergency nurses operate at the frontline of acute care delivery, where timely interventions, accurate clinical judgment, and coordinated actions directly influence patient outcomes. Evidence from recent literature consistently demonstrates that well-supported and highly skilled emergency nursing practice is associated with improved clinical, operational, and safety-related outcomes.

One of the most consistently reported indicators of clinical effectiveness is patient safety. Emergency nurses play a central role in preventing adverse events through vigilant monitoring, medication safety practices, adherence to protocols, and early escalation of care. Studies have shown that higher levels of nursing surveillance and adequate nurse staffing in emergency departments are associated with lower rates of medication errors, falls, and unplanned clinical deterioration (Aiken et al., 2018). The ability of nurses to identify subtle changes in patient condition—often before objective deterioration occurs—has been particularly linked to reductions in preventable adverse outcomes.

Mortality and morbidity outcomes are also influenced by emergency nursing practice, especially in time-sensitive conditions such as trauma, sepsis, cardiac arrest, and acute respiratory failure. Nursing-led triage accuracy and early intervention have been associated with faster initiation of definitive treatment, improved survival rates, and reduced complication rates (Considine et al., 2019). For example, prompt nursing recognition of sepsis and activation of sepsis bundles have been shown to significantly reduce mortality and length of hospital stay, underscoring the life-saving impact of effective emergency nursing care.

Another key dimension of clinical effectiveness relates to time-based performance metrics, which are particularly relevant in high-risk emergency settings. Emergency nurses influence critical time intervals such as door-to-triage, door-to-treatment, and time-to-antibiotics or analgesia. Evidence indicates that nursing-driven protocols and standing orders can substantially reduce treatment delays, improve patient flow, and alleviate emergency department overcrowding (Curtis et al., 2021). Improved throughput not only enhances patient experience but also reduces system strain, indirectly contributing to safer care delivery.

Emergency nursing practice also contributes to quality of care and patient experience. Although emergency environments are often chaotic, nurses' communication skills, emotional support, and patient advocacy have been linked to higher levels of patient satisfaction and perceived care quality. Effective communication during triage and care transitions reduces anxiety, improves understanding of treatment plans, and strengthens trust in emergency services (McCarthy et al., 2020). These relational aspects of nursing care are particularly important in high-risk contexts where patients and families experience heightened stress and uncertainty.

From an organizational perspective, the clinical effectiveness of emergency nursing practice is closely tied to staffing levels and skill mix. Multiple studies demonstrate that inadequate nurse-to-patient ratios are associated with increased mortality, longer waiting times, and higher rates of adverse events in emergency settings (Griffiths et al., 2019). Conversely, the presence of experienced emergency nurses and advanced practice roles has been linked to improved diagnostic accuracy, more efficient care coordination, and better patient outcomes. These findings highlight that clinical effectiveness is not solely a function of individual competence but is strongly shaped by structural and organizational factors.

Importantly, the evidence also suggests a strong interaction between workforce wellbeing and clinical effectiveness. High levels of burnout, fatigue, and psychological distress among emergency nurses have been associated with reduced attention, impaired decision-making, and increased error rates (Dall'Ora et al., 2020). This underscores the need to view clinical effectiveness as inseparable from workforce conditions, as compromised nurse wellbeing can directly undermine patient safety and care quality.

Table 1. Clinical Effectiveness of Emergency Nursing Practice: Summary of Evidence

Domain	Nursing Practice Focus	Key Outcomes Reported	Representative Evidence
Patient Safety	Continuous monitoring, medication safety, protocol adherence	Reduced adverse events, fewer medication errors, improved safety indicators	Aiken et al., 2018
Mortality & Morbidity	Accurate triage, early intervention, escalation of care	Lower mortality, reduced complications, improved survival in acute conditions	Considine et al., 2019

Time-Based Performance	Nurse-initiated protocols, standing orders	Reduced treatment delays, improved patient flow, shorter waiting times	Curtis et al., 2021
Quality of Care	Communication, patient advocacy, coordination of care	Higher patient satisfaction, improved care experience	McCarthy et al., 2020
Staffing & Skill Mix	Adequate nurse–patient ratios, experienced workforce	Lower mortality, fewer adverse events, improved efficiency	Griffiths et al., 2019
Workforce Wellbeing	Fatigue management, psychological support	Reduced error rates, improved attention and decision-making	Dall’Ora et al., 2020

In summary, emergency nursing practice demonstrates high clinical effectiveness across multiple outcome domains, including patient safety, mortality and morbidity reduction, time-sensitive care delivery, and patient experience. However, the extent to which these benefits are realized depends heavily on staffing adequacy, organizational support, and workforce wellbeing. Strengthening emergency nursing practice therefore represents a key strategy for improving clinical outcomes and enhancing resilience in high-risk care environments.

Workforce Challenges in Emergency and High-Risk Nursing

Emergency and high-risk nursing environments place extraordinary demands on the nursing workforce, exposing nurses to a constellation of physical, psychological, and organizational stressors that threaten both workforce sustainability and care quality. While emergency nurses are highly skilled and resilient professionals, persistent workforce challenges have been widely documented as major contributors to burnout, reduced performance, and increased turnover in these settings.

One of the most pervasive challenges is burnout and psychological distress. Emergency nurses frequently operate under conditions of high patient acuity, overcrowding, and constant time pressure, which contribute to emotional exhaustion, depersonalization, and reduced professional efficacy. Empirical evidence indicates that burnout levels among emergency nurses are significantly higher than in many other nursing specialties (Dall’Ora et al., 2020). Chronic exposure to trauma, preventable deaths, and ethically complex situations further intensifies moral distress, undermining nurses’ sense of professional fulfillment and increasing intentions to leave the profession (Labrague & de los Santos, 2021).

Workplace violence and aggression represent another critical workforce challenge in emergency and high-risk care. Emergency departments are consistently identified as high-risk settings for verbal abuse, threats, and physical assault from patients and visitors. Such incidents have been linked to increased anxiety, fear, absenteeism, and reduced job satisfaction among nurses (Pompeii et al., 2020). Beyond direct harm, exposure to violence negatively affects concentration, communication, and decision-making, thereby increasing the risk of clinical errors and compromising patient safety.

Staffing shortages and skill-mix imbalance further exacerbate workforce strain in emergency nursing. Many health systems face chronic shortages of experienced emergency nurses, leading to increased workloads, extended shifts, and reliance on less experienced staff. Evidence demonstrates that inadequate nurse-to-patient ratios in emergency settings are associated with higher rates of missed care, delayed interventions, and adverse patient outcomes (Griffiths et al., 2019). Skill-mix imbalance, where novice nurses are insufficiently supported, also places additional supervisory burdens on senior staff, amplifying stress and fatigue.

Fatigue and shift work–related challenges are inherent to emergency nursing practice. Rotating shifts, night work, extended hours, and insufficient recovery time contribute to physical exhaustion and cognitive impairment. Studies have shown that fatigue adversely affects attention, reaction time, and clinical judgment, increasing the likelihood of errors in high-risk situations (Barker & Nussbaum, 2018).

Despite awareness of these risks, staffing constraints often limit the implementation of effective fatigue risk management strategies in emergency departments.

In addition to operational pressures, emergency nurses frequently experience limited organizational and leadership support. Perceived lack of recognition, inadequate communication from management, and insufficient involvement in decision-making have been associated with lower engagement and higher turnover intentions (Duffield et al., 2019). Conversely, supportive leadership, clear safety policies, and access to professional development opportunities have been shown to buffer the negative effects of high-risk work environments and enhance retention.

The cumulative impact of these workforce challenges extends beyond individual wellbeing to affect team functioning and system performance. Burnout, fatigue, and high turnover disrupt team cohesion, reduce institutional knowledge, and increase recruitment and training costs. Importantly, multiple studies suggest a bidirectional relationship between workforce challenges and clinical outcomes: strained working conditions impair care quality, while adverse clinical events further intensify emotional stress among nurses (Shah et al., 2021).

Table 2. Workforce Challenges in Emergency and High-Risk Nursing and Their Impacts

Workforce Challenge	Description	Impact on Nurses	Implications for Care Quality	Representative Evidence
Burnout & Moral Distress	Chronic emotional and ethical strain	Emotional exhaustion, turnover intention	Reduced attention, increased error risk	Dall’Ora et al., 2020
Workplace Violence	Verbal abuse and physical assault	Anxiety, fear, absenteeism	Impaired decision-making, safety risks	Pompeii et al., 2020
Staffing Shortages	Inadequate nurse–patient ratios	Work overload, fatigue	Delayed care, missed interventions	Griffiths et al., 2019
Skill-Mix Imbalance	Insufficient experienced staff	Increased supervision burden	Inconsistent care quality	Duffield et al., 2019
Fatigue & Shift Work	Long hours, night shifts	Cognitive impairment	Higher likelihood of clinical errors	Barker & Nussbaum, 2018
Limited Leadership Support	Poor communication and recognition	Low engagement, dissatisfaction	Reduced team performance	Labrague & de los Santos, 2021

In summary, workforce challenges in emergency and high-risk nursing are multifactorial and deeply interconnected. Burnout, workplace violence, staffing shortages, fatigue, and limited organizational support collectively undermine nurse wellbeing and clinical effectiveness. Addressing these challenges requires coordinated strategies at individual, organizational, and policy levels, recognizing that workforce sustainability is a prerequisite for safe and effective emergency care delivery.

Interaction Between Workforce Conditions and Clinical Outcomes

The relationship between workforce conditions and clinical outcomes in emergency and high-risk nursing is complex, dynamic, and bidirectional. Rather than functioning as independent domains, workforce wellbeing, staffing structures, and organizational support directly shape the quality, safety, and effectiveness of patient care. At the same time, clinical outcomes—particularly adverse events and high mortality exposure—feed back into workforce stress, burnout, and attrition, creating reinforcing cycles of risk within emergency care systems.

Adequate staffing levels and skill mix are among the most influential workforce factors affecting clinical outcomes. When nurse-to-patient ratios are insufficient, emergency nurses are forced to manage higher workloads under time pressure, increasing cognitive load and reducing the capacity for

continuous patient surveillance. Empirical evidence consistently links understaffing to delayed interventions, missed care, medication errors, and increased mortality in high-acuity settings. Conversely, appropriate staffing and the presence of experienced emergency nurses enhance early detection of deterioration, improve adherence to protocols, and support timely escalation of care, thereby improving patient safety and outcomes.

Burnout, fatigue, and psychological distress also play a critical mediating role between workforce conditions and clinical effectiveness. High levels of emotional exhaustion and fatigue impair attention, working memory, and clinical judgment—capabilities that are essential in emergency decision-making. Studies demonstrate that nurses experiencing burnout are more likely to report near-misses, reduced vigilance, and lower perceived care quality. In high-risk environments, where margins for error are minimal, even small decrements in cognitive performance can translate into significant patient harm. Thus, workforce wellbeing is not merely a human resources concern but a core patient safety issue.

Exposure to workplace violence and unsafe environments further illustrates the interaction between workforce conditions and clinical outcomes. Violence and aggression disrupt workflow, heighten stress responses, and undermine psychological safety. Nurses working in environments where violence is frequent may adopt defensive or avoidance behaviors that negatively affect communication, patient engagement, and teamwork. These disruptions can compromise situational awareness and coordination during critical events, increasing the likelihood of errors and adverse outcomes.

Organizational and leadership factors act as moderators within this interaction. Supportive leadership, clear safety policies, access to training, and a strong safety culture can buffer the negative effects of high workload and stress on clinical performance. For example, teams operating within psychologically safe environments are more likely to speak up, report concerns, and escalate care early—behaviors strongly associated with improved patient outcomes. In contrast, poor leadership support and punitive cultures intensify stress, suppress communication, and exacerbate both workforce dissatisfaction and clinical risk.

Importantly, the interaction between workforce conditions and clinical outcomes is self-reinforcing. Poor outcomes such as preventable deaths, adverse events, or crowding-related delays contribute to moral distress and emotional trauma among nurses, accelerating burnout and turnover. This loss of experienced staff further degrades workforce conditions, perpetuating a cycle of declining care quality and system strain.

In summary, workforce conditions and clinical outcomes in emergency nursing are tightly interconnected through multiple direct and indirect pathways. Staffing adequacy, wellbeing, safety, and organizational support shape nurses' capacity to deliver effective care, while clinical outcomes influence workforce resilience and sustainability. Addressing this interaction requires integrated strategies that simultaneously prioritize patient safety and nurse wellbeing, recognizing that high-quality emergency care cannot be achieved without a healthy and supported nursing workforce.

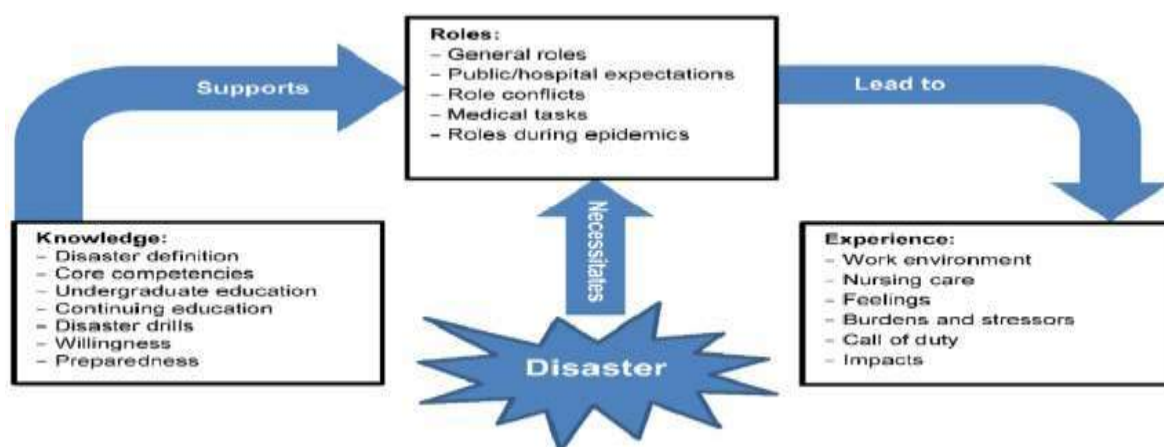


Figure 1. Interaction Pathway Between Workforce Conditions and Clinical Outcomes in Emergency Nursing

Figure 1 illustrates an integrated interaction pathway in which workforce conditions (staffing levels, skill mix, fatigue, burnout, workplace violence, and leadership support) influence nursing performance factors (surveillance, decision-making, communication, protocol adherence). These performance factors directly affect clinical outcomes such as patient safety, mortality, adverse events, and operational efficiency. The model also depicts a feedback loop whereby negative clinical outcomes intensify workforce stress and burnout, reinforcing system-level risk unless mitigated by organizational support and safety culture.

Discussion

This review synthesizes current evidence on nursing practice in emergency and high-risk environments, with a specific focus on clinical effectiveness and workforce challenges, and highlights the dynamic interaction between these two domains. The findings underscore that emergency nursing practice is not only clinically central to patient survival and safety but also highly sensitive to workforce conditions, organizational context, and system-level support.

From a clinical perspective, the evidence confirms that emergency nursing practice has a measurable and positive impact on patient outcomes. Core nursing activities—such as accurate triage, continuous surveillance, early recognition of deterioration, and protocol-driven interventions—are consistently associated with reductions in adverse events, improved time-sensitive care delivery, and enhanced patient safety. These findings reinforce the view that emergency nurses function as key clinical decision-makers rather than passive task executors. Their situational awareness and judgment are particularly critical in high-risk contexts where diagnostic uncertainty and rapid patient turnover are common.

However, the review also demonstrates that the effectiveness of these practices is highly contingent on workforce conditions. Staffing adequacy, skill mix, fatigue, and psychological wellbeing repeatedly emerge as determinants of whether high-quality nursing care can be delivered consistently. When emergency nurses experience burnout, excessive workload, or unsafe working environments, their capacity to maintain vigilance, communicate effectively, and adhere to protocols is compromised. This aligns with broader patient safety literature emphasizing that system pressures and human factors are major contributors to preventable harm in high-acuity care settings.

A key contribution of this review is the integration of workforce challenges with clinical outcomes, rather than treating them as separate issues. The interaction analysis highlights a reinforcing cycle in which poor workforce conditions lead to suboptimal clinical outcomes, which in turn exacerbate emotional distress, moral injury, and turnover among nurses. This cycle is particularly evident in overcrowded emergency departments and during surge events such as pandemics or mass casualty incidents. Breaking this cycle requires a shift from reactive workforce management toward proactive, preventive strategies that recognize nurse wellbeing as a core component of care quality.

Workplace violence is a notable and under-addressed challenge identified in the review. Evidence indicates that exposure to aggression not only affects nurses' mental health but also disrupts communication, teamwork, and clinical decision-making. Despite growing awareness, violence prevention measures remain inconsistently implemented, suggesting a gap between policy intent and operational practice. Addressing violence should therefore be framed not only as an occupational safety issue but also as a patient safety priority.

Leadership and organizational culture play a moderating role in shaping both workforce experiences and clinical outcomes. Supportive leadership, psychological safety, and access to training and resources can buffer the negative effects of high-risk work environments. Conversely, punitive cultures, poor communication, and lack of recognition intensify stress and suppress speaking-up behaviors that are essential for error prevention in emergency care. These findings suggest that improvements in emergency nursing outcomes cannot be achieved through individual-level interventions alone but require system-level change.

The findings of this review have important implications for practice, management, and policy. For clinical practice, they support investment in standardized triage systems, early warning tools, and continuous professional development tailored to high-risk settings. For workforce management, the evidence emphasizes the need for safe staffing models, fatigue risk management, and accessible psychological support. At the policy level, stronger regulatory attention to emergency nurse staffing standards, violence prevention, and workforce sustainability is warranted.

Several limitations of the reviewed literature should be acknowledged. The heterogeneity of study designs, settings, and outcome measures limits direct comparison across studies. Much of the evidence is observational, which restricts causal inference. Additionally, workforce outcomes such as burnout and moral distress are often measured using self-reported tools, introducing potential reporting bias. These limitations highlight the need for more longitudinal and interventional research that explicitly links workforce improvements to patient outcomes in emergency settings.

In conclusion, this discussion reinforces that high-quality emergency and high-risk nursing care depends on the alignment of clinical excellence with supportive workforce conditions. Emergency nurses operate at the intersection of patient safety and system strain, and their effectiveness is both enabled and constrained by the environments in which they work. Sustainable improvement in emergency care outcomes therefore requires integrated strategies that prioritize both clinical capability and workforce wellbeing, recognizing that one cannot be achieved without the other.

Conclusion

This review highlights the pivotal role of nursing practice in emergency and high-risk environments and affirms its substantial influence on patient safety, clinical outcomes, and health system performance. Emergency nurses operate in settings characterized by uncertainty, time pressure, and elevated risk, where their ability to rapidly assess patients, recognize deterioration, initiate timely interventions, and coordinate care is essential to preventing adverse events and saving lives. The evidence synthesized in this review demonstrates that effective emergency nursing practice contributes to improved mortality and morbidity outcomes, enhanced patient flow, and better overall quality of care.

At the same time, the findings underscore that clinical effectiveness in emergency nursing cannot be sustained without addressing the significant workforce challenges inherent to these environments. Burnout, fatigue, workplace violence, staffing shortages, and insufficient organizational support consistently emerge as factors that undermine both nurse wellbeing and care quality. These challenges not only affect individual nurses but also disrupt team functioning and system resilience, creating cycles of strain that compromise patient outcomes and accelerate workforce attrition.

Importantly, this review emphasizes the interdependence between workforce conditions and clinical outcomes. Emergency nursing effectiveness is shaped by the contexts in which nurses work, highlighting the need to view workforce wellbeing as a core patient safety and quality-of-care issue rather than a secondary concern. Organizational leadership, safety culture, and policy frameworks play a crucial role in moderating risk and enabling nurses to perform effectively in high-risk situations.

In conclusion, strengthening emergency and high-risk nursing practice requires integrated, system-level strategies that align clinical excellence with workforce protection and support. Investment in safe staffing models, continuous training, violence prevention, and psychological support is essential to sustaining high-quality emergency care. Future efforts to improve emergency healthcare outcomes must therefore prioritize both the clinical capabilities of nurses and the conditions that enable them to deliver safe, effective, and resilient care in the most demanding healthcare environments.

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