

# Nursing care for people with diabetes mellitus in the healing of chronic wounds: an integrative review

Assistência de enfermagem às pessoas com diabetes mellitus na cicatrização de feridas crônicas: revisão integrativa  
Entre fortaleza y fragilidad: reflexiones sobre la salud de los hombres y el VIH/sida en el contexto patriarcal brasileño

## RESUMO

Objetivo: Analisar, através de pesquisas sobre a assistência de enfermagem na cicatrização de feridas. Método: Trata-se de uma revisão integrativa da literatura. Ao todo, houve o retorno inicial de 1233 pesquisas indexadas. Após a aplicação dos filtros relacionados a critérios de inclusão e exclusão, chegou-se ao quantitativo de 199 artigos. Após um processo de análise dos estudos, chegou-se ao quantitativo final de 13 artigos. Resultados: Observou-se que duas temáticas relacionadas aos objetivos dos estudos são: Visão de enfermeiros sobre um protocolo de prevenção e tratamento de feridas em membros inferiores em diabéticos e não diabéticos: estudo de sobrevivência, no que se refere a abrangência teórica e clareza de linguagem. Conclui-se que, a realização desse estudo concretizou seus objetivos de um roteiro destinado a assistência de enfermagem durante o processo de cicatrização de feridas em pessoas com o Diabetes Mellitus, fundamentado através de pesquisas científicas, contribuindo diretamente na produção deste estudo.

**DESCRIPTORES:** Assistência de Enfermagem, Feridas, Diabetes Mellitus.

## ABSTRACT

Objective: To analyze nursing care in wound healing through research. Method: This is an integrative literature review. A total of 1233 indexed studies were initially returned. After applying the filters related to inclusion and exclusion criteria, 199 articles were found. After analyzing the studies, the final number of articles was 13. Results: It was observed that two themes related to the objectives of the studies are: Nurses' views on a protocol for the prevention and treatment of lower limb wounds in diabetics and non-diabetics: a survival study, in terms of theoretical scope and clarity of language. In conclusion, this study achieved its objectives of a script for nursing care during the wound healing process in people with Diabetes Mellitus, based on scientific research, contributing directly to the production of this study.

**DESCRIPTORS:** Nursing care, Wounds, Diabetes Mellitus.

## RESUMEN

Objetivo: Analizar los cuidados de enfermería en la cicatrización de heridas a través de la investigación. Método: Se trata de una revisión bibliográfica integradora. Inicialmente se obtuvo un total de 1233 estudios indexados. Tras aplicar los filtros relacionados con los criterios de inclusión y exclusión, se encontraron 199 artículos. Tras analizar los estudios, el número final de artículos fue de 13. Resultados: Se observó que dos temas relacionados con los objetivos de los estudios son: Opiniones de las enfermeras sobre un protocolo para la prevención y el tratamiento de las heridas de los miembros inferiores en diabéticos y no diabéticos: un estudio de supervivencia, en cuanto al alcance teórico y la claridad del lenguaje. En conclusión, este estudio logró sus objetivos de un guión para los cuidados de enfermería durante el proceso de curación de heridas en personas con Diabetes Mellitus, basado en la investigación científica, contribuyendo directamente a la producción de este estudio.

**DESCRIPTORES:** Cuidados de enfermería, Heridas, Diabetes Mellitus.

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- ID Lucas Emanuel Gomes Costa**  
Specialist Nurse from Faculdade UniAmérica.  
ORCID: 0009-0008-0870-7955
- ID Rosângela Souza Cavalcante**  
Master's Nurse in Public Health Management from the State University of Ceará.  
ORCID: 0000-0001-8267-5674
- ID Dilene Fontinele Catunda Melo**  
Master's Nurse in Family Health from the Federal University of Ceará (UFC).  
ORCID: 0000-0001-9525-9389
- ID Francisco Arlysson da Silva Veríssimo**  
Master in Health Teaching from the State University of Ceará (UECE).  
ORCID: 0000-0001-8829-969X
- ID Maria da Conceição dos Santos Oliveira Cunha**  
Doctor in clinical care and health (Ppclis- UECE). Teacher of the Bachelor's degree in Nursing.  
ORCID: 0000-0002-6805-6137
- ID Lidiana Ximenes Servulo Moreira Lima**  
Doctorate in Pharmaceutical Sciences, Federal University of Vales do Jequitinhonha and Mucuri UFVJM.  
ORCID: 0000-0001-9948-5084
- ID Anne Livia Cavalcante Mota**  
Master in Clinical Nursing and Health Care, graduated in Nursing.  
ORCID: 0000-0002-4701-5811
- ID Francisca Nellie de Paula Melo**  
Doctorate in Postgraduate Program in Nursing from the Federal University of Ceará, Master's Degree in Education from the Federal University of Ceará.  
ORCID: 0000-0002-4082-3429

## INTRODUCTION

Diabetes Mellitus is a syndrome of endocrine origin, caused by a deficiency in insulin production in the physiological process of the Pancreas. The absence of this hormone causes a deficit in glucose production, consequently, an increase in glycemic indexes (CAMARA, 2021).

In type 1 Diabetes Mellitus, there is a chronic destruction of pancreatic  $\beta$  cells, through autoimmune mechanisms, mediated by cells such as T lymphocytes and macrophages. In type 2 Diabetes Mellitus, the main pathophysiological phenomenon is resistance to the action of insulin, reducing glucose uptake in insulin-dependent tissues, due to the dysfunction and reduction of pancreatic  $\beta$  cells, insulin synthesis and secretion may be compromised and, in some cases, insulin therapy will be

essential (SILVA, 2020).

Conceptually, a wound is the loss of integrity of a body tissue, regardless of its extent, caused by any type of physical, chemical, mechanical impact or triggered by any disease, which triggers the body's defenses to reestablish skin integrity (ZANOTI, 2020).

One of the most common causes in hospital sectors, as well as in primary care, is the hospitalization and prolonged treatment of diabetic patients due to chronic injuries that later, the body itself works inefficiently in producing substances that can promote wound healing, such as interleukin VI, which is capable of stimulating protein synthesis, accelerating tissue repair (SILVA, 2020).

It is known that the nursing professional has a fundamental role when it comes to holistic patient care, and performs an important job when treating

wounds, as it is responsible for monitoring the evolution of the injury, guiding and executing the dressing in an efficient and humanized way (SILVA, 2021).

Therefore, a clinical vision is necessary that lists some important points that influence the treatment of the injury, such as controlling the underlying pathology present (arterial hypertension, diabetes mellitus), nutritional, infectious, medication aspects and, above all, addressing the emotional side of having a chronic wound (SOUSA, 2020).

Given the above, a hesitation arises: How is nursing care provided to patients with diabetes in the wound healing process?

Chronic wounds, regardless of their etiology, result in high incidence rates, resulting in a reduction in patients' quality of life, resulting in socio-economic impacts of great relevance to

family members and the units responsible for providing health services. In this sense, this study portrays possibilities for optimizing nursing processes during the treatment of wounds with patients with Diabetes Mellitus (OLIVEIRA, 2019).

During the academic trajectory, it was possible to identify in practice the patient's socioeconomic and educational conditions in self-care related to Diabetes Mellitus. The present study has the relevance of studying possible complications in wound healing, patients' lifestyle, scientific knowledge of nursing professionals, appropriate use of dressings, which directly impact the treatment process of patients with chronic wounds.

The central idea of this content aims to consider the health determinants that can worsen the glycemic indexes of a diabetic patient and causes that can delay the physiological process of wound healing.

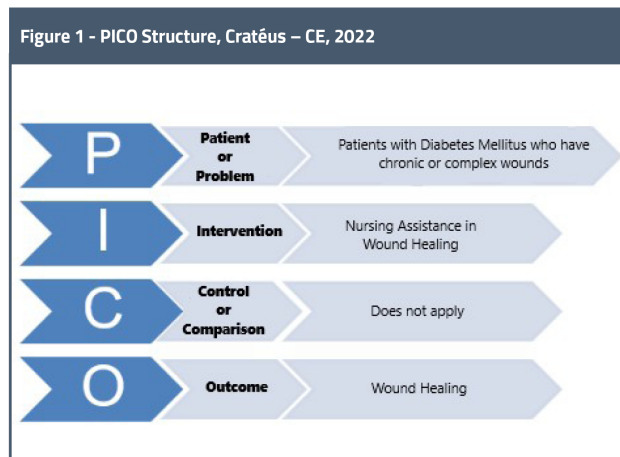
## METHOD

The PICO strategy was used to obtain data, this acronym PICO is an acronym for Patient/Population, Interest, Comparison/Control and outcome. This research method allows the synthesis of multiple published studies and allows general conclusions regarding a particular area of study (SANTOS, PIMENTA, NOBRE, 2007).

In this sense, the letter 'P' was used for patients with Diabetes Mellitus who have Chronic or Complex wounds, the letter 'I' was used to contextualize and research evidence of Nursing Care regarding the wound healing process, the letter 'C' was not applied, because research does not require comparisons or control, the letter 'O' provides resolution of impasses in the wound healing process.

### First stage: identification of the topic and selection of hypotheses

Before starting scientific research, it is important to form a search strategy,



Source: Prepared by the author, 2022

which can be defined as a set of rules to make it possible to match a formulated question with the information stored in a database (LOPES, 2018).

Evidence-based practice is an approach with problem-solving and decision-making, thus emerging a guiding question: "In the face of expert, a hesitation arises: How is nursing care provided to patients with diabetes in the wound healing process?" decision-making that incorporates the search for the best and most recent evidence, the professional's clinical competence and values (ERCOLE, MELO, ALCOFORADO, 2014).

To obtain better insight in the search for scientific data, it was necessary to use descriptors and keywords. Therefore, the descriptors that were used for the search were Nursing Care, Wounds, Diabetes Mellitus. According to the standards of Health descriptors (DeCS).

### Second stage: establishment of criteria for literary sample analysis

The criteria for inclusion of this research was the search for scientific articles on kinetic bases of *Qualis* A1, A2, B1, B2, aiming to synthesize the research criteria providing a direct analysis of what

was actually necessary to research to carry out this research.

Furthermore, to develop such research, it was necessary to read international articles in English and Spanish related to Nursing Care in the care of wounds in diabetic patients.

In this sense, the exclusion criteria are from the last five years 2017-2022, clinical trials, media reports, incomplete case studies, dissertation theses that do not have concrete data, studies without approval from the ethics committee, non-scientific texts. Furthermore, any scientific research that does not have scientific proof or scientific research that does not fit within the research descriptors were excluded.

In this sense, the research was carried out between the months of August and September 2022, with the descriptors cited as in the Health Sciences Descriptors (DeCS), the descriptors used in the search are: nursing care, wounds, diabetes mellitus. The Boolean "AND" was used to perform the crossings between the descriptors: Nursing Care, Wounds, Type 1 and 2 Diabetes.

### Third stage: definition of the infor-

### mation that was extracted from the selected studies

During extraction, relevant information from studies is collected in a standardized way to characterize and evaluate the outcomes of interest. This step must be performed independently. Regardless of the process, in the data extraction phase, it is extremely important to maintain transparency about the methodological choices and impacts on the data used in the meta-analysis (DARSI, 2020).

The central objective of this stage is to organize and synthesize information in a succinct manner, which is easy to access and manage. The information must cover study samples, objectives, chosen methodology, results and conclusions of that study (MENDES; SILVEIRA; GALVÃO, 2008).

### Fourth stage: evaluation of included studies

In this regard, the research information, in which the use of tools for the aforementioned study. To guarantee this review, the chosen studies must be analyzed in detail. The analysis must be carried out critically, obtaining explanations for different results or those that have opinions in the aforementioned studies (MENDES; SILVEIRA; GALVÃO, 2008).

During this evaluation, it will indicate the veracity of the review studies. Methodological rigor should not only be considered when producing a systematic review, but also when conducting research projects (DARSI, 2020).

The development of an assessment of methodological quality includes contributing to the critical evaluation of studies and assists in decision-making to use the results of research during clinical practice. At the conclusion of this stage, changes may occur in the recommendations for applying the practice (MENDES; SILVEIRA; GALVÃO, 2008).

### Fifth stage: analysis and interpretation of results

In this regard, the basis of the results is essential, the comparison with theoretical knowledge, the identification of conclusions and implications resulting from the integrative review. It is possible to identify factors that encompass nursing policy and care (MENDES; SILVEIRA; GALVÃO, 2008).

That said, it is a way to control the inclusion or exclusion criteria of studies to be considered in the analysis and interpretation of results (DARSI, 2020).

### Sixth stage: presentation of the review

In integrative reviews, the outline and judgment on each aspect of the evidence evaluation process are presented, as well as a reference to the reasons that led to the increase or decrease in the level of evidence. This measure is important to increase the transparency of the process and allow it to be adapted to different decision contexts (DARSI, 2020)

During this stage, the planning of the document that includes the description of the steps is carried out. It is extremely important work, as it impacts existing knowledge on the researched topic (MENDES; SILVEIRA; GALVÃO, 2008).

The proposal for an integrative review is to gather and synthesize evidence that is available in journals, in which the conclusions will be questioned if they are based on a questionable methodology (MENDES; SILVEIRA; GALVÃO, 2008)

## RESULTS AND DISCUSSIONS

When developing this research, it was observed that three points related to the objectives of the study emerged during the analysis of the results: Describing the Nurse's assistance during the wound healing process; know the Nurse's actions in the care of people with Diabetes Mellitus, during the wound healing process and identify determinants that influence the wound healing process in Diabetic patients.

- Describe the Nurse's assistance during the wound healing process

Nursing plays a fundamental role in patients with varying wound complexities. It is the nurse's responsibility to provide comprehensive quality technical and scientific care to the patient. In this context, the nurse is essential to know what conduct will be followed for the patient's health and illness process (BEZERRA; RAMOS, 2021).

In this way, nursing is supported through tools to manage patient care. The Systematization of Nursing Care (SNC) is known as an instrument for organizing nursing processes. The International Classification of Nursing Practice (ICNP) standardizes the documentation of the stages of care, provision of care, directing individualized care in different departments (BEZERRA; RAMOS, 2021).

The importance of the Nurse in evaluating the prevention of injuries that may occur in patients, increasing the quality of life of patients, providing survival for that patient, such as increased healing and patient satisfaction. Furthermore, this article states that many nursing professionals are still laypeople who disregard the prevention and treatment of injuries, which can delay the patient's chances of healing (OLIVEIRA, 2019).

Thus, to obtain results according to the authors of the study, nursing was subdivided into the systematization of wound treatment, professional satisfaction and internalization of the integral vision in changes made with the implementation of the protocol, which was related to the acquisition of new knowledge, providing the patient with greater healing power.

It corroborates that knowing the clinical profile of this patient is essential in nursing care, enabling targeted and individualized assistance from the nursing team during outpatient care, facilitating specific care according to the predominant characteristics of the population and injuries (SERGIO, 2021).

Table 1 - Summary of studies related to: author, objective, target audience, interventions and conclusion. Crateús-Ceará, 2022

NO.	AUTHOR	OBJECTIVE	TARGET AUDIENCE	INTERVENTIONS	CONCLUSIONS
11	Oliveira AP, et al	To analyze nurses' perception of the wound prevention and treatment protocol used in Primary Health Care in Natal, Rio Grande do Norte, Brazil.	Nursing professionals who can prevent injuries to their patients.	The use of the protocol guided the conduct of treatment, minimizing physical and psychological suffering and socioeconomic impacts on users and their families.	The implementation of the protocol allowed the standardization of care actions in the treatment of people with wounds. Satisfaction and safety in the management of injuries were evident, with acceleration of the healing processes, which promoted greater health care.
22	Sergio, et al.	This study aimed to carry out a clinical and sociodemographic assessment of patients with leg ulcers followed in an outpatient clinic. Health professionals.	Patients with leg ulcers treated at the Wound Repair Clinic of a University Hospital in the state of Rio de Janeiro/RJ	Knowledge of the profile of the population monitored and the clinical characteristics of the injuries favors the optimization of treatment, allowing specific planning of nursing care.	Knowledge of the profile of the population monitored and the clinical data of chronic wounds enables a more targeted and individualized action by the nursing team during outpatient care, helping to determine specific care according to the predominant characteristics of the population and the injuries.
33	Sergio, et al.	Understand the clinical profile of people with wounds treated at the Stomatherapy Nursing outpatient clinic	Clinical and epidemiological profile of people treated at the Stomatherapy Nursing Outpatient Clinic of a public university, developed during the undergraduate Nursing course at the Regional University of Cariri - URCA.	Investigate the lifestyle and social determinants of the patients treated.	The development of this investigation made it possible to verify the clinical profile of people with wounds treated at the outpatient stoma therapy nursing service.
44	Lowe, et al.	To determine the sensitivity and specificity of International Classification of Diseases, Ninth Edition, Clinical Modification(ICD-9-CM) and ICD-10.	This continuing education activity is intended for physicians and nurses with an interest in skin and wound care	Enhance student competency with knowledge of changes in lower limb chronic wound code classifications from ICD-9-CM to ICD-10-CM in patients with diabetes	The authors found when mapping diabetic foot ulcers using ICD-9 and ICD-10 that there was better classification of chronic lower limb wounds in study participants using ICD-10. Other conditions may have fewer or more differences in coding details than the diabetic foot ulcer example.

55	Ogrin, et al.	To evaluate the effectiveness of the Interprofessional Diabetes Foot Ulcer Team (IPDFUT) through prospective collection of data on ulcer healing rates, number of patients whose ulcers recur, hospitalizations, length of stay in hospital, amputations and patients' quality of life.	Patients with ulcers, in the wound healing process	Management tools such as health indicators, planning of materials and human resources, safety standards for care, decision-making process, among others	IPDFUT healed ulcers relatively quickly, amputations were few and minor, and lengths of stay were short. It is important to note that the number of patients with reduced arterial flow in the IPDFUT cohort is relatively low, which may contribute to the good results obtained.
66	Cabral, et al.	Identify innovative therapies for tissue repair in people with diabetic foot.	New technologies for professionals in wound healing.	Being able to assess better ulcer healing conditions and possible infections.	Several therapies can be used to treat diabetic foot in association with standard treatment, helping to increase the chances of complete healing, lower risk of amputations, improved gait and quality of life
77	Da Rosa, et al.	Analyze the characteristics of the feet in people with diabetes mellitus.	People with Diabetes Mellitus with diabetic foot ulcers or possible potential.	Being able to assess better ulcer healing conditions and possible infections.	Most patients, despite having been diagnosed with the disease for a long time, are still unaware of essential foot care, perform inappropriate practices and rarely receive specific guidance to prevent and avoid foot injuries.
88	Dos Santos, et al.	To report the experience of diabetic foot ulcer treatment carried out at home in the city of Salvador Bahia in Brazil and portray the importance of nursing care in a systematic way for a good prognosis of the injury	Diabetic patients who require home care	Report the experience during wound healing dressings.	The importance of comprehensive care during hospital care, as well as monitoring the user and the wound at home by the nursing team, as well as the continuing education offered to this patient, contributed to the effectiveness of the treatment and the quality of the care provided.

99	De Oliveira, <i>et al.</i>	To evaluate the survival of wounds on the lower limbs of diabetic and non-diabetic patients	Nurses	Knowing the wound healing time and the factors that interfere in this process can contribute to nursing care, minimizing the consequences of diseases, such as DM, and positively impact the treatment and quality of life of patients, in addition to reducing costs for the healthcare system	They emphasize the need for preventive care throughout life, especially in patients at greater risk of developing neuropathic ulcers or who have had previous events of these wounds or amputations
110	Rismayanti, <i>et al.</i>	Determine various interventions and procedures for early detection of DFU in diabetic patients.	Determine various interventions and procedures for early detection of DFU in diabetic patients.	Main types of mechanical autolytic interventions in wounds	It is known that there are 3 main types of early detection interventions that are used to assess the risk of DFU in patients with DM. The three interventions present strengths and weaknesses in various aspects
111	Jayalakshmi, <i>et al.</i>	To examine the impact of foot ulcers on different components of patients' QoL and determine their associated factors among patients with DFUs in a selected hospital of Guwahati, Assam, India.	Diabetic patients with a foot ulcer with a minimum square area of 1 cm	Assessment of injury complications by emotional, social and physiological factors	The quality of life of patients with DFUs can be improved by educating diabetic patients about prevention and early detection of foot ulcers, other diabetic complications and by taking advantage of the benefits of healthcare services prevalent in the early stages.
112	Faraji, <i>et al.</i>	Evaluate the Effect on Survival and Retention of a Nurse-Based Rapid Assessment Clinic for High-Risk Individuals Initiating ART in a Resource-Limited Clinic	Nursing Professionals and Stomach Therapist Nurses	Patients requiring ozone therapy for vascular realignment	Considering the effectiveness of ozone therapy along with silver-containing dressing in treating DFUs, wound care teams can utilize it as an adjunct to standard DFU treatment methods.
113	Polikandrioti, <i>et al.</i>	The aim of the present study was to explore the impact of anxiety and perceived social support on depression in patients with DFU, as well as patient characteristics associated with depression.	Adult patients with type 2 DM attending diabetic follow-up appointments at a public hospital in Athens during the study period.	It only recorded whether patients had anxiety, depression, social support and the impact of these variables on depression.	The finding that the greater the support from loved ones, family and friends, the less depression may lead health professionals to incorporate social support as an integral part of the therapeutic regimen.

Fonte: elaborado pelo autor, 2022.

When promoting patient care, it is necessary to direct individualized care to different departments during patient care. At SNC we can also count on the Nursing Process, which is made up of five stages, namely: Data Collection or Nursing History, Nursing Diagnosis, Nursing Planning (BEZERRA; RAMOS, 2021).

- Know the Nurse's actions in caring for people with Diabetes Mellitus, during the wound healing process

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In this way, nursing is supported through tools to manage patient care. The Systematization of Nursing Care (SNC) is known as an instrument for organizing nursing processes. The International Classification of Nursing Practice (ICNP) standardizes the documentation of the stages of care, provision of care, directing individualized care in different departments (BEZERRA; RAMOS, 2021).

The nurse's knowledge is extremely important, as the professional must always be constantly updated on types of dressings and coverings. The study also emphasizes that patients with diabetes have a lower chance of wound healing when compared to healthy people. These data can help nursing team professionals who are often involved in health promotion activities (OLIVEIRA, 2019).

The varied types of treatment in patients who have chronic injuries, even if the patient does not have DM. The nurse must be the interventionist throughout the patient's treatment, effectively leading through nursing diagnoses associated with standard wound healing treatment (CABRAL, 2022).

The management of patients with injuries is considered a specialized, dynamic and complex practice in the area of nursing, since it is a basis that determines the evolution of the wound, guaranteeing the professional skills to plan, implement, evaluate individual care and optimize the best treatment for the patient (SANTOS, 2019).

With the evolution of science and the existence of new technologies, they have helped the patient to shorten the wound healing process in several patients and often bring about complete healing of the injuries. Evidence of new technological resources that are present today provide the patient with a new quality of life, especially the autonomy of the professional nurse (BEZERRA, 2021).

Furthermore, patients with diabetes are more likely to have delayed wound healing than patients without the disease. These findings can help nursing professionals who often provide health promotion activities and predict wound treatment time in patients with diabetes (OLIVEIRA, 2019).

- Identify determinants that influence the wound healing process in diabetic patients

The advancement of the elderly population is a relentless phenomenon that cannot be changed, occurring in different forms on a global stage and with it the growth of chronic diseases grows on a similar scale. After reading the studies analyzed, it was observed that some factors may interfere with the clinical evolution of a diabetic patient's wound. Environmental, scientific, physical and biological factors are considered determining factors in the wound healing process (VIEIRA, 2017).

Therefore, increased life expectancy is associated with the risk of comorbidities as the individual ages. Considering several factors related to the appearance of skin lesions, it is important to highlight the nurse's knowledge in

treating wounds, as they are the professionals who provide the greatest assistance to a patient with chronic or acute wounds (SQUIZZATTO, 2017).

In this sense, the treatment means effective and faster resolution, since the skin of elderly people is vulnerable to injuries and infections. Because means such as ozone therapy and conventional treatment can provide antiseptic forms and a better quality of life, accelerating tissue repair (FARAJI, 2021).

The patient's quality of life is very important for maintaining the patient's self-esteem. The quality of life of patients can be improved by providing education and healthcare to diabetic patients on prevention and early detection of foot ulcers, other diabetic complications utilizing the benefits of healthcare services (JAYALASHMI, 2021).

For example, check the support of loved ones, family and friends, as those closest to you can provide a better environment for treating that patient (POLIKANDRIOTI, 2020).

CONCLUSION

It is concluded that carrying out this study achieved its objectives in validating a script intended for nursing care during the wound healing process in people affected by Diabetes Mellitus, based on scientific research, directly contributing to the production of this study.

The importance of this study is highlighted, which could contribute to the clinical and scientific practice of nursing during the wound healing process, providing nurses with autonomy. In addition to improving the quality of patient management, according to the demand for assistance to patients with injuries, through the construction of an instrument that supports adequate recording.

In this context, it is worth highlighting that DM can be considered a determining factor during the wound

healing process. Since, there are several types of determinants that, in addition to DM, can delay the healing process of this patient, such as: age, comorbidities, physical, biological and chemical means.

Among the limitations of the study, the limited published material can be

identified, since, even with the Nurse acting directly in the wound healing process, it is still a topic little published in the scientific community. Studies with limited information on management, wound characteristics, description of procedures and especially little information on conventional dressings.

Furthermore, no knowledge is identified, requiring constant updating of standards and practices. In this sense, this study will serve as a guide in studies on the assistance that nursing provides to patients who have Diabetes Mellitus in the wound healing process.

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