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RESEARCH

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FACTORS ASSOCIATED WITH THE PREVALENCE OF CHRONIC WOUND HEALING IN A FAMILY HEALTH UNIT

Fatores associados à prevalência de cicatrização de feridas crônicas em uma unidade de saúde da família
Factores asociados a la prevalencia de cicatrización de heridas crónicas en una unidad de salud familiar

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ABSTRACT

Objectives: : to analyze the factors associated with the prevalence of healing in patients with chronic wounds. **Method:** cross-sectional study, in patients with chronic wounds at a Family Health Unit, in Salvador, Bahia. Data were collected from secondary sources available in the patient monitoring spreadsheet, analyzing the level of healing of chronic wounds as an outcome. **Results:** statistically significant differences were found in the variables age group and pain level, where the proportion of those with the worst healing rates was 77.78% higher in adult patients compared to the elderly; and the proportion of patients with severe/very severe pain with the worst healing rates was 80% higher compared to patients with no pain. **Conclusion:** the importance of developing strategies to address lifestyle, adherence, and pain management, as well as the use of qualitative tools to assess factors that may affect healing, was highlighted.

DESCRIPTORS: Ulcer; Wounds and injuries; Wound healing; Risk factors; Primary health care;

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RESUMO

Objetivo: analisar os fatores associados à prevalência de cicatrização em pacientes com feridas crônicas. **Método:** estudo transversal, em pacientes com feridas crônicas de uma Unidade de Saúde da Família, em Salvador, Bahia. Os dados foram coletados de fontes secundárias disponíveis na planilha de acompanhamento dos pacientes, analisando como desfecho os níveis de cicatrização das feridas crônicas. **Resultados:** foram verificadas diferenças estatisticamente significantes nas variáveis faixa etária e dor, em que a proporção de apresentar os piores índices de cicatrização foi 77,78% maior entre os pacientes adultos quando comparada aos idosos; e a proporção de apresentar os piores índices de cicatrização entre os pacientes com dor intensa/muito intensa foi 80% maior quando comparada aos pacientes sem dor. **Conclusão:** ficou evidente a importância de desenvolver estratégias voltadas ao estilo de vida, adesão ao tratamento, manejo da dor, bem como utilização de instrumentos qualitativos para avaliação dos fatores que possam interferir na cicatrização.

DESCRITORES: Úlcera; Ferimentos e lesões; Cicatrização; Fatores de risco; Atenção primária à saúde;

RESUMEN

Objetivos: analizar los factores asociados a la prevalencia de curación en pacientes con heridas crónicas. **Método:** estudio transversal, en pacientes con heridas crónicas en una Unidad de Salud de la Familia, en Salvador, Bahía. Los datos se recopilaron de fuentes secundarias disponibles en la hoja de seguimiento de pacientes, analizando como resultado los niveles de curación de las heridas crónicas. **Resultados:** se observaron diferencias estadísticamente significativas en las variables grupo de edad y dolor, siendo la proporción de quienes tuvieron peores tasas de curación 77,78% mayor entre los pacientes adultos en comparación con los ancianos; y la proporción de pacientes con dolor intenso/muy intenso que presentaron peores tasas de curación fue un 80% mayor en comparación con los pacientes sin dolor. **Conclusión:** se evidenció la importancia de desarrollar estrategias enfocadas en el estilo de vida, la adherencia al tratamiento, el manejo del dolor, así como el uso de instrumentos cualitativos para evaluar factores que puedan interferir en la curación.

DESCRIPTORES: Úlcera; Heridas y lesiones; Cicatrización de heridas; Factores de riesgo; Atención primaria de salud.

INTRODUCTION

Chronic wounds are characterized as injuries in the anatomical and physiological structure of the skin, the largest organ in the human body, resulting from impaired repair mechanisms that exceed four weeks, the time expected to complete the stages of wound healing.¹ Wound healing is a complex biological mechanism that combines a series of events: hemostasis, inflammation, proliferation, angiogenesis, matrix production, and remodeling, and occurs in a timely manner.^{2,3}

The estimated prevalence of chronic wounds in the population is 2.2 per 1,000 inhabitants.⁴ Chronic wounds can result from vascular disease, diabetes mellitus, arterial hypertension, and physical immobility, and are classified into four categories based on their etiology: pressure ulcers, diabetic ulcers, venous ulcers, and ulcers due to arterial insufficiency.⁵

In addition to the co-morbidities that affect patients with chronic wounds, the prolonged healing time has an impact on the quality of life and burden on the patient, who requires complex therapies and multiple modalities of care, and on the healthcare system, which is a relevant public health issue.⁶ Pain, sleep disturbances, mobility limitations, self-care deficits, limitations in performing daily activities, anxiety, depression, changes in body image, discrimination, and social isolation are psychosocial factors that affect the quality of life of patients with chronic wounds.⁷

The care of patients with chronic wounds is a clinical challenge for nurses, who must assess and manage treatment in a

dynamic manner, considering the clinical situation, the stages of the wound, and the various factors that interfere with healing.⁸

Wound healing assessment tools, such as the Bates-Jensen Wound Assessment Tool (BWAT), originally developed in 1990 as the Pressure Sore Status Tool (PSST) and reformulated in 2001 with translation and adaptation to the Brazilian culture, are used to assess the healing process of wounds of various etiologies and to plan the care of patients with skin injuries.⁹

The BWAT scale consists of 13 items (size, depth, borders, undermining, type and amount of necrotic tissue, type and amount of exudate, surrounding skin color, peripheral edema, peripheral induration, granulation tissue, and epithelialization) that are scored on a Likert-type scale of one to five, with a score ranging from 13 to 65, with lower scores indicating a better healing index.¹⁰

In view of the above, the present study becomes relevant, since the knowledge of the healing process and the factors associated with the healing rates of patients with chronic wounds are fundamental for the planning and decision making of health professionals in the care of patients with chronic wounds, for the improvement of the quality of life and the reduction of costs for patients and health systems.

Therefore, the objective of this study was to analyze the factors associated with the prevalence of healing in patients with chronic wounds, followed in a Family Health Unit in the municipality of Salvador, Bahia, in 2022.

METHOD

This is a cross-sectional, descriptive and exploratory study conducted with patients with chronic wounds in a Family Health Unit in the city of Salvador, Bahia. Data collection was done through an electronic form (Google Forms), using secondary data available in the follow-up spreadsheet of patients who underwent dressings in the unit, from January to December 2022.

All records of patients over 18 years of age and with a wound duration of more than 4 weeks were included in the data collection, and incomplete records were excluded from the spreadsheet. The Excel spreadsheet consisted of information on patients, clinical situation, and wound conditions, which were assessed monthly using the BWAT scale.

The following patient identifying variables were analyzed: race/color, gender, age group, residence in the unit's service area, number of comorbidities, lesion site, type of injury, pain level, clinical care situation, and wound healing level based on the BWAT scale score, with chronic wound healing rates analyzed as the outcome. The dependent variable used was the presence of the worst wound healing index, and the independent variables were sociodemographic, clinical, and nursing characteristics.

For the analysis of the degree of healing in chronic wounds, the average of the BWAT scale scores from 2022 was used, and as a cut-off point, the score up to 32.5 was considered favorable for healing and from 32.6 as unfavorable for healing, considering that the evaluation of the BWAT scale is procedural, with scores ranging from 09 to 65 points, and wound regeneration/degeneration is evaluated based on the proximity to the extreme points.

Data were analyzed using descriptive statistics with Stata 15.0. Absolute and relative frequencies of categorical variables and minimum and maximum values, means, standard deviations, and medians of healing were calculated. Bivariate analyses (Fisher's exact test) were performed to relate worst wound healing rates to sociodemographic, clinical, and nursing characteristics, and multivariate analyses were performed to estimate adjusted odds ratios (ORa) and 95% confidence intervals (95%CI) using logistic regression (Forword).

Publicly available, unrestricted secondary data without identification of individuals were used to maintain confidentiality of the data. Although the study was not sent to the Committee for Ethics in Research for review, all ethical efforts were made to ensure confidentiality and compliance with the resolution of the National Health Council, CNS No. 466/2012.

RESULTS

The records of 22 patients with chronic wounds were used, with the sociodemographic and clinical-care characterization described in Table 1. The most common sociodemographic profile was black and brown (86.36%), male (63.64%), aged 60 years or older (59.09%), and living in the area covered by the FHU studied (59.09%).

The number of comorbidities per patient was at least 1 (36.36%) or 2 (36.36%). Chronic wounds were most common on the leg (50%), with venous ulcers (45.45%) being the most common type of wound. In the pain assessment, there were patients with pain (54.55%) recorded at different levels (mild, moderate, severe/very severe pain) and no pain recorded (45.45%).

In the evaluation of the Bates-Jensen scale, with scores ranging from 09 to 65 points (wound regeneration - wound degeneration), it was used as a cut-off point up to 32.5 points (favorable evaluation) and from 32.6 to 65 points (unfavorable evaluation for healing). Most patients (59.09%) had a favorable assessment of healing according to the Bates-Jensen scale, and continuity of follow-up at the health center (36.36%) was the most common clinical and care situation of the patients evaluated during this study period.

In the bivariate analysis described in Table 2, the race/color category showed better healing rates in whites/yellow (66.67%) and blacks/brown (57.89%). In the gender category, most female patients (75%) had better healing rates, and there was no difference among males.

In the age group category, the majority (77.78%) of adult patients (18-59 years) had the worst healing rates and the majority (84.62%) of elderly patients had the best healing rates.

Regarding the place of residence of the patients followed up in the unit, most of the patients who lived outside the unit's service area (77.78%) had the best cure rates, and most of the patients who lived in the unit's service area (53.86%) had the worst cure rates.

On the number of comorbidities, most patients with only one type of comorbidity (87.5%) had better cure rates, patients with two types of comorbidities had no change in cure rates, and most patients with three or more comorbidities (66.67%) had the worst cure rates.

Among patients with foot and leg injuries, the majority (70% and 54.55%, respectively) had better healing rates, but among patients with sacrum injuries (100%), they had the worst healing rates.

Regarding the type of injury, most patients with venous ulcers and other types of injuries (70% and 100%, respectively) had the best healing rates, in contrast to arterial, diabetic, and pressure ulcers, for which the majority (100%, 57.14%, and 100%, respectively) had the worst healing rates.

In the pain level category, patients with no pain and mild pain had better healing rates (90% and 66.67%, respectively), but patients with moderate pain (75%) and severe/very severe pain (80%) had the worst healing rates.

Most of the patients who were discharged (80%) had the best healing rates, and among the patients who continued to be followed at the unit, the majority (62.5%) had the worst healing rates, and those who discontinued treatment (80%) had the best healing rates and there was no change in the level of healing compared to the patients who were transferred.

In bivariate analysis, statistically significant differences were found in the age group variable and in the pain variable ($P=0.006$) and ($P=0.016$), respectively, in which the proportion of patients with the worst healing indices was (77.78%) higher in adult patients compared to elderly patients; and in relation to the pain variable, in which the proportion of patients with the worst

healing indices was (80%) higher in patients with severe/very severe pain compared to patients without pain. However, when logistic regression was performed in the multivariate analysis, no statistically significant association was observed in the variables used (sex, age group, residents of the service area, number of comorbidities, type of injury and level of pain).

Table 1 - Sociodemographic, Clinical and Caring Characterization of Patients with Chronic Wounds Followed in a Family Health Unit. Salvador, BA, Brazil 2022 - Rove.me

Sociodemographic Characteristics	n/N	%
Race/Color		
White/Caucasian	03/22	13,64
Black/Brown	19/22	86,36
Sex		
Female	08/22	36,36
Male	14/22	63,64
Age Group		
18-59 years old	09/22	40,91
60 or >60 years old	13/22	59,09
Resident in the area covered by the unit		
No	09/22	40,91
Yes	13/22	59,09
Clinical and Caring Features		
Number of comorbidities		
One	08/22	36,36
Two	08/22	36,36
Three or more	06/22	27,27
Injury Site		
Foot	10/22	45,45
Leg	11/22	50,00
Sacrum	01/22	04,55
Injury Type		
Venous Ulcer	10/22	45,45
Arterial Ulcer	01/22	04,55
Diabetic Ulcer	07/22	31,82
Pressure Injury	01/22	04,55
Others	03/22	13,64
Pain Level		
No pain	10/22	45,45
Slight pain	03/22	13,64
Moderate pain	04/22	18,18
Severe/very severe pain	05/22	22,73
Clinical and caring situation		
Discharge	05/22	22,73
Follow-up	08/22	36,36
Discontinuation	05/22	22,73

Transfer	04/22	18,18
Wound healing (Bates-Jensen scale)		
Yes	13/22	59,09
No	09/22	40,91

Fonte: Dressing room follow-up records.

Table 2 - Sociodemographic, Clinical and Caring Characterization of Patients with Chronic Wounds Followed in a Family Health Unit According to the Degree of Healing. Salvador, BA, Brazil 2022 - Rove.me

Characterization	Healing				p-value
	Yes		No		
	N	%	N	%	
Race/Color					
White/Caucasian	02	66,67	01	33,33	0,642
Black/Brown	11	57,89	08	42,11	
Sex					
Female	06	75,00	02	25,00	0,246
Male	07	50,00	07	50,00	
Age Group					
18-59 years old	02	22,22	07	77,78	0,006
60 or >60 years old	11	84,62	02	15,38	
Resident in the area covered by the unit					
No	07	77,78	02	22,22	0,149
Yes	06	46,15	07	53,85	
Number of comorbidities					
One	07	87,50	01	12,50	0,120
Two	04	50,00	04	50,00	
Three or more	02	33,33	04	66,67	
Injury Site					
Foot	07	70,00	03	30,00	
Leg	06	54,55	05	45,45	
Sacrum	00	00,00	01	100,00	
Injury Type					
Venous Ulcer	07	70,00	03	30,00	0,121
Arterial Ulcer	00	00,00	01	100,00	
Diabetic Ulcer	03	42,86	04	57,14	
Pressure Injury	00	00,00	01	100,00	
Others	03	100,00	00	00,00	
Pain Level					
No pain	09	90,00	01	10,00	0,016
Slight pain	02	66,67	01	33,33	
Moderate pain	01	25,00	03	75,00	
Severe/very severe pain	01	20,00	04	80,00	
Clinical and caring situation					

Discharge	04	80,00	01	20,00	0,375
Follow-up	03	37,50	05	62,50	
Discontinuation	04	80,00	01	20,00	
Transfer	02	50,00	02	50,00	

Source: Dressing room follow-up records.

DISCUSSION

The socio-demographic profile surveyed is consistent with other national studies on the subject, such as the higher prevalence of the male population,^{11,12} black and brown race/color,¹³ and aged 60 and over.^{6,12,13}

An integrative review study on the assessment of chronic wounds demonstrated the limitations of exclusive studies in the assessment of chronic wounds and highlighted the complexity of the interaction of factors that need to be considered in the assessment, such as physiological, social and psychological aspects, so that the professional can have a multifactorial approach to early recognition of the development and evolution of the wound and, consequently, to the intervention.*

Considering that the elderly are the most affected by chronic wounds, which confirms the findings of this study, it can be stated that this factor becomes relevant as people who live longer have a greater possibility of exposure to risk factors. In the elderly, the skin becomes more susceptible to the appearance of injuries because of the vascular, metabolic and immunological changes that affect this age group.¹³

In the bivariate analysis, there was a statistically significant difference in the age group variable ($P=0.006$), in which the proportion of patients with the worst healing rates was higher (77.78%) in adult patients compared to elderly patients.

The presence of one or more chronic diseases characterized the study sample, especially hypertension and diabetes mellitus, but it was not statistically associated with the level of healing. These data are important given that chronic disease causes changes, especially in the routine and planning of activities, which increases not only the responsibilities but also the skills in wound care, which is worrisome when dealing with an elderly person with disabling diseases that affect the cognitive state.^{15,16}

Venous disease is an important clinical issue in the development of various chronic wounds. Regarding the type of injury, among patients with venous ulcers and other types of injuries, the majority (70% and 100%, respectively) had the best healing rates, in contrast to arterial, diabetic and pressure ulcers, in which the majority (100%, 57.14% and 100%, respectively) had the worst healing rates.

This condition, which affects between 1% and 10% of the world's population and increases with age, represents a significant cost to society in terms of medical and surgical treatment and, most importantly, in terms of lost work productivity due to pain and disability.¹⁷ In a study carried out in

a primary health care unit in the city of Rio de Janeiro, venous ulcers (40%) ranked first in prevalence among the patients treated in the health service studied, followed by diabetic foot (16.7%) and mixed ulcers (arterial and venous) (16.7%), confirming the scenario studied here, in which venous ulcers (45.45%) were the most common type of injury.¹⁸

Vascular injuries result from the involvement of blood and lymphatic vessels, affecting perfusion and organ exchange and causing cell death. These are injuries with chronic potential, as the maintenance of cell life and the migration of defense cells, essential for tissue repair, are continuously impeded.^{5,8}

Some conditions affect the state of dressing changes, such as pain, which is an important component in the management of people with wounds. This sensation is unpleasant, affects quality of life and directly interferes with treatment and is one of the reasons for non-adherence to weekly outpatient treatment with the nurse. Pain causes anxiety, suffering and demotivation in the patient and should be closely monitored by the nurse and appropriate procedures should be implemented to minimize it.⁹

With regard to pain, it was noted that it was an important variable of investigation in the present study, since 54.55% of the patients had pain caused by the injuries; severe and/or very severe pain implies aggravation of chronic wounds and consequent healing,²⁰ a fact demonstrated in the present study, where it was observed that patients with no pain and mild pain (90% and 66.67%, respectively) had better healing rates, but patients with moderate pain (75%) and intense/very intense pain (80%) had the worst healing rates.

In a study examining the quality of life of people with chronic wounds, a correlation was found between pain intensity and the following domains "well-being", "physical symptoms and daily activities", and "social life".¹¹ In addition to impairing wound healing, pain causes a decrease in quality of life, difficulty performing daily activities, lifestyle changes, frustration, and immobility, which can lead to social isolation. In addition, pain is associated with the presence of numerous emotional and psychological damages that directly affect the homeostasis and metabolism of the body, which in some way affects the action of epithelial cells during proliferation for tissue reconstruction.²¹

Treatment of chronic injuries requires a systemic approach that goes beyond dressing changes. It is essential to conduct a comprehensive assessment that addresses social and clinical issues, including pain, that may affect therapeutic success. Several aspects of pain assessment can be considered, such as: intensity scales, location, conditions that interfere with

pain relief or worsening, and the impact of pain on daily activities. It is important to know how to conduct the pain assessment, considering the individuality of each person.²⁰

From this perspective, for the care of people with chronic wounds, it is urgent to recognize that health conditions are not only the result of individual conditions, but also multifactorial. Therefore, it is necessary to think about a set of structured care actions that include not only biological issues, but also social, cultural and economic ones, based on the assessment of risks and determinants of health, with primary care as a priority strategy for the care of these injuries, in order to avoid or at least delay the occurrence of hospitalizations, which are characterized as more expensive health care alternatives.

The limitations of this study were: lack of temporality, due to the cross-sectional design; reduced sample number; as well as the heterogeneity of the different types of chronic wounds, suggesting the development of studies that analyze wound healing by type of wound, addressing the complexity of the factors involved, and also the development of longitudinal studies that show the relationship between sociodemographic characteristics, behavioral habits and characteristics of chronic wounds in the evolution of wounds. It is noteworthy that in this study the variables time of existence of the wound in a categorized manner, the type of therapy used, the patient's mobility, nutritional status and psychosocial aspects were not analyzed.

CONCLUSION

The sociodemographic profile of the patients served was predominantly elderly, black and brown race/color, male, living in the service area, with at least one type of comorbidity, with leg injury, with venous ulcer type, with pain records, with follow-up care, and with injury favorable to healing.

In bivariate analysis, adult patients and those with moderate and severe/very severe pain had the worst healing rates, but no statistically significant association was observed in multivariate analysis.

In terms of contributions, the data from this study will allow professionals to direct actions to the reality of life and health conditions of each patient, in terms of lifestyle, treatment adherence, pain management, as well as the use of qualitative tools for the evaluation of factors that may interfere with healing. These data are relevant for decision-making by the health care team, especially the nurse, who plays a leading role in the care of patients with wounds.

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