

# Clinical outcome of injuries in people assisted in a stomal therapy nursing outpatient clinic in northeastern Brazil

## ABSTRACT

**Aim** The aim was to investigate the clinical outcome of the wounds of people assisted in a stomal therapy nursing outpatient clinic in Brazil.

**Method** A retrospective, descriptive, clinical audit of medical records. A total of 41 medical records of people with wounds that visited the stomal therapy nursing outpatient clinic were analysed.

**Results** Regarding the wound care provided, 41 (100%) were for curative treatment. From the 41 participants with wounds, a total of 64 wounds were counted, an average of 1.5 ( $\pm 1$ ) per person; the period with the wound averaged 35.6 months. It was found that 27 (65.9%) participants had chronic wounds and 14 (34.1%) acute wounds. As for the aetiology of the wounds, 11 (26.8%) were trauma, 16 (39.0%) were diabetic neuropathies, two (4.9%) were due to vascular compromise, five (12.2%) were pressure injuries and seven (17.1%) were classified as others.

**Conclusion** The findings of this investigation will help in the development of measures to address potential complications and prevention strategies related to the types of wounds that patients request assistance with from staff within the stomal therapy nursing outpatient clinic.

**Keywords** nursing, outcome measures, stomal therapy, wounds

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## INTRODUCTION

Wounds are a visible problem, and they affect segments of the population regardless of sex, age and ethnicity. When chronic, they present as slow healing wounds and are commonly associated with an underlying disease<sup>1,2</sup>. The available data for chronic wounds in Brazil and in the world are still in their infancy but, as a result of the ageing population, these data and the number of wounds are likely to increase. For example, a study with elderly patients seen in primary care services in a state capital in the northeast region of Brazil found a wound prevalence of 8%, specifically pressure sores (5%) and venous wounds (2.9%). The presence of chronic wounds was associated

with older age, lower education and cognitive impairment status<sup>3,4</sup>.

In Brazil, complex wounds have a financial impact on the individual as well as on the public health system. They are considered a problem for the state because the cases are increasing and require greater attention from the nursing team in Brazil and associated health services<sup>5,6</sup>. In this context, the individual with wounds should be cared for in a holistic perspective by an interdisciplinary and intersectoral team. However, it needs to be emphasised that the nursing team are responsible for clinical follow-up, dressing the wounds and choosing the management based on the aspects of the wound<sup>7</sup>. Furthermore, it is imperative that the nursing team are aware of confounding factors that can intervene in the progressive improvement of wounds. Moreover, it is necessary to know the clinical characteristics of different wounds in order to offer the best practice treatment, because clinical analysis studies contribute to the description of the particularities of a population<sup>4,8,9</sup>.

Given the above, we realise the importance of clinical follow-up of the patient with wounds in a health service with trained professionals. With this aim in mind, a stomal therapy nursing outpatient clinic was created in the region of Cariri Ceará in Brazil, which operates on a non-profit basis and aims to provide specialised care for people with wounds, stomas and incontinence. With the growing demand of people seen at the stomal therapy nursing outpatient clinic of the Regional University of Cariri (URCA) seeking assistance with wound management, the question arose, "What is the clinical outcome of the wounds of people seen at this service?" Based on this guiding question, the objective is to demonstrate the healing time of wounds of people accompanied by a stomal therapy nursing service, as well as to describe the importance of specialised monitoring in the treatment of wounds.

The study is relevant for contributing to the understanding of the clinical characteristics of the participants, as well as factors that may influence healing time. Therefore, an understanding of these factors will have implications for interventions based on clinical analysis and therapeutic efficacy<sup>10,11</sup>.

## METHOD

### Study type

This study was a retrospective, descriptive, clinical audit with purposive sampling and a quantitative approach. The study was undertaken in a stomal therapy nursing outpatient clinic, and was created by an initiative of the undergraduate nursing course of a public university (URCA) aiming to provide specialised nursing care to people living with wounds, stomas and incontinence.

### Inclusion and exclusion criteria

To identify the sample population, the following inclusion criteria were adopted – health records of people with wounds who received some type of assistance at the study site between July 2018 and February 2019 and who were older than 18 years

of age. Incomplete health records were excluded. This resulted in a sample size of 41 participants.

### Data collection

Data collected was retrospectively abstracted from the medical records of participants' outpatient clinic admission and evaluation forms that contained sociodemographic, clinical data and macroscopic characteristics of the wound or wounds. The scripted data extraction instrument was developed by the health professionals in the stomal therapy nursing outpatient clinic. The following variables were adopted within the data extraction instrument – basic data concerning the research participant (name, age, municipality of origin), information about the current wounds (type of wound and if recurrent, location, duration, macroscopic characteristics of the wound/s), as well as a section regarding the types of products/ dressings used before and after admission to the stomal therapy nursing outpatient clinic. Data collected were tabulated using Microsoft Excel 2013, then exported to R Software and analysed using descriptive statistics for relative and absolute frequency, percentages, mean, and standard deviation. Data were organised into tables and graphs and ensuing results discussed with reference to relevant literature.

This research study adhered to the ethical precepts of the Brazilian National Health Council Resolution 466/2012<sup>12</sup>. It was submitted for ethical review and was approved with opinion number 3,155,662 by the Regional University of Cariri (URCA).

## RESULTS

A total of 41 medical records of people with wounds treated at the stomal therapy nursing outpatient clinic were analysed regarding the type of wound care provided and curative treatment to promote healing. Such curative care refers to wounds with the potential for healing, in association with the treatment/control of underlying diseases.

Of the 41 participants with wounds/injuries requiring curative treatment, a total of 64 injuries were counted, with an average of 1.5 ( $\pm 1$ ) per person; the period of time with the wounds/injury averaged 35.6 months. It was found that 27 (65.9%) participants had chronic wounds and 14 (34.1%) had acute wounds. As for the aetiology of the wounds/injuries, 11 (26.8%) were due to trauma, 16 (39.0%) to diabetic neuropathies, two (4.9%) to vascular compromise, five (12.2%) were pressure injuries and seven (17.1%) were classed as others. Most wounds were in the posterior aspect of the lower leg (16, 25%), followed by the anterior aspect of the leg 10 (15.6%); wounds in the sacral region accounted for nine (14%) wounds (Table 1).

It was shown that 31 (72%) participants attending the stomal therapy nursing outpatient clinic had undergone some wound management treatment prior to admission (Table 2). When assessed on admission and the type of previous dressing treatments were recorded, it was found that seven (16.3%) participants used essential fatty acids (EFAs), four (9.3%) used vaseline and papain 20% was used by three individuals (7%). No treatments were recorded for 12 (28.0%) participants (Table 2).

In the evaluation of the clinical characteristics of the wound bed of sustained wounds/injuries, a frequency of slough was observed in 23 (36.0%) cases, followed by granulation tissue, 18 (28%), and islands of epithelisation, 11 (17.2%). The peri-wound skin was found to be unaltered in 40 (62.5%) cases, 11 (17.1%) were macerated, and five (7.8%) with erythema. When the borders were analysed, 23 (35.9%) were epithelised and 17 (26.6%) were macerated. When the presence of exudate was verified, 21 (32.8%) had a slight quantity, 15 (60%) presented serous exudate, six (24%) were serosanguinous and two (8%) were purulent. Exudate was absent in 39 (60.9%) of the presenting cases (Table 3).

As for the topical wound treatments used in managing the wounds/injuries seen by health professionals in the stomal therapy nursing outpatient clinic, the most prescribed dressings were EFAs, 20 (31.3%), followed by hydrofibre with silver, 17 (15.7%), and papain 20% was used in seven (11%) cases (Table 4).

In terms of clinical outcomes for participants with wounds/injuries seen at the stomal therapy nursing outpatient clinic, 25 (61%) participants were discharged because their wounds had healed, nine (22%) were discharged for abandonment (lost to follow-up), four (10%) achieved improvement in wound healing outcomes, two (5%) were discharged due to death and one (2%) was discharged for referral to another health service (Figure 1).

## DISCUSSION

We selected 41 health records of people with wounds treated at a stomal therapy nursing outpatient clinic. Among these, 64 wounds were counted, which represents an average of 1.5 wounds per patient. The average period with the wound/injury was 35.6 months. While the current study numbers are small and therefore should be interpreted with caution, these data corroborate Brazilian literature on the subject. A study reported with 339 patients from a primary care service in the city of Teresina (Piauí) revealed that there was an average of 2.7 wounds per patient and these had an average

Table 1. Distribution of wounds/injuries of people assisted in the stomal therapy nursing outpatient clinic

Location	n (%)
Posterior aspect of the leg	16 (25.0)
Anterior face of the leg	10 (15.6)
Sacral region	9 (14.0)
Calcaneus	7 (11.0)
Medial malleolus	6 (9.4)
Back	3 (4.7)
Abdomen	3 (4.7)
Hallux	3 (4.7)
Toes	3 (4.7)
Plantar region of the foot	2 (3.1)
Inguinal region	2 (3.1)

of 30.6 months of existence<sup>13</sup>. Thus, it is clear individuals with complex wounds usually have more than one wound which can become chronic.

Chronic wounds are defined as any interruption in the continuity of a body tissue, to a greater or lesser extent, resulting from trauma or clinical conditions and associated treatments which impairs healing processes, and exceeding a duration of 6 weeks. These conditions are associated with different factors, such as vascular impairment, diabetes mellitus, systemic arterial hypertension, neuropathies, prolonged immobility, neoplasms, and nutritional alterations, requiring specialised treatment based on continuous, precise and objective assessment<sup>5</sup>.

Considered a public health problem, these chronic wounds affect 5% of the adult population in the Western world, generating high costs for health services since they involve home care, prolonged hospitalisation, complex treatments and use of adjuvant therapies, besides being associated with high rates of recurrence<sup>5</sup>.

Assessment and evaluation of the clinical characteristics of wounds on presentation and thereafter for progression of wound healing is fundamental for the prescription of evidence-based treatment. Also imperative is multidisciplinary collaboration in the management of people with wounds. In specialty stomal therapy clinics, it often becomes the responsibility of the stomal therapy nurse and other nurses to provide ongoing care. It is essential, therefore, that all health professionals understand the needs of the person with a wound, including their past and current co-morbid conditions and associated therapies in addition to the wound and wound healing requirements to promote the optimal environment for tissue repair and wound maturation healing; an endogenous process does not imply neglecting topical treatments<sup>14</sup>. The study showed that participants sought outpatient care for

Table 2. Wound dressings used by patients before the first evaluation with the stomal therapist

Products	n (%)
Essential fatty acids (EFAs)	7 (16.3)
Vaseline	4 (9.3)
Do not remember	4 (9.3)
Papain 20%	3 (7.0)
Hydrocolloid	2 (4.6)
Hydrogel	2 (4.6)
Silver sulfadiazine	2 (4.6)
Vaseline + papain 20%	2 (4.6)
Papain 20% + hydrogel	1 (2.3)
Unna boot	1 (2.3)
EFA + calcium alginate	1 (2.3)
Collagenase	1 (2.3)
Growth factors	1 (2.3)
No treatment	12 (28.0)

treatment with curative intent. Thus, it is necessary for the nursing team to act to reverse this scenario, which can help to reduce the number of cases of acute or traumatic wounds.

As for the aetiological origin, traumatic situations and diabetic neuropathy were the major triggers of tissue wounds in the participants. According to Brazilian literature, automobile accidents are the major causes of traumatic wounds/injuries<sup>13</sup>. Diabetic neuropathies were the second leading cause of the

Table 3. Macroscopic characterisation of the wounds/injuries in the stomal therapy nursing outpatient clinic

Variable / category	n (%)
<b>Wound bed</b>	
Slough	23 (36.0)
Granulation tissue	18 (28.0)
Epithelialisation islands	11 (17.2)
Crust	5 (7.8)
Necrotic tissue	5 (7.8)
Granulation tissue and slough	1 (1.6)
Crust and slough	1 (1.6)
<b>Peri-wound skin</b>	
Normal	40 (62.5)
Macerated	11 (17.1)
Erythema	5 (7.8)
Hyperpigmentation	3 (4.7)
Dermatitis	4 (6.3)
Dried	1 (1.6)
<b>Wound margins or edges</b>	
Epithelialised	23 (35.9)
Macerated	17 (26.6)
Adhered	10 (15.6)
Hyperaemia	4 (6.3)
Hyperkeratosis	3 (4.7)
Erythema	2 (3.1)
Keratosis	2 (3.1)
Epibolia	2 (3.1)
Detached	1 (1.6)
<b>Exudate</b>	
Absent	39 (60.9)
Slight	21 (32.8)
Moderate	2 (3.1)
Accentuated	2 (3.1)
<b>Characteristics of the exudate</b>	
Serous	15 (60.0)
Serossanguinolento (serosanguineous)	6 (24.0)
Purulent	2 (8.0)
Sanguinolent (tinged with blood)	1 (4.0)
Pusanguinolent	1 (4.0)

development of wounds in the participants. This condition results from deterioration in the clinical picture of diabetes mellitus, glycaemic control and unstable blood sugar levels, being responsible for the loss of sensory, motor and autonomic function, and inducement of loss of protective sensation (LOPS) facilitating the development of wounds and loss of skin integrity<sup>15</sup>. Neuropathy can also result from diseases such as leprosy, which also causes loss of sensory function and, due to LOPS can favour the appearance of ulcers such as plantar ulcers<sup>16</sup>.

The current investigation pointed out a higher frequency of wounds/injuries located in the lower limb, the anterior and posterior aspects of the leg, as the region of greatest occurrence. The lower limb wounds, commonly known as leg ulcers, are largely responsible for the majority of chronic wounds seen. In general, vascular disorders, venous and/or arterial insufficiency or mixed disease are often the underlying cause<sup>17</sup>. Although the appearance of recurrent leg ulcers is common, the study evidenced small cases, highlighting the importance of therapeutic interventions and monitoring to prevent them, e.g. compression therapy for venous leg ulcers.

There was evidence of signs of wound infection in some cases. Infections are harmful to healing because they cause further tissue injury and a decrease in collagen synthesis, making healing more difficult. Thus, the early identification of signs suggestive of local infections should be acted upon in order to apply interventions aimed at reducing damage<sup>18</sup>. The presence of non-physiological exudate may indicate infection. However, the clinical diagnosis of infection should be based on other signs and symptoms such as two or more signs of inflammation (erythema, pain, heat, swelling or induration) and obvious purulent drainage<sup>18</sup>.

Within the current study and at the initial evaluation of the wound/injury, slough was found to be present in the wound bed of most wounds/injuries. For most participants, the peri-wound skin was normal and no abnormalities were detected. However, it was identified that in 26.6% of cases there were wounds with macerated edges, where the use of inadequate dressings and exposure to moisture may be the probable cause. Maceration is known to interfere with epithelialisation of the wound<sup>19</sup>.

Table 4. Wound treatment applied to wounds/injuries in the stomal therapy nursing outpatient clinic

Coverage	n (%)
EFA's	20 (31.2)
Hydrofibre with silver	17 (26.6)
Papain 20%	7 (11.0)
Calcium alginate	6 (9.3)
Transparent film	4 (6.0)
Silver sulfadiazine	4 (6.0)
Absorbent foam	3 (4.6)
Hydro-debriding fibres	2 (3.0)
Dry coating	1 (2.3)

This study found that most participants had already received wound treatment prior to their visit to the stomal therapy nursing outpatient clinic. EFAs were the most frequently used product, followed by vaseline and papain 20%. It is known that the essential components of EFAs play an important role in healing. EFAs act in the development of granulation tissue and act as a barrier, through physical-chemical processes, which protect the skin from moisture through the regulation of water permeability in the dermis<sup>20</sup>.

On the other hand, some authors with a focus on preclinical work have already found that the use of EFAs induces an inflammatory response induced by interleukins which can interfere with the success of healing. Thus, it is emphasised that the use of such a product and its results requires the need for scientific studies to support its use based on evidence<sup>21</sup>. In short, the use of EFAs remains the most used product in this health service because of its effectiveness and low cost, followed by hydrofibre with silver, which was the second most used product. Antiseptic dressings should be considered as a first-line approach to wound infection management within standard care in the absence of clinical signs of spreading infection<sup>22</sup>. Among dressings, hydrofibre with silver is recognised as a broad-spectrum antibacterial dressing and is widely used in the clinic in the treatment of infected wounds<sup>23</sup>. Although the products identified above are widely used in health services in Brazil, they must be prescribed by trained health professionals and, when used inappropriately, they can cause damage to the wound/injury, hindering healing.

Regarding clinical improvements and wound healing outcomes of wounds seen in this study, 61.0% of wounds healed and 10.0% were observed to have improved (Figure 1). In addition, such outpatient clinics advance their importance in both curative activities and preventive interventions in relation to skin integrity, encouraging patients to develop their autonomy and responsibility in the restoration of their health and disease process.

## CONCLUSION

This research analysed the characteristics and clinical outcomes of people who presented with wounds/injuries to a stomal therapy nursing outpatient clinic in the region of Cariri Ceará, in Brazil. Traumatic wounds were the most frequent wounds/injuries seen, with most occurring in the posterior aspect of the lower limbs and a greater presence of slough on the bed of the lesions, with epithelised edges and normal peri-wound skin. Most participants had undergone some wound treatment prior to admission, with a predominance of EFAs and vaseline as the primary dressing. In the clinical management at the outpatient clinic, the most prescribed and used products were EFAs and hydrofibre with silver.

In short, these results will help in the development of measures to address potential complications and prevention strategies related to common wounds found within Brazilian communities that are of increasing concern from a public health perspective. Specialised wound care services such as those provided within the stomal therapy nursing outpatient clinic have an important role to play in the treatment and prevention of community-acquired wounds.

## CONFLICT OF INTEREST / FUNDING

There is no financial interest which could create a potential conflict of interest with regard to the present work.

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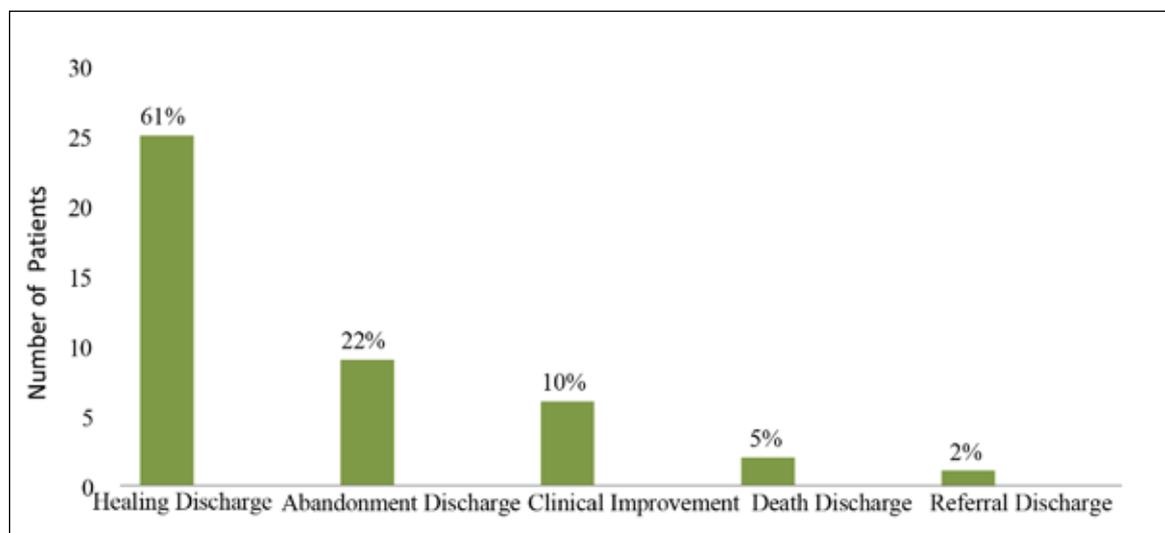


Figure 1. Clinical outcomes of wounds/injuries treated at the stomal therapy nursing outpatient clinic

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