Revista de Enfermagem UFPE On Line
ISSN: 1981-8963

J Nurs UFPE on line.
2021;15:e244519
DOI: 10.5205/1981-8963.2021.244519
https://periodicos.ufpe.br/revistas/revistaenfermagem

**ORIGINAL ARTICLE**

# EPIDEMIOLOGICAL PROFILE OF CHRONIC WOUNDS OF HOSPITALIZED PATIENTS

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**ABSTRACT**

***Objective*:** to describe the profile of wounds in patients admitted to a public teaching hospital. ***Method:*** this is a quantitative, prospective, cross-sectional study. The sample consisted of 40 patients. For data collection, a structured and validated questionnaire was used. Data collected included sociodemographic characteristics such as age, marital status, and characteristics of the wounds, including the time of occurrence, location, and cause. Data were collected from all hospitalized patients with a wound who agreed to participate in the research. ***Results:*** it is shown that the majority of women were married, had finished elementary school, had an average age of 58.5 years and had comorbidities; as to the characteristic of the wounds, the most frequent was pressure ulcer, with a time of one to six months and location in the sacral region. ***Conclusion:*** knowledge of patients and wounds' profile is essential for planning the nursing assistance, including the provision of materials and the nursing team's dimensioning.

***Descriptors***: Wounds; Injuries; Health Profile; Wound Healing; Ulcer; Stomatherapy.

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*Article extracted from the Undergraduate Thesis << Epidemiological profile of patients with chronic wounds admitted to a teaching hospital >>. Federal University of Juiz de Fora/UFJF. 2018.

**How to cite this article**
Martins AFM, Peres AA, Campos CS, Santos KB. Epidemiological profile of chronic wounds of hospitalized patients. Rev enferm UFPE on line. 2021;15:e244519 DOI: https://doi.org/10.5205/1981-8963.2021.244519

## INTRODUCTION

Chronic wounds have become a public health problem, affecting 1% of the world population.[1] Wounds are defined as the rupture of healthy tissue, either through external action, such as trauma or surgery, or caused by internal causes, such as infections and chronic diseases. In addition to compromising the proper functioning of the skin, they can affect functions such as temperature regulation, control of fluid loss, and the synthesis of vitamin D.[1-3]

It is noteworthy that wounds open access to pathogens that can aggravate the wound's condition and the general health of the patient. Besides, patients admitted to health institutions with wounds and those who acquire them during hospitalization are more likely to contract infections, causing complications to their health and, often, prolonging their institutionalization time.[1-2]

Wounds may also present a repulsive visual or olfactory characteristic, which often triggers a disturbance of self-image and social isolation. It is understood that assistive technologies can assist in the rehabilitation and recovery of the patient.[2]

Adequate treatment should be guided by a multidisciplinary health team, individually, in order to clarify doubts and establish the most appropriate therapeutic approaches for each case.[3]

In the correct management of wounds, primary coverings relevant to the stage of the injury are involved, observing the amount of exudate, odor, aspect of the wound bed, and the general clinical conditions of the patient. These data become essential for the effectiveness of the treatment.[4]

Studies show that the establishment of the epidemiological profile of the population with wounds treated in hospital institutions favors the establishment of therapeutic conducts and planning for promotion and prevention, which impacts the length of hospital stay. Besides, it is possible to know the epidemiological profile of patients, the qualification of the assistance provided, permanent education, and optimization of human and material resources.[3-5]

## OBJECTIVE

To describe the profile of chronic wounds in patients admitted to a public teaching hospital.

## METHOD

This is a quantitative, prospective, cross-sectional study of the epidemiological profile of chronic wounds in patients admitted to a public teaching hospital in Zona da Mata, Minas Gerais.

The data were collected in two different periods for the convenience of the researchers, from March 2018 to May 2018, and from August 2018 to September 2018, from all patients admitted to the hospital in the female and male medical clinic ward, in the female and male surgical clinic ward, and in the intensive care unit (ICU).

The sample was non-probabilistic, with the participation of patients who presented chronic/complex wounds of different etiologies guided by the medical diagnosis and the Nursing diagnosis compatible with chronic skin wounds. It is noteworthy that this study considered chronic wounds as those with an evolution time greater than 15 days, even though its onset was caused by trauma. The wounds categorized as traumatic were classified as chronic based on the time parameter, and, therefore, meet the study requirements.

Inclusion criteria were age over 18 years, people with chronic skin wounds before hospitalization or with wounds originated during the period of hospitalization, who were conscious, and who expressed the desire to participate in the research, in addition to the unconscious with a companion/guardian who authorized participation. Exclusion criteria were patients who did not have clinical conditions to authorize data collection, patients having only acute surgical wounds, and acute non-complex wounds of any type.

Data were collected by applying a structured questionnaire, direct observation of the wounds, interviews with the patients, and data collection from medical records.

The instrument's first stage was about the patients' profile. The questionnaire was created by the primary researcher and included data such as age, sex, family illness history, past health history, current health history, and lifestyle habits. Data collection related to the assessment of the wound was carried out using a questionnaire translated and validated into Portuguese, encompassing variables such as time of occurrence of the wound, form of appearance, clinical aspects (color, odor, edge characteristics), previous treatments, etiology, size, type of tissue found in the wound, type of coverage used, and frequency of dressing exchange.

Photographic records of the wounds were carried out for the study' accuracy with the patient's authorization, which occurred after cleaning the wound in a standard model already used in the institution for data collection. It should be added that, in the case of patients with multiple wounds, the analysis was performed considering the most extensive wound. Wounds were measured with a ruler provided and standardized by the main researcher. Data were collected after the patient's bath, at which time dressing exchanges were performed as routine at the institution.

The Free and Informed Consent Term (FICT) was used to interview patients and photographic records. The data collection was carried out after the patient's consent and signature obtainment (or consent by a companion in cases of unconsciousness). This study was approved by the Ethics Committee of the Federal University of Juiz de For a under the Certificate of Presentation for Ethical Appreciation (CAAE) 81533417.3.0000.5147.

## RESULTS

Forty-seven patients with chronic wounds admitted to the HU-UFJF were invited for the research. Of these, 24 patients were interviewed between March and May 2018, and 16 between August and September 2018, totaling a sample of 40 patients. It is reported that seven other patients refused to participate or were unable to authorize data collection.

The characteristics of patients and wounds are described in Table 1.

Table 1. Characteristics related to epidemiology, etiology, time, location, and pain resulting from wounds in patients. Juiz de Fora (MG), Brazil, 2018.

| Characteristic | N | % |
|---|---|---|
| **Epidemiology** | | |
| Female gender | 23 | 57.5 |
| Male gender | 17 | 42.5 |
| **Marital status** | | |
| Married | 20 | 50 |
| Single / others | 20 | 50 |
| **History of alcoholism** | | |
| Present | 31 | 77.5 |
| Absent | 9 | 22.5 |
| **Etiology** | | |
| Pressure ulcer | 16 | 40 |
| Complex traumatic ulcer | 04 | 10 |
| Venous ulcer | 06 | 15 |
| Others | 14 | 35 |
| **Previous history** | | |
| Yes | 09 | 22.5 |
| No | 29 | 72.5 |
| Relapse | 02 | 5.0 |
| **Number of wounds** | | |
| Up to 1 | 23 | 57.5 |
| Greater than 1 to 2 | 11 | 27.5 |
| Greater than 2 | 06 | 15.0 |
| **Time of the oldest wound** | | |
| 1 to 6 months | 26 | 65 |

| | | |
|---|---|---|
| 6 to 12 months | 03 | 7.5 |
| Greater than 12 months | 11 | 27.5 |
| **Quantity per limb** | | |
| Right limb | 04 | 10.0 |
| Left limb | 11 | 27.5 |
| Both limbs | 08 | 20.0 |
| Trunk | 17 | 42.5 |
| **Specific location** | | |
| Calcaneal | 04 | 10.0 |
| Thigh | 02 | 5.0 |
| Malleolus | 03 | 7.5 |
| Foot | 02 | 5.0 |
| Leg | 10 | 25.0 |
| Sacral | 14 | 35.0 |
| Others | 05 | 12.5 |
| **Pain** | | |
| Yes | 18 | 45.0 |
| No | 21 | 52.5 |
| Not informed | 01 | 2.5 |
| **Period of the day when the pain improves** | | |
| Morning | 05 | 12.5 |
| Evening | 03 | 7.5 |
| Night | 02 | 5.0 |
| Does not improve | 08 | 20.0 |
| Painless | 21 | 52.5 |
| Not informed | 01 | 2.5 |

Among the sectors included in the study, the largest number of patients with wounds (45%) was presented by the male medical ward, followed by the female medical ward (35%), male surgical ward (7.5%), ICU (7.5%), and female surgical ward (5.0%).

These characteristics were demonstrated in Table 1.

It is explained that wounds that are not included in the categories such as PU, venous and arterial ulcers were grouped in the "other" category. Among the causes found in these cases, sporotrichosis, erysipelas, and wounds of idiopathic causes can be mentioned.

It is noteworthy that, for those patients who presented more than one wound, for the analysis of their characteristics and time, only the most extensive wound was considered, making a total number of wounds equal to forty.

Table 2 shows the characteristics related to the wounds of hospitalized patients.

Table 2. Characteristics of wounds presented by patients. Juiz de Fora (MG), Brazil, 2018.

| Characteristic | N | % |
|---|---|---|
| **Presence of exudate** | | |
| Yes | 29 | 72.5 |
| Not | 11 | 27.5 |
| **Exudate aspect** | | |
| Serous | 14 | 35.0 |
| Pyosanguinous | 01 | 2.5 |
| Sanguinous | 04 | 10.0 |
| Serosanguinous | 06 | 15.0 |
| Purulent | 03 | 7.5 |
| Seropurulent | 01 | 2.5 |
| Absent | 11 | 27.5 |
| **Exudate color** | | |
| Yellow | 14 | 35.0 |
| White | 05 | 12.5 |
| Greenish | 07 | 17.5 |
| Brownish | 02 | 5.0 |
| Red | 01 | 2.5 |
| Absent | 11 | 27.5 |
| **Injury odor** | | |
| Absent | 31 | 77.5 |
| Discreet | 08 | 20.0 |
| Moderate | 01 | 2.5 |
| **Skin temperature** | | |
| Isothermic | 36 | 90.0 |
| Hyperthermic | 04 | 10.0 |
| **Edema** | | |
| + / 4 + | 04 | 10.0 |

| | | |
|---|---|---|
| ++ / 4+ | 05 | 12.5 |
| +++ / 4+ | 03 | 7.5 |
| Absent | 28 | 70.0 |
| **Wound bed** | | |
| Granulation | 20 | 50.0 |
| Liquefaction and / or coagulation necrosis | 19 | 47.5 |
| **Others** | | |
| Wound edge | 01 | 2.5 |
| Epithelialized | 16 | 40.0 |
| Irregular | 06 | 15.0 |
| Macerate | 10 | 25.0 |
| Friable | 08 | 20.0 |

Table 3 describes the characteristics related to the treatment.

Table 3. Characteristics related to the frequency of dressing exchanges and treatment performed on the wounds. Juiz de Fora (MG), Brazil, 2018.

| Characteristic | N | % |
|---|---|---|
| **Dressing exchange frequency** | | |
| Once a day | 30 | 75 |
| 2 times a day | 5 | 12.5 |
| 3 times a day | 1 | 2.5 |
| Every other day | 3 | 7.5 |
| Every 3 days | 1 | 2.5 |
| **Treatment** | | |
| EFA | 17 | 42.5 |
| Hydrogel | 2 | 5.0 |
| Hydrogel + Alginate | 9 | 22.5 |
| Plate Alginate | 4 | 10.0 |
| Collagenase | 2 | 5.0 |
| Others | 6 | 15.0 |

It is noteworthy that, when the correlation between the etiology of the wounds and the characteristics related to the patient was assessed, it was not possible to perceive statistical significance in any characteristic. However, the use of medications was greater among those

patients with a greater number of wounds, with 36 patients who have wounds and used medication in their routine. It is noted, concerning the presence of comorbidity, that 37 patients who had wounds had comorbidities. Table 4 shows the correlation between the etiology of the wounds and characteristics such as smoking, medication use, and the presence of comorbidities.

Table 4. Etiology of wounds versus comorbidities, use of medications, and smoking habits. Juiz de Fora (MG), Brazil, 2018.

| Variable | | Wound type | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Venous ulcer | | Traumatic ulcer | | PU | | Others | | P* |
| | | N | % | N | % | N | % | N | % | |
| **Comorbidities** | | | | | | | | | | |
| | Yes | 5 | 20.8 | 3 | 12.6 | 10 | 41.6 | 5 | 20.8 | 0.157* |
| | No | 0 | 0 | 1 | 4.2 | 0 | 0 | 0 | 0 | |
| **Medicines currently in use** | | | | | | | | | | |
| | None | 0 | 0 | 1 | 4.2 | 0 | 0 | 0 | 0 | 0.028* |
| | 1 to 3 | 5 | 20.8 | 2 | 8.3 | 3 | 12.5 | 1 | 4.2 | |
| | More than 3 | 0 | 0 | 1 | 4.2 | 7 | 29.1 | 4 | 16.7 | |
| **Past smoker** | | | | | | | | | | |
| | No | 4 | 6.7 | 4 | 16.7 | 6 | 25.0 | 4 | 16.7 | 0.446* |
| | Yes | 1 | 4.2 | 0 | 0 | 4 | 16.7 | 1 | 4.2 | |

P: Fisher's test; PU: Pressure ulcer.

Concerning the relationship between number of wounds and time of presentation, it was not possible to perceive statistical significance (p = 0.083). However, 18 patients who had a single wound remained, mostly, in a time of presentation of one to six months and, among patients with two or more wounds, eight reported one to six months of presentation, seven with more than 12 months and two with six to 12 months.

It is evident that, in the majority of patients who presented PU, its location was in the sacral region; in those who had venous ulcers, the region of the lower limbs, between the legs, malleolus, calcaneus, and foot, were the most frequent locations (p = 0.000). Traumatic ulcers were found mostly in the lower limbs in locations as malleolus, calcaneus, and foot.

Among the patients with PU, venous ulcers, and traumatic ulcers, the most recurrent wound bed condition was presence of necrotic tissue, whereas, in the category "others", the most frequent was presence of granulation, with statistical difference (p = 0.032).

Table 5 shows the comparison between the wounds' etiology with the specific location and conditions of the wound.

Table 5. Comparison of the etiology of the wounds with specific location and condition of the wound. Juiz de Fora (MG), Brazil, 2018.

| Variable | | Specific wound location | | | | | | | | | | P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Leg | | Malleolus | | Calcaneal | | Sacral | | Others | | |
| | | N | % | N | % | N | % | N | % | N | % | |
| Pain | **Yes** | 4 | 16.7 | 3 | 12.5 | 3 | 12.5 | 1 | 4.2 | 3 | 12.5 | 0.028* |
| | **No** | 1 | 4.2 | 0 | 0 | 0 | 0 | 7 | 29.2 | 2 | 8.3 | |
| Exudate | | | | | | | | | | | | |
| | **Yes** | 3 | 12.5 | 2 | 8.3 | 3 | 12.5 | 6 | 25.0 | 2 | 8.3 | 0.359* |
| | **No** | 2 | 8.3 | 1 | 4.2 | 0 | 0 | 3 | 12.5 | 2 | 8.3 | |
| Odor | | | | | | | | | | | | |
| | **Absent** | 4 | 16.7 | 3 | 12.5 | 2 | 8.3 | 5 | 20.8 | 4 | 16.7 | 0.615** |
| | **Discreet** | 0 | 0 | 0 | 0 | 1 | 4.2 | 4 | 16.7 | 0 | 0 | |
| | **Moderate** | 1 | 4.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

*P: Chi-square test; ** P: Fisher test.

## DISCUSSION

The researched population was institutionalized, which gives some peculiar characteristics to the participants since the care provided, the complications and health problems presented, and the length of hospital stay were factors of direct influence on this research's findings.

In this regard, it is emphasized that the uniformity of care for patients in the treatment of chronic wounds is due, in large part, to the implementation of protocols by institutional commissions. Through this consonance of actions, approaches to patients and their respective results and decisions are directed.[6]

The public surveyed was composed mainly of women (57.5%), corroborating other research in the national territory.[7-9]

Different studies have yielded different results, but a more significant number of studies have pointed out women as the most affected by chronic wounds, which can be justified by hormonal factors and the menopause period.[7,10]

The average age found is also in line with other studies, which showed a higher occurrence of chronic skin wounds.[4,11]

In this respect, it is important to remember that senility brings a series of chronic health problems, such as systemic arterial hypertension and diabetes mellitus, which are decisively linked to the appearance of wounds and the difficulty of healing presented by these people. The increase in life expectancy of the world and Brazilian population in recent years contributes to the increase in the emergence of chronic conditions.[10]

Studies show that chronic wounds are more present in the adult population with low education, a factor that corroborates this research.[10,12]

This situation can be explained by difficulties in accessing information and health care to which this portion of the population is exposed. Education's importance is in understanding and adhering to prophylactic and control measures for chronic diseases, which become predisposing factors to the appearance of wounds and the establishment of their chronicity.[10]

In this regard, the importance of the professional's adequacy in the interaction with the patient is emphasized, clear, simple language is usually more effective, and it is necessary to observe the effectiveness of communication, using questions, for example, about what has been explained. The team's ability to make itself understood is a unique element in the service's quality. The frequency of illiterates in our survey was 15.0%, close to other surveys (11%), but still considered high.[10,13]

As for the occupational situation, most respondents were retired or on sick leave. These results allow us to infer the impact of the presence of wounds and possibly the presence of existing comorbidities on these individuals' lives. Labor incapacity tends to directly affect family, social and economic relations and impact both the social security and the health system, in political and administrative terms. These values highlight the need for effective prevention, adequate intervention, training of health care teams, and an attempt to minimize health impacts that chronic diseases can cause, such as reducing hospital stay and implementing institutional measures in pression ulcer prevention.[9,14]

Pressure ulcers were the most frequent etiology of injury, reflecting a reality still present in the hospital environment. Most elderly patients are bedridden due to a primary problem and they often develop PU or are unable to heal pre-existing ones. This analysis brings to light the importance of discussing the role of Nursing and the need to strictly implement institutional scales and protocols aiming at preventing the emergence of such a problem and minimize those that already exist.[15]

Studies have shown the impact of preventive actions when carried out systematically.[9,14] Among them, the Braden and Waterlow's scale stands out, which guides potential risk situations, appropriate prevention actions, and the need for specific intervention for each patient. The implantation of the daily assessment is of paramount importance, presenting itself as a quality-of-care parameter in inpatient units.[16]

Since PU were the most common etiology found, the most frequently affected site was the sacral region; in the other etiologies, including venous, traumatic, and diverse causes, the lower limbs were more affected, corroborating other studies.[12,15]

It is noted that the exudate release was present in most cases, according to studies. Regarding the wound bed, it is added that the numbers raised were once again in line with those reported in other studies. In half of the patients, it was found that granulation tissue was predominant, a value remarkably close to the findings in the literature. Changes in most of the cases analyzed were seen at the edges. It is understood that this data is related to a risk factor for the increase of wounds and contributing to healing difficulties.[6,12-3]

Edema was absent in most patients; however, this data analysis should be reserved due to the most recurrent etiology pointed out in the study. PUs tend to have less edema when compared to wounds linked to vascular changes; in this way, the advantage, supposedly obtained by the absence of edema, may not portray anything but characteristic variations to the etiology of the wound.

In another study of the epidemiological panorama of patients with chronic wounds, the absence of pain, odor, and hyperthermia was reported in the vast majority of cases analyzed. It is related to odor, aggravated by local hyperthermia, in general, to infectious processes. It should be noted that, although both characteristics were absent in most of those surveyed and represent a good sign, it cannot be said that there were no infected wounds, as no microbiological analyzes of the wounds were performed.[13]

The absence of pain in about half of the interviewed patients should be analyzed together with the wounds' etiology. It was ascertained, observing that PU was the most common type of wound found in this study, and considering the physiological changes and processes that involve PUs, that the absence of pain is a common characteristic and reported in other studies, especially in the more advanced stages of this type of injury.[7, 17]

In the research scenario, the presence of a Wound Dressing Committee was observed, which represents assistance with greater uniformity of actions and the establishment of more precise parameters for the evaluation and treatment of wounds. This fact that can directly influence the assistance of Nursing provided to the patient. The standardization made possible by this commission, together with nurses, is also related to the analysis of wounds' treatment.[7]

Essential Fatty Acid (EFA) was recommended as the most indicated topical treatment, followed by Hydrogel, Hydrogel with alginate and Alginate in a plate, which have a chemical debridement action, promoting the removal of necrosis tissue, both from liquefaction and coagulation. [18] It was observed, when analyzing the data on the wound bed, that, in 50%, there was the presence of

granulation tissue and, in 47.5%, there was the presence of some necrotic tissue. Therefore, the choice of primary coverages is entirely correct and consistent with the clinical findings.

The treatment's success or failure is determined by the correct choice of coverage considering the wound tissue and healing stage. Therefore, the standardization of actions, with the institution of protocols and guidelines that regulate care activities, represents a watershed in the criterion of quality and treatment effectiveness.[17]

Statistically, it is warned that no relevance could be observed between the presence of comorbidities and the use of drugs with the etiology of wounds, corroborating another international study; however, 36 patients, who have wounds, used drugs. It is understood, knowing the direct and indirect effect that some drugs can cause on the organism's physiological processes, especially on the mechanisms of healing, how negative their influence on the improvement of wounds and the contribution of their chronicity can be. This becomes a relevant factor and must be carefully analyzed during the treatment of wounds, individually.[17,19]

It should be noted that the data found here are in line with the research carried out in the area, with similar results. It is noteworthy that most of the work carried out in this model focuses on primary and secondary care, which are realities that are different from tertiary care, the place of data collection in the present study.[7,10-3]

It is possible to interfere, from the data found, that there are factors directly related to hospitalization and hospital routine. The etiology of wounds becomes the most evident aspect of the peculiarities found in this level of health care, while wounds of venous origin are the most frequent in ambulatory and home levels and, in-hospital care, pressure wounds are predominant.[6, 9]

It also contributes to the limitations usually found in hospitalized patients and the severity of comorbidities commonly present, so that this type of wound sets in more frequently than the others. It is pointed out that the time of appearance of the wounds was less than six months in a significant portion of the cases, which may indicate the direct influence of these patients' hospitalization.

There is, however, a positive factor: even in those patients with wounds for more than a year, there was no predominance of multiple wounds; that is, the time of appearance of the wound did not influence the appearance of new wounds.

The research was limited by the short term of data collection, thus obtaining a small sample. It is still beginning to elucidate the patients' epidemiological profile seen at the HU-UFJF, representing the first step to collect these data in a reliable, continuous, and expressive way in the teaching hospital's local reality.

## CONCLUSION

The data collection and analysis revealed that patients with chronic wounds admitted to the hospital were adult and older adults, female, who did not work at the time. Patients with one or more associated comorbidities prevailed, reflecting the impact of these factors on the wounds' occurrence and chronicity.

It is noteworthy that this study made it possible to understand the public's demands and specificities, which is valuable for designing care strategies, selecting materials, professional training, and effective action in the treatment of wounds. It is understood that the knowledge about the peculiarities of the community served is a directional factor for the establishment of protocols and the application of assistance in a systematic way, with technical-scientific support, seeking excellence in service to healthcare users.

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Submission: 13/03/2020
Accepted: 14/12/2020