Enfermería Global
ISSN 1695-6141
Revista electrónica cuatrimestral de Enfermería
Nº 80
2026
www.um.es/eglobal/

REVIEWS

Factors and Practice Areas of Nurses' Patient Safety Management Activities: A Scoping Review

Factores y Áreas de Práctica de Las Actividades de Gestión de la Seguridad del Paciente De Las Enfermeras: Una Revisión de Alcance

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Received: 30/04/2026
Accepted: 29/07/2026

ABSTRACT:

Introduction: Nurses play a central role in patient safety management, yet the factors shaping their safety management activities and the breadth of related practice areas remain insufficiently synthesised.
Objective: This review aimed to synthesize existing evidence on factors influencing nurses' patient safety management activities and to identify related practice areas in hospital settings.
Methods: A scoping review was conducted following the Population-Concept-Context (PCC) framework and PRISMA-ScR guidelines. A comprehensive literature search was performed across ScienceDirect, ProQuest, and PubMed databases for studies published from 2020 to 2025. Studies meeting predefined inclusion criteria were screened, charted, and synthesised narratively.
Results: Thirty studies were included. Nurses' patient safety management activities were shaped by interrelated internal and external factors across individual, organisational, and system-levels. Identified practice areas encompassed both International Patient Safety Goals (IPSG)-related and non-IPSG areas. Non-IPSG areas predominantly emerged in specialized care contexts, suggesting that patient safety practices extend beyond established global standards.
Conclusion: Patient safety management is a multidimensional nursing responsibility shaped by complex contextual factors. These findings highlight that safety practice requires professional judgement and adaptive decision-making beyond procedural compliance. A comprehensive understanding of both IPSG and non-IPSG practice areas is essential to develop context-responsive safety strategies in diverse hospital settings.

Keywords: Nurses; Patient safety; Safety management; Nursing practice; Scoping review.

RESUMEN:

Introducción: Las enfermeras desempeñan un papel central en la gestión de la seguridad del paciente; sin embargo, los factores que influyen en estas actividades y las áreas de práctica relacionadas siguen insuficientemente sintetizados.

Objetivo: Sintetizar la evidencia existente sobre los factores que influyen en las actividades de gestión de la seguridad del paciente realizadas por enfermeras e identificar áreas de práctica relacionadas en hospitales.
Métodos: Se realizó una revisión de alcance siguiendo el marco Población-Concepto-Contexto (PCC) y las directrices PRISMA-ScR. Se efectuó una búsqueda en ScienceDirect, ProQuest y PubMed de estudios publicados entre 2020 y 2025. Los estudios elegibles fueron seleccionados, organizados y sintetizados narrativamente.
Resultados: Se incluyeron treinta estudios. Las actividades de gestión de la seguridad del paciente estuvieron determinadas por factores internos y externos en los niveles individual, organizacional y del sistema. Las áreas identificadas incluyeron prácticas relacionadas y no relacionadas con los Objetivos Internacionales de Seguridad del Paciente (IPSG). Las áreas no IPSG surgieron principalmente en contextos especializados.
Conclusión: La gestión de la seguridad del paciente es una responsabilidad multidimensional influida por factores contextuales complejos. Comprender las áreas IPSG y no IPSG es esencial para desarrollar estrategias de seguridad adaptadas a diversos entornos hospitalarios.

Palabras clave: Enfermeras; Seguridad del paciente; Gestión de la seguridad; Práctica de enfermería; Revisión de alcance.

INTRODUCTION

The World Health Organization[1] reports that millions of patients worldwide are affected by adverse events each year, particularly in low- and middle-income countries, where such events contribute substantially to preventable morbidity and mortality. Adverse events not only cause physical harm and prolonged hospitalisation but also increase workload and psychological stress among healthcare workers, as well as financial and reputational consequences for healthcare[2,3]. At the global level, adverse events remain a major barrier to achieving Universal Health Coverage (UHC) and the Sustainable Development Goals (SDGs)[1]. The WHO Global Patient Safety Action Plan 2021-2030 provides a global strategic framework for reducing avoidable harm and strengthening patient safety through high-reliability health systems, safe clinical processes, patient and family engagement, and the empowerment and protection of health workers[4]. Prevention strategies therefore require shared responsibility and sustained commitment across healthcare organisations, professionals, patients, and families.

Nurses, who spend the most time with patients, play a central role in ensuring patient safety. Patient safety implementation is commonly guided by the International Patient Safety Goals (IPSG), which include accurate patient identification, effective communication, the safe use of high-alert medications, correct surgical procedures, infection prevention, and falls prevention. Evidence shows that most adverse events in inpatient settings are closely related to these IPSG areas[5]. Nurses' patient safety management activities refer to the behaviours undertaken to ensure patient safety in accordance with established safety standards and guidelines[5,6]. These activities therefore encompass actions that reflect nurses' adherence to patient safety requirements and protocols in everyday clinical practice.

Previous studies indicate that nurses' engagement in patient safety management activities is influenced by multiple factors at individual, organisational, and system-level. A meta-analysis demonstrated that nurses' involvement in patient safety is shaped by the combined effects of multilevel determinant factors[7]. Addressing these factors is essential for healthcare organizations to strengthen nurses' compliance with patient safety practices and improve the quality and consistency of safety across care settings[6].

However, existing reviews have primarily focused on influencing factors, with limited synthesis of the specific areas of nurses' patient safety management activities[5]. Moreover, global patient safety standards such as the International Patient Safety Goals (IPSG) may not fully capture the breadth of nurses' safety practice, particularly those beyond standardized domains. Therefore, this scoping review aimed to synthesise the factors influencing nurses' patient safety management activities and to identify related practice areas in hospital settings. The findings are expected to inform the development of strategies to strengthen nurses' contribution to patient safety management in diverse healthcare settings.

METHODS

Study Design

A scoping review design was employed to comprehensively identify and examine relevant literature from multiple sources. This review was conducted in accordance with the Joanna Briggs Institute (JBI) methodology for scoping reviews, using the PCC (Population-Concept-Context) framework, and reported following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR)[8–10].

Search Strategy

The article search was conducted using the PCC framework, as illustrated in Table 1. Keywords combined with Boolean operators "AND" and "OR" were applied across three sources: ScienceDirect, ProQuest, and PubMed. The search strategy was developed to identify studies focusing on factors influencing nurses' patient safety management activities and the reported practice areas of these activities in hospital settings.

Table 1: PCC Framework

Element	Criteria	Keywords
P (Population)	Nurses	("nurses" OR "nursing staff")
C (Concept)	Patient safety management activities, including the influencing factors and the practice areas of these activities	("patient safety management" OR "patient safety practice" OR "safety activities" OR "safety behaviour" OR "safety compliance") AND ("factor" OR "determinant" OR "predictor" OR "associated")
C (Context)	Hospital settings	("hospital")

Eligibility Criteria

This review included peer-reviewed journal articles published between 2020 and 2025; original research studies conducted in hospital settings across any type of care unit, and full-text publications. Studies were considered eligible when they examined nurses' activities, behaviours, practices, or performance related to patient safety in hospital settings and reported findings on their influencing factors and practice areas. Although the included studies used varied terms, these were considered conceptually relevant to the review focus and were synthesised under the overarching term patient safety

management activities for consistency. Literature reviews, conference proceedings, editorials, and case reports were excluded.

Quality Assessment

Quality appraisal was conducted using the JBI Critical Appraisal Tools for all 30 studies included in this review. The JBI Critical Appraisal Checklist for Analytical Cross-Sectional Studies and the JBI Critical Appraisal Checklist for Qualitative Research were used to assess the methodological rigour of the included studies. The appraisal results were used to support the interpretation of the findings.

Study Selection

Study selection process was conducted by three reviewers using the PRISMA flow diagram for scoping reviews (Figure 1). Titles and abstracts were independently screened using the Covidence software. Covidence was used to manage screening, remove duplicates, and facilitate consensus among reviewers. Discrepancies were resolved through discussion and agreement.

Data extraction

A standardised data extraction form was used to record the author and year of publication, country, study design, participant and setting characteristics, and key findings related to nurses' patient safety management activities.

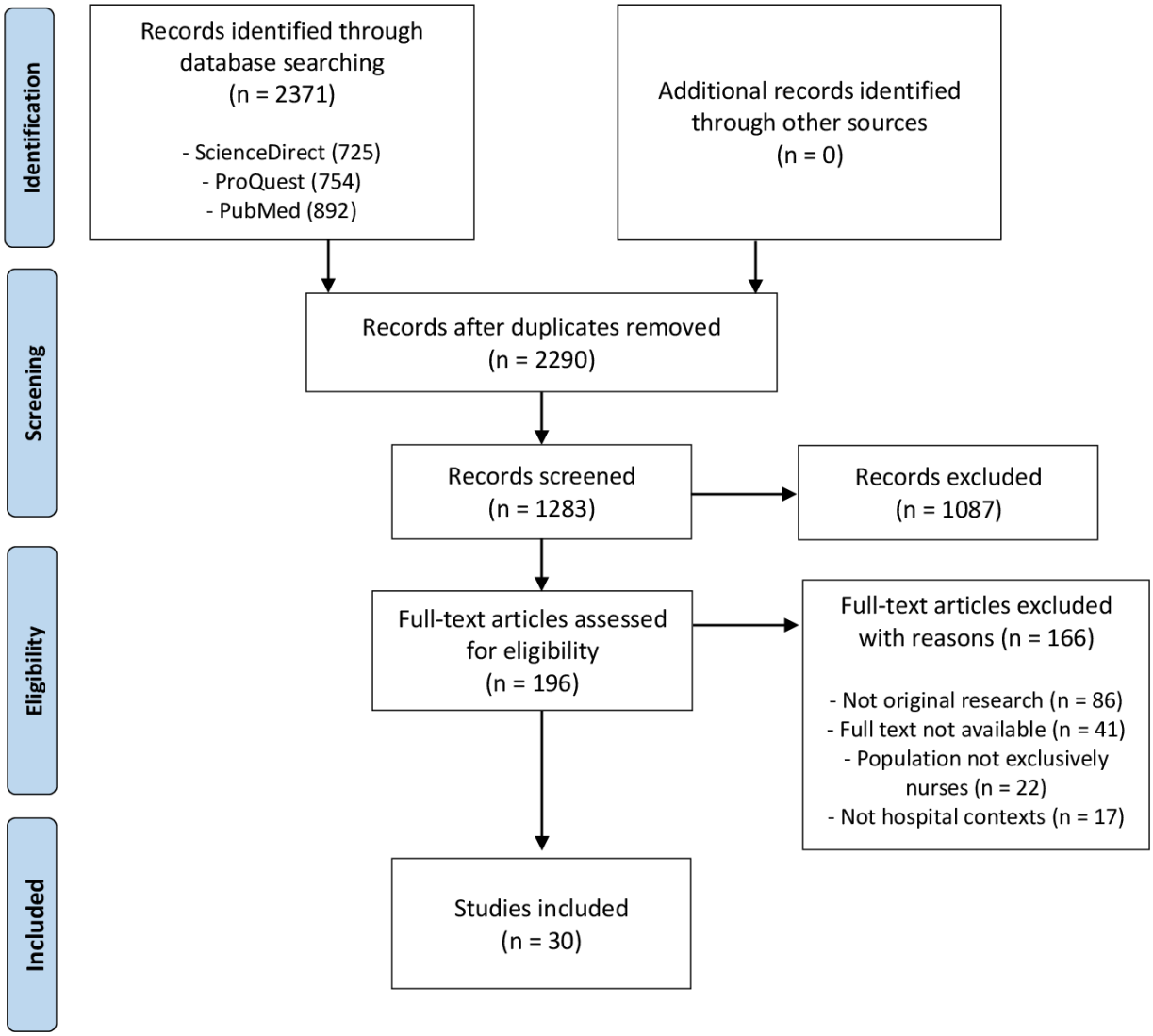
Data analysis

The extracted data were analysed descriptively and synthesised into two main categories: (1) factors influencing nurses' patient safety management activities and (2) the reported practice areas of these activities. The results were then summarised narratively and presented in tables to facilitate comparison across studies.

RESULTS

A total of 2,371 records were identified through database searching. After duplicate removal and titles and abstracts screening, full-text articles were assessed based on predefined inclusion criteria. Finally, 30 studies were included in the review. The study selection process is presented in Figure 1.

Figure 1. PRISMA flow diagram of article selection



Quality appraisal of the included studies showed that most were assessed as having a low risk of bias (n = 25), while five studies were categorised as having a moderate risk of bias. The detailed quality appraisal results are presented in Table 2.

Table 2: The JBI Critical Appraisal Checklist to assess the risk of bias for the included studies

No.	Author	JBI Score	Interpretation
1.	Lee & Oh, (2020)	75,00 %	Low risk bias
2.	Huh & Shin, (2021)	87,50 %	Low risk bias
3.	Hwang et al., (2021)	75,00 %	Low risk bias
4.	Kim & Yu, (2021)	75,00 %	Low risk bias
5.	Kim & Jeong, (2021)	100 %	Low risk bias
6.	Jarrar et al., (2021)	100 %	Low risk bias
7.	Jeong et al., (2021)	100 %	Low risk bias
8.	Ryu & Shim, (2021)	100 %	Low risk bias
9.	Lin et al., (2022)	75,00 %	Low risk bias
10.	Ryu & Shim, (2022)	100 %	Low risk bias
11.	Seo & Lee, (2022)	75,00 %	Low risk bias
12.	Kim et al., (2022)	100 %	Low risk bias
13.	Al-Bsheish et al., (2023)	87,50 %	Low risk bias
14.	Subramaniam et al., (2023)	62,50 %	Moderate risk bias
15.	Ma et al., (2023)	75,00 %	Low risk bias
16.	Seo & Lee, (2023)	75,00 %	Low risk bias
17.	Yuk & Yu, (2023)	62,50 %	Moderate risk bias
18.	Asante & Novak, (2024)	62,50 %	Moderate risk bias
19.	Lee & Hwang, (2024)	100 %	Low risk bias
20.	Kim & Yu, (2024)	75,00 %	Low risk bias
21.	Dwyer et al., (2024)	100 %	Low risk bias
22.	Berdida & Grande, (2024)	87,50 %	Low risk bias
23.	Tajari et al., (2024)	90,00 %	Low risk bias
24.	Hamdan et al., (2024)	75,00 %	Low risk bias
25.	No & Lee, (2024)	100 %	Low risk bias
26.	Hong Le et al., (2025)	62,50 %	Moderate risk bias
27.	Chen et al., (2025)	100 %	Low risk bias
28.	Bakari et al., (2025)	62,50 %	Moderate risk bias
29.	Nafe et al., (2025)	100 %	Low risk bias
30.	Kwak et al., (2025)	100 %	Low risk bias

Characteristics of the Included Studies

The characteristics of the included studies are summarized in Table 3. A total of 30 articles were identified, with most conducted in high income countries (n = 19), followed by upper middle-income countries (n = 6), and lower middle-income countries (n = 5). The majority of the studies employed a quantitative correlational cross-sectional design (n = 29), and qualitative study (n = 1). The study participants primarily consisted of nurses across various care settings (n = 18), followed by emergency department nurses (n = 3), intensive care unit nurses (n = 2), geriatric nurses (n = 1), psychiatric nurses (n = 1), medical-surgical nurses (n = 1), perioperative nurses (n = 1), chemotherapy nurses (n =1), and Covid-19 nurses (n = 2).

Table 3: Characteristics of the included studies

No	Author, Year	Country	Research Design	Participants and Settings	Findings	
					Factors Influencing	Practice Areas
1.	Lee & Oh, (2020)[11]	South Korea	Quantitative correlational cross-sectional	200 emergency nurses from tertiary and general hospitals	- Age - Training experience - Hospital accreditation - Patient safety culture - Organizational learning	- Fall prevention - Patient identification - Infection prevention - Medical administration - Precautions when admitting patients - Medical equipment - Fire drills - Safe restrains - Managing difficult patients - Infection control and reverse isolation - Managing patients with tuberculosis and AIDS - Blood transfusion
2.	Huh & Shin, (2021)[12]	South Korea	Quantitative correlational cross-sectional	186 nurses from 12 geriatric hospitals	- Competences (attitude, knowledge, skill)	- Patient identification - Medication - Communication - Infection prevention - Fall prevention - Blood transfusion - Firefighting - Equipment check
3.	Hwang et al., (2021)[13]	South Korea	Quantitative correlational cross-sectional	408 nurses from 2 hospitals (general hospital and teaching hospital)	- Cognitive - Teamwork - Safety climate - Leadership - Handover quality	- Compliance with general procedures

No	Author, Year	Country	Research Design	Participants and Settings	Findings	
					Factors Influencing	Practice Areas
4.	Kim & Yu, (2021)[14]	South Korea	Quantitative correlational cross-sectional	189 nurses from 4 general hospitals	- Gender - Just culture - Empowerment	- Patient identification - Medication - Communication - Surgery procedure - Infection prevention - Fall prevention - Environmental management - Bedsore prevention - Emergency preparedness
5.	Kim & Jeong, (2021)[15]	South Korea	Quantitative correlational cross-sectional	330 nurses from 12 general hospitals	- Subjective norm - Attitude - Behaviour control - Intention - Supervision - Communication and feedback - Participation system	- Infection control - Patient identification - Specimen management - Medical equipment and product management - Surgical counting - Injury prevention
6.	Jarrar et al., (2021)[16]	Malaysia	Quantitative correlational cross-sectional	652 medical surgical nurses from 10 private hospitals	- Race - Number of patients - Work environment - Patient centered care	- Medication error prevention - Fall prevention - Infection prevention - Patient complaints - Bedsore prevention
7.	Jeong et al., (2021)[17]	South Korea	Quantitative correlational cross-sectional	120 clinical nurses (medical surgical wards, operating rooms, and ICU) from 2 university hospitals	- Patient safety silence - Moral sensitivity	- Medication - Infection control - Patient identification - Communication - Fall prevention - Blood transfusion

No	Author, Year	Country	Research Design	Participants and Settings	Findings	
					Factors Influencing	Practice Areas
						- Patient care during transport - Pain management - Bedsore prevention - Environment
8.	Ryu & Shim, (2021)[18]	South Korea	Quantitative correlational cross-sectional	301 shift-working nurses from 4 general hospitals	- Regular exercise - Stress - Burnout - Compassion satisfaction	- Patient identification - Communication - Safe medication - Surgical procedure - Infection prevention - Fall prevention - Oral prescription management - Environmental management - Bedsore prevention - Crisis management
9.	Lin et al., (2022)[19]	Taiwan	Quantitative correlational cross-sectional	484 chemotherapy nurses from 1 medical center and 2 regional hospitals	- Safety climate	- Medication (chemotherapy drugs)
10.	Ryu & Shim, (2022)[20]	South Korea	Quantitative correlational cross-sectional	280 shift-working nurses from 3 tertiary hospitals	- Stress - Compassion satisfaction - Fatigue	- Patient identification - Communication - Safe medication - Surgical procedure - Infection prevention - Fall prevention - Oral prescription management - Environmental management - Bedsore prevention - Crisis management

No	Author, Year	Country	Research Design	Participants and Settings	Findings	
					Factors Influencing	Practice Areas
11.	Seo & Lee, (2022)[21]	South Korea	Quantitative correlational cross-sectional	1053 nurses from 1 teaching hospital	- Knowledge - Motivation - Safety climate	- Compliance with general procedures
12.	Kim et al., (2022)[22]	South Korea	Quantitative correlational cross-sectional	171 nurses from 7 small–medium-sized hospitals	- Professional self-concept - Work environment - Patient safety culture	- Patient identification - Communication - Management of high-risk medication - Surgical procedure - Infection prevention - Fall prevention
13.	Al-Bsheish et al., (2023)[23]	Jordan	Quantitative correlational cross-sectional	285 ICU nurses from 8 governmental hospitals	- Active safety participation - Physical work environment - Organizational safety commitment	- Compliance with general procedures
14.	Subramaniam et al., (2023)[24]	Malaysia	Quantitative correlational cross-sectional	332 nurses from 1 tertiary hospital	- Knowledge - Motivation - Leadership	- Compliance with general procedures
15.	Ma et al., (2023)[25]	China	Quantitative correlational cross-sectional	957 nurses from tertiary cancer hospitals in 5 provinces	- Work engagement - Self-efficacy	- Compliance with general procedures
16.	Seo & Lee, (2023)[26]	South Korea	Quantitative correlational cross-sectional	1053 nurses from 1 teaching hospital	- Perception about patient safety's rule - Communication about errors - Coworker support	- Compliance with general procedures

No	Author, Year	Country	Research Design	Participants and Settings	Findings	
					Factors Influencing	Practice Areas
17.	Yuk & Yu, (2023)[27]	South Korea	Quantitative correlational cross-sectional	200 nurses from 3 general hospitals	- Marital status - Professional Autonomy - Work environment	- Patient identification - Communication - Medication - Surgical procedure - Infection prevention - Fall prevention - Safe environment - Bedsore prevention - Emergency preparedness
18.	Asante & Novak, (2024)[28]	Ghana	Quantitative correlational cross-sectional	285 nurses from 4 primary healthcare hospitals	- Subjective norm - Attitude - Behaviour control - Intention - Organizational support	- Compliance with general procedures
19.	Lee & Hwang, (2024)[29]	South Korea	Quantitative correlational cross-sectional	206 Covid-19 nurses from 7 small and medium-sized hospitals	- Experience - Salary - Sense of calling - Stress - Organizational commitment - Work environment	- Patient identification - Communication - Medication - Surgical procedure - Infection prevention - Fall prevention
20.	Kim & Yu, (2024)[30]	South Korea	Quantitative correlational cross-sectional	160 nurses from 2 hospitals (general hospital and women's hospital)	- Working unit - Shared leadership - Organizational commitment	- Patient identification - Communication - Medication - Surgical procedure - Infection prevention - Fall prevention - Safe environment - Bedsore prevention

No	Author, Year	Country	Research Design	Participants and Settings	Findings	
					Factors Influencing	Practice Areas
						- Emergency preparedness
21.	Dwyer et al., (2024)[31]	Australia	Quantitative correlational cross-sectional	291 nurses from 60 public hospitals	- Training - Attitude - Subjective norm - Behaviour control - Belief - Experience - Documentation system	- Compliance with EWS for acute clinical deterioration
22.	Berdida & Grande, (2024)(32)	Philippines	Quantitative correlational cross-sectional	730 nurses from public or private hospitals	- Safety climate - Quality of care	- Prevention of cross-infection - Disposal of sharps - Disposal of waste - Decontamination of spills and used article - Use of protective devices
23.	Tajari et al., (2024)[33]	Iran	Descriptive qualitative	7 ICU nurses from 8 teaching hospitals	- Attitude - Professional ethics - Nurses' competence on holistic care - Organizational support - Work environment	- Safe medication - Fall prevention - Infection prevention - Appropriate nursing procedure - Safe mechanical ventilation - Safe blood transfusion - Safe restraint - Proper care of patient connections - Prevention of delirium - Prevention of DVT - Pain control - Safe transfer of patients - Obtaining informed consent

No	Author, Year	Country	Research Design	Participants and Settings	Findings	
					Factors Influencing	Practice Areas
24.	Hamdan et al., (2024)[34]	Saudi Arabia	Quantitative correlational cross-sectional	200 nurses from 5 hospitals (general hospital, pediatric hospital, maternity hospital, kidney center, dental center)	- Transformational leadership - Patient safety culture	- Safe medication - Fall prevention - Unplanned extubating - Safety handover
25.	No & Lee, (2024)[35]	South Korea	Quantitative correlational cross-sectional	177 psychiatric nurses from 9 mental hospitals	- Safety control - Safety climate	- Patient identification - Prescription and medication - Infection prevention - Fall prevention - Environmental safety - Pressure ulcer prevention - Coping emergency - Coping psychiatric problems situation
26.	Hong Le et al., (2025)[36]	Vietnam	Quantitative correlational cross-sectional	205 nurses from city children hospital	- Age - Gender - Years of experience - Education level	- Nurses' patient handover task using SBAR model communication
27.	Chen et al., (2025)[37]	China	Quantitative correlational cross-sectional	171 perioperative nurses from 3 tertiary hospitals	- Years of experience - Education level - Training - Position - Work environment - Supervision	- Safe medication
28.	Bakari et al., (2025)[38]	Pakistan	Quantitative correlational cross-sectional	722 Covid-19 nurses from tertiary hospitals	- Fear - Safety consciousness - Safety climate	- Compliance with general procedures

No	Author, Year	Country	Research Design	Participants and Settings	Findings	
					Factors Influencing	Practice Areas
29.	Nafe et al., (2025)[39]	Iran	Quantitative correlational cross-sectional	226 emergency nurses from teaching hospitals	- Report system - Teamwork - Organizational learning - Feedback dan Communication	- Patient identification - Medication - Surgical procedure - Infection prevention - Fall prevention - Security - Blood transfusion - Bedsore prevention - Management of firefighting
30.	Kwak et al., (2025)[40]	South Korea	Quantitative correlational cross-sectional	165 emergency nurses from 8 hospitals	- Experiences - Salary - Sense of calling - Stress - Organizational commitment - Work environment	- Patient identification - Communication - Medication - Surgical procedure - Infection prevention - Fall prevention

Factors Influencing Nurses' Patient Safety Management Activities

The included studies identified that nurses' patient safety management activities are influenced by general characteristics as well as internal and external factors.

General Characteristics

General characteristics refer to socio-demographic and professional background of nurses. While all studies reported these characteristics, not all examined their associations with patient safety management activities. Overall, participation in patient safety training emerged as the most frequently reported factor and showed a strong association with safety practices among emergency department nurses[11,40]. Higher educational level were demonstrated better safety practice[36,37]. In addition, longer work experience, often related to age, was positively associated with nurses' patient safety management activities[11,29,31,36].

Internal Factors

Internal factors refer to nurses' personal attributes influencing patient safety management activities. Key factors identified include attitudes, perceptions, knowledge, and skills. Positive attitudes and perceptions towards patient safety were associated with greater motivation and active participation in safety practices[21,24]. Conversely, negative psychological conditions such as stress, fatigue, and burnout reduce nurses' compassionate satisfaction in delivering safe and high-quality care[18,20,29]. Professional competence, including patient safety knowledge and clinical skills, supports nurses' ability to recognize risks, make appropriate decisions, and perform safe practices[21,24,27]. These competencies also contribute to self-efficacy and increased involvement in patient safety activities[25]. Cognitive abilities, such as understanding and problem-solving were also associated with patient safety management activities[13].

External Factors

External factors refer to influences beyond individual nurse. The work environment was the most frequently reported factor, including relationships with colleagues and supervisors, organizational systems, and physical conditions[16,22,23,27,33,37]. Leadership styles, particularly transformational and shared leadership, were associated with improved patient safety management activities[24,30,34]. A positive patient safety culture including just culture, staff empowerment, promote open communication, organizational learning, and safety commitments, was also associated with improved patient safety management activities[14,23,30,34,39]. Other organisational factors, such as supervision, communication, and feedback, were also found to enhance nurses' safety management activities in operating rooms[14,37].

Practice Areas of Nurses' Patient Safety Management Activities

The reported practice areas of nurses' patient safety management activities encompassed both IPSG and non-IPSG areas.

IPSG Area

The study included (Table 3) indicate that nurses' compliance with IPSG areas was examined in 19 of the 30 studies. These studies commonly referred to both national and international standards, including Joint Commission International (JCI) (2024), Agency for Healthcare Research and Quality (AHRQ), WHO's Standard Precautions, the Guidelines for Patient Safety Korea (2013), the Korea Institute for Healthcare Accreditation (2010), and Health Industry Development Institute. Findings indicated that adherence to structured effective communication tools, such as Situation, Background, Assessment, and Recommendation (SBAR), and compliance with accreditation standards were important components of patient safety practices[11,36].

Non IPSG Area

In addition to IPSG-related practice areas, most studies also reported non-IPSG areas, including both general and specific safety activities. In emergency departments, these include medical equipment use, infection control (Tuberculosis and AIDS), restraint use, and managing difficult patients interactions[11]. In intensive care units (ICU), practices included mechanical ventilation safety, delirium prevention, deep vein thrombosis (DVT) prevention, pain assessment, and safe patient transfers[33]. In psychiatric settings, safety practices included environmental safety and management of psychiatric emergencies[35]. In operating rooms, practices included specimen management and surgical instrument counts[15]. Additional areas included pressure injury prevention and emergency preparedness, such as fire safety. Some studies emphasized adherence to general procedures and the use of personal protective equipment (PPE), highlighting that fundamental nursing practices remain central to patient safety.

DISCUSSION

Patient safety management activities should be understood as a shared responsibility across professional and organisational levels, with nurses playing a central role as frontline professionals in implementing safe care. This review highlights that nurses' patient safety management activities are shaped by both internal and external factors within the IPSG framework, while also encompassing safety practices that extend beyond these global standards. These findings are consistent with the WHO Global Patient Safety Action Plan 2021-2030, which emphasises shared responsibility and the empowerment of health workers in advancing patient safety[4].

Educational background, training history, and clinical experience may strengthen nurses' readiness for safe practice, while professional competence, knowledge, cognitive abilities, and positive attitudes toward patient safety support risk recognition, clinical decision-making, and the delivery of safe care[41,42]. These findings are consistent with previous studies demonstrating a significant relationship between professional competence and patient safety[43], in line with Benner's *From Novice to Expert* theory, which emphasizes that competence developed through clinical experience is essential for managing patient safety challenges in complex modern healthcare systems. Conversely, negative psychological conditions such as fatigue, stress, and burnout may reduce nurses' ability to maintain safe and high-quality care [44].

External factors were also consistently associated with nurses' patient safety management activities. A supportive work environment characterized by effective communication, teamwork, and adequate staffing promotes adherence to safety standards and reduces missed nursing care[23,45]. In addition, a positive patient safety culture suggest that the work environment functions not only as a structural condition but also as a practical framework that enables safe clinical practice. All dimensions of patient safety culture significantly correlate with nurses' patient safety management activities[46]. Leadership and supervisory support may further strengthen nurses' engagement in patient safety practices by promoting coaching, feedback, and reinforcement of safe care behaviours[7,47–50]. Overall, these findings suggest that patient safety management activities are not shaped by individual competence alone, but by the dynamic interplay between nurses' internal capacities and the organisational conditions in which care is delivered.

The findings also confirm that the International Patient Safety Goals (IPSG) remain an important framework for guiding patient safety practices. Core areas such as accurate patient identification, effective communication, medication safety, correct surgery procedure, prevention of healthcare-associated infections, and fall prevention remain essential components of safe nursing care. These IPSG areas require consistent procedural compliance with the standards, continuous monitoring, and the application of evidence-based protocols[6,51]. However, the included studies suggest that IPSG alone may not fully capture the breadth of nurses' patient safety management activities in real-world clinical settings.

Several studies identified additional safety practices beyond IPSG, particularly in specialised units and higher-complexity care settings where patients are more vulnerable and the risk of adverse events is greater[52]. These areas included, for example, pressure injury prevention, emergency preparedness, safe chemotherapy handling, and other unit-specific safety responsibilities. Hospital fire emergencies present substantially greater risk compared to other buildings environments due to evacuation challenges and the potential for casualties[46]. These findings reinforce the view that patient safety management activities also involve nurses' roles in systemic thinking, including maintaining a safe and supportive care environment[53].

In this context, patient safety should not be viewed solely as procedural compliance. A recent study described Safety Standard Workarounds (SSWA) as improvised modifications to work procedures in response to clinical complexity, illustrating how nurses may adapt standard processes to maintain safe care in dynamic clinical situations[54]. From a Safety-II perspective, such adaptations reflect nurses' everyday work-as-done, in which they adjust their practices to respond to variability and maintain safe care[55]. For example, a nurse may intentionally bypass barcode medication scanning in an emergency to ensure immediate drug administration. Although such actions may deviate from standard procedures, they reflect nurses' adaptive decision-making in response to urgent clinical demands[31]. These findings suggest that patient safety strategies should extend beyond procedural compliance by also supporting nurses' professional judgement, adaptive capacity, and context-responsive decision-making through competency development, supportive leadership, and enabling organisational policies.

By synthesising evidence across diverse clinical settings, this review provides a broader understanding of the multidimensional nature of patient safety management in nursing practice. Nevertheless, the findings should be interpreted with some caution, as the

literature search did not include other major nursing and multidisciplinary databases such as the Cumulative Index to Nursing and Allied Health Literature (CINAHL), Scopus, and Web of Science. In addition, a substantial proportion of the included studies were conducted in high- and upper-middle-income countries, while evidence from low- and middle-income countries (LMICs) remained limited. This geographical concentration may limit the applicability of the findings to LMIC settings, where differences in healthcare systems, including staffing availability, organisational resources, access to training, and patient safety cultures may shape how patient safety management activities are implemented in practice. Future research should explore how internal and external factors interact across different care contexts and how these relationships influence measurable patient safety outcomes. Context-specific studies in LMICs are particularly needed to better understand implementation challenges in resource-constrained settings.

CONCLUSION

Nurses, as frontline healthcare professionals, play a central role in ensuring patient safety within complex healthcare systems. This review highlights that nurses' patient safety management activities are shaped by the dynamic interplay of internal factors (e.g., competence, professional attitudes, and individual perceptions) and external factors (e.g., organisational support, work environment, patient safety culture, and supervision). Importantly, patient safety practices extend beyond the International Patient Safety Goals (IPSG), encompassing both IPSG-related and non-IPSG areas that reflect context-specific and unit-level safety responsibilities that reflect the complexity of real-world clinical settings. Patient safety management further involves not only procedural compliance but also professional judgement and adaptive decision-making. These findings underscore the need for patient safety strategies that balance standardisation with contextual flexibility, supported by strong leadership, continuous professional development, and a culture of safety. Strengthening these foundations is essential to optimising nurses' contributions to patient safety across diverse healthcare settings.

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