

# Quality of life in patients with venous ulcers treated with Unna's boot compressive therapy

*Qualidade de vida em pacientes com úlcera venosa em terapia compressiva por bota de Unna*

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## ABSTRACT

**Background:** Venous ulcers are a major public health problem worldwide and are responsible for considerable economic impact because of their high incidence. In addition to restricting daily living and leisure activities, they may result in changes in quality of life and self-esteem, and even lead to depression. The aim of this study is to evaluate the quality of life in patients with venous ulcers who are being treated with Unna's boot compression therapy. **Methods:** Fifty patients with venous ulcers treated at the Conjunto Hospitalar de Sorocaba were enrolled. Data were collected using the Short Form-36 (SF-36) health survey upon inclusion in the study and after 4, 8, and 12 months of compression therapy. **Results:** Initial mean SF-36 scores were low (15.10), indicating decreased quality of life. After 12 months of Unna's boot compression therapy, the mean SF-36 score was 95.38, indicating improved quality of life ( $P = 0.0001$ ). **Conclusions:** Patients with venous ulcers at the beginning of data collection had lower quality of life but improved after 8 months of treatment with Unna's boot compression therapy.

**Keywords:** Leg ulcer. Varicose ulcer. Quality of life. Pain. Self concept. Nursing care.

## RESUMO

**Introdução:** As úlceras vasculares vêm se constituindo um grande problema de saúde pública em todo o mundo, sendo responsáveis por considerável impacto econômico pela elevada incidência dessas lesões crônicas. Além de restringir as atividades da vida diária e o lazer, pode ter como consequência alteração na qualidade de vida e na autoestima, levando o paciente, até mesmo, à depressão. O objetivo deste estudo é avaliar a qualidade de vida em pacientes com úlcera venosa que estão sendo tratados com terapia compressiva por bota de Unna. **Método:** Foram selecionados 50 pacientes com úlcera venosa em tratamento no Ambulatório de Feridas do Conjunto Hospitalar de Sorocaba (Sorocaba, SP, Brasil). A coleta de dados foi realizada no momento da inclusão no estudo, sendo repetida aos 4 meses, 8 meses e 12 meses após a primeira coleta de dados, utilizando o questionário *Short Form-36* (SF-36). **Resultados:** Durante a inclusão do paciente no estudo, os escores médios do SF-36 foram baixos (15,10), caracterizando queda da qualidade de vida. Após 12 meses de terapia compressiva por bota de Unna, o escore médio foi de 95,38, caracterizando melhora da qualidade de vida dos pacientes analisados ( $P = 0,0001$ ). **Conclusões:** Os pacientes com úlcera venosa, no início da coleta de dados, apresentaram qualidade de vida baixa, e após 8 meses de tratamento com bota de Unna foi observada melhora da qualidade de vida.

**Descritores:** Úlcera da perna. Úlcera varicosa. Qualidade de vida. Dor. Auto-imagem. Cuidados de enfermagem.

This study was performed at the Wound Outpatient Ward of the Conjunto Hospitalar de Sorocaba, Sorocaba, SP, Brazil.

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## INTRODUCTION

Venous ulcers are a large public health problem worldwide and have a considerable economic impact due to their high incidence<sup>1</sup>.

A venous ulcer is a skin lesion that affects the lower third of the legs, accounting for about 70% to 90% of all cases of leg ulcers. This injury is associated with chronic venous insufficiency, which is the primary cause of leg ulcers. This inadequate functioning of the venous system is common in the elderly population<sup>2</sup>.

Venous ulcers affect individuals in their most productive years, resulting in pain, loss of mobility and activity, leading to disability retirement. In addition to restricting activities of daily living and leisure, they may impair quality of life and self-esteem and can even lead to depression<sup>3</sup>.

When a wound appears, the patient begins to have limited mobility and pain. Furthermore, the injury presents exudate and odor, which result in changes in lifestyle. The patient often feels frustration and hopelessness related to treatment since some lesions may take months to heal<sup>4</sup>.

The psycho-emotional presentation can include anxiety, frustration, and hopelessness due to the chronic nature of the disease and its complications as well as overload, exhaustion, and discouragement due to its management. Patients may also feel low self-esteem and feelings of inferiority, anxiety, and depression. The notable social impacts of the disease include its financial cost, the patient's perception of the degree of social support they receive, and impact on quality and level of conflict in interpersonal and family relationships – all of which can diminish quality of life<sup>5</sup>.

According to the World Health Organization<sup>6</sup>, quality of life is a multidimensional concept that incorporates social, physical, and mental aspects and is related to the subjective perception of the individual about his or her condition or disease. Generic instruments allow the simultaneous evaluation of multiple domains and can be used in any population. Although these instruments allow the comparison of people with different diseases, they have limited ability to identify specific aspects of quality of life affected by a particular disease. Some instruments are clinically more sensitive but do not allow comparisons between different diseases and are restricted to the areas of relevance of the evaluated item<sup>7</sup>.

Therefore, this study evaluated the quality of life of people with venous ulcers treated with Unna's boot compression therapy.

## METHODS

This was a clinical, descriptive, and analytical study performed at the Wound Outpatient Ward of the Conjunto Hospitalar de Sorocaba (Sorocaba, SP, Brazil). The study

was approved by the Ethics Committee of the Universidade Federal de São Paulo (resolution 0650/10).

Fifty consecutive patients with venous ulcers were selected. The inclusion criteria were as follows: presence of the ulcer for at least 1 year, age > 18 years, ankle/arm pressure index from 0.8 to 1.0, coverage according to tissue type and exudate, and treatment with Unna's boot compression therapy.

Data were collected from June 2010 to May 2011. The inclusion of patients in the study was prospective and consecutive.

Data collection was performed on the day the patient was included in the protocol and repeated 4, 8, and 12 months after enrollment.

The Short Form-36 (SF-36) Health Survey was used to assess quality of life<sup>8</sup>.

The SF-36 is a generic, multidimensional health survey consisting of 36 questions covering 8 domains: physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional, and mental health.

Functional capacity is measured by 10 items found in query 3, which assesses how the individual performs tasks such as dressing, bathing, walking, and climbing stairs.

Physical aspects are measured by 4 items found in query 4, including questions about how physical health interferes with work activities.

Pain is assessed by 2 items present in queries 7 and 8, which detect how much pain the individual experienced during the evaluation period and the limitations caused by the symptoms in the patient's daily life.

Overall health status is assessed by 5 items present in queries 1 and 11, including questions about how individuals perceive their health and their opinion on how it will be in the future.

The emotional aspect is assessed by 3 items found in query 5, including questions about how emotional health interferes with work and other daily activities.

The social aspects are assessed by 2 items present in queries 6 and 10, including questions about how long patients have abstained from performing their normal social activities due to their physical or emotional state.

Vitality is assessed by 4 items found in query 9, including questions about the state of tranquility, energy, and willingness of the patient to perform daily tasks.

Mental health is assessed by 5 items found in query 9, which involves assessment of the impairment caused in the patient's life due to feelings such as anxiety, depression, happiness, and tranquility.

Each domain of the SF-36 is evaluated independently and produces a score ranging from 0 to 100, with 0 representing the worst health and 100 the best. This survey emphasizes individuals' perception of their health during the 4 weeks before data collection.

Student's *t*-test, the Kruskal–Wallis test, and the  $\chi^2$  test of independence were used for statistical analysis. The level of significance for all statistical tests was set at  $P < 0.05$ .

## RESULTS

Of the selected patients, 33 (66%) were > 60 years, 26 (52%) were female, and 33 (66%) were retired (Table 1).

During the initial data collection, ulcers measured between 16 and 20 cm<sup>2</sup>. After 8 months of treatment with compression therapy by Unna's boot, 29 (58%) of the lesions exhibited epithelialization; after 12 months, 42 (84%) ulcers were healed (Table 2).

**Table 1** – Demographic characteristics of patients with venous ulcers treated with Unna's boot compression therapy.

Variables	Patients with venous ulcers (n = 50)		P
	n	%	
Age bracket			0.0045
20 to 40 years	2	4	
41 to 60 years	15	30	
> 60 years	33	66	
Gender			0.0657
Female	26	52	
Male	24	48	
Occupation			0.0045
Retired	33	66	
Unemployed	13	26	
Other occupations	4	8	

$\chi^2$  independence test ( $P < 0.05$ ).  
n = number of patients

At the time of enrollment, the average SF-36 score was low (15.10; Table 3). Eight months after starting treatment with compression therapy with Unna's boot, the mean score increased to 89.70; with 12 months treatment, the average score increased to 95.38, indicating these patients had good quality of life.

At enrollment, the mean scores of the physical functioning, pain, role-physical, and general health domains in the SF-36 were low (Table 4). Eight months after starting treatment with Unna's boot compression therapy, the mean scores of these domains increased, indicating these patients had good quality of life.

At the time of enrollment, the mean scores of the social functioning, role-emotional, vitality, and mental health domains of the SF-36 were low (Table 5). Eight months after the start of treatment, the scores of these domains increased, indicating these patients had good quality of life.

## DISCUSSION

Chronic wounds are considered public health problems and have significant socioeconomic impacts on patients, their families, and the entire health system<sup>9</sup>.

The incidence of venous ulcers is higher in females and people older than 61 years. These ulcers mostly interfere with social relationships and work, often causing patients to miss work<sup>10,11</sup>.

In the present study, most respondents were older than 61 years and female. Studies on quality of life in patients with leg ulcers show that patients are predominantly female, more than 61 years old, and retired or removed from employment<sup>2,3,12,13</sup>.

Venous ulcers predominantly affect women because of 2 factors that lead to venous insufficiency: pregnancy and female hormones<sup>2,9</sup>.

In the initial data collection, ulcers measured between 16 and 20 cm<sup>2</sup>. However, after 12 months of treatment with

**Table 2** – Characteristics of venous ulcers with respect to treatment time with Unna's boot compression therapy.

Descriptive statistic	Patients with venous ulcers (n = 50)				P
	At enrollment	4 months on UBT	8 months on UBT	12 months on UBT	
Epithelialization	—	—	4 (8%)	42 (84%)*	0.0001
1 to 10 cm <sup>2</sup>	4 (8%)	5 (10%)	29 (58%)	4 (8%)	0.0367
11 to 15 cm <sup>2</sup>	10 (20%)	20 (40%)	7 (14%)	2 (4%)	0.0670
16 to 20 cm <sup>2</sup>	30 (60%)	15 (30%)	5 (10%)	2 (4%)	0.0568
> 21 cm <sup>2</sup>	6 (12%)	10 (20%)	5 (10%)	—	0.654

Student's *t*-test and the Kruskal–Wallis test.  
UBT: Unna's boot compression therapy.

**Table 3** – Mean total scores of the Short Form-36 quality of life survey of patients with venous ulcers treated with Unna's boot compression therapy.

Descriptive statistic	Patients with venous ulcers (n = 50)				P
	At enrollment	4 months on UBT	8 months on UBT	12 months on UBT	
Mean	15.10	18.42	89.70	95.38	0.0001
Standard deviation	16.42	17.04	15.21	16.38	

Student's *t*-test and the Kruskal–Wallis test.

UBT: Unna's boot compression therapy.

**Table 4** – Mean scores of the physical functioning, pain, role-physical, and general health domains of the Short Form-36 quality of life survey in patients with venous ulcers treated with Unna's boot compression therapy.

Descriptive statistic	Patients with venous ulcers (n = 50)				P
	At enrollment	4 months on UBT	8 months on UBT	12 months on UBT	
Physical functioning					
Mean	16.10	66.38	82.40	90.38	0.0003
Standard deviation	14.42	12.21	13.21	14.38	
Pain					
Mean	22.54	66.60	89.84	93.88	0.0001
Standard deviation	19.75	10.35	8.97	12.86	
Role-physical					
Mean	23.18	74.16	95.84	98.40	0.0001
Standard deviation	19.30	19.83	16.56	16.13	
General health					
Mean	38.02	69.58	85.70	96.78	0.0001
Standard deviation	18.44	20.17	8.12	16.28	

Student's *t*-test and the Kruskal–Wallis test.

UBT: Unna's boot compression therapy.

Unna's boot compression therapy, the lesions were healed in 42 (84%) patients.

The choice of the type of dressing used in the treatment of skin wounds depends on the assessment of the patient and wound. At present, there are numerous commercially available dressing options. The choice of the dressing also depends on the cost–benefit assessment. In addition, the necessity of continuing therapy should be considered according to the wound margin, size, location, type of tissue, and presence of exudate<sup>14–16</sup>.

The most important aspect in the treatment of venous ulcers is the improvement of venous return; this is achieved by elevating the affected limb and compression therapy, which may be elastic or inelastic<sup>17</sup>.

Compression therapy is a control measure of venous hypertension that is essential for the effective treatment of venous ulcers; it can be performed with the use of compression stockings, elastic bandages, or Unna's boot. The

intensity of the externally applied compression on the lower limbs must decrease from the ankle to the knee in order to reverse the effect produced by a prolonged standing position by increasing intravascular hydrostatic pressure<sup>18</sup>. Treatment with compression therapy in patients with venous ulcers leads to complete healing in 40% to 95% of cases, improving the quality of life and functional capacity of patients<sup>19,20</sup>.

Assessment of the quality of life of patients with venous ulcers is an important indicator of the evolution of wound healing.

Venous ulcers cause several changes in patient's lives as a result of limited mobility, pain, exudate, and odor. In turn, these changes result in changes in mood, family relationships, and social participation.

The assessment of quality of life of patients with ulcerous wounds must include physical, psychological, and social well-being; pain; mobility; level of optimism; and future life<sup>21</sup>.

**Table 5** – Mean scores of the social functioning, role-emotional, vitality, and mental health domains of the Short Form-36 quality of life survey in patients with venous ulcers treated with Unna's boot compression therapy.

Descriptive statistic	Patients with venous ulcers (n = 50)				P
	At enrollment	4 months on UBT	8 months on UBT	12 months on UBT	
Social functioning					0.0001
Mean	26.53	56.56	80.29	93.39	
Standard deviation	18.73	19.19	12.78	16.29	
Role-emotional					0.0001
Mean	26.12	56.1	84.37	96.09	
Standard deviation	19.24	19.22	15.03	15.12	
Vitality					0.001
Mean	22.48	51.54	75.00	97.09	
Standard deviation	13.97	15.05	13.76	15.66	
Mental Health					0.0001
Mean	30.08	59.46	85.61	99.51	
Standard deviation	15.27	15.98	9.80	10.54	

Student's *t*-test and the Kruskal–Wallis test.

UBT: Unna's boot compression therapy.

More importance has been placed on assessing quality of life in recent decades. Quality of life was initially employed in other areas of study and was only incorporated into health later on. This measure is called health-related quality of life (HRQoL), which aims to transform a subjective measure into a quantitative one that can be used in research and economic models. The results of HRQoL assessment can also be used in diverse populations and even in different diseases<sup>22</sup>.

In the present study, the initial mean SF-36 scores were low, indicating reduced quality of life. Four months after the initial data collection, the mean scores were still low, again indicating poor quality of life. However, 8 months after starting treatment with Unna's boot compression therapy, quality of life improved significantly. Finally, 12 months later, almost all patients had good quality of life.

In a study of 74 patients evaluating the impact of venous ulcers on patients' lives, the authors concluded that patients suffered pain and altered quality of life<sup>12</sup>.

Another study assessing the impact of ulcers on patients' daily life concludes that patients with ulcers present pain, low self-esteem, and social isolation; however, patients who had a healed ulcer had reduced pain intensity as well as improved self-esteem and quality of life<sup>13</sup>.

Patients who are dependent on others to manage some of their activities of daily living, whether residential, recreational, social, or familial, exhibit undermined autonomy; this automatically makes them dependent on their family and friends, therefore diminishing self-esteem, self-image, and quality of life<sup>4,5,16,21</sup>.

The results of the present study reinforce the need to pay more attention to the health of patients with foot or leg ulcers as well as identifying the presence of changes in self-esteem, self-image, and quality of life in everyday healthcare, including hospitals and clinics in the Family Health Program. The major care needs of these patients must be met. Furthermore, it is crucial for caregivers to cope with the disabilities of these patients.

Given the increasing number of patients with chronic diseases who are living with wounds in recent decades, it is imperative to redirect research to the training of health professionals by enhancing not only the content, but practice as well.

## CONCLUSIONS

Patients with venous ulcers at the beginning of the study period had lower quality of life but improved after 8 months of treatment with Unna's boot compression therapy.

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