



## Integrating Evidence-Based Clinical Framework in the Prevention of Pressure Ulcers Among Orthopedic Patients: How Responsive Are Nurses in Sub-Saharan African Countries? A Scoping Review

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### Abstract

**Background:** Pressure ulcers remain a major healthcare concern, particularly among orthopedic patients who are at increased risk due to prolonged immobility following surgery or trauma. In sub-Saharan Africa, the adoption of evidence-based clinical frameworks for pressure ulcer prevention is challenged by limited resources, inadequate staffing, and insufficient training. **Method:** This scoping review examined the responsiveness of nurses in sub-Saharan Africa to the implementation of evidence-based practices aimed at preventing pressure ulcers in orthopedic patients. A comprehensive literature search was conducted across PubMed, CINAHL, Google Scholar, African Journals Online, and Medline, yielding four eligible studies published between 2019 and 2024. **Results:** Findings indicate significant gaps between knowledge and practice. Although 67% of surveyed nurses recognized the importance of regular patient repositioning, only 35% adhered to this practice consistently. Barriers included high patient-to-nurse ratios, limited resources, and systemic factors that hinder the application of evidence-based guidelines. Cultural influences and variations in training further contributed to inconsistent practice. **Conclusion:** Strengthening nursing education, improving resource allocation, and creating supportive institutional environments are critical for enhancing the implementation of evidence-based pressure ulcer prevention strategies. Addressing these gaps has the potential to significantly improve outcomes for orthopedic patients who are particularly vulnerable to pressure ulcer development.

**Keywords:** Evidence-Based Clinical Framework, Pressure Ulcer, Orthopedic Patients, Nurses, Sub-Saharan Africa

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Received: Nov 10, 2025 Revised: Nov 14, 2025 Accepted: Nov 23, 2025

## Introduction

Pressure ulcers (PUs), also known as pressure injuries, are severe complications that arise from prolonged pressure on the skin and underlying tissues, most commonly affecting individuals who are immobile or have limited mobility. Orthopedic patients, due to surgical interventions or traumatic injuries, are at heightened risk for developing pressure ulcers. The consequences of pressure ulcers include prolonged hospitalization, increased healthcare costs, and significant morbidity, making prevention a critical aspect of patient care [Padula & Delarmente, 2019](#).

In Sub-Saharan Africa, the prevalence of pressure ulcers among hospitalized patients, particularly those undergoing orthopedic procedures, is concerning. Limited access to healthcare resources, inadequate staffing levels, and insufficient training in evidence-based practices significantly compromise the quality of care delivered [Akinpelu et al., 2021](#). Moreover, cultural practices and beliefs surrounding healthcare can further hinder nurses' responsiveness to evidence-based clinical frameworks designed to prevent PUs [Mabika](#)

[et al., 2022](#).

Integrating evidence-based clinical frameworks into nursing practice is essential for the effective prevention of pressure ulcers. Evidence-based practice (EBP) in nursing encompasses the conscientious use of current best evidence in making decisions about patient care, ensuring that interventions are scientifically validated and tailored to patient needs [Melnyk & Fineout-Overholt, 2019](#). The World Health Organization emphasizes the necessity of EBP in improving health outcomes, particularly in resource-limited settings, where adherence to established guidelines can have a profound impact on patient safety and quality of care [World Health Organization, 2021](#).

Despite the recognized importance of EBP, studies indicate that many nurses in Sub-Saharan Africa face barriers to its implementation, including limited access to training, inadequate institutional support, and a lack of appropriate resources, which collectively hinder their responsiveness to evidence-based protocols [Chumbow et al., 2020; Kamara et al., 2022](#). This scoping review seeks to explore the integration of evidence-based clinical frameworks for the prevention

tion of pressure ulcers in orthopedic patients across Sub-Saharan Africa and assess how responsive nurses are in implementing these protocols.

By identifying existing gaps in knowledge and practice, as well as barriers to EBP, this review contributes valuable insights that can inform interventions aimed at improving nursing practices regarding pressure ulcer prevention in this underserved region.

## Methods

This scoping review explores the integration of evidence-based clinical frameworks for the prevention of pressure ulcers among orthopedic patients and assesses the responsiveness of nurses in Sub-Saharan African countries. The review follows the methodological framework proposed by Arksey and O'Malley [Arksey & O'Malley, 2005](#) and the updated Joanna Briggs Institute (JBI) guidelines for scoping reviews [Peters et al., 2020](#). The findings are reported in accordance with the PRISMA guidelines.

### Defining the Research Question

The primary research question guiding this review is: *“What is the current state of evidence regarding the integration of evidence-based clinical frameworks in the prevention of pressure ulcers among orthopedic patients, and how responsive are nurses in Sub-Saharan Africa?”*

### Identifying Relevant Literature

A comprehensive literature search was conducted using PubMed, CINAHL, African Journals Online, Google Scholar, and Medline. The search covered studies published between 2019 and 2024 to ensure contemporary relevance. Keywords included “pressure ulcers,” “orthopedic patients,” “nurses,” “Sub-Saharan Africa,” “evidence-based practice,” and “clinical frameworks,” combined using Boolean operators (AND, OR). The search was conducted by Omale T. M.

### Selection Criteria

Two reviewers (Omale T. M. and Daniel A. O.) independently screened studies based on predefined inclusion criteria: peer-reviewed articles, systematic reviews, and qualitative studies focusing on pressure ulcer prevention among orthopedic patients in Sub-Saharan Africa; studies evaluating awareness, knowledge, or practices of nurses regarding evidence-based frameworks; and publications in English.

Exclusion criteria included studies not focused on orthopedic populations, non-peer-reviewed articles, opinion pieces, editorials, and studies conducted outside Sub-Saharan Africa.

### Data Extraction

Data extraction was conducted using a standardized form and included:

- Study characteristics (authors, year of publication,

country, study design),

- Population characteristics (sample size, demographics),
- Evidence-based practices and clinical frameworks evaluated,
- Findings related to nursing responsiveness and challenges encountered.

Extraction was performed independently by Daniel A. O. and Omale T. M., with discrepancies resolved through discussion. The initial draft of the scoping review was prepared by both reviewers. Dr. Olatubi M. I. and Prof. Durodola A. O. conducted overall review and validation.

### Data Analysis and Synthesis

Data were thematically analyzed and categorized by Omale T. M. into major themes, including nurses' knowledge levels, barriers to implementing evidence-based practices, cultural influences, and recommended strategies to improve responsiveness. Results are presented narratively.

### Quality Assessment

Although scoping reviews do not traditionally include formal quality appraisal, a descriptive assessment of methodological strengths and limitations of the included studies was conducted to provide contextual interpretation.

### PRISMA Flow Diagram

Figure 1 presents the PRISMA flow diagram summarizing study selection.

## Results

This scoping review synthesized findings from four peer-reviewed studies focusing on the integration of evidence-based clinical frameworks for the prevention of pressure ulcers (PUs) among orthopedic patients and the responsiveness of nurses in Sub-Saharan African countries. The results are organized into key thematic areas, including knowledge and awareness of evidence-based practices, barriers to implementation, cultural considerations, and recommendations for enhancing nursing responsiveness.

### Knowledge and Awareness of Evidence-Based Practices

Evidence from the reviewed literature indicates that although many nurses possess a general understanding of pressure ulcer prevention, their knowledge of specific evidence-based frameworks is often limited. For instance, a study in South Africa reported that only 45% of nurses were familiar with current clinical guidelines on PU prevention [Mokoena & Joubert, 2023](#). Similarly, in Nigeria, while 70% of respondents reported awareness of repositioning protocols, less than half consistently applied these practices [Ak-](#)

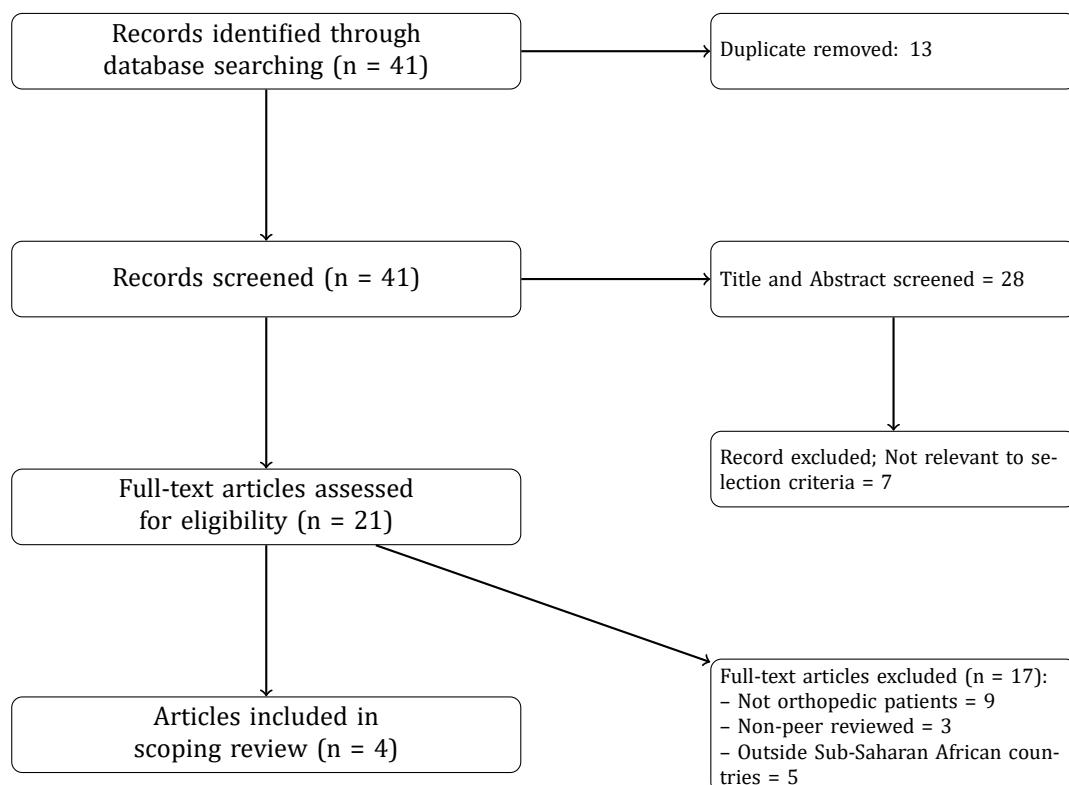


Figure 1: PRISMA Flow Diagram for Study Selection

**Legend:** Identification (top), Screening (second), Eligibility (third), Inclusion (bottom).

inpelu et al., 2021. These findings highlight a gap between theoretical awareness and practical implementation, underscoring the need for targeted training interventions.

## Barriers to Implementation

Multiple studies identified systemic and contextual challenges that impede the effective implementation of evidence-based framework and clinical guideline. In many healthcare facilities, essential resources such as pressure-relieving mattresses and adequate staffing are scarce, limiting nurses' ability to adhere to recommended prevention strategies Chumbow et al., 2020. High patient-to-nurse ratios further exacerbate workloads, reducing the time available for preventive care Kamara et al., 2022; Nyoni et al., 2021. Additionally, insufficient skills training on PU prevention persists, with one study from Zimbabwe reporting that 60% of nurses had received minimal training in evidence-based approaches Mabika et al., 2022.

## Cultural Considerations

Cultural beliefs and traditional practices also contribute to variations in nursing practices. Some traditional care practices contradict evidence-based recommendations, causing confusion among nurses regarding appropriate interventions Chimbindi et al., 2023. Furthermore, cultural perceptions of immobility and patient roles may hinder adherence to repositioning strategies and other preventive measures

Mukanga et al., 2021.

## Recommendations for Enhancing Responsiveness

Several strategies have been proposed to strengthen nurses' responsiveness to evidence-based PU prevention guidelines. Tailored educational programs that emphasize practical application have demonstrated meaningful improvements. Continuing education workshops significantly enhanced nurses' knowledge and practice of preventive measures in one study Nyoni et al., 2021. Additionally, investment in essential resources, including pressure-relieving devices, was highlighted as crucial to improving preventive care capacity Kamara et al., 2022. Engaging nurses in policy formulation and institutional decision making may also promote ownership and commitment to evidence-based practices Mokoena & Joubert, 2023.

## Research Gaps

Despite growing research interest, several gaps remain in understanding the integration of evidence-based clinical frameworks for PU prevention in Sub-Saharan Africa.

## Limited Research on Context-Specific Evidence-Based Practices

Most studies focus on general PU prevention strategies without adequately considering the unique cultural, economic, and health system contexts within Sub-Saharan Africa. Localized research is needed to evaluate the applicability and effectiveness of evidence-based practices in these settings [Akinpelu et al., 2021](#).

## Insufficient Focus on Nurse Training and Education

Although the importance of nurse education is widely recognized, there is limited research examining the specific training needs of nurses in Sub-Saharan Africa. Understanding these needs is critical for designing targeted educational programs that improve responsiveness [Kamara et al., 2022](#).

## Studies on Barriers and Challenges to Implementation of Evidence-Based Framework

More qualitative studies are needed to explore systemic, institutional, and personal barriers affecting the implementation of evidence-based PU prevention strategies. Existing studies mainly provide quantitative data without sufficiently addressing underlying contextual challenges [Chumbow et al., 2020](#); [Nyoni et al., 2021](#).

## Lack of Standardized Protocols

Many healthcare facilities lack context-specific, evidence-based PU prevention protocols, leading to inconsistencies in practice. Research is required to develop standardized guidelines tailored to Sub-Saharan African contexts [Mokoena & Joubert, 2023](#).

## Evaluation of Outcomes

Few studies have systematically evaluated outcomes related to the implementation of evidence-based PU prevention practices. Longitudinal and interventional research is needed to assess their impact on incidence rates, patient outcomes, and nursing practice [Chimbindi et al., 2023](#).

## Integration of Technology in Practice

There is limited research exploring the role of digital health technologies—such as mobile applications—in supporting PU prevention in Sub-Saharan Africa. Preliminary evidence suggests technology may enhance practice, but further investigation is needed [Mabika et al., 2022](#).

These findings collectively highlight the need for robust, context-sensitive research to strengthen the integration of evidence-based frameworks and improve nursing responsiveness to PU prevention in Sub-Saharan Africa.

## Discussion

This scoping review on integrating evidence-based clinical frameworks for the prevention of pressure ulcers among orthopedic patients in Sub-Saharan Africa identified several significant findings regarding nurses' knowledge, practices, and the barriers they face. The synthesis of recent literature provides insight into the current landscape of pressure ulcer prevention and highlights areas needing further inquiry.

## Knowledge and Familiarity with Evidence-Based Practices

A key finding is the variation in nurses' knowledge and familiarity with evidence-based practices for pressure ulcer prevention. Although many nurses are aware of general preventive strategies, a substantial gap exists in their understanding of specific evidence-based frameworks. For example, only 45% of nurses in Nigeria were able to accurately describe updated clinical guidelines for pressure ulcer prevention [Akinpelu et al., 2021](#). This lack of comprehensive awareness affects adherence to preventive measures and contributes to persistently high pressure ulcer rates among orthopedic patients.

## Integration of Training and Education Programs

The review highlights the importance of targeted training and continuing education programs in enhancing nurses' competencies. Studies indicate that nurses who received formal, structured training demonstrate improved consistency in implementing evidence-based practices [Kamara et al., 2022](#). Regular professional development initiatives, including mandatory continuing education and refresher courses on pressure ulcer management, could significantly improve responsiveness to evidence-based guidelines.

## Barriers to Implementation of Evidence-Based Practices

Systemic and contextual barriers remain significant obstacles to the successful implementation of evidence-based prevention strategies. Challenges such as inadequate staffing, high patient-to-nurse ratios, and limited access to essential resources—including pressure-relieving devices, have been widely documented [Chumbow et al., 2020](#). Cultural beliefs and traditional care practices may also conflict with evidence-based approaches, creating confusion and resistance among nursing staff [Mabika et al., 2022](#).

## Culturally Relevant Approaches

The findings underscore the need for culturally sensitive interventions tailored to the Sub-Saharan African context. Integrating cultural practices and community perspectives into training programs may improve acceptance of evidence-based frameworks and enhance adherence among nurses and patients [Chimbindi et al., 2023](#).

## Development and Implementation of Standardized Protocols

Another major gap identified is the absence of standardized protocols specific to the Sub-Saharan African setting. Many healthcare facilities operate without clear, context-appropriate guidelines for pressure ulcer prevention, resulting in inconsistent practices and variable outcomes [Mokoena & Joubert, 2023](#). Developing locally adaptable protocols based on evidence-based frameworks is essential for improving preventive care in orthopedic populations.

## Future Research Directions

The review identifies several areas for future research. Longitudinal studies are needed to evaluate the long-term effectiveness of implemented evidence-based practices. Research exploring digital health innovations, such as mobile health applications, may provide new opportunities for enhancing adherence to prevention strategies [Mabika et al., 2022](#). Additionally, qualitative studies exploring nurses' lived experiences could offer deeper insights into practical challenges and feasible solutions.

In conclusion, the findings emphasize notable gaps in knowledge, practice, and resource availability for pressure ulcer prevention among orthopedic patients in Sub-Saharan Africa. Addressing these gaps through targeted training, culturally relevant approaches, and context-specific protocols is crucial for improving patient outcomes. Collaborative efforts among nursing professionals, healthcare educators, and policymakers will be vital in fostering a responsive workforce capable of implementing evidence-based practices effectively.

## Conclusion

This scoping review provides a comprehensive examination of pressure ulcer prevention among orthopedic patients in Sub-Saharan Africa, focusing on nurses' responsiveness to evidence-based clinical frameworks. The findings highlight the critical need to integrate evidence-based practices into routine nursing care to improve patient outcomes and reduce the burden of pressure ulcers.

Despite growing awareness, substantial gaps persist in nurses' knowledge and application of evidence-based

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methods. While some familiarity with general prevention strategies exists, there is limited understanding of updated, context-appropriate clinical guidelines [Akinpelu et al., 2021](#); [Nyoni et al., 2021](#). Systemic barriers, such as resource limitations, inadequate staffing, and the absence of standardized protocols, further impede the implementation of effective prevention strategies [Chumbow et al., 2020](#); [Mokoena & Joubert, 2023](#).

To address these challenges, targeted educational interventions and structured training programs are essential. Culturally relevant curricula and localized clinical guidelines can improve adherence to best practices. Collaborative efforts among policymakers, educators, and nursing professionals may support the development of enabling environments for implementing evidence-based interventions.

Future research should address current limitations by incorporating longitudinal approaches and evaluating intervention effectiveness across diverse contexts. Additionally, exploring innovative technologies, such as mobile health tools, could offer new ways to improve nursing responsiveness and adherence to pressure ulcer prevention protocols [Mabika et al., 2022](#).

In summary, although significant challenges remain, integrating evidence-based clinical frameworks and enhancing nurse responsiveness can substantially improve pressure ulcer prevention and patient outcomes in Sub-Saharan Africa. Continued efforts in education, research, and policy development will be key to achieving sustainable improvements.

## Funding Sources

The authors declare that no external funding was received for this review.

## Conflict of Interest

The authors declare no conflict of interest.

## Authors' Contributions

1. T.M.O D.O.A -Literature search, data selection and extraction.
2. M.I.O A.O.D -professional guide, supervision / corrections and in-dept analysis.

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