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THE EFFECTIVENESS OF PATIENT SAFETY IN REDUCING PATIENT SAFETY INCIDENTS

Eppy Setyowati[1]*, Febi Ariska Putri[2], Wiwin Handayani[2], Kristiningrum[2]
[1]Department of Nursing, Faculty of Nursing and Midwifery, Universitas Nahdlatul Ulama Surabaya, Jl. Smea No.57, Wonokromo, Wonokromo, Surabaya, Jawa Timur 60243, Indonesia
[2]Master of Applied Nursing Student, Faculty of Nursing and Midwifery, Universitas Nahdlatul Ulama Surabaya, Jl. Smea No.57, Wonokromo, Wonokromo, Surabaya, Jawa Timur 60243, Indonesia
*eppy@unusa.ac.id

ABSTRACT
Patient safety incidents (PSIs) continue to pose serious challenges to healthcare quality and public trust. The persistence of adverse events, near misses, and medical errors indicates that patient safety implementation remains inadequate, often due to weak reporting cultures, limited healthcare worker competence, and insufficient risk management systems. This study aimed to synthesize evidence on the effect of patient safety implementation in reducing patient safety incidents in healthcare services. A literature review was conducted on studies published between 2020 and 2025 using PubMed, Google Scholar, Semantic Scholar, and ScienceDirect. From 1,833 identified articles, duplicates were removed, titles and abstracts were screened, and methodological quality was assessed using the JBI Critical Appraisal Checklist. Seven eligible articles were included and analyzed through narrative synthesis. The findings show that effective patient safety implementation reduces patient safety incidents through four main components: incident reporting systems, strengthening safety culture, improving healthcare worker competence through education, and utilizing information technology for reporting and rapid response. These strategies enhance risk identification, procedural compliance, and prevention of recurrent incidents. Patient safety implementation significantly reduces patient safety incidents and improves healthcare service quality. Comprehensive strategies, managerial support, and continuous non-punitive reporting systems are essential for sustainable patient safety improvement.

Keywords: patient safety; patient safety incidents; reporting system; safety culture

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INTRODUCTION

Patient safety is one of the fundamental indicators in assessing the quality of healthcare services in healthcare facilities. A major challenge still faced by many healthcare institutions is the high incidence of patient safety events, such as adverse events, near misses, healthcare-associated infections, and medical errors. These incidents not only contribute to increased patient morbidity and mortality but also reduce public trust in healthcare services and increase the financial burden on institutions. Previous studies have reported that suboptimal implementation of patient safety programs is often associated with a low safety culture, limited incident reporting, poor adherence to standard procedures, and the lack of comprehensive integration of risk management systems (Melo et al., 2021).

Patient safety is particularly significant because incidents may occur across various aspects of care, including surgical procedures, medication administration, inpatient services, and primary care. In hospital settings, inter-unit collaboration, compliance with the surgical safety checklist, and the effectiveness of adverse event reporting systems are key determinants in preventing harmful events. In the global context, numerous studies indicate that both the frequency and severity of patient safety incidents remain relatively high, especially in high-risk units such as intensive care units

(ICUs), operating rooms, and technology-intensive services (Urban et al., 2019; Sansone et al., 2020).

Efforts to improve patient safety have been implemented through various interventions, including the adoption of patient feedback systems, the establishment of inter-hospital collaborative networks, the use of cognitive load training for healthcare professionals, and regular assessments using evaluation tools such as the Global Trigger Tool. These interventions have been shown to contribute to a reduction in adverse events and an improvement in safety culture, although their implementation varies across healthcare facilities (Zhao et al., 2021; Melo et al., 2021). In Indonesia, initiatives to strengthen patient safety have been strengthened through the implementation of risk management, enhanced incident reporting, and education for patients and families as part of incident prevention strategies (Aritonang, 2020; Haryanti et al., 2024).

Proposed solutions to enhance the effectiveness of patient safety include strengthening organizational safety culture, optimizing incident reporting systems, improving healthcare workers' competencies, and integrating patient and family participation into the care process. The effective implementation of patient safety initiatives has been proven to reduce patient safety incidents when carried out consistently, systematically, and based on scientific evidence. Therefore, research on the effectiveness of patient safety is essential to identify success factors, implementation barriers, and opportunities for continuous improvement in the delivery of safe and high-quality healthcare services.

METHOD

The research method used in this study was a literature review. A literature review is a systematic and structured process of analyzing scientific articles, rather than a random summary based on the author's preferences. This approach is developed based on previously formulated research questions (Nursalam, 2020). Based on this rationale, the authors conducted a literature review examining the effectiveness of patient safety in reducing patient safety incidents.

Data Sources

The search for articles in this study was conducted through journals relevant to the research topic by using databases including PubMed, Google Scholar, Semantic Scholar, and ScienceDirect.

Data Collection Procedure

Table 1.
Invention Article from Database

Search Date	Database	Keywords	Number of Arrikels
20 – 11 - 2025	Google Scholar (2020-2025)	“Patient OR Patients” AND “Patient Safety” AND “Patient Safety Program” AND “Incident Reduction”.	320
20 – 11 - 2025	Pubmed (2020-2025)	“Patient OR Patients” AND “Patient Safety” AND “Patient Safety Program” AND “Incident Reduction”.	188
20 – 11 - 2025	Sematic Scholar (2020-2025)	“Patient OR Patients” AND “Patient Safety” AND “Patient Safety Program” AND “Incident Reduction”.	800
20 – 11 - 2025	Sciendirect (2020-2025)	“Patient OR Patients” AND “Patient Safety” AND “Patient Safety Program” AND “Incident Reduction”.	525

The initial step in data collection involved determining keywords relevant to the research topic, namely: “Patient OR Patients” AND “Patient Safety” AND “Patient Safety Program” AND “Incident Reduction.” These keywords served as the basis for searching and selecting journals to be

reviewed. The selection of appropriate keywords is crucial to ensure that the retrieved articles are directly relevant to the research focus, thereby enabling a systematic literature screening process, including a clear explanation of the time limits applied to the article search.

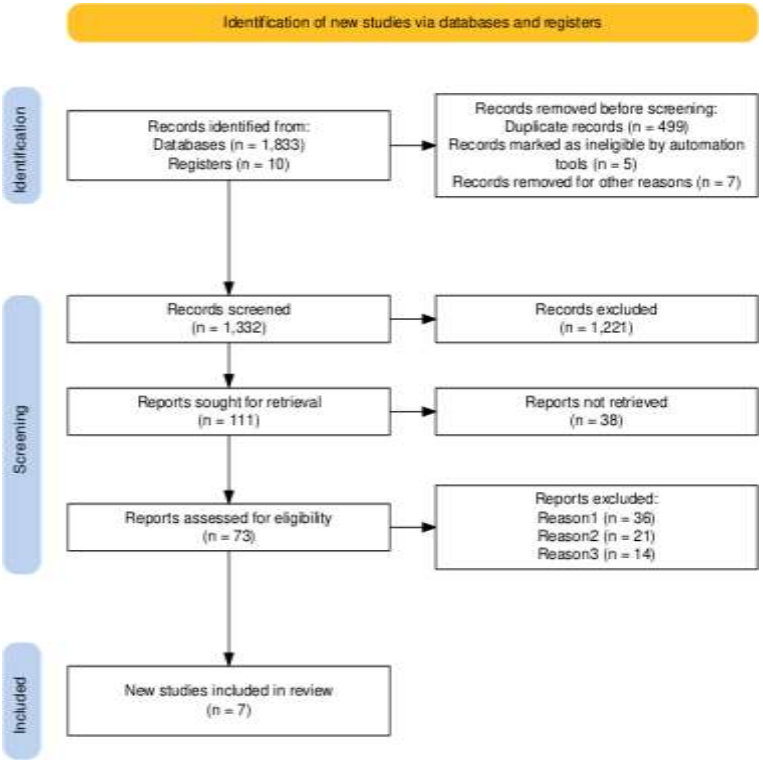
Step Collection Data

1. *Problem* / *population* , that is something incident / problem / population Which want to analyzed by researchers.
2. *Intervention,* namely implementation studies in accordance with theme Which Already specified in *literature review* that is Program Patient Safety
3. *Comparison,* is giving management other so that done as differentiator with journal Which other.
4. *Outcome* , is something acquisition results Which obtained from a study journal Which Already in *review* .
5. *Study Design,* namely the use of research designs carried out in research journals Which in *review*.

Table 2.
Criteria Inclusion and Exclusion

Criteria	Inclusion	Exclusion
Population	Power Health or patients in hospitals or service Health related safety patient	Population out of service health
Intervention	Implementation patient program sefety	Articles that do not discuss intervention sure safety
Comparison	Facility Health without program patient safety	No There is Comparison
Outcome	Decline number safety incident patient	Results not reporting related data incident patient safety
Study Design	Studies quantitative, qualitative, *mixed methods* , quasi-experimental, cohort, cross-sectional, pre-post test, original research (2020-2025)	Systematic review, meta-analysis, literature narrative review, editorial, proceedings
Language And Access	Article full text, Indonesian or English, open access	Article not available in full text / paid

Selection Studies



Picture 1. Diagram PRISM Flow 2020

The literature review was conducted through a systematic search using Google Scholar and PubMed with the keywords “Patient OR Patients” AND “Patient Safety” AND “Patient Safety Program” AND “Incident Reduction”. The initial search identified 1,833 articles. Duplicate records were removed and articles were screened based on titles, resulting in 499 articles being excluded. The remaining 1,332 articles underwent full-text screening. Subsequently, 73 articles were assessed for relevance to the research questions and objectives. After applying the inclusion criteria and feasibility assessment, seven articles were deemed eligible and included in the final literature review.

Evaluation Quality

Process analysis done For evaluate quality study with use The JBI Critical Appraisal Checklist is an instrument for evaluating the suitability of articles. Each assessment item given category "yes", "No", "No clear", or "No applies”. Answer “yes” get score 1, whereas category other worth 0. Mark from all over grains on each study Then added up For get score total. Study Which reach at least 50% from the total assessment score according to the threshold that has been set agreed Researchers were classified as meeting the inclusion criteria. Studies of low quality were not included . For minimize potential bias And guard validity findings review. On final stage of quality screening, there were 15 studies that achieved a score of ≥50% and were declared worthy For synthesized. In a way overall, evaluation done to 15 studies Which become base compilation review library This.

RESULT

Characteristics Studies

Article fulfil criteria inclusion based on topic literature review. Factors who contributed in the study of the Effectiveness of Patient Safety on the Decrease in Safety Incident Patient.

Table 3.
DSVIA (Design, Sample, Variables, Instrument, Analysis) .

No	Title	DSVIA (Design, Sample, Variables, Instruments, Analysis)	Research result
1	Using Incident Reporting Systems to Improve Patients Safety (Kumah et al., 2024)	D : Observational study S : Power health in hospital (amount not mentioned) V : System reporting incident improvement patient safety I: Questionnaire, data incident report A: Analysis descriptive C thematic	Implementation system incident reporting improve risk identification capabilities and improve preventive measures to reduce incidents safety patient.
2	Effectiveness and limitations of an incident- reporting system to reduce adverse events in hospitals (Ramirez et et al., 2020)	D : Evaluation program / quasi- experimental S : House Sick with IRS active V : System reporting C incident harm I : Review data report incident A : Statistics descriptive	Incident reporting systems contribute to a reduction in adverse events, but has limitations related to reporting culture and fear of punishment.
3	Enhancing Patient Safety Culture in Hospitals (Mistri et al., 2023)	D : Cross-sectional survey S : 500 power health V : Culture safety, communication, Work team I : HSOPSC Questionnaire A : Regression linear	A strong patient safety culture improves inter-team communication and helps prevent incident events related patient
4	Effectiveness of Patient Safety Implementation on Improving Patient Safety in Hospitals (Nur et al., 2021)	D : Quasi- experimental S : Nurse room care stay (n not clearly stated) V : Implementation patient safety C safety patient I : Observation, checklist SOUP A : Paired t- test	There is improvement significant in the implementation of patient safety, which has an impact on reducing undesirable events

No	Title	DSVIA (Design, Sample, Variables, Instruments, Analysis)	Research result
5	Safety Culture Education towards the Implementation of Patient Safety (Panggalih, 2023)	D : Pre-post test design S : Nurse ICU/ER, amount not mentioned V : Education safety culture C safety implementation patient I : Questionnaire C observation A : Wilcoxon test	Education increase knowledge And attitude nurses regarding patient safety, so that increase compliance and reduce potential incident.
6	Prevention Safety Incident Patients using Patient Safety Enhancement Strategy (Saraswati, 2025)	D: Descriptive quantitative S: Nurse in Hospital government V: Safety strategy C prevention incident I: Questionnaire A: Analysis descriptive	strengthening strategies have been shown to increase incident prevention through improved reporting culture. vigilance clinical.
7	Implementation of Patient Safety Incident Reporting Using Web-Based Quality Management Information System in Hospital C Nadjib, 2025)	D: Mixed methods S: Power user health application V: System electronic reporting C reporting effectiveness incident I: Interview, observation, data reporting digital A: Statistics descriptive	System reporting based web enhance incident reporting , traceability, and response handling more quickly, thus contributing to improvements safety patient.

Process selection based on PRISM 2020 ensure only article original quality research tall Which relevant with topic studied. Nine article selected shows consistent results that the use of the Patient Safety system is quite effective in reducing patient safety incidents.

DISCUSSION

Patient safety incidents (PSIs) represent a serious challenge that directly affects service quality and public trust in healthcare facilities. A comprehensive review of ten journals published between 2020 and 2025 consistently demonstrates that the implementation of patient safety systems has a positive and significant impact on reducing patient safety incidents, aligning with numerous studies that highlight the effectiveness of these programs. Research on the effectiveness of patient safety in reducing PSIs indicates that successful implementation depends on several key components: (1) incident reporting systems, (2) strengthening patient safety culture, (3) improving healthcare workers' competencies through education, and (4) utilization of health information technology. A synthesis of seven articles provides consistent evidence that patient safety strategies can reduce adverse events and improve hospital service quality.

Incident Reporting Systems as Risk Prevention Instruments

Two studies (Kumah et al., 2024; Ramírez et al., 2018) emphasize that Incident Reporting Systems (IRS) are a core component in efforts to reduce patient safety incidents. Kumah et al. (2024) found that IRS implementation enhances healthcare workers' ability to identify risks early, improve preventive actions, and reduce the likelihood of recurrent incidents. Meanwhile, Ramírez et al. (2018) showed that IRS directly contributed to a reduction in adverse events, despite challenges such as weak reporting culture and healthcare workers' fear of punishment. These differences indicate that the effectiveness of incident reporting is strongly influenced by organizational culture and managerial support. Thus, the success of IRS is not solely determined by system availability, but also by healthcare workers' willingness to report incidents without fear.

Strengthening Safety Culture as the Foundation of Implementation

Studies by Mistri et al. (2023) and Panggalih (2023) confirm that patient safety culture is a fundamental element in reducing incidents. Mistri et al. (2023) demonstrated that a strong safety culture enhances interprofessional communication and teamwork, thereby preventing clinical errors.

Similarly, Panggalih (2023) showed that safety culture education improves healthcare workers' knowledge and attitudes, influencing compliance with standard operating procedures related to patient safety. These findings suggest that behavioral interventions and organizational culture change are essential to reduce incident rates. Hospitals must foster a non-punitive and trust-based culture so that staff feel safe reporting incidents.

Improving Human Resource Competence Through Education and Training

Several studies indicate that improving healthcare workers' competencies directly affects patient safety quality. Nur et al. (2021) reported that structured patient safety programs improve clinical compliance, minimize adverse events, and enhance service quality. This aligns with Saraswati (2025), who emphasizes the importance of patient safety enhancement strategies in increasing clinical vigilance, reporting culture, and risk prevention. Both studies highlight that strengthening healthcare workers' competencies is a key operational factor in reducing patient safety incidents.

Utilization of Information Technology in Reporting and Quality Management

Digitalization of incident reporting has been shown to enhance reporting system effectiveness. Jeremia C. Nadjib (2025) demonstrated that web-based reporting systems improve accuracy, traceability, response speed in incident management, and increase the number of reported incidents. The use of web-based quality management information systems enables more transparent, systematic, and well-documented processes, ultimately supporting data-driven decision-making.

Furthermore, the benefits of optimal patient safety implementation are multidimensional. According to Akbar Nur (2021), effective implementation ensures that the community receives higher-quality and safer healthcare services, while also enabling hospitals to meet national and international standards and enhance public trust. For healthcare workers, it fosters new values emphasizing the importance of patient safety in every care activity. However, the success of these systems depends heavily on strong risk management and transparent reporting culture. Therefore, management commitment is required through continuous training, incentives for reporters, and strict supervision.

CONCLUSION

A review of seven studies published between 2020 and 2025 indicates that patient safety implementation is effective in reducing patient safety incidents and improving healthcare service quality. Successful implementation is influenced by four main aspects: incident reporting systems, patient safety culture, improvement of healthcare workers' competencies through education, and utilization of information technology in reporting systems. Optimization of these four components has been shown to strengthen risk prevention, enhance procedural compliance, and accelerate incident management.

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