

PREVALENCE OF CHRONIC WOUNDS IN A CITY OF MINAS GERAIS (BRAZIL)  
PREVALÊNCIA DE LESÕES CRÔNICAS DE MUNICÍPIO DA ZONA DA MATA MINEIRA (BRASIL)  
PREVALENCIA DE LESIONES CRÓNICAS DE UN MUNICIPIO DEL ESTADO DE MINAS GERAIS (BRASIL)

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ABSTRACT

The objectives of the study were to estimate the prevalence of chronic wounds in a city of *Minas Gerais*, Brazil, to identify the clinical, epidemiological and sociodemographic profile of the patients with wounds and to describe the characteristics of the wounds and the treatment received. This is an exploratory, descriptive, cross-sectional study carried out in a medium-sized city in *Zona da Mata/MG*, with a sample of 104 participants with chronic wound from the 25 Family Health Strategy and the seven Health Centers city that met the inclusion criteria. For the data collection the participants underwent clinical evaluation, including evaluation of the wound and some data were extracted from the medical record. The estimated prevalence of chronic wounds was 0.164% (1.64 / 1,000 inhabitants); the participants had a average age of 66.6 years; most were women; with low schooling and monthly income. Most had associated illnesses and used one or more medications. The average duration of the wounds was 2 years, and most were in the legs and were of venous origin, being treated with ointments. The physician was primarily responsible for the treatment and the dressing changes were performed by the patient or caregiver. It was concluded that the prevalence obtained was compatible with the literature and the results obtained will help the nurses and managers in the organization of the care network to the user with chronic wound of the city where the research was performed. It is recommended to carry out similar studies in other cities to compare data.

**Keywords:** Prevalence; Nursing Care; Health Profile; Wounds and Injuries; Family Health; Primary Health Care.

RESUMO

Os objetivos do estudo foram estimar a prevalência de lesões crônicas de um município de Minas Gerais (MG), identificar o perfil clínico, epidemiológico e sociodemográfico dos pacientes com lesão e descrever as características das lesões e o tratamento recebido. Trata-se de estudo epidemiológico, descritivo exploratório, transversal realizado em um município de médio porte da Zona da Mata de MG, com amostra de 104 participantes com lesão crônica provenientes das 25 equipes de Estratégia de Saúde da Família e dos sete Postos de Saúde do referido município que atenderam aos critérios de inclusão. Para a coleta de dados os participantes passaram por avaliação clínica, incluindo a avaliação da lesão e alguns dados foram extraídos do prontuário. A prevalência estimada de lesões crônicas foi de 0,164% (1,64/1.000 habitantes), os participantes tinham idade média de 66,6 anos; a maioria eram mulheres; com baixa escolaridade e renda mensal. A maioria possuía doenças associadas e fazia uso de um ou mais medicamentos. O tempo médio de existência das lesões foi de dois anos e a maioria estava localizada nas pernas e era de etiologia venosa, sendo tratadas com pomadas. O médico era o principal responsável pelo tratamento e as trocas de curativos eram realizadas pelo paciente ou cuidador. Concluiu-se que a prevalência obtida foi compatível com a literatura e os resultados obtidos subsidiarão os enfermeiros e gestores na organização da rede de assistência ao usuário com lesão crônica do município onde a pesquisa foi realizada. Recomenda-se a realização de estudos semelhantes em outros municípios para comparação de dados.

**Palavras-chave:** Prevalência; Cuidados de Enfermagem; Perfil de Saúde; Ferimentos e Lesões; Saúde da Família; Atenção Primária à Saúde.

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## RESUMEN

La presente investigación buscó estimar la prevalencia de lesiones crónicas de un municipio de Minas Gerais (MG), identificar el perfil clínico, epidemiológico y sociodemográfico de los pacientes con lesión y describir las características de las lesiones y el tratamiento recibido. Estudio epidemiológico, descriptivo exploratorio, transversal realizado en un municipio mediano de la Zona de la Mata con una muestra de 104 participantes de los 25 equipos de estrategia de salud de la familia y de los siete puestos de salud del referido municipio que atendieron a los criterios de inclusión. Para la recogida de datos los participantes pasaron por una evaluación clínica, incluyendo evaluación de la lesión, además de información en el expediente clínico. La prevalencia estimada de lesiones crónicas fue 0,164% (1,64 / 1.000 habitantes), los participantes tenían edad promedio de 66,6 años; la mayoría eran mujeres; con baja escolaridad e ingreso mensual. La mayoría tenía enfermedades asociadas y usaba uno o más medicamentos. El tiempo medio de las lesiones era de 2 años y la mayoría estaba en las piernas y era de etiología venosa, tratadas con pomadas. El médico era el principal responsable del tratamiento y los cambios de curativos los hacía el paciente o cuidador. Se concluye que la prevalencia obtenida es compatible con la literatura y estos resultados ayudarán a enfermeros y gestores en la organización de la red de atención al usuario con lesión crónica del presente municipio. Se recomienda llevar a cabo estudios similares en otros municipios para poder comparar datos. **Palabras clave:** Prevalencia; Atención de Enfermería; Perfil de Salud; Heridas y Lesiones; Salud de la Familia; Atención Primaria de Salud.

## INTRODUCTION

Chronic wounds are considered a public health problem in Brazil and in the world. Research on the prevalence of chronic wounds in the Brazilian population is still incipient and there is great difficulty in identifying published studies on the subject. In the world population, 14% of people present some type of wounds during their lives according to studies developed in the United States of America.<sup>1</sup>

In the clinical approach of patients with chronic wounds, health professionals should be aware of the existence of basic diseases (*diabetes mellitus*, systemic arterial hypertension, peripheral artery disease, among others), use of medications, infectious processes, nutritional aspects and everything that may influence the chronicity of the wound.

The present research focuses on the prevalence of chronic wounds and was developed in a medium-sized city in *Minas Gerais*, located in *Zona da Mata*. Medium-sized city is one with 100,000 to 200,000 inhabitants. This city is part of the state's south-central health macro-region, being a reference for numerous neighboring cities in the health care network.

According to the *Instituto Brasileiro de Geografia e Estatística* (IBGE), in 2016, this city had an estimated population of 126,420 inhabitants, while in the last official census of 2010 the population found was 116,512 people, 56,383 of whom were male and 60,129 female.<sup>2</sup>

In the city there are 25 Family Health Strategy (FHS) in the urban area and seven health sites in rural areas. According to the Portal of the Department of Primary Care, these sites cover 69.83% of the population.<sup>3</sup>

In the city mentioned, there is no structured assistance network for patients with chronic wounds, not even any type of care protocol implemented. The care for these users occurs in the Family Health Strategy units and in the health units of the city and is performed by the nursing team composed of nurses and nursing technicians. These professionals are respon-

sible for the development of prevention, evaluation and treatment of wounds.

The city in question does not have a computerized system for recording data about the patient and no studies carried out on this subject, the number of people with chronic wounds is unknown. The lack of this information probably leads to the lack of clarity of the managers on the costs of treatment of these people for the city and on the time of their stay in the care network for the healing, for the elaboration of planning and health policies consistent with the municipal reality.

In view of the above, the objectives of the study were to estimate the prevalence of chronic wounds in a city of Minas Gerais, to identify the clinical, epidemiological and sociodemographic profile of the patients with wounds and to describe the characteristics of the wounds and the treatment received.

## METHOD

This is an epidemiological, cross-sectional, exploratory descriptive study. The research was carried out in a medium-sized city in *Zona da Mata*/MG.

We decide for a convenience sample – not probabilistic, accidental – due to time and resource constraints. This type of sample allows the collection and analysis of data related to some elements of this reference population to provide relevant information about the entire population.<sup>4</sup>

Initially contact was made with the nurses of the 25 FHS in the urban area and the seven health units in the rural area of the city under study. These professionals identified 136 users with chronic wound through the consultation of the data sheet existing in these health facilities.

To participate in the study, the user met the inclusion criteria: age 20 and over, respecting the age stratification found in the data available in the IBGE 2010 Census, present wound for more than 28 days, live in the city and be enrolled in the primary care network.

The nurses scheduled the patient's consultation with the researcher, who was also a nurse, in the health units. At that moment the user was invited to participate in the survey. The 104 users with chronic wounds who met the inclusion criteria and agreed to the study signed the informed consent form. Then, they underwent clinical evaluation, including evaluation of the wound, for data collection. The participant's chart was another researched source for data collection.

As an instrument for data recording, a form was used by the researcher, previously tested in a previous research carried out in the city of *Capelinha-MG*. The instrument included sociodemographic, epidemiological and clinical variables of the patient; characteristics of the wound; clinical management of the wound (cleansing, prescribed coverage and products, indication of the compressive therapy, the professional responsible for the treatment).

The research followed the recommendations of Resolution 466 of December 12, 2012, of the *Conselho Nacional de Saúde*<sup>5</sup> and received a favorable opinion from the *Comitê de Ética em Pesquisa* of the *Universidade Federal de Minas Gerais* under protocol 1.342.774.

The collected data were submitted to the appropriate codification, in database created in the program Epidata version 3.1. The information was stored in spreadsheets of the program, with wounds for validation of the data with evaluation of consistency and correction of typing errors. Next, the data were transferred to the Statistical Package for Social Sciences Software (SPSS, version 22.0, Chicago, IL, USA) and the statistical calculations were performed.

The results were analyzed by descriptive statistics. Continuous variables were described in their measures of central tendency (mean, median) and dispersion (standard deviation) and categorical variables were described in absolute numbers and percentages.

## RESULTS

The estimated prevalence of chronic wounds in the medium-sized city in *Zona da Mata/MG* was 0.164%, corresponding to 1.64/1,000 inhabitants.

Among the participants, there were predominant white (44.2%) or brown skin (37.5%) and married people (41.3%). Most were female (64.4%), elderly (69.2%), literate (86.5%), low schooling (60.6% with up to four years of schooling) and minimum wage as family income (60.6%) and no employment at the time of the survey (76.9%). All participants lived in the house with treated water and most had sewage network (89.4%) and garbage collection (99.0%).

Most participants (88/84.6%) had associated diseases, the most frequent being systemic arterial hypertension (38/43.3%),

*diabetes mellitus* (20/22.5%) and heart disease (8/9.2%) and used one or more medications (93/89.4%), with antihypertensive drugs (75/80.6%), analgesics (47/50.5%) and oral hypoglycemic agents (30/32.3%).

It has been identified a significant fraction of participants without registration in the lab records: hemoglobin (58/55.8%), albumin (100/96.2%) and fasting blood glucose (54/51.9%) and anthropometric data. Among participants who had hemoglobin records (46/44.2%), 29 (63.04%) had a rate below normality and in 65 (71.42%) of the 91 patients who had body mass index, it was above the reference, characterizing overweight or obesity. Most participants (57/54.8%) had limitation on walking, including five (4.8%) who were bedridden.

The duration of the chronic wounds of the participants ranged from less than one year to 31 years, average of two years (standard deviation = 2.5), median of 13.5 years, with 51.0% presenting them for a year and 17.4% for one to two years.

The predominant etiology was venous (50.0%), and one participant had this type of wound for 31 years. The most frequent etiologies were pressure wounds (13.5%) and mixed leg ulcers (6.7%). The wound area varied from 0.01 to 600 cm<sup>2</sup>, average of 32.34 ( $\pm$  25.8) cm<sup>2</sup> and median of 12 cm<sup>2</sup>. Further data on the characteristics of the wounds are presented in Table 1.

Table 1 - Characteristics of the wound and skin of the participants. *Conselheiro Lafaiete/MG*, 2017

Variable	Category	n (%)	Mean (SD)
Number of wounds per patient	01	61 (58.7)	1.77 (1.12)
	02	19 (18.3)	
	03	15 (14.4)	
	04	07 (6.7)	
	More than 05	02 (1.9)	
Location (n=204)	Medial malleolus	34 (16.6)	-
	Lateral malleolus	34 (16.6)	
	1/3 lower	73 (35.9)	
	1/3 medium	10 (4.9)	
	Plantar	09 (4.4)	
	Lateral of the foot	08 (3.9)	
	Calcaneus	06 (2.9)	
	Sacral	05 (2.4)	
	Trochanter	03 (1.5)	
	Finger	02 (1.0)	
	Abdominal	01 (0.5)	
	Other	19 (9.4)	

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Table 1 - Characteristics of the wound and skin of the participants. *Conselheiro Lafaiete/MG, 2017*

Variable	Category	n (%)	Mean (SD)
Surrounding skin	Whole	37 (35.6)	-
	Macerated	18 (17.3)	
	Erythematous	15 (14.4)	
	Descamative	21 (20.2)	
	Pruritic	1 (1.0)	
	Dermatitis	5 (4.8)	
	Infection	7 (6.7)	
Odor	Imperceptible	76 (73.1)	-
	Unpleasant	28 (26.9)	
Pain in injury	Frequently	46 (44.2)	-
	Sometimes	31 (29.8)	
	No	27 (26.0)	

Source: research data.

The description of the treatment of the wounds is in Table 2.

Table 2 - Characteristics of wounds treatments. *Conselheiro Lafaiete/MG, 2017*

Variables	Categories	N	%
Product	Sulfadiazine silver 1%	43	41.3
	Calcium alginate	11	10.6
	Collagenase	11	10.6
	Collagenase + chlorphenicol	09	8.7
	Essential fatty acids	07	6.7
	Hydrogel	06	5.8
	Hydrocolloid	05	4.7
	Neomycin + bacitracin	01	1.0
	Others	11	10.6
Changes/week	01	12	11.6
	02	06	5.8
	03	04	3.8
	05	03	2.9
	07	48	46.2
	14	31	29.8
Compressive therapy*	None or crepe bandage	56	53.8
	Compression sock	02	1.9
	Does not apply	46	44.2
Responsible for indication	Doctor	61	58.7
	Nurse	34	32.7
	Nursing technician	01	1.0
	Other	04	3.8

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Table 2 - Characteristics of wounds treatments. *Conselheiro Lafaiete/MG, 2017*

Variables	Categories	N	%
Responsible for the change	Nurse	16	15.4
	Nursing technician	06	5.8
	Patient	44	42.3
	Caregiver	38	36.6

\*Applies to patients with venous etiology.  
Source: research data

## DISCUSSION

Epidemiological studies of chronic wounds performed in public health services are insufficient, and when they occur they are usually developed in the hospital setting or when performed in the primary care settings they address the prevalence of wounds of a certain etiology.

The prevalence of chronic wound of 0.164% estimated in the study was distinct from the few studies published on the subject. A research carried out in *Recife-PE* obtained a prevalence of 1.9% and involved the participation of 93 Family Health Strategy units.<sup>5,6</sup>It is estimated that 1 to 2% of the population will have some chronic wound during their lifetime in developed countries.<sup>7</sup> In the city of *Pinhal Litoral, Portugal*, the prevalence of chronic wounds in the study population was 0.84/1,000.<sup>8</sup>

This fact was verified in the review study carried out on the prevalence and incidence of chronic wounds, with 69 studies done in several countries, except in Brazil. From them, 42 were performed with people with pressure wound, 20 with patients with diabetic ulcer, 10 with venous ulcer and three with patients with ulcer due to arterial insufficiency.<sup>9</sup>

In the present investigation, the majority of participants were elderly, however, this data was not evidenced as a consensus in relation to all studies performed with patients with wounds, since in a study carried out in *Paraíba-Brazil* a different result was identified, in which most wound patients were aged between 20 and 40 years old.<sup>10</sup> An epidemiological study carried out in *Portugal* found that patients over 80 years old had a prevalence of 5.68/1,000 and was relatively higher when compared to patients in the lower age group ( $p < 0.05$ ).<sup>8</sup> The dramatic increase in the aging population increases the occurrence of wound, since the cure of this condition is negatively associated with age.<sup>11</sup>

The increase in age seems to influence, even in the incidence of a certain type of wound. Research conducted in *Australia* in the primary health care setting has identified that the prevalence of venous ulcer is 0.062% in the general population and increases to 0.33% when it is restricted to the population aged  $\geq 60$  years. This finding was repeated in a study carried out in *Spain*, where the overall prevalence of people with venous

ulcers was 0.09% and increased, as the age group increased, to 0.05% from 41 to 64 years old, 0.24% from 65 to 74 years old, 0.44% from 75 to 84 years old and 0.75% in the age group equal to and greater than 85 years old.<sup>9</sup>

The data contribute to confirm the hypothesis that the female gender is an important risk factor for the development of chronic wounds and corroborates the findings of other researchers.<sup>1,12</sup>

As for schooling, most participants had only a few years of schooling, but were literate, had low monthly income and were professionally inactive. These characteristics were foreseeable, since the public health service mainly serves the low-income population and they generally have low levels of schooling. These data were also obtained by other authors in Brazil.<sup>1,6,10,11,13,14</sup>

Low economic income may directly interfere with the therapy and rehabilitation of patients with chronic wounds, both in the use of appropriate therapies and in other factors that are related to treatment success, such as food, living conditions and basic sanitation.<sup>10</sup>

In this study, the most common associated diseases presented by participants were systemic arterial hypertension and *diabetes mellitus*. The prevalence of these two associated diseases has increased rapidly in Brazil.<sup>15</sup> The increased prevalence of lifestyle-related diseases further increases the risk of chronic wound.<sup>16</sup> It was found that most patients were overweight or obese. The health professionals involved in the care and treatment of wounds must pay attention to the importance of guiding patients to maintain their body weight within the recommended range and to control the existing systemic alterations to avoid and/or reduce complications in the process of scarring and, consequently, increase in the time of existence of the wound.

Preliminary literature research suggests that there are currently no reliable estimates of total prevalence and incidence of chronic wounds in different contexts and etiologies.<sup>11</sup> However, when the primary care setting is considered, there is a predominance of leg ulcer, with emphasis on venous etiology, a fact that occurred in the present study. This was also the finding of the research conducted in *Recife-PE* Brazil<sup>6</sup> and studies carried out in Ireland<sup>17</sup> and in Portugal.<sup>8</sup>

Regarding the time of the wounds, it was found that many patients had them several years ago. This finding was also found in a Brazilian study<sup>18</sup> and in another carried out in France. The latter had a sample of 3,037 people with chronic wounds who were treated in community settings.<sup>19</sup>

The long duration of wound may be related to the type of treatment adopted by the professionals and even the non-treatment. The results of another research identified wounds with poor healing conditions and treatment in disagreement with the main recommendations of the literature.<sup>14</sup> Significant differences were also identified in the treatments for the same type of wound, which allows to consider the absence of clinical

guidelines in the prevention and treatment of wounds, which could contribute to the care provided with better conditions.

Most of the participants in this research received the traditional treatment in the wounds, which consisted in the application of hydrogel, oil, ointment and cream composed of antibiotic or enzymes. In a study carried out in Brazil, the authors identified that the products available in the health services for the treatment of wound did not correspond to the current technological development.<sup>6</sup> This has been repeated in other countries. In China, a similar situation was identified in an evaluation of 2,513 patients who underwent treatment of chronic cutaneous wounds from a nationally representative sample. The results revealed that only 22.4% of the patients were treated with modern dressings, represented by interactive covers or other new technologies.<sup>20</sup> In Germany, the data that draws attention is that during 2010 to 2012 only 0.43% of patients with wounds insured with health insurance were treated.<sup>21</sup>

Regarding the implementation of compression therapy in patients with venous ulcer, it was found that in the city where this study was performed, only 3.9% of the patients used this therapy. In Ireland, a divergent data was identified, since 53% of patients with venous ulcer used some type of compression therapy.<sup>17</sup>

Regarding the availability of therapeutic means in the treatment of wounds, it is the duty of the manager and of the health professionals to ensure that the existing material is available in equity for all the population that needs it.

It was observed that the patient and the caregiver played a fundamental role in the care of the chronic wounds. It should be reported that this data is divergent from those of a study carried out in *Recife-Brazil*, which dressing was predominantly done by the Nursing technician.<sup>6</sup> However, the predominance of the participation of other nursing categories in this activity was confirmed by data from the study carried out in a city of *Rio de Janeiro- Brazil*, where it was identified that the professionals who worked in the polyclinic dressing rooms were mostly Nursing technicians. However, health agents were found doing dressings, which characterizes the illegal exercise of the profession. The practices involved the exchange of dressings without systematized clinical evaluation of the patient's health status and the evolution of the wounds, in addition to the lack of standardization of nursing techniques, products used and medical records.<sup>22</sup>

This context demonstrates the need for adequate training of teams and caregivers by the *Estratégia Saúde da Família* for the correction and standardization of procedures for the prevention and treatment of skin wounds at home.<sup>13,23</sup> In addition, it is necessary to rethink the organization of the services to serve this population with the indispensable quality.<sup>14</sup>

The lack of standardization of products with better cost-effectiveness can cause high costs for the public administration

and lead to more suffering to the assisted population, as to the prolongation of cure or stabilization of the picture.

In the United States of America, for example, chronic wounds affect 6.5 million patients and more than \$25 billion a year is spent by the health system on treating complications related to the wound.<sup>23</sup> The onerous nature of chronic wound management has been confirmed with estimates from the United Kingdom, where the cost of the National Health Service for patients with chronic wounds has been conservatively estimated at 3.4-4.6 billion dollars a year (in 2005), representing about 3% of the total estimated health expenditures for the same period.<sup>24</sup> These data support the need to implement institutional policies for the prevention and treatment of wounds.

## CONCLUSION

The prevalence of patients with chronic wounds found in the studied city was like that estimated in the literature. The results regarding the clinical, epidemiological and sociodemographic characteristics of the users with chronic wounds will guide the professionals and managers of the research city in the planning and organization of a network of health services responsible for attending these patients, aiming at the improvement of the quality of the assistance provided and calculations of the cost of this assistance.

The results obtained here support the realization of new studies in Brazil, especially at the level of primary health care, including epidemiological data, which provide accurate estimates of the prevalence and incidence of chronic wounds. This will contribute to decision-making in the management of public health by adopting effective strategic interventions for the prevention and treatment of people with chronic wounds.

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