



## Basic research

Pain prevalence, socio-demographic and clinical features in patients with chronic ulcers<sup>☆</sup>

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## A B S T R A C T

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Chronic wounds are considered a worldwide epidemic and pain is the most frequently symptom referred by the patients who have this type of wound. The aim was to assess the prevalence of pain in chronic wounds and relate socio-demographic and clinical variables to pain. This is an analytical cross-sectional study, carried out in Basic Health Units (BHU), Family Health Strategy (ESF) and in a university hospital in two cities of Minas Gerais. 200 individuals who had chronic ulcers of different etiologies participated. Data collection took place between October 2012 and January 2013. The majority of participants (69%) reported they were in pain during the interview. Subjects with higher education had more pain. Patients with venous ulcers had less severe pain, and arterial ulcers were responsible for scoring the highest value of pain. It was found that most patients with chronic wounds feel pain; its intensity depends on the type of wound and this symptom should be recognized while caring for these patients.

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## 1. Introduction

Chronic wounds have a process of slow tissue repair [1,2]. The healing period exceeds six weeks and has a high recurrence rate [3,4]. Diabetes, local pressure, disorders of venous or arterial circulation are frequent causes of chronic wounds [3,5].

They are considered a public health problem, since they have a high prevalence, affecting about 1%–2% of the general population, with an incidence of 0.76% in men and 1.42% in women [6,7]. In patients with pressure ulcers and diabetic foot ulcers, the pain had prevalence of 75.6% and 66.5% respectively [8,9].

Chronic wounds cause several changes in the individual's life, such as difficulty walking, social isolation, food abstentions, self-

image disorders, pain, which generate a negative impact on the quality of life of patients and their families [10,11].

Pain is a concern in patients with chronic wounds, as studies have shown that stress as a result of pain can be detrimental to the activities of day-to-day living; restricting mobility, social activities and interfering in the treatment of wounds [10,12].

Pain in chronic wounds may be caused by the presence of the wound, the treatment (debridement, cleaning, rubbing), the etiology of wound complications such as skin irritation, contact dermatitis or infection. The exact prevalence of pain is unknown; however, studies have reported that 17–65% of the patients with chronic wounds reported pain [10,13].

Pain should be treated as a top priority in the treatment of chronic wounds, requiring proper management [14,15]. In the World Union of Wound Healing Societies (WUWHS)'s declaration, health professionals must ensure control of pain related to the wound, maximizing treatment according to the guidelines and reducing the potential for higher costs in treating this patient [16,17].

To check for pain and to characterize patients with chronic wounds may be an opportunity to develop strategies to improve the care provided to this population. Thus, the aim of this study was to evaluate the prevalence of pain in chronic wounds and relate

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socio-demographic and clinical variables with pain intensity.

## 2. Method

This study is quantitative, analytical and transversal, held in Basic Health Units (BHU), Family Health Strategies (FHS) and a university hospital, private, and philanthropic, of two cities in southern Minas Gerais: Itajubá and Pouso Alegre.

A convenience sample of 200 patients was planned, with chronic ulcers of six weeks or more and different etiologies: venous ulcer, arterial ulcer, pressure ulcers and ulcers caused by diabetes.

Individuals with comprehension difficulties and without effective verbal communication were excluded from the study. For such, a mental evaluation questionnaire was applied.

For data collection an instrument with socio-demographic and clinical data, and the Numerical rating scale, were used [18]. The instrument to characterize the participants being composed of the items: age, marital status, education (none, elementary, high school and higher education), income, type of ulcer, number of wounds, and wound duration (in months).

As for the Numerical rating scale (NRS) is an eleven points scale, it is scored from zero to ten, where the end points are the extremes, where zero refers to no pain and ten the worst pain. The NRS can be graphically or verbally delivered, this study was applied with interview. This scale is utilized in patients with chronic pain, because of standardized format and preferred by the majority of patients in different cultures [19,20]. Patients with more than one wound were asked to classify their wound with the worst pain.

Data collection took place between October 2012 and January 2013, all instruments were applied in interview form. Patients were invited to participate from a list drawn up by BHU and FHS nurses of patients with chronic wounds, while the hospital patients were invited when they spontaneously sought the wounds clinic. After explaining the study and providing possible queries clarification, the same signed the Free and Informed Consent Term.

The study was approved by the Ethics Committee of the Faculty of Medical Sciences, State University of Campinas – UNICAMP, under the number 44175, respecting all the recommendations provided for research involving human subjects.

Data analysis was performed using correlation between quantitative variables and the variable intensity of pain, using Spearman's correlation coefficient [21]. This coefficient is non-parametric and ranges from  $-1$  to  $1$ , where values closer to  $-1$  indicates a negative or inverse relationship between the variables, values close to  $1$ , a positive relationship and values close to  $0$  indicate no correlation.

Comparisons involving categorical variables, with two categories, with respect to the variable intensity of pain, were performed using the Student unpaired *t* test [21] for variables with normal distribution, and through the Mann–Whitney test for the variables that were not normally distributed. The comparison of categorical variables with more than two categories were calculated by means of the ANOVA model [21] for the variables whose model assumptions were met, otherwise, we used the Kruskal–Wallis test followed by the Dunn post-test.

For all analyzes a significance level of 5% was established and the SAS statistical software, version 9.2, was used.

## 3. Results

Amongst the study's participants, the average age was 59 years (SD = 14.0), ranging from 22 to 94 years, with most of them being female (62%), married (42.5%), with an income of one to two minimum wages (62.5%) and elementary school education (48.5%).

Ulcers of venous etiology were the most frequent (45%). The

average number of wounds in the same patient was 1.52 (SD = 0.96) and with a mean duration of 2 years and 9 months (SD = 5 years and 4 months) (Table 1).

Among the participants, 69.0% reported pain during the interview and mean of 2,44 but there was no correlation between pain, age, number of wounds and wound duration (Table 2).

The comparison of pain intensity regarding gender and income showed no significant difference. With regards to education, people who had higher education had higher pain intensity (Table 3).

Participants who had venous ulcers had less pain than those with arterial ulcers or other types of ulcers; comparisons of the intensity of pain and other types of ulcers was not significant (Table 3).

## 4. Discussion

Pain was a symptom present in patients with chronic wounds, and deserves attention from health professionals because it changes quality of life and negatively influences wound healing [13,22]. The relationship between this symptom and healing is justified by different mechanisms that occur in the body through the stress factor triggered by pain, taking into account that it leads one to suffering [10,12,16].

Regarding pressure ulcers, research found that 43.2% of patients hospitalized with ulcers had pain at pressure sites, while the community values were high, with prevalence of 76.6%, and the stages I and II high indices, the authors emphasize the importance of treatment and monitoring of pain pressure sites particularly in the early stages, as it may assist in the prevention of further damage [8,23].

Despite the presence of peripheral neuropathy, pain is also presents in patients with diabetes, research has found rates of 75%–86% of complaints of pain, and this fact was an important factor in

**Table 1**  
Socio-demographic and clinical data (n = 200) – Itajubá-MG, 2013.

|                            | N   | %     | Mean  | Standard deviation |
|----------------------------|-----|-------|-------|--------------------|
| Age                        |     |       | 59.00 | 14.00              |
| Sex                        |     |       |       |                    |
| Female                     | 124 | 62.0  |       |                    |
| Male                       | 76  | 38.0  |       |                    |
| Total                      | 200 | 100.0 |       |                    |
| Marital status             |     |       |       |                    |
| Married                    | 85  | 42.5  |       |                    |
| Single                     | 37  | 18.5  |       |                    |
| Divorced                   | 25  | 12.5  |       |                    |
| Widowed                    | 53  | 26.5  |       |                    |
| Total                      | 200 | 100.0 |       |                    |
| Schooling                  |     |       |       |                    |
| None                       | 52  | 26.0  |       |                    |
| Incomplete elementary      | 97  | 48.5  |       |                    |
| High school                | 43  | 21.5  |       |                    |
| Higher education           | 8   | 4.0   |       |                    |
| Total                      | 200 | 100.0 |       |                    |
| Income                     |     |       |       |                    |
| <1 Minimum wage            | 1   | 0.5   |       |                    |
| 1 to 2 Minimum wages       | 125 | 62.5  |       |                    |
| 3 to 4 Minimum wages       | 59  | 29.5  |       |                    |
| >4 Minimum wages           | 15  | 7.5   |       |                    |
| Total                      | 200 | 100.0 |       |                    |
| Ulcer type                 |     |       |       |                    |
| Venous ulcer               | 90  | 45.0  |       |                    |
| Arterial ulcer             | 20  | 10.0  |       |                    |
| Pressure ulcer             | 14  | 7.0   |       |                    |
| Diabetic ulcer             | 33  | 16.5  |       |                    |
| Other (mixed ulcers)       | 43  | 21.5  |       |                    |
| Total                      | 200 | 100.0 |       |                    |
| Number of wounds           |     |       | 1.52  | 0.96               |
| Duration of wound (months) |     |       | 34.73 | 65.02              |

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