



ARTICLE REVIEW

Pressure ulcers and nursing care: A systematic review

Úlceras por presión y el cuidado de enfermería. Revisión sistemática

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ABSTRACT

Introduction: in nursing, the care of patients who remain at rest for long periods of time is a priority, since this reduces the presence of complications in the skin and soft tissues. Establishing adequate care for bedridden patients is essential if we want to reduce the presence of ulcers in different areas of the body.

Objectives: to identify the effectiveness of nursing care for the prevention of pressure ulcers in bedridden patients.

Methods: systematic review of the scientific literature on nursing care in patients at risk of developing pressure ulcers; after reviewing 53 articles in Spanish and English, a total of 15 articles were obtained; all the studies reviewed were obtained from reliable sources with a strict scientific level, which offered an objective, clear, complete, technical and scientific view of the information.

Results: permanent care of patients who remain at rest for long periods of time is essential. Nursing professionals must establish an adequate care plan for people in immobile conditions, considering all aspects of the patient so that comprehensive care is provided aimed at reducing the risk of developing pressure ulcers.

Conclusions: nursing care activities aimed at reducing the risk of developing ulcers in bedridden patients are essential and should be established based on the specific needs of each patient.

Keywords: Pressure Ulcer; Nursing Care; Risks.

RESUMEN

Introducción: en enfermería los cuidados del paciente que permanece tiempos prolongados en reposo son una prioridad ya que esto reduce la presencia de complicaciones en la piel y tejidos blandos. Establecer los cuidados adecuados para el paciente encamado es imprescindible si se busca reducir la presencia de úlceras en diferentes áreas del cuerpo.

Objetivos: identificar la efectividad del cuidado de enfermería para la prevención de úlceras por presión en pacientes encamados.

Métodos: revisión sistemática de la literatura científica sobre el cuidado de enfermería en pacientes con riesgo de desarrollar úlceras por presión; luego de revisar 53 artículos en español como en inglés se obtuvieron un total de 15 artículos; todos los estudios revisados se obtuvieron de fuentes confiables y con estricto nivel científico, las cuales ofrecían una visión objetiva, clara, completa, técnica y científica de la información

Resultados: es imprescindible el cuidado permanente del paciente que permanece largos periodos en condición de reposo. El profesional de enfermería debe establecer un adecuado plan de cuidados de personas en condiciones de inmovilidad considerando todos los aspectos del paciente de manera que se brinde un cuidado integral orientado a reducir el riesgo del desarrollo de úlceras por presión.

Conclusiones: las actividades del cuidado de enfermería orientadas a reducir el riesgo de desarrollar úlceras en pacientes encamados son imprescindibles las mismas que deben establecerse en base a las necesidades específicas de cada paciente.

Palabras clave: Úlceras por Presión; Cuidado de Enfermería; Riesgos.

INTRODUCTION

All people are susceptible to suffering from a condition that affects their health, which could lead to the need to remain at rest for a long time. Remaining at rest for long periods generates various consequences on the general condition of a patient; the development of ulcers in pressure areas is one of the main problems that usually appear in this type of patient.^(1,2)

Pressure ulcers (PUs) are a common complication, affecting mainly people with reduced mobility or who are hospitalized for a considerable time. PUs initially affect the skin tissue, resulting in an increase in hospital stay, which translates into an increase in the cost of medical care and, if the necessary care is not provided, they lead to serious complications such as systemic infections.⁽³⁾ Measures taken to prevent or reduce the risk of occurrence should always be based on the best scientific evidence and adapted to the context of each patient.⁽⁴⁾

The scientific literature extensively describes the prevention of pressure ulcers, from the identification of risk factors to the evaluation of effective interventions. In this systematic review, we aim to analyze how nursing care contributes to the prevention of pressure ulcers by exploring the most current and effective mechanisms.⁽⁵⁾ Proactive and holistic management of nursing care to address risk factors at all stages of patient care is also crucial and should complement the clinical management of any injuries the patient has developed.⁽⁶⁾

The effectiveness of nursing care in reducing the risk and preventing pressure ulcers is directly proportional to the knowledge of the person providing such care. This is evidenced by studies that address the knowledge of nursing staff in preventing pressure ulcers.⁽⁷⁾

In one study, nurses' knowledge of pressure ulcers in intensive care was assessed; the aim was to evaluate whether a training intervention that provides ongoing updating is effective.⁽⁸⁾

Strategies for preventing pressure ulcers have evolved over time, and technology is now incorporated and care is based on cutting-edge scientific evidence. The use of anti-bedsores mattresses, the use of positioning devices, and the development of plans with position changes have emerged as effective approaches.⁽⁹⁾

A systematic review of nursing care to prevent pressure ulcers during hospital stays details the importance of combining nursing work and the use of new tools for pressure ulcer prevention.⁽¹⁰⁾

This systematic review comprehensively examines the effectiveness of nursing care for the prevention of pressure ulcers, highlighting the evolution of preventive strategies over time and underlining the importance of effective care based on knowledge and the use of necessary resources.

This is demonstrated by the implementation of a nursing care plan for the prevention of pressure ulcers secondary to pronation in patients with COVID-19.⁽¹¹⁾ As we move toward a more proactive, patient-centered approach to PU prevention, it is crucial to understand the most effective interventions and foster collaboration between patients and caregivers to achieve optimal outcomes.

Scientific progress in the field of nursing has enabled significant improvements in the quality of care by standardizing care to address specific patient problems. While technological advances play a crucial role in providing tools and facilities for care, it is imperative to have extensive knowledge about the most effective strategies in preventing pressure ulcers (PU).^(12,13,14)

Standardization of nursing care has become a fundamental practice, allowing for more efficient care in particular situations faced by patients. The application of specific protocols not only ensures the proper provision of care, but also contributes to raising the general standards of healthcare.⁽⁶⁾

At the same time, technological advances play a prominent role in providing innovative tools that facilitate nursing care. From advanced monitoring devices to integrated information systems, these are technologies that contribute to optimizing patient care.⁽¹⁵⁾

However, despite the presence of cutting-edge technology, in-depth knowledge about the most effective strategies in reducing the risk of developing pressure ulcers remains essential. Early identification of risk factors, implementation of personalized preventive measures, and ongoing staff training in up-to-date practices are key elements in mitigating the incidence of pressure ulcers.⁽¹⁶⁾

It is crucial that nursing actions be supported and based on scientific evidence in the prevention of pressure ulcers (PU) and in mitigating the risk of their development. To do so, it is essential to have a thorough knowledge of all the resources available in the field of caring for patients at risk of developing PU. Among these resources, the use of skin integrity assessment scales, specialized devices, protocols and specific PU prevention plans, among others, stands out.⁽¹⁷⁾

The application of strategies supported by scientific evidence guarantees the effectiveness of nursing interventions in preventing and reducing the risk of pressure ulcers. The use of assessment scales, such as the Norton scale or the Braden scale, provides an objective evaluation of risk factors, allowing for early identification and appropriate intervention.⁽¹⁸⁾

Furthermore, knowledge and use of care devices designed to prevent the occurrence of pressure ulcers, as well as the implementation of specific protocols and plans tailored to the individual needs of each patient, are essential components of quality care. The personalization of prevention strategies, based on continuous assessment and adaptation to the changing conditions of the patient, optimizes the effectiveness of preventive measures.

METHODS

A systematic review of the scientific literature addressing nursing care in the prevention of pressure ulcers was conducted. The best available scientific literature was analyzed using data sources such as PubMed, Scielo, Science Direct, Medigraphic, Cochrane, British Journal of Nursing, BVS Ecuador, Springer Link, Trip Data Base and Directory of Open Access Journals.

For this systematic review, the PRISMA 2020 guidelines were used, a framework that served to identify and characterize the different phases and components and ensured the quality of this review.⁽¹⁹⁾

Sources of information

A literature search was conducted in the current scientific production on nursing care for long-term bedridden patients at risk of developing pressure ulcers. A total of 10 articles were identified using the flow diagram defined in PRISMA.

RESULTS

The results are presented according to the selection parameters defined in the methodology, in accordance with the stages of the PRISMA method, detailed in Figure 1 and Table 1.

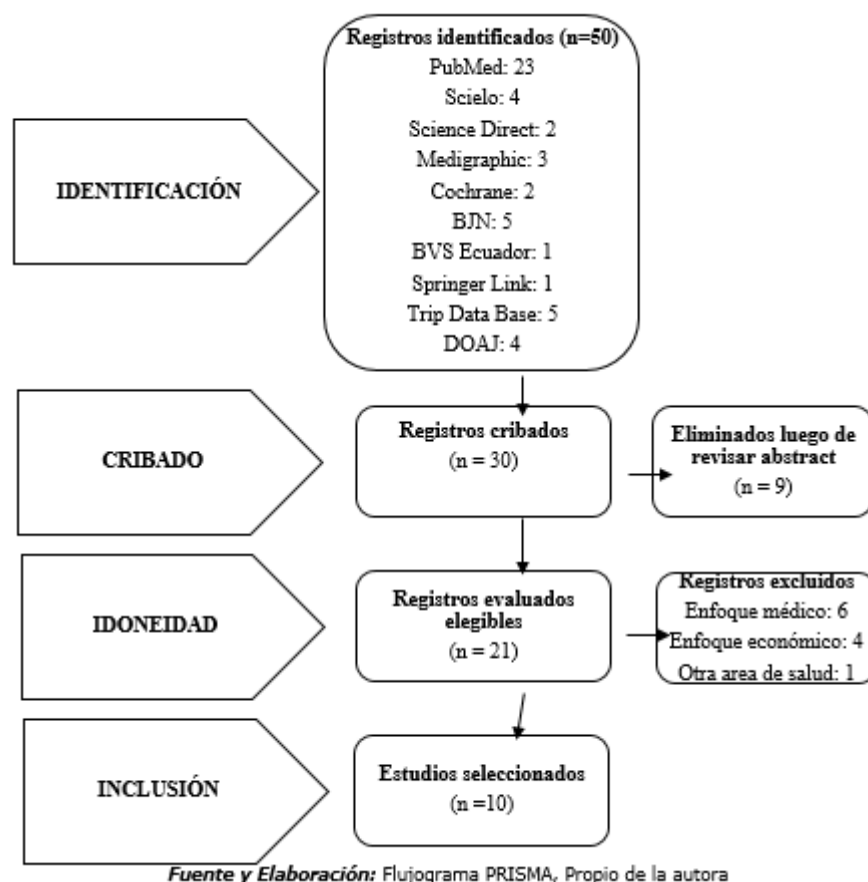


Fig. 1 Flowchart for study selection (PRISMA Guideline)

Assessment

To obtain articles in the databases, an advanced search was used with the terms pressure ulcers, the connector "and" and the terms nursing care. In addition, the search date was filtered between 2019 and 2023, selecting free full text without any other additional specification following the inclusion and exclusion criteria.

Summary and analysis

Literature review matrices with rows and columns were used; the rows represented each of the selected studies and the rows identified each of the axes of analysis such as background, methods, results and limitations of the studies.

Complete. Information systems were used to facilitate digital access to all quality production on the topic discussed, seeking to access all relevant research and studies of high scientific rigor.

Explicit. The sources used were disclosed, as well as the inclusion and exclusion criteria for the search for articles.

Inclusion Criteria

- a. Research that addressed nursing care in patients at risk of developing pressure ulcers.
- b. Studies that analyze nursing actions in the context of caring for bedridden patients
- c. Studies published in indexed and non-indexed journals between 2019 and 2023.

Exclusion criteria

- a. Study that addressed pressure ulcers from a medical perspective
- b. Studies that analyzed nursing care and pressure ulcers from an economic perspective
- c. Studies that focus the object of study on the actions of other professions such as physical therapy or social work

Reproducible. Due to the process carried out and given that it has been systematic and explicit, it allows other researchers to verify and reproduce the development of this work.

Within the results section, the selected studies are shown in order to extract data that crucially contribute to the development of this review.

To identify the elements of the following table, it has been represented as follows:

- EITHER.** / Aim
- FI/** Source of Information
- CSR.** /Risk and bias of individual studies
- M./** Methodology
- MT/** Sample
- MR/** Summary of results
- YOU/** Limitations of the evidence
- YO/** Involvement

Table 1.Structured Summary Matrix.

QUALIFICATION	AIM	METHODS	RESULTS	LIMITATIONS AND IMPLICATIONS
1. Nursing care to prevent pressure ulcers during hospital stay. ⁽¹⁰⁾	Describe nursing care to prevent pressure ulcers in patients during their hospital stay.	FI: Medigraphic	MT: 43 articles were included and seven themes were constructed that cover elements and interventions in the prevention of pressure ulcers.	YOU: Low availability of scientific evidence for systematic literature review, some units are not available in full text and/or free access
		CSR: information and selection	MR: The data were organized into seven final themes that describe the elements and care that nursing professionals should take in preventing pressure ulcers as a frequent adverse event, in addition to describing the optimal conditions for prevention, obstacles and complications resulting from the lack of these actions.	YO.: In this study, care for the prevention of PUs is classified into nursing interventions and the tools with which care is carried out, recognizing that 95% of skin lesions are preventable with proper management. Professionals must recognize and apply specific care actions to avoid them.
		M.: Integrative review		
2. Scope of Implementation of the Registered Nurses' Association of Ontario's Pressure Ulcer Risk Assessment and Prevention Guidelines. ⁽²⁰⁾	Describe the results of the implementation of the guide "Risk assessment and prevention of pressure ulcers"	FI: Dialnet	MT: 4,464 patients from 22 hospitalization units	YOU: Since there is no baseline data prior to the implementation of the guideline, it is more difficult to assess the real impact of the measures adopted with respect to the previous situation.

		<p>CSR:Information, observer and selection.</p> <p>M.:Retrospective observational study</p>	<p>MR:Patients at risk were 62.2% in medical units, 53.4% in surgical units and 90% in intensive care units. The application of preventive measures was 67.9%, 60.2% and 92.1% (respectively) for each unit.</p>	<p>YO.:There are favorable environments for implementation (medical units and intensive care units) that reflect a higher level of risk assessment, use of pressure management surfaces and decreased prevalence.</p>
<p>3. Attitudes of nursing staff towards pressure ulcer prevention in primary and specialized health care.⁽³⁾</p>	<p>To assess nursing staff attitudes towards pressure ulcer prevention, and to identify associated factors in both primary and specialist care.</p>	<p>FI:PubMed</p> <p>CSR:Selection</p> <p>M.:Cross-sectional correlational study</p>	<p>MT:The study was conducted with nursing staff (N = 554) working in primary care and specialist care units in two hospital districts in Finland between 2018 and 2019.</p> <p>MR:Nursing staff working in primary care (n = 327) had more positive attitudes toward pressure ulcer prevention than those in specialty care (n = 209; P = .047).</p>	<p>YOU:Low survey response rate</p> <p>YO.:Attention should be paid to pressure ulcer prevention attitudes among less experienced or less skilled nurses, and those with less knowledge in this area. A positive organizational culture towards evidence-based pressure ulcer prevention practices should be promoted.</p>
<p>4. Critical care nurses' knowledge, attitudes, and practices of pressure injury prevention in China.⁽¹⁴⁾</p>	<p>To identify the knowledge, attitudes and practices of pressure injury prevention in critical care nurses in China</p>	<p>FI:PubMed</p> <p>CSR:Information</p> <p>M.:Multicenter cross-sectional survey.</p>	<p>MT:A total of 950 critical care nurses in 15 hospitals in six provinces in China were investigated.</p> <p>MR:Knowledge about the repositioning procedure, risk assessment, and prevention of heel injuries was insufficient. More than 99% of nurses strongly or somewhat agreed that prevention of pressure injuries was very important and that they were willing to take steps to prevent them.</p>	<p>YOU:The data was obtained from a database collected at an earlier time, which could have led to results that do not accurately represent the current context.</p> <p>YO.:This study allowed us to identify the barrier (low level of knowledge) and the facilitator (positive attitude). Based on these findings, it is necessary to develop strategies to promote the implementation of the guidelines.</p>
<p>5. Effectiveness of Continuous Care Interventions in Elderly Patients with High-Risk Pressure Ulcers and Impact on Patients' Activities of Daily Living.⁽²¹⁾</p>	<p>To explore the influence of continuing care interventions on the incidence of pressure ulcers in elderly patients at high risk of pressure ulcers and their ability to perform activities of daily living</p>	<p>FI:PubMed</p> <p>CSR:Information and selection</p> <p>M.:Cohort, retrospective study</p>	<p>MT:Clinical records were collected from 114 elderly patients at high risk for pressure ulcers.</p> <p>MR:The incidence of pressure ulcers in the target group was lower than that in the control group after the intervention; the overall care satisfaction in the target group was higher than that in the control group after the intervention, and the pressure ulcer care behaviors and pressure ulcer management skills of patient caregivers in the target group were higher than those in the control group after the intervention.</p>	<p>YOU:Low representativeness and inability of samples to accurately reflect the characteristics and distribution of cases.</p> <p>YO.:Continuing care interventions can be promoted for elderly patients at high risk of pressure ulcers outside the hospital, which can reduce the incidence of pressure ulcers, negative emotions, related complications and treatment costs, and improve the effective utilization of medical resources.</p>
<p>6. Nurses' Knowledge and Attitudes towards Prevention of Pressure Ulcers.⁽⁷⁾</p>	<p>To determine the knowledge and attitudes of nurses towards PU prevention in selected hospitals in Slovakia and to find relationships and differences between selected variables.</p>	<p>FI:PubMed</p> <p>CSR:Information</p> <p>M.:Exploratory quantitative cross-sectional study</p>	<p>MT:Of 460 randomly selected nurses, 225 (49%) participated in this research.</p> <p>MR:The results showed insufficient knowledge (45.5%) and attitudes (67.9%) of nurses towards PU prevention. A significant positive correlation was found between knowledge and attitudes.</p>	<p>YOU:Little availability of evidence related to the specific topic.</p> <p>YO.:The results of the research showed insufficient knowledge and attitudes of nurses towards pressure ulcer (PU) prevention. Due to the specific results, we suggest to review and compare the curricula of nursing education at undergraduate,</p>

				graduate and specialty levels.
7. Nursing care for older patients with pressure ulcers. ⁽²²⁾	To explore the experience and perception of pressure ulcers in a group of nurses caring for older patients	FI: PubMed	MT: Interviews with (N = 6) nurses working with older patients.	YOU: The main limitation was the time and resources for the development of the research.
		CSR: Information M.: Qualitative study	MR: The findings comprised a main theme "Pressure ulcer prevention is important" and four subthemes "Nursing resources on the ward", "Basic nursing skills: lifting the duvet", "Introducing new nurses to the ward: teaching at the bedside" and "Absence of pressure ulcer articulation".	YO.: Bedside teaching and experienced nurses can create a ward culture where basic nursing skills and observations are articulated.
8. Pressure Injury Prevention and Management. ⁽²³⁾	To examine pressure ulcer (PU) prevention and management practices in an acute care academic setting	FI: PubMed	MT: A multidisciplinary stakeholder council with 27 members was developed to achieve the objectives of the study using the participatory action research approach.	YOU: Limited participation of nurses and patients due to COVID-19 restrictions
		CSR: Information and selection M.: Convergent design of mixed methods and participatory action research	MR: A gap analysis of PPU prevention and management practices was performed, resulting in a cumulative score of 267/553 (48%), indicating gaps in PPU prevention and management practices.	YO.: The study provides a model for key stakeholder engagement, a valid/reliable gap analysis tool, and a method for assessing pressure ulcer prevention and management practices.
9. Assessment of nurses' knowledge of pressure ulcers in intensive care. ⁽⁸⁾	To evaluate the effectiveness of a training intervention on pressure ulcers in intensive care nurses at Hospital del Mar	FI: SciElo	MT: 30 nurses were included and obtained 100% participation in the study.	YOU: After conducting a bibliographic search, no suitable instrument was found. and validated that it adapted to the institution's protocol
		CSR: Information M.: Quantitative, analytical, cross-sectional study.	MR: At the pre-training level of knowledge, the overall average score was 0.547 out of 1, and at the post-training level, the overall average score was 0.728. In the second objective, in the records of the UPP, it was observed that during the pre-training days, 27% of patients had ulcers, of which 25% were not recorded, and after the training, the percentage of patients with ulcers was 9% and 100% were recorded.	YO.: Training improves nurses' level of knowledge on pressure ulcers. Percentages of recorded ulcers improve significantly after training
10. Nurses' knowledge on pressure ulcer prevention. ⁽¹⁸⁾	To estimate the combined score of nurses' knowledge of PU prevention based on the Pressure Ulcer Knowledge Assessment Tool (PUKAT).	FI: PubMed	MT: In the initial search, 501 studies were identified and 481 studies were excluded from the final analysis based on the inclusion and exclusion criteria.	YOU: One of the limitations of this study is that the PUKAT-based assessment of nurses' knowledge can only measure declarative knowledge and does not examine higher levels of knowledge such as analysis, synthesis, and evaluation.
		CSR: Information and publication. M.: Systematic review and meta-analysis	MR: The combined scores of PU prevention knowledge in nurses and nursing students were 51.5% and 48.9% respectively. As the age of the participants increased, the combined score of pressure ulcer prevention knowledge increased significantly.	YO.: Nurses and nursing students' knowledge about PU prevention is insufficient. Providing regular training to nurses and including PU prevention principles in the nursing students' curriculum to improve their knowledge seems necessary.

Source and Preparation: Articles selected for review, Prepared by the author

DISCUSSION

Table 2. Interpretation of structured summary results.

STUDY	RESULT
1	The nursing professional must identify the appearance of pressure ulcers as a frequent adverse event.
2	Patients hospitalized in intensive care units have a higher risk of developing pressure ulcers.
3	Nursing staff working in primary care have a more positive attitude towards managing pressure ulcers
4	Several nursing procedures for the prevention of pressure ulcers are unknown to staff.
5	Establishing specific actions for the control of pressure ulcers, as well as ongoing training, reduces the risk of pressure ulcers in hospitalized patients.
6	Knowledge about pressure ulcers is related to the attitude of nursing staff towards a patient at risk of developing them.
7	Providing adequate nursing care to a patient with pressure ulcers is linked to other elements such as infrastructure, human talent, devices and teamwork.
8	The practices that nursing professionals have regarding patients at risk of developing pressure ulcers show a large gap.
9	The level of knowledge of the nursing professional is related to the quality of care provided to patients at risk of developing pressure ulcers.
10	There are significant differences between the quality of care provided to patients at risk of developing pressure ulcers between new professionals and those who have been in the profession for several years.

Source and Preparation: Review articles, Prepared by the author

This systematic review provides a detailed and comprehensive overview of current practices and knowledge in the critical field of nursing care for patients at risk of developing pressure ulcers. The results shed light on essential elements and crucial care that nursing professionals should consider to prevent pressure ulcers, understanding their nature as frequent adverse events. This analysis comprehensively addresses the optimal conditions for prevention, as well as the obstacles and complications that arise from the lack of preventive actions. This can be seen in the study developed by Castiblanco et al. in 2022, highlighting the importance of nursing care for bedridden patients.⁽¹⁰⁾

The need for a protocol on the prevention and care of patients at risk of suffering from pressure ulcers is imperative. Quiñoz Gallardo et al.,⁽²⁰⁾ In 2021, this was pointed out when analyzing the "Scope of the Implementation of the Guide "Risk Assessment and Prevention of Pressure Ulcers" of the Registered Nurses' Association of Ontario". The stratified distribution of at-risk patients in various medical units provides a valuable perspective on the prevalence of pressure ulcers in heterogeneous care settings.⁽²⁴⁾ The variability in the application of preventive measures between these units highlights the imperative need for personalized care and the implementation of specific, contextually relevant strategies.

The observation of more positive attitudes towards pressure ulcer prevention in primary care nursing staff, in contrast to those in specialist care, suggests the direct influence of the work environment on the perceptions and priorities of nursing professionals. This is evidenced by the study carried out by Parisod et al in 2022.⁽³⁾

The identification of insufficient knowledge regarding repositioning procedure, risk assessment and prevention of heel injuries highlights specific areas that require additional attention and training. Despite these deficiencies, the high awareness of the importance of preventing pressure injuries and the willingness to take action indicate a potential for improvement with specific educational interventions. Continuing education as well as specialization in specific areas of care are essential to reduce this important condition defined as an adverse event as it is a preventable situation.⁽²⁵⁾

The reduction in the incidence of pressure ulcers, when accompanied by increased satisfaction with the provision of care, is important to highlight the effectiveness of the measures that have been implemented. Furthermore, the increase in caregiving behaviours and pressure ulcer management skills in caregivers of patients at risk highlights the positive impact beyond the nursing staff directly involved.⁽²⁶⁾

The positive correlation between knowledge and attitudes reinforces the importance of addressing both the cognitive and emotional components in training programs. The findings identify key themes, such as the importance of basic nursing resources and skills, as well as the need for better coordination in the prevention of pressure ulcers.

The gap analysis highlights specific areas where practices for prevention and management of pressure ulcers need improvement. Pittman J et al,⁽²³⁾ provide clear evidence of this important difference in student and professional knowledge. The cumulative score of the gap analysis provides a quantitative measure of existing deficiencies, serving as a solid basis for the implementation of targeted interventions.

The pre- and post-training knowledge assessment reveals significant progress in the understanding of pressure ulcer prevention among nursing staff, highlighting the effectiveness of the educational programs implemented.

Finally, this systematic review provides a comprehensive overview of the strengths and weaknesses in practices and knowledge related to PU prevention in the nursing field. The results underline the need for specific interventions, ongoing educational programs, and improvements in the articulation and implementation of preventive measures to optimize care for patients at risk of PU.

CONCLUSIONS

This systematic review provides a solid and comprehensive basis for continuous improvement in nursing practices aimed at pressure ulcer prevention. The results clearly identify key areas of focus, such as the importance of resources and basic nursing skills, and highlight the need for better coordination in pressure ulcer prevention. This knowledge will significantly contribute to optimizing care for patients at risk of developing pressure ulcers.

Conflict of Interest Declaration

The authors declare that there is no conflict of interest regarding this study.

Authors' Contribution

JRMC, JDAP, PMChM: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Visualization, Writing-original draft, Writing-review and editing.

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