REVIEW ARTICLE

REVISTA ENFERMAGEM ATUAL IN DERME

THERAPEUTIC STRATEGIES FOR THE PREVENTION AND TREATMENT OF CHRONIC WOUNDS AND SKIN LESIONS: A LITERATURE REVIEW

ESTRATEGIAS TERAPÉUTICAS PARA LA PREVENCIÓN Y TRATAMIENTO DE HERIDAS CRÓNICAS Y LESIONES CUTÁNEAS: UNA REVISIÓN DE LA LITERATURA

ESTRATÉGIAS TERAPÊUTICAS PARA PREVENÇÃO E TRATAMENTO DE FERIDAS CRÔNICAS E LESÕES CUTÂNEAS: UMA REVISÃO DA LITERATURA

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ABSTRACT
Objective: To identify therapeutic approaches for the prevention and treatment of chronic wounds and skin lesions. **Methodology:** This integrative literature review employed the Health Sciences Descriptors (DeCS/MeSH): “wounds and injuries”, “surgical wound”, and “wound healing”. The search was conducted in the Virtual Health Library (VHL), the National Library of Medicine (PubMed), and the Scientific Electronic Library Online (SciELO) databases, covering the period from 2019 to 2023. Based on predefined inclusion and exclusion criteria, eight articles were selected. **Results:** The findings were analyzed under three pre-established categories: simple management of acute wounds, management of chronic wounds, and emerging issues. **Conclusion:** The identified therapeutic approaches demonstrated positive outcomes across the different studies, underscoring the importance of structured and standardized care.
Keywords: Wounds and injuries; Surgical wound; Healing.

RESUMEN
Objetivo: Identificar las terapias para la prevención y el tratamiento de heridas crónicas y lesiones cutáneas. **Metodología:** Se trata de una revisión integrativa de la literatura, utilizando los Descriptores en Ciencias de la Salud (DeCS/MeSH): “heridas y traumatismos”, “herida quirúrgica” y “cicatrización de heridas”, a través de las bases de datos Biblioteca Virtual en Salud (BVS), National Library of Medicine (PubMed) y Scientific Electronic Library Online (SCIELO), en el período de 2019 a 2023. Según los criterios de inclusión y exclusión, se seleccionaron 8 artículos. **Resultados:** Los hallazgos se discutieron en tres categorías preestablecidas: Manejo simple de heridas agudas; Manejo de heridas crónicas; y Cuestiones emergentes. **Conclusión:** Las terapias identificadas mostraron buenos resultados en los distintos estudios, destacando la importancia de la organización y estandarización de los cuidados.
Palabras clave: Heridas y traumatismos; Herida quirúrgica; Cicatrización.

RESUMO
Objetivo: Identificar as terapêuticas para prevenção e tratamento de feridas crônicas e lesões cutâneas. **Metodologia:** Trata-se de uma revisão integrativa da literatura, na qual utilizou-se os Descritores em Ciências da Saúde (DeCS/MeSH): “ferimentos e lesões”, “ferida cirúrgica” e “cicatrização”, através das bases de dados Biblioteca Virtual em Saúde (BVS), National Library of Medicine (PubMed) e Scientific Eletronic Library Online (SCIELO) entre os anos de 2019-2023. A partir dos critérios de inclusão e exclusão foram selecionados 08 artigos. **Resultados:** Os achados foram discutidos em três categorias pré-estabelecidas: Manejo simples de feridas agudas; Manejo de feridas crônicas, e questões emergentes. **Conclusão:** As terapêuticas identificadas apresentaram bons resultados nos diferentes estudos, destacando a importância da organização e padronização dos cuidados.
Palavras-chave: Ferimentos e lesões; Ferida cirúrgica; Cicatrização.

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INTRODUCTION

A wound can be defined as any disruption in the continuity of the skin that compromises its integrity. It constitutes a deformity or injury, which may be superficial or deep, closed or open, simple or complex, acute or chronic[1].

Chronic wounds are characterized as long-lasting lesions with a slow healing process that becomes stagnant for a period exceeding six weeks. Even with appropriate treatment, they may cause discomfort to the patient and generate high treatment costs[2].

Regarding their types, chronic wounds may include pressure injuries; diabetic and leprosy-related neuropathic ulcers; vasculogenic ulcers (venous and arterial); and oncological wounds, all of which exhibit features and characteristics that result in a difficult or insufficient healing process[3].

Chronic wounds affect millions of people worldwide, with approximately 5% of the adult population in Western countries suffering from this condition, highlighting the urgent need for alternative strategies to mitigate this scenario[1]. A retrospective study analyzing exposure factors in a given population estimated that approximately 8.2 million people worldwide were affected by chronic wounds, underscoring their high incidence and the necessity of control strategies[4].

Although there is a lack of uniform national data on the incidence and prevalence of these lesions, studies conducted in various healthcare settings have reported incidence rates ranging from 13.95%[5] to 37.03%[6] and prevalence rates between 13.3% and 57.89%[7].

Chronic skin lesions can directly affect quality of life, causing pain, loss of mobility, absenteeism, and early retirement due to disability, thereby impacting patients not only physically but also in their interpersonal relationships[8].

Caring for individuals with skin lesions is a multidisciplinary challenge, with the nursing team playing a leading role due to their continuous contact with patients. Nurses are generally responsible for performing dressings and rely on specific expertise for accurate wound assessment, proper execution of dressing techniques, and delivery of quality care[9].

Given this context, this study is justified by its aim to present the most recent scientific evidence related to wound therapy in hospital settings. It is relevant for advancing knowledge on the topic and providing a foundation for future research, guided by the following research question: How has wound and lesion therapy evolved over the past five years?

To synthesize, condense, and disseminate evidence on the subject, the objective of this study was to identify the most recent therapeutic approaches for the prevention and treatment of wounds and lesions.

METHOD

This study is an integrative literature review conducted in six steps, as proposed by

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Mendes, Silveira, and Galvão[10]: (1) establishment of the hypothesis or research question; (2) sampling or literature search; (3) categorization of studies; (4) evaluation of the studies included in the review; (5) interpretation of the results; and (6) synthesis of knowledge or presentation of the review.

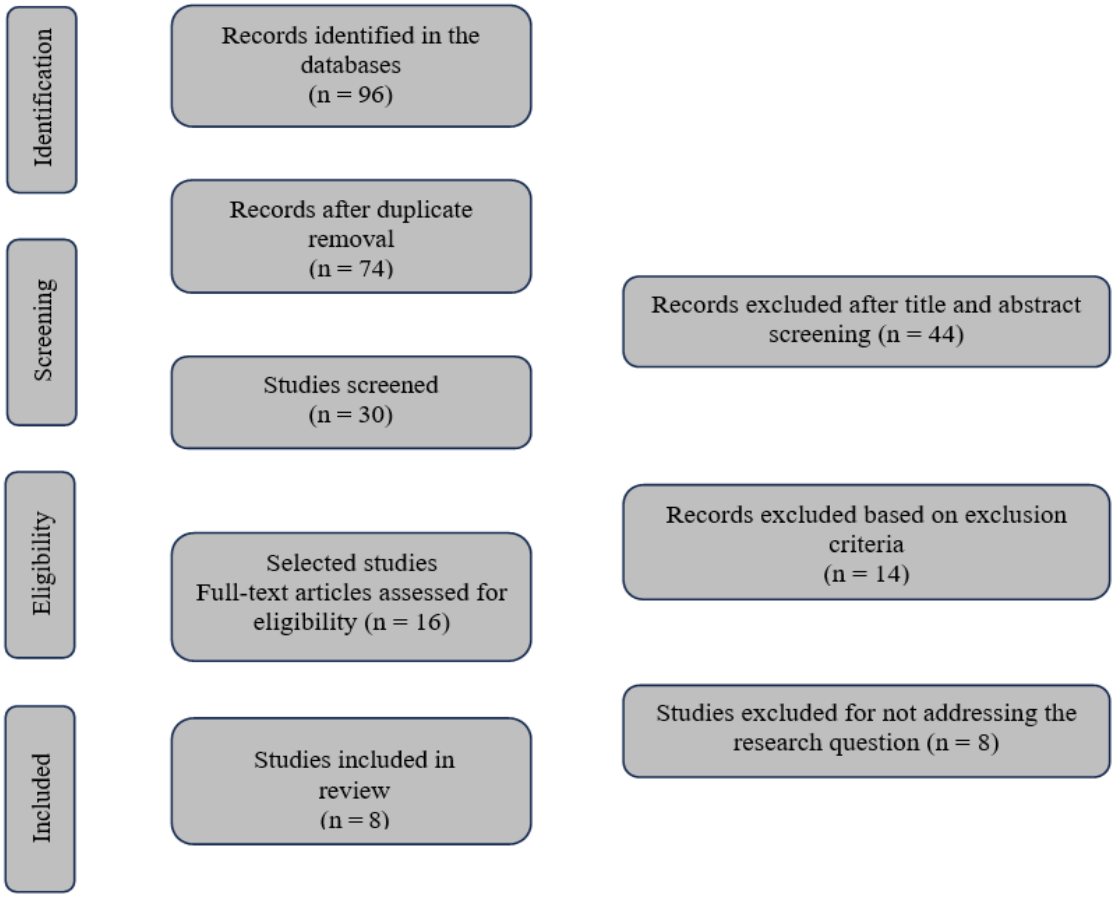
In the first step, the research title was defined as Therapeutic approaches for the prevention and treatment of chronic wounds and skin lesions, given its close relation to the theme of Nursing Care in Wounds. At this stage, the hypothesis and research question were also established.

In the second step, descriptors were selected for the database search using the Health Sciences Descriptors (DeCS/MeSH): "wounds and injuries", "surgical wound", and "wound healing". For PubMed, the search strategy employed the English terms: "Surgical Wound" AND "Wounds and Injuries" AND "Wound Healing". The inclusion criteria were: original articles; full-text publications from 2019 to 2023; no language restrictions; and a focus on wound prevention and treatment.

The exclusion criteria comprised publications such as editorials, review studies, letters to the editor, and expert opinions. The search was conducted from May 1 to May 4, 2024, in the Virtual Health Library (VHL), the National Library of Medicine (PubMed), and the Scientific Electronic Library Online (SciELO).

The initial search identified 96 studies: 80 in VHL and 16 in PubMed. No studies addressing the topic were retrieved from SciELO. The final sample was defined after removing duplicates, screening titles and abstracts, applying inclusion and exclusion criteria, and performing full-text reading to assess eligibility, as outlined in Figure 1.

Figure 1 - Flowchart of the study selection process. São Luís-MA, Brazil, 2025.



Source: Adapted from PRISMA[11].

In the third step, after the full reading of the articles, the results were systematized into a table containing the following information: author/year, study title, study objective, results, and conclusion (Table 1). Furthermore, the articles' findings were categorized according to themes that emerged during analysis, which included: simple management of acute wounds; management of chronic wounds; and emerging issues.

In the fourth step, a thorough analysis was conducted, focusing on the research question. The fifth step consisted of interpreting the results, discussing the main findings, and identifying research gaps. Finally, in the sixth step, a synthesis of knowledge was produced, highlighting the key results emerging from the analysis of the studies included.

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Table 1 - Summary of the studies included in the review. São Luís-MA, Brazil, 2025.

N	Year/Author	Title	Objective	Results	Conclusion
1	Leite *et al.*, 2022[12]	Morphohistological and morphohistometric evaluation of skin wounds treated with Sphagneticola trilobata (L.) Pruski in rats	To macroscopically and microscopically assess the healing activity of *Sphagneticola trilobata* in experimentally induced skin wounds in rats, through the application of a cream containing the crude hydroalcoholic extract of the plant's leaves.	No difference was found between the control group (CG) and the treatment group (TG) in macro- and microscopic evaluations.	The cream based on the crude hydroalcoholic extract of *Sphagneticola trilobata* leaves contributed positively to the wound healing process in rat skin.
2	Souza, 2022[13]	Simplified vacuum dressing system: efficacy and safety in wound management	To evaluate a simplified vacuum dressing system (SVDM).	Fifty wounds located on the lower limbs were treated. The SVDM proved more effective than the standard moist healing dressing in the evaluated outcomes.	The SVDM proved to be an effective and acceptably safe device for managing the wounds studied.
3	Davis *et al.*, 2020[14]	Randomized clinical trial to compare negative pressure wound therapy with simultaneous saline irrigation and traditional negative pressure wound therapy for complex foot infections	To compare the effectiveness of different negative pressure wound therapy (NPWT) devices, with and without simultaneous irrigation, in hospitalized patients with moderate and severe foot infections.	The primary outcome was the proportion of wounds healed within 12 weeks. Secondary outcomes included surgical wound closure, number of surgeries, length of hospital stay, and time to wound healing.	No significant differences in clinical outcomes or adverse events were identified between patients treated with different NPWT devices, with or without irrigation.
4		Repair of muscle injuries by coadjugated surgical	To evaluate the effects of a native honey-based formulation (Ulmoplus®)	Ten days after the incision, wounds in both animal groups were closed and showed no signs of infection. The	Ulmoplus®, as an adjuvant to conventional suture for surgical closure of skeletal muscle

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	Espin *et al.*, 2020[15]	incision with a native honey formulation (Ulmoplus®). Experimental study on rabbit animal model (Oryctolagus cuniculus)	on the repair of muscle injuries following surgical incision.	tibialis anterior muscle in the control group was in the repair phase, showing concomitant processes of necrotic tissue phagocytosis, myofiber regeneration, and formation of scar connective tissue. In the Ulmoplus® group, the tibialis anterior muscle was in the remodeling phase, with restored muscle architecture.	wounds, is a viable alternative, accelerating muscle repair and reducing scar connective tissue.
5	Mehl, 2020[16]	Measurement of wound area for early analysis of the scar predictive factor	To evaluate the use of the 2D-FlexRuler as a facilitating tool for early calculation of the healing predictive factor in chronic wounds.	Wound area calculation using the traditional method and Kundin coefficient showed average errors greater than 40%. Manual estimation with the 2D-FlexRuler was more accurate than traditional measurement methods, which were quantitatively disqualified.	The method facilitated wound area calculation during monitoring and enabled early identification of the healing predictive factor for chronic wounds within two weeks.
6	Brody *et al.*, 2019[17]	Novel silicon device for the packing of cutaneous abscesses	To report the first case in which a new silicone packing device was used.	A patient presented with a facial abscess that was incised and drained. The device was inserted and independently removed by the patient without complications. Both the patient and the clinician reported satisfaction with the procedure and low pain scores.	This device has the potential to replace traditional packing and requires further controlled trials to assess safety and effectiveness.

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7	Irving, 2019[18]	Treatment of chronic non-healing wounds arrested in the inflammatory phase: a case series using a novel matrix therapy, CACIPLIQ20	To present the results of five case studies in which a new regenerative matrix-based therapy, CACIPLIQ20, was used. CACIPLIQ20 is a heparan sulfate mimetic designed to replace heparan sulfate destroyed in the extracellular matrix of injured cells.	Treatment consisted of two applications of CACIPLIQ20 per week, for up to 12 weeks. Three of the five wounds healed completely, and the remaining two showed significant improvements in size and quality.	Treatment was well tolerated and led to a significant reduction in pain. CACIPLIQ20 proved highly cost-effective compared with conventional care, with potential for substantial savings to healthcare systems.
8	Sibbald; Ayello., 2019[19]	Nutrition and wound healing: eat well, live well	To explore key topics on nutrition and its relationship to wound healing.	Risk factors for increased incidence among Asian residents included slightly lower body mass index, smaller meals, and higher incidence of bathtub bathing, which may compromise skin integrity.	The findings emphasize that all patients – and even healthcare providers themselves – can use good nutrition to support skin health and prevent injury.

Source: Authors, 2025.

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RESULTS

In the final sample of the study, comprising eight articles, publications were identified from 2019[17-19] and 2020[14-16], with three studies each, followed by two publications in 2022[12,13]. It is noteworthy that no publications related to the selected themes were found in the databases consulted for the year 2021. This absence may possibly be attributed to the impacts of the COVID-19 pandemic, which affected publications[20], particularly those requiring practical activities for completion.

According to the categories established, the information presented in Table 1 revealed three studies addressing therapies related to adequate nutrition[19], the use of a honey-based product[15], and the application of plant extract to wounds[12]. Regarding the management of chronic wounds, three studies focused on vacuum-assisted closure[13], negative pressure wound therapy combined with saline irrigation[14], and wound measurement using the 2D-FlexRuler[16]. Concerning emerging issues, two studies addressed more innovative approaches, namely treatment with CACIPLIQ20[18] and the development of a silicone device for insertion into abscess cavities[17].

DISCUSSION

To facilitate understanding of the discussion in this review, the findings were divided into three categories: simple management of acute wounds, management of chronic wounds, and emerging issues.

Simple management of acute wounds

Several straightforward approaches are associated with the management of acute wounds, highlighting factors that influence the healing process. Sibbald and Ayello[19] address aspects such as adequate nutrition, analyzing dietary quantity and portion size, and attributing improved skin health and injury prevention to good nutritional status.

According to Stechmiller[21], appropriate nutritional intervention and optimization of nutritional status can accelerate wound healing. Along these lines, a study conducted by Haddad, Bruschi, and Martins[22] found that patients with complete and eviscerated surgical dehiscence, severe malnutrition, and advanced age experienced delayed healing, with bacterial infection present in 60% of identified cases.

Supporting the rationale that simple measures are also valuable in wound care, a study evaluating the effects of a native honey-based formulation on the repair of muscle lesions in animals demonstrated positive results by accelerating muscle repair, reducing scar tissue formation, and creating an environment unsuitable for microbial growth[15]. Another study corroborated this by emphasizing that honey has antiseptic activity due to the presence of formic, malic, and lactic acids, which confer an acidic pH, thereby inhibiting microbial proliferation[22].

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Leite et al.[12] evaluated the macro- and microscopic wound healing activity of *Sphagneticola trilobata* in rats, through topical application of a crude hydroalcoholic extract cream prepared from the plant's leaves. The results indicated a substantial proportion of healed wounds within a few weeks, with the extract contributing positively to the healing process. Another investigation also highlighted that topical application of this plant extract reduced inflammatory cell infiltration, increased angiogenesis, and enhanced collagen deposition in rat skin wounds, in addition to exhibiting antimicrobial and anti-inflammatory properties[23].

Scientific evidence reinforces the importance of simple practices, combined with multidisciplinary knowledge, to maintain skin integrity both in prevention and in treatment, by stimulating and accelerating the healing process.

Management of chronic wounds

In this category, four studies were identified that used technologies aimed at wounds with prolonged healing times, requiring broader and often more complex techniques. One such example is the simplified vacuum dressing system (SVDM), which successfully treated lower-limb wounds, proving more effective than high-suction foam (HSF) for the evaluated outcomes[13].

This treatment is considered promising, as vacuum-assisted closure acts through mechanisms such as wound contraction, removal of exudate and necrotic tissue, stimulation of cell mitosis, provision of a moist environment, reduction of tissue edema, bacterial clearance, improved vascularization, and acceleration of granulation tissue formation[24].

In the clinical trial by Davis et al.[14], negative pressure wound therapy (NPWT) with simultaneous saline irrigation was compared to traditional NPWT. The primary outcome was the proportion of healed wounds within 12 weeks, while secondary outcomes included surgical wound closure, length of hospital stay, and time to healing.

Another study emphasized the multiple benefits of NPWT, including stimulation of granulation, reduction of edema, removal of excess fluid and debris, and lowering of bacterial contamination, thereby creating a more favorable environment for healing[25].

Mehl[16] evaluated the use of the 2D-FlexRuler as a facilitating tool for early calculation of wound healing predictive factors in chronic wounds, yielding significantly positive results. The importance of continuous wound assessment—particularly in the first three weeks of treatment—using tools such as the 2D-FlexRuler has been noted, as the percentage reduction in wound surface area strongly correlates with treatment progress, identifying early warning signs and guiding the need for intensified care[26].

These conditions typically exhibit slower healing and greater complexity, requiring more dynamic, invasive, and often costlier therapeutic approaches.

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Emerging issues

This category encompasses developments in novel technologies for wound and lesion treatment. Two studies[17,18] reported innovative interventions: a new silicone device for packing cutaneous abscesses, which occludes the wound site to prevent recurrence, and the topical application of CACIPLIQ20 for the treatment of chronic wounds stalled in the inflammatory phase.

These findings demonstrate that, although employing different strategies, both aim to promote healing by preventing, treating, and resolving wounds. In this context, nursing plays a crucial role—not only through knowledge of pathophysiology but also by considering the patient's socioeconomic conditions when prescribing treatment. Proper dressing selection requires more than wound assessment; it demands consideration of the entire social context surrounding the patient[27].

CONCLUSIONS

The analysis revealed significant changes in wound and injury care, including the use of substances and devices for prevention or treatment, ranging from the simplest to the most complex care practices. Concerning this type of treatment has existed for many years, which has led to the development of a wide range of techniques, procedures, and products available on the market, driven by the expansion of knowledge in the search for solutions to this public health problem.

The studies included in this review emphasize that the stages of wound and injury healing must be carefully analyzed to achieve satisfactory outcomes. Nevertheless, despite advances in knowledge, significant gaps remain, such as inaccessible products and techniques, insufficient knowledge during the application of practices, and limited implementation of these forms of care in a concrete manner.

Therefore, there is a need to organize and standardize the care provided, including the existing therapeutic approaches, through the systematization of this assistance—particularly in nursing—by assessing wounds and injuries, identifying each healing stage and its characteristics, developing a well-defined and individualized care plan, selecting an assertive therapeutic approach, and ensuring multidisciplinary follow-up. This highlights the need for the establishment of a specialized committee or unit for wound and injury management within the hospital setting, providing adequate support, continuous monitoring, and positive outcomes for these conditions.

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1. contributes substantially to the conception and/or planning of the study;

2. to the collection, analysis, and/or interpretation of data;

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