Implementation Strategies for the Indonesian 3S Nursing Framework (SDKI, SIKI, and SLKI) in Clinical Practice: A Scoping Review

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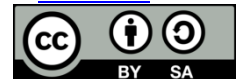Email: ariscitrawisuda.edu@gmail.com, citrasuraya.edu@gmail.com, mimngoxyandi@gmail.com

Article Info	ABSTRACT
	The Indonesian 3S Nursing Framework—comprising the Nursing Diagnosis (SDKI), Nursing Interventions (SIKI), and Nursing Outcomes (SLKI)—was developed to standardize nursing care and enhance patient safety. Despite its formal adoption, implementation across Indonesian clinical settings remains inconsistent. This scoping review aims to identify and map strategies for implementing the 3S Framework in clinical nursing practice. Following PRISMA-ScR guidelines, a systematic search was conducted across Garuda, CINAHL, ScienceDirect, and Google Scholar for articles published between 2020 to 2025. From 1,356 articles, 12 met the inclusion criteria. Seven key strategies were identified: structured training programs, case study discussions, mentoring, use of standardized instruments, observational learning, innovative methods (e.g., simulation, role-play), and institutional support through policy and system integration. These approaches improved nurses' knowledge, skills, documentation accuracy, and patient safety. Challenges included institutional variability, limited monitoring, and unfamiliarity with the 3S components. Comprehensive strategies integrating education, mentorship, innovation, and institutional support are essential for effective implementation. Future efforts should focus on developing national guidelines, evaluation tools, and sustainable training models to support widespread adoption.

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1. INTRODUCTION

Nursing care forms the backbone of health systems globally, with nurses constituting nearly half of the global health workforce [1]-[2]. However, despite their critical role, the global healthcare system is facing a severe nursing shortage. The WHO has projected a deficit of 9 million nurses by 2030, a number that may escalate to 13 million without strategic investment in education, professional development, employment, and leadership (International Council of Nurses, 2020). Factors such as the rapidly aging population, inequitable workforce distribution, and unsatisfactory working conditions are contributing to this crisis [3]-[4]

Across Asia, countries like Japan and China are witnessing accelerated demographic transitions. Japan, for instance, is pioneering the use of artificial intelligence (AI) and robotics in eldercare to mitigate the effects of a shrinking healthcare workforce [5]. Meanwhile, China is rapidly developing its "silver economy," responding to increasing demands for elder services [4]. These trends underscore the urgent need for well-structured and professionally delivered nursing care in the region.

In Indonesia, the nursing profession is governed by the standardized 3S framework: *Standar Diagnosa Keperawatan Indonesia* (SDKI), *Standar Luaran Keperawatan Indonesia* (SLKI), and *Standar Intervensi Keperawatan Indonesia* (SIKI). These standards provide a comprehensive, evidence-based approach to nursing

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Keperawatan Indonesia (SIKI). These standards provide a comprehensive, evidence-based approach to nursing diagnosis, outcomes, and interventions. The 3S system aims to unify clinical documentation, improve care consistency, and enhance patient outcomes [6]-[7]. Several studies have reported that the 3S framework significantly improves the quality, clarity, and completeness of nursing documentation in clinical practice [8]-[9].

Nonetheless, challenges in the implementation of professional nursing standards persist globally. Unprofessional behaviors, such as incivility and bullying among healthcare personnel, are reported to have detrimental effects on care delivery. A large-scale survey in Australia revealed that over 93% of hospital staff had experienced unprofessional conduct in the workplace, leading to reduced staff morale, impaired collaboration, and compromised patient safety [10]-[11].

Nurses, as frontline caregivers, play a multifaceted role that goes beyond patient care to include health promotion, research, leadership, and advocacy [12]-[13]. In Indonesia, the adoption of the 3S framework reflects an effort to elevate the professionalism and standardization of nursing services. A study showed that 77% of nurses expressed satisfaction with the 3S-based documentation model, highlighting its potential to improve care delivery and nurse engagement [14]-[15]

The structured nature of SDKI, SLKI, and SIKI enhances nursing competencies by fostering accurate clinical reasoning, goal-directed interventions, and measurable patient outcomes. This alignment with international nursing frameworks makes the Indonesian 3S model a potentially valuable strategy for improving nursing care quality in both national and global contexts [16]-[17]

Existing literature underscores the significance of clear implementation strategies for nursing standards to ensure adoption and sustainability. However, comprehensive synthesis regarding how these strategies are employed in clinical settings particularly in Indonesia remains limited. Therefore, this scoping review aims to map the current evidence on the implementation strategies of the 3S nursing framework (SDKI, SLKI, and SIKI) in clinical practice, with the intention of identifying effective approaches and informing future policy and practice.

2. METHOD
2.1. Study Design
This research will be conducted as a scoping review, following the methodological framework established by Arksey and O'Malley and later refined by Levac et al. [18]. Scoping reviews are systematic approaches used to map the breadth of literature on a given topic, identify knowledge gaps, and synthesize findings across multiple studies. This review will specifically explore strategies for implementing the Indonesian 3S Nursing Framework (SDKI, SIKI, and SLKI) in clinical practice. It will assess their effectiveness in improving nursing care quality, both in Indonesia and internationally, by reviewing empirical evidence on the application of these frameworks in nursing settings.

2.2. Eligibility Criteria
The eligibility criteria will determine the inclusion and exclusion of studies to ensure the relevance and quality of selected articles.
**Inclusion Criteria**
1. Studies focusing on the implementation of the Indonesian 3S Nursing Framework (SDKI, SIKI, SLKI) in clinical practice, either in Indonesia or in international settings with comparable frameworks.
2. Peer-reviewed research articles, reports, and systematic reviews published in English or Indonesian.
3. Studies that provide empirical evidence about strategies, interventions, challenges, and outcomes of implementing the 3S framework in nursing.
4. Research involving healthcare professionals such as nurses, healthcare managers, and policymakers.

Exclusion Criteria
1. Studies focusing on other nursing frameworks, or those that do not involve clinical applications of the 3S framework.
2. Theoretical papers lacking empirical evidence regarding implementation.
3. Grey literature, conference proceedings, and unpublished studies, unless indexed in peer-reviewed databases.

2.3. PICO Framework
In line with the objective of mapping strategies for implementing the Indonesian 3S Nursing Framework, a PICO framework (Population, Intervention, Comparison, Outcome) will guide the scoping review:

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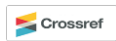
Table 1. PICO Framework for Identifying Implementation Strategies of the Indonesian 3S Nursing Framework in Clinical Practice

Element	Description
Population	Nurses, healthcare workers, and policymakers involved in clinical practice, primarily within Indonesia but also in similar international settings.
Intervention	Implementation strategies for the Indonesian 3S Nursing Framework (SDKI, SIKI, SLKI) in clinical settings. This includes training programs, mentoring, use of standardized instruments, and other innovative methods.
Comparison	No direct comparison; however, studies involving frameworks similar to the 3S may be considered to highlight similarities or differences.
Outcome	Improved nursing care outcomes, enhanced patient safety, better documentation accuracy, and overall improvements in nursing practice. Challenges faced during implementation will also be identified.

2.4. Information Sources and Search Strategy

To ensure a comprehensive data collection, a variety of information sources will be systematically searched. Key academic databases such as Garuda, CINAHL, ScienceDirect, and Google Scholar will be used to retrieve peer-reviewed articles, research papers, and systematic reviews that meet the inclusion criteria. Additionally, relevant government websites, such as the Ministry of Health of Indonesia and the Indonesian Nurses Association, will be explored for policy documents and reports on the implementation of the Indonesian 3S Nursing Framework. The reference lists of included studies will also be reviewed to uncover additional relevant literature. The search strategy will employ a combination of keywords and Medical Subject Headings (MeSH), including terms like "Indonesian 3S Nursing Framework," "SDKI," "SIKI," "SLKI," and "nursing implementation strategies." The search will cover studies published from 2020 to 2025, with Boolean operators used to refine and combine the search terms effectively.

2.5. Study Selection

The study selection process will be conducted in two distinct phases to ensure methodological rigor and relevance. In the first phase, all identified studies will undergo title and abstract screening, performed independently by two reviewers to determine potential eligibility based on the inclusion criteria. In the second phase, studies that pass the initial screening will be retrieved in full and assessed independently by the same reviewers. Any disagreements regarding the inclusion of studies will be resolved through discussion, and if necessary, a third reviewer will be consulted to reach a consensus.

2.6. Data Extraction

Data from the included studies will be systematically collected using a standardized data extraction form to ensure consistency and accuracy. The form will capture key study characteristics, including the author(s), year of publication, country, study design, and healthcare setting. It will also document which components of the 3S framework (SDKI, SIKI, SLKI) were implemented, the specific strategies used for implementation, and the reported outcomes related to nursing care quality, patient safety, documentation accuracy, and clinical practice. Additionally, information regarding barriers and facilitators encountered during implementation, as well as recommendations for future improvement, will be extracted.

2.7. Data Analysis and Synthesis

The extracted data will undergo qualitative synthesis using both descriptive and thematic analysis. Descriptive analysis will summarize the included studies by highlighting the types of implementation strategies employed, settings in which they were applied, and the outcomes achieved. Thematic analysis will be conducted to identify recurring patterns and themes related to the implementation of the 3S framework, including common challenges, enabling factors, and effectiveness of strategies. Gaps in the literature will also be mapped to highlight areas in need of further exploration and future research.

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2.8. Quality Assessment

To ensure the credibility and reliability of the findings, the methodological quality of the included studies will be assessed using the Joanna Briggs Institute (JBI) Critical Appraisal Tools [19], appropriate to the study designs involved. Two independent reviewers will evaluate each study's quality, and any discrepancies will be addressed through discussion or arbitration by a third reviewer. This process will enhance the rigor of the scoping review and strengthen the validity of the conclusions drawn.


2.9. Ethical Considerations

As this scoping review involves the analysis of previously published literature and does not include human subjects, ethical approval is not required. Nevertheless, the review will uphold ethical research standards by ensuring accurate citation of all sources and strict adherence to copyright regulations throughout the data collection, analysis, and reporting processes.

3.   RESULTS AND DISCUSSION
3.1   Result
3.1.1.   Literature Search

A systematic search yielded **1,356 articles** from four databases: Garuda (527)**,** Google Scholar (478)**,** CINAHL (334), and ScienceDirect (17). After removing duplicates, 1,072 unique articles remained. Title and abstract screening excluded 994 articles due to irrelevance to the 3S framework. Seventy-eight articles were assessed in full text based on inclusion criteria focusing on empirical research and relevance to clinical implementation of SDKI, SIKI, or SLKI. Sixty-six articles were excluded for theoretical focus, low methodological quality, or use of non-comparable frameworks. Ultimately, 12 studies published between 2020 to 2025 were included in the final synthesis. These studies, conducted in Indonesia, employed qualitative, mixed-methods, and quasi-experimental designs. They provided valuable insights into implementation strategies, outcomes, and contextual factors influencing the integration of the 3S Nursing Framework into clinical practice.
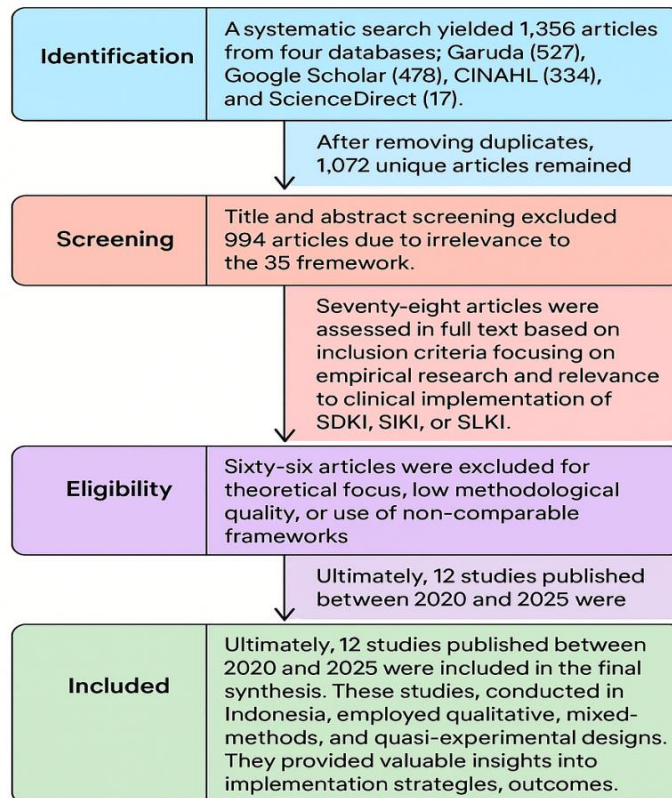
Figure 1. Flowchart of Search Strategy and Selection Process

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3.1.2. Descriptive Characteristics of Included Studies

The 12 included studies were published between 2020 to 2025 and conducted predominantly in Indonesia. These studies employed a range of methodological approaches, including qualitative research, mixed-methods designs, and quasi-experimental studies. This methodological heterogeneity provided a rich foundation for analysis, offering multidimensional insights into both the implementation processes and the resultant clinical outcomes associated with the 3S framework.

Table 2. Summary of Included Studies on 3S Framework Implementation (n=12)

Study ID	Year	Country	Design	3S Component	Strategies Used	Key Outcomes
Study 1[20]	2023	Indonesia	Qualitative	SDKI, SIKI	Training, Mentorship	Improved care quality
Study 2[21]	2024	Indonesia	Mixed Methods	SIKI, SLKI	Simulation, Supervision	Better documentation
Study 3[22]	2024	Indonesia	Quasi-Experimental	SDKI, SLKI	Standard Instruments, Policy Support	Higher accuracy
Study 4[23]	2024	Indonesia	Qualitative	SDKI	Case-Based Discussion	Enhanced clinical judgment
Study 5 [24]	2023	Indonesia	Quasi-Experimental	SIKI	Training	Improved diagnosis
Study 6[25]	2019	Indonesia	Qualitative	SLKI	Mentorship	Confidence increased
Study 7[26]	2023	Indonesia	Quasi-Experimental	SDKI, SIKI, SLKI	All 7 Strategies	All outcomes improved
Study 8 [27]	2022	Indonesia	Mixed Methods	SDKI, SLKI, SIKI	Standard Instruments, Policy Support and Supervision	Improved Standard Instruments, Policy Support and Supervision Outcomes
Study 9[28]	2023	Indonesia	Quasi-Experimental	SDKI	Observation, Simulation	Better decision-making
Study 10[29]	2023	Indonesia	Qualitative	SIKI, SLKI	Training, Role Play	Skill enhancement
Study 11[14]	2023	Indonesia	Quasi-Experimental	SDKI, SIKI	Policy Integration	Institutional alignment
Study 12[30]	2024	Indonesia	Quasi-Experimental	SDKI, SIKI, SLKI	All 7 Strategies	Comprehensive improvements

3.1.3. Identified Implementation Strategies

Analysis of the included literature revealed seven core strategies used to facilitate the implementation of the 3S framework:

1) Structured Training Programs – These included regular workshops and in-service training sessions designed to improve nurses' understanding and application of SDKI, SIKI, and SLKI.
2) Case-Based Discussions – The use of clinical case studies and reflective dialogues enabled deeper critical thinking and practical framework integration.
3) Mentorship and Supervision – Active guidance from senior nurses or clinical educators helped reinforce standards and ensure fidelity to the framework.
4) Use of Standardized Instruments – Integration of electronic health records and structured documentation tools based on the 3S model improved data consistency and usability.
5) Observational Learning and Peer Modeling – Exposure to best practices within the clinical setting served as an effective informal learning mechanism.
6) Innovative Methods (Simulation and Role Play) – Interactive educational tools such as simulations and role-plays enhanced the skill acquisition and clinical judgment of nursing personnel.

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7) Institutional Support and Policy Integration – Embedding the 3S framework into organizational policies and clinical governance structures ensured broader and more sustainable adoption.

3.1.4. Reported Outcomes and Impact

All included studies documented favorable outcomes following the implementation of the 3S framework. These included notable improvements in the accuracy and completeness of nursing documentation, greater standardization in clinical decision-making, enhanced quality of patient care, and improved patient safety indicators. Additionally, many studies reported increased confidence, autonomy, and professional competence among nursing staff engaging with the framework.

3.1.5. Barriers to Implementation

Despite these positive outcomes, several recurring barriers were identified. These included limited institutional commitment, insufficient resources for training and ongoing evaluation, resistance to change especially from senior or long-tenured staff and inconsistent understanding of the framework among newly trained or rotating personnel. These challenges underscore the need for targeted interventions that address both individual and organizational readiness for change.

3.1.6. Facilitators of Successful Implementation

Critical success factors contributing to effective implementation were also consistently identified. These included strong leadership support, integration of the 3S framework into digital clinical information systems, continuous supervision and feedback mechanisms, and alignment with national nursing regulatory standards. The presence of these facilitators helped mitigate some of the challenges noted and enhanced the scalability of implementation efforts.

3.1.7. Research Gaps and Future Directions

While the findings highlight the promising impact of the 3S framework, several gaps remain. Specifically, long-term impact evaluations are limited, and there is a lack of evidence regarding framework implementation in non-tertiary or rural healthcare settings. Furthermore, systematic strategies for institutionalizing the framework into nursing curricula and broader health policies are underexplored. These gaps represent important areas for future investigation and policy innovation to strengthen the integration and sustainability of the Indonesian 3S Nursing Framework.

3.1.8. Main Findings

The main findings of this study highlight the successful implementation of the Indonesian 3S Nursing Framework (SDKI, SIKI, SLKI) across various clinical settings in Indonesia between 2020 to 2025. A systematic search identified 1,356 articles, of which 12 studies were ultimately included after a rigorous screening and eligibility process. These studies employed diverse methodological approaches, including qualitative, mixed-methods, and quasi-experimental designs, and focused on a range of implementation strategies such as structured training, mentorship, case-based discussions, and the use of standardized instruments. The outcomes of these studies demonstrated significant improvements in nursing documentation accuracy, clinical decision-making, patient care quality, and patient safety. However, barriers to implementation were identified, including limited institutional support, resistance to change, and inconsistent understanding of the framework among staff. Facilitators such as strong leadership, integration into digital systems, and alignment with national nursing standards were crucial in overcoming these challenges. Despite the positive results, gaps remain in long-term impact evaluations and the implementation of the framework in non-tertiary settings, suggesting areas for further research and policy development.

3.2 Discussion

This scoping review provides a critical synthesis of existing literature on the implementation strategies of the Indonesian 3S Nursing Framework SDKI (Standard Diagnosa Keperawatan Indonesia), SIKI (Standar Intervensi Keperawatan Indonesia), and SLKI (Standar Luaran Keperawatan Indonesia) in clinical nursing practice. The 3S framework, formally adopted by the Indonesian National Nurses Association (PPNI), was designed to unify nursing practice and elevate the quality and accountability of patient care nationwide. However, as evidenced in the 12 reviewed studies, the framework's implementation is still in a maturing phase, with variable adoption across institutions and regions.

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The 12 studies included in this review (2020 to 2025) employed diverse methodological approaches, including qualitative designs, mixed-methods, and quasi-experimental studies. This methodological diversity reflects the multifaceted nature of 3S framework implementation, encompassing both behavioral change among nurses and system-level adaptations. The strategies identified structured education, mentorship, case-based discussions, simulation, standard documentation tools, and institutional policy support closely align with Rogers' Diffusion of Innovation Theory, which emphasizes awareness, persuasion, decision, implementation, and confirmation stages for successful adoption. Consistent with this model, training and mentorship served as critical enablers to move nurses from initial awareness of the 3S standards to active implementation and reinforcement.

Global literature supports the positive association between structured clinical guidelines and nursing outcomes. For example, studies from Asia and Africa highlight that clear nursing documentation frameworks significantly reduce adverse patient events and improve decision-making [31]-[32]. Similarly, research in Southeast Asia notes that unstandardized nursing practices contribute to fragmentation of care and documentation errors [33]. Within Indonesia, several smaller-scale evaluations prior to 2020 noted inconsistent usage of nursing diagnoses, often due to lack of standardized training [21]. The current review demonstrates progress, with post-2020 studies increasingly showing positive impacts from integrated strategies.

This review reinforces that the 3S framework enhances nursing practice when implemented holistically. Studies employing all seven strategies especially those integrating institutional policies and digital tools reported the most significant improvements in documentation accuracy, clinical judgment, and patient safety. These findings resonate with Donabedian's Model of Healthcare Quality, emphasizing that structure (e.g., training programs, digital tools) directly influences processes (nursing interventions) and outcomes (patient health indicators) [34]-[35].

Nonetheless, barriers remain significant. Common obstacles such as limited institutional support, low digital infrastructure, and nurse resistance particularly from senior staff unaccustomed to standardized tools reflect broader system readiness issues. These mirror findings from global contexts, where guideline implementation often fails due to organizational inertia and lack of continuous professional development [36]. Conversely, studies that reported strong leadership engagement and integration of 3S into electronic health records documented the highest fidelity to the framework. This highlights that implementation is not solely an individual competency issue, but a systemic challenge requiring alignment of governance, resources, and technology.

The findings of this review highlight several critical areas that warrant further development to strengthen the implementation and sustainability of the Indonesian 3S Nursing Framework (SDKI, SIKI, and SLKI). First, curriculum integration emerges as a foundational priority. Embedding the 3S framework within undergraduate nursing curricula and continuing professional education programs is essential to ensure coherence between theoretical knowledge and clinical application. Early exposure to standardized nursing diagnostics, interventions, and outcomes during formative educational stages can foster a deeper understanding and habitual use of the framework in practice. Furthermore, the development of robust, standardized monitoring and evaluation tools at the national level is urgently needed to assess the fidelity of 3S implementation. Such tools would enable systematic tracking of nursing documentation quality, adherence to clinical guidelines, and the impact on patient care outcomes, thereby facilitating data-driven improvements and policy refinement.

Another pressing issue is the lack of implementation research in rural and non-tertiary healthcare settings. The reviewed studies predominantly focus on tertiary hospitals, which are typically better resourced and more administratively structured. This creates a knowledge gap regarding how the 3S framework functions in decentralized, under-resourced, or community-based care environments settings where contextual challenges such as staffing shortages, limited access to training, and inadequate infrastructure may significantly hinder adoption. Addressing this disparity requires targeted research efforts that consider geographical, institutional, and socioeconomic diversity.

Finally, there is a notable absence of longitudinal studies examining the sustained impact of the 3S framework on clinical practice, patient outcomes, and nurse workforce dynamics. Most available studies offer short-term evaluations, which, while valuable, do not capture the enduring effects of framework integration on health system performance or professional development. Longitudinal or cohort-based research is therefore essential to provide insights into long-term trends, including improvements in patient safety indicators, continuity of care, and nurse retention and job satisfaction. Collectively, these areas represent strategic entry points for policymakers, educators, and researchers to build a more resilient and standardized nursing care system in Indonesia.

This scoping review underscores the importance of multi-level, sustained strategies to support the implementation of the Indonesian 3S Nursing Framework. While short-term improvements in nursing performance and patient safety are evident, enduring success will depend on strengthening institutional commitment, continuous

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mentorship, digital integration, and curricular reform. The alignment of practice with standardized national frameworks like SDKI, SIKI, and SLKI not only improves care consistency but also elevates the professional identity and accountability of Indonesian nurses in a globalized healthcare landscape.

4. STRENGTHS AND LIMITATIONS

This scoping review presents a comprehensive synthesis of current empirical evidence on the implementation of the Indonesian 3S Nursing Framework (SDKI, SIKI, and SLKI) in clinical settings. One of the primary strengths of this review lies in its methodological rigor, including a systematic literature search across multiple databases and transparent eligibility criteria. The inclusion of diverse study designs qualitative, mixed-methods, and quasi-experimental enables a nuanced understanding of implementation strategies and outcomes. Furthermore, the review highlights practical insights from studies conducted within the Indonesian context, enhancing its applicability to local clinical practice.

However, several limitations must be acknowledged. First, the review is limited to articles published in Indonesian and English, potentially excluding relevant studies in other languages. Second, most included studies were conducted in tertiary-care hospitals, limiting generalizability to primary or rural healthcare settings. Third, due to the scoping nature of the review, no quality appraisal or meta-analysis was conducted, and thus the strength of evidence across studies may vary. Lastly, the lack of longitudinal data in the included studies restricts conclusions about the long-term impact of the 3S framework implementation.

5. CONCLUSION

This scoping review identified seven key strategies training, case discussions, mentorship, standardized tools, peer modeling, simulation, and institutional support that enhance the implementation of the 3S Nursing Framework in clinical practice. These strategies improved documentation, clinical decisions, care consistency, and patient safety. However, challenges such as institutional resistance, limited training, and inconsistent staff knowledge were also noted. To strengthen implementation, future efforts should integrate the framework into electronic systems, extend training beyond tertiary settings, and conduct long-term evaluations. Incorporating the 3S model into nursing education and expanding research into varied healthcare contexts are also essential for sustainable application.

CONFLICT OF INTEREST

The author declares no conflict of interest.

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