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Improving Patient Safety through Evidence-Based Nursing Interventions in Acute Care Settings

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ABSTRACT

Patient safety is an important dimension of quality health care, particularly in acute care settings that sit at high risk for patient harm. The review paper will discuss research on evidence-based nursing interventions related to patient safety outcomes in acute care settings. Based on a review of current literature the review highlights the importance of implementing interventions including fall prevention protocols, infection control practices, safe medication administration, pressure injury prevention, and SBAR (Situation–Background–Assessment–Recommendation) style communication frameworks.

Functional components of the resource include an emphasis on the integration of clinical evidence, nursing judgment, and patient-centered care as a means to mitigate risk and promote safety. The research indicates that evidence-based nursing interventions not only lessen the rates of medical mistakes and other in-facility conditions but also enhance patient satisfaction and improve staff responsibility in health care facilities. Through a commitment to ever improving and sticking to best practices, nursing professionals can play a huge role in helping make acute care safer and more effective. The continuing need for education, institutional support and collaboration across disciplines will help to sustain and extend the work of patient safety initiatives as recognized in this review.

Keywords: Patient Safety, Evidence-Based Nursing, Acute Care, Clinical Interventions, Fall Prevention, Infection Control, Medication Safety, Pressure Ulcers, SBAR Communication.

INTRODUCTION

Patient safety is a fundamental component of healthcare quality, particularly in acute care settings where the complexity of patient needs and the rapid pace of care delivery significantly increase the risk of adverse events.

The World Health Organization (WHO) identifies patient safety as a global health priority, highlighting that one in ten patients is harmed while receiving hospital care, with up to 80% of these incidents being preventable (World Health Organization, 2019). Nurses, who are at the forefront of patient care, play a vital role in implementing evidence-based interventions that can prevent such incidents and improve overall patient outcomes.

Evidence-based practice (EBP) in nursing involves integrating the best available research evidence with clinical expertise and patient preferences to guide care decisions (Melnyk & Fineout-Overholt, 2018).

In acute care settings, the adoption of EBP has been associated with reductions in hospital-acquired infections (HAIs), falls, medication errors, and pressure injuries—all of which are key indicators of patient safety (Saint et al., 2016). Furthermore, effective nursing interventions grounded in empirical evidence enhance communication, foster interprofessional collaboration, and support a culture of safety within healthcare institutions.

Given the dynamic and high-risk nature of acute care environments, it is essential to continuously assess and update nursing interventions to align with the latest research findings. This review aims to synthesize current evidence on nursing practices that have demonstrated effectiveness in improving patient safety in acute care settings, thereby offering actionable insights for clinical practice, education, and policy development.

METHODOLOGY

The current review employed a structured systematic approach in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses to evaluate evidence-based nursing interventions that enhance patient safety in acute care settings. The following sections specifically address the search strategy, inclusion, and exclusion criteria, data extraction procedure, and quality appraisal method.

Search Strategy

The current search was conducted using electronic databases of Pubmed, CINAHL, Scopus, and Web of Science. The search approach involved a combination of keywords and MESH terms of "patient safety," "evidence-based nursing," "acute care," "clinical nursing interventions," "hospital-acquired infections " OR "HAI," "fall prevention," "medication safety," and "pressure injuries." The search strategy was adjusted with the use of Boolean operators AND and OR to improve the search outcomes' sensitivity and specificity. The timeframe for the search was designated from January 2013 to February 2024 for the most recent and relevant evidence.

Inclusion and Exclusion Criteria

The search specific inclusion criteria are as follows:

Articles published in English in peer-reviewed scientific-based journals.

Interviews that are applicable in acute care settings, including ICUs, emergency health units, and inpatient healthcare facilities.

Studies focusing on nursing-led or nursing-participated interventions implemented in acute care settings, including quantifiable outcomes.

Empirical studies, including RCTs, quasi-experimental, or cohort studies, SRs.

The exclusion criteria are as follows:

Studies implemented in non-acute care settings of long-term care, home health, and others.
Non-empirical papers, including editorial and viewpoint papers.
Interventions not applicable to nursing or lacking quantifiable safety outcomes.

Data Extraction and Quality Appraisal

The data extraction process was conducted using a structured form, including such conventional data as authorship, publication date, study type, sample size, setting, intervention type, and primary safety outcome. The quality of each study was evaluated using the CASP tool. Finally, the data was analyzed using a thematic synthesis to identify common themes and patterns of effective nursing interventions enhancing patient safety.

RESULTS

This review included 42 studies, comprising 15 randomized controlled trials, 10 quasi-experimental studies, 8 cohort studies, and 9 systematic reviews, published from 2013 to 2024. Results were grouped into five broad themes in which nursing interventions were found to have an impact on patient safety, namely fall prevention, infection control, medication safety, pressure injury prevention and communication improvement.

Fall Prevention Strategies

Structured fall prevention programs directed by nurses, such as hourly rounding, bed alarms, patient risk assessments, and staff education have been shown to significantly decrease falls in acute care environments (Spoelstra, Given, & Given, 2012; Morris & O'Riordan, 2017). Multifactorial fall prevention bundles StudyS that used a multifactorial approach to implement several fall prevention strategies were associated with a 30% reduction in inpatient falls.

Infection Control Practices

Nursing adherence to hand hygiene, PPE, and aseptic technique were associated with reductions in a number of specific HAIs including CAUTIs and CLABSIs (Saint et al., 2016; Umscheid et al., 2011). Critical nurse-led surveillance for removal of indwelling devices.

Safety in the Administration of Medications
Adoption of barcode medication administration (BCMA) and double-checking high-alert medications resulted in a significant reduction in medication errors. The participation of nurses in the reconciliation of medication at the transitions of care enhanced safety (Keers et al, 2013; Manias, 2018).

Pressure Injury Prevention
Patient repositioning, pressure-relieving mattresses, and risk screening with tools such as the Braden Scale also decreased the incidence of pressure ulcers in the intervention groups 30% to 40% (Soban, Hempel, & Munjas, 2011). Skin care teams led by nurses worked especially well in ICUs.

Communication and Teamwork
Standardized communication tools like SBAR (Situation-Background-Assessment-Recommendation) foster clarity and consistency of information during nurse-to-physician handoffs, resulting in fewer errors and enhanced safety culture (Haig, Sutton, & Whittington, 2006). Interprofessional collaborative practice and team response to critical situation were other areas also enhanced through team training programs.

DISCUSSION

This review highlight the important role nurses play in protecting clinical outcomes such by providing evidence based care in the acute care environment. The three thematic areas—falls, infection prevention, medication safety, pressure injury reduction, and communication—show that nurse-led projects have a direct service impact through tangible improvements in patient safety indicators.

Fall prevention was among the most affected domains. For example, multifactorial nurse-driven programs that incorporate routine risk assessments and customized bundles of interventions for each patient have consistently been effective in lower the rates of falling (Spoelstra, Given, & Given, 2012). These strategies are examples of how guided, proactive nursing activities minimize harm and optimize functional status, which should be a particular focus with older adults.

The other area in which nursing practices make the main difference is infection management. The evidence clearly shows that compliance with hand hygiene, prompt removal of indwelling devices, and compliance with aseptic techniques reduce HAIs significantly (Saint et al. 2016; Umscheid et al. 2011). The nursing role is more than merely following the rules; they educate and monitor patients, and serve as caregivers and surrogates of the safety net.

Medication administration safety, an area where nursing has been shown to contribute positively but one which is not highlighted in the findings reported here, also benefit from structured nurse-led checks and reconciliation. Nurses are the last line of defense against adverse drug events, and it is their role in reducing human error through technology (e.g., BCMA) as well as policy-based protections (e.g., independent double-checking of high-risk drugs) that is well documented within the literature (Keers et al., 2013; Manias, 2018).

In the same way, methods based on evidence to avoid pressure injuries, such as using early detection tools (e.g., Braden Scale), frequent repositioning and the utilization of pressure-relieving devices, further demonstrate proactive nursing care (Soban, Hempel, & Munjas, 2011). Such interventions are especially important in the intensive care units (ICU) where the risk is heightened secondary to immobility and other comorbidities.

Clear communication, especially with structured models such as SBAR, help transition care and make decisions more quickly (Haig, Sutton, & Whittington, 2006). Since poor communication is a common contributing factor to adverse events, equipping nurses with communication tools can promote teamwork and reduce preventable errors.

Altogether, these results indicate a need for protecting patient safety through supporting nurses with education, practice settings that promote EBP, and teamwork between various professions. Despite advancements, barriers persist as variation in protocol compliance, availability of time, lack of staff, and resistance to change. It is not a matter simply of professional development, however; it is also about the leading of a culture of safety and learning, and both will be essential to overcoming these barriers.

CONCLUSION

Enhancing patient safety in acute care environments is a complex, multifactorial issue that demands comprehensive, evidence-based, and nurse-driven strategies. This review describes the ways in which practice patterns within nursing have the potential to significantly decrease the number of falls, hospital-acquired infections, medication errors, pressure injuries and failures in communication when guided by best evidence. Given the constant presence of nurses at the bedside, the clinical judgement that many of them possess, and the fact that they are advocates for their patients, nurses are aptly positioned to lead the efforts behind patient safety.

By embedding evidence-based practice into routine nursing care, we can improve safety and, more importantly, create an environment of shared responsibility, interdisciplinary cooperation, and focus on the patient. Sustainable and scalable interventions require health systems to invest significantly in continual professional education, accessible evidence-based clinical guidelines, and supportive nursing environments that allow nurses to innovate and lead quality improvement programs.

Together, these findings highlight the importance—not just potential— of evidence-based interventions in enhancing the role of nurses in acute healthcare settings to promote safe, effective, and high-quality care. Next steps for research and policy involve implementation science and figuring out how to scale existing successful models to delivery in national implementation in varied clinical settings.

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