

Psychometric properties of the Brazilian version of the Wound Quality of Life questionnaire*

Propriedades psicométricas da versão brasileira do questionário *Wound Quality of Life*

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ABSTRACT

Objective: to evaluate the criterion validity and reliability of the Portuguese-Brazilian version of the Wound Quality of Life. **Methods:** methodological research with 100 participants. For criterion and reliability validation, the items in the Wound Quality of Life questionnaires were correlated with the Freiburg Life Quality Assessment Wound - Wound Version, using the Spearman correlation test and Cronbach's alpha. **Results:** the validity of concurrent criteria had a strong magnitude (0.85) when correlated with the Freiburg Life Quality Assessment Wound; the internal consistency had a Cronbach's alpha of 0.84. **Conclusion:** the validated questionnaire has good psychometric properties, is brief, easy to apply and reliable for assessing the quality of life of patients with wounds that are difficult to heal.

Descriptors: Wounds and Injuries; Quality of Life; Validation Study; Nursing Methodology Research; Surveys and Questionnaires.

RESUMO

Objetivo: avaliar a validade de critério e confiabilidade do *Wound Quality of Life* versão português-Brasil. **Métodos:** pesquisa metodológica com 100 participantes. Para a validação de critério e confiabilidade, foram correlacionados os itens dos questionários *Wound Quality of Life* com o *Freiburg Life Quality Assessment Wound - Versão Ferida*, utilizando o teste de correlação de Spearman e o alfa de Cronbach. **Resultados:** a validade de critério concorrente teve forte magnitude (0,85) quando correlacionada com o *Freiburg Life Quality Assessment Wound*; a consistência interna teve um alfa de Cronbach de 0,84. **Conclusão:** o questionário validado apresentou boas propriedades psicométricas, é breve, de fácil aplicação e confiável para avaliação da qualidade de vida de pacientes com feridas de difícil cicatrização.

Descritores: Ferimentos e Lesões; Qualidade de Vida; Estudos de Validação; Pesquisa Metodológica em Enfermagem; Inquéritos e Questionários.

Introduction

Hard-to-heal wounds are identified by the long healing time (four to six weeks), and affect approximately 1 to 2.0% of the world population⁽¹⁾. They are caused by different factors, including: chronic venous disease, peripheral arterial disease, neuropathy, hypertension, physical trauma, sickle cell anemia, skin infections, inflammatory diseases, neoplasms and nutritional factors⁽²⁾.

Patients with hard-to-heal wounds need interventions aimed at healing and quality of life. The presence of one or more wounds determines losses in the social, financial, physical and psychological aspects of everyday life, and contributes to situations such as: social isolation, a greater degree of dependence, lower productivity and low personal satisfaction, conditions that negatively impact the quality of life⁽¹⁻²⁾.

Quality of life was defined by the Quality of Life Group from the World Health Organization as: "the individuals' perception of their position in life in the context of the culture and value systems in which they live and concerning their goals, expectations, standards and concerns"^(3:1). It must be accompanied by the patient's entire therapeutic itinerary. For this, there must be exclusive and valid tools available for an accurate assessment and according to their real needs. Therefore, the development and validation of easy-to-use instruments may help professionals to have access to replicable and viable information about the patient⁽⁴⁾.

In a survey carried out by the authors in 2016, on instruments for assessing the quality of life of patients with difficult-to-heal wounds, four methodological studies of cross-cultural adaptation and validation on the topic were identified in the Brazilian literature: Ferrans and Powers' Quality of Life Index - Wound Version; Neuropathy and Foot Ulcer Specific Quality of Life; Venous Leg Ulcer Quality of Life Questionnaire e Charing Cross Venous Ulcer Questionnaire. However, they are restricted to assessing the quality of life of individuals with other wound etiologies⁽⁵⁾.

Among the specific questionnaires for assessing the quality of life of patients with hard-to-heal wounds, the Freiburg Life Quality Assessment Wound - Wound Version (FLQA-Wk) and the Wound Quality of Life (Wound-QoL) stand out. The FLQA-Wk was developed in Germany and had its validation in the Portuguese - Brazil version in 2016⁽⁶⁻⁷⁾.

The Wound-QoL questionnaire was developed from the FLQA-Wk, in Germany, aimed to be a brief and easier tool to be used to this profile of patients⁽⁸⁻⁹⁾. In the Brazilian population, the questionnaire went through the stages of translation, cross-cultural adaptation, content validation, and feasibility. A total of 80% of the participants stated having perfectly understood the questions and took seven minutes to fill it out, confirming the initial proposal for its development, to be brief and easy to use⁽⁵⁾.

The psychometric properties of Wound-QoL were not assessed. Thus, the guiding question of this study arose: is the Wound Quality of Life questionnaire, Portuguese version, Brazil, valid for assessing the quality of life of Brazilian patients with hard-to-heal wounds? Thus, the objective of this study was to evaluate the criterion validity and reliability of the Portuguese-Brazilian version of the Wound Quality of Life.

Methods

Methodological research, carried out at the Wound Treatment Clinic specialized in Diabetic Foot of the Hospital de Clínicas Compound of the Universidade Federal do Paraná and at the Ouvidor Pardini Health Unit, located in the city of Curitiba-PR, Brazil, from December 2017 to April 2018. The study was carried out at the two institutions to include different sample profiles, that is, patients who had their dressings made at a specialized treatment clinic, and others at the Basic Health Unit.

The study population was patients who had hard-to-heal wounds and who were in outpatient care at the institutions. Inclusion criteria: age equal to or above 18 years and were being attended for evalua-

tion and to have a dressing of one or more hard-to-heal wounds made. The following were not eligible for the study: patients with cognitive and mental state changes reported in the medical records; who could not communicate to answer the questionnaires; or who had neoplastic wounds, aimed at eliminating the bias of altering the Quality of Life due to the diagnosis of cancer and the symptoms of the disease.

This was a non-probabilistic sample, with 100 patients who were in outpatient care, 92 in the Hospital de Clínicas Compound Outpatient unit and 8 in the Ouvidor Pardino Health Unit. An ideal number for validation is 5 to 10 interviews for each item of the questionnaire⁽¹⁰⁾. The Wound-QoL has 17 items and in this case the index was 5.88 patients/item, keeping within the established by the literature.

The invitation was made to all participants who were being treated at the institutions. All signed a consent form. Data collection was performed using a sociodemographic and clinical questionnaire (developed by the researchers) with variables that included: sex, age, marital status, education, income, type of wound, number of wounds, wound location, and the living with the wound, and the Wound-QoL and FLQA-Wk, to assess the quality of life, which were applied individually by one of the researchers. About 80% of the participants needed the researcher's help for reading and filling it out, due to limitations such as visual impairment for reading. It is noteworthy that the reading was done in full, so as not to change or interpret the questions. The Wound-QoL is a self-explanatory questionnaire, completed by the patient; however, patients can be helped if they cannot fill it out on their own, which is documented⁽⁹⁾.

The Wound-QoL is considered a short questionnaire, with an average application time of 2-4 min, a total of 17 items assigned to three subscales: everyday life, body and psychic. The questions are in a Likert scale format, ranging from 0 to 4, with a score of 0 being classified as the best quality of life, and 4 as the worst quality of life⁽⁹⁾. Questions 1 through 5 are related to physical symptoms; those from 6 to 10, to

psychic symptoms; those from 11 to 16, to everyday life; and question 17 is related to the financial issue⁽⁸⁾.

The Freiburg Life Quality Assessment (FLQA-Wound) questionnaire was validated for Brazilian Portuguese in 2016, with 200 patients, and was considered reliable for the Brazilian population. It has an analog scale ranging from one (the best quality of life) to five (the worst quality of life), changing this order only in the satisfaction item, where one indicates the worst quality of life, and five the best quality of life. It presents 24 items for evaluation, in which there are six domains: physical symptoms, everyday life, social life, psychological well-being, treatment and satisfaction⁽⁷⁾.

The data were tabulated in the Microsoft Office Excel version 2010 program and analyzed using the Statistica software, version 7.0. The analysis of sociodemographic and clinical results was descriptive, using simple and absolute frequency. The data from the Wound-QoL and FLQA-Wk questionnaires were presented through the descriptive measures (mean, minimum, maximum, and standard deviation) of the domains, to enable the calculation of correlation.

The validation performed between the Wound-QoL and FLQA-Wk questionnaires was of concurrent criterion. In it, it is verified whether their scores consistently correspond to other already valid and reliable criteria, a method considered the gold standard. For this research, the validated and reliable questionnaire used for correlation was the FLQA-Wk⁽¹¹⁻¹²⁾.

The coefficient is assessed by correlating the scores of the questionnaire with the scores of the criterion variable. This coefficient ranges from 0.00 to 1.00. If the new scale shows a high correlation (≥ 0.8), it shows that it is higher than the gold standard; if it shows a lower correlation (0.30), it indicates that the scales measure different characteristics⁽¹³⁾.

In both types of validation, Spearman's correlation coefficient was used, which is often adopted for small sample size, and measures the degree of the monotonic relationship between two variables, in which a function is said to be monotonic if it is always

increasing or decreasing. It is obtained by calculating the covariance and the correlations between variables from the lowest value to the highest value and varying between -1 and 1⁽¹⁴⁾. This coefficient was used for the correlation between Wound-QoL and FLQA-Wk and values of $p < 0.05$ were considered as moderate correlation, $p < 0.01$ as strong correlation, and $p < 0.001$ as very strong correlation⁽¹⁵⁾.

The internal consistency (reliability) was verified between the domains and in each item of the instrument and calculated by Cronbach's alpha coefficient. It determines the confidence that the instrument offers, and its ideal value should be between 0.80 and 0.90, with a satisfactory value of 0.70⁽¹¹⁾.

The research was approved by the Ethics and Research Committee of the Universidade Federal do Paraná, under opinion No. 2,119,702/2017, and by the Health Office of Curitiba, through protocol No. 88/2016. The authors of the original Portuguese-Brazil version authorized this research.

Results

The sample consisted of 100 patients, 66.0% in the age group ≥ 60 years, with a mean age of 60.98 years. A total of 51.0% were male, 72.0% had elementary education, and 55.0% of patients earned from one to three minimum wages. Regarding the clinical characteristics, 41.0% of the patients had diabetic wounds, 21.0% venous ulcers, 12.0% calluses or leprosy- wounds, and 26.0% other types of wounds. As for the number of wounds, 65.0% had one and 35.0% two or more, 92.0% of which were on the lower limbs. The estimated time that patients had and treated the wounds, for 83.0%, was more than 24 months.

Comorbidities were present in 89.0% of patients, and the most prevalent was systemic arterial hypertension, with 62.0%, followed by diabetes, with 58.0%. As for the medications in use, 63.0% were taking antihypertensive drugs and 53.0%, hypoglycemic agents and anti-diabetics. It is noteworthy that some patients had more than one comorbidity and took more than one medication.

Regarding the psychometric properties results, the validity of the concurrent criterion was evaluated using the global assessment of the Wound-QoL, correlated with the total value of the FLQA-Wk, and presented a high correlation (0.85), that is, close measures were found when correlated with the FLQA-Wk domains. There is a very strong correlation magnitude between almost all domains, and a strong magnitude between the social life and psychological wellbeing domains of FLQA-Wk and the physical symptoms of Wound-QoL, and between the satisfaction domain of FLQA-Wk and psychic symptoms from Wound-QoL. There was no correlation between the FLQA-Wk satisfaction domain and the physical symptoms, everyday life, and global domains of Wound-QoL (Table 1).

Table 1 – Correlation between the domains of the questionnaires Wound Quality of Life and Freiburg Life Quality Assessment Wound - Wound Version. Curitiba, PR, Brazil, 2018

Freiburg Life Quality Assessment Wound Domains	Wound Quality of Life Domains			
	Physical symptoms	Psychological-symptoms	Everyday life	Global
Physical symptoms	0.7541	0.4267	0.4518	0.6141
p-value	0.000*	0.000*	0.000*	0.000*
CI 95%	0.622 – 0.852	0.229 – 0.590	0.269–0.620	0.452–0.749
Everyday life	0.4351	0.5279	0.8730	0.7896
p-value	0.000*	0.000*	0.000*	0.000*
CI 95%	0.255 – 0.594	0.342 – 0.675	0.8087–0.915	0.688–0.861
Social life	0.2835	0.4407	0.7223	0.6514
p-value	0.004†	0.000*	0.000*	0.000*
CI 95%	0.086 – 0.472	0.249 – 0.598	0.593–0.819	0.498–0.761
Psychological well-being	0.3508	0.7287	0.4677	0.6824
p-value	0.003†	0.000*	0.000*	0.000*
CI 95%	0.155 – 0.514	0.633 – 0.805	0.265–0.623	0.558–0.776
Treatment	0.3738	0.4508	0.4867	0.5598
p-value	0.001*	0.000*	0.000*	0.000*
CI 95%	0.177 – 0.539	0.244 – 0.615	0.289–0.654	0.369–0.696
Satisfaction	0.1023	0.2767	0.1569	0.2186
p-value	0.311	0.005†	0.118	0.028
CI 95%	-0.091 – 0.300	0.086 – 0.459	-0.054–0.339	0.020–0.413
Total	0.5114	0.6788	0.7792	0.8543
p-value	0.000*	0.000*	0.000*	0.000*
CI 95%	0.339 – 0.659	0.533 – 0.775	0.658–0.859	0.777–0.903

*Correlation of very strong magnitude ($p < 0.001$); †Correlation of strong magnitude ($p < 0.01$); CI: Confidence Interval

In the FLQA-Wk questionnaire, there is an item related to patient satisfaction, differently from Wound-QoL. Therefore, there was less correlation between the subscales with this item. It is emphasized that the data in this item were recoded to perform the correlations, as they are opposite to the other domains, that is, 1 (the worst quality of life) to 5 (the best quality of life).

The reliability of Wound-QoL and FLQA-Wk (Table 2) was assessed by internal consistency, using Cronbach's alpha coefficient. The domains had similar correlations, which shows good levels of internal reliability. The lowest were: 0.515 and 0.572, related to treatment and satisfaction, respectively, perhaps because the Wound-QoL does not have these subscales as domains.

Table 2 – Internal consistency of the domains of Wound Quality of Life and Freiburg Life Quality Assessment Wound - Wounded Version. Curitiba, PR, Brazil, 2018

Questionnaires	Cronbach's alpha
Wound Quality of Life Domains	
Physical	0.629
Psychological	0.778
Everyday life	0.789
Global	0.846
Freiburg Life Quality Assessment Wound Domains	
Physical	0.622
Everyday life	0.740
Social life	0.705
Psychological well-being	0.671
Treatment	0.515
Satisfaction	0.572
Total	0.832

As for Cronbach's alpha of each item of the Wound-QoL (Table 3), it is observed that, for all items, it was above 0.83. These results show that the exclusion of any item does not significantly change the general internal consistency of the questionnaire. Thus, there was no need to modify or exclude any item from the questionnaire.

Table 3 – Internal consistency of the items that compose the Wound Quality of Life. Curitiba, PR, Brazil, 2018

Wound Quality of Life items	Cronbach's alpha
I felt pain from the wound	0.844
The wound had an unpleasant smell	0.847
I had an uncomfortable leak in the wound	0.839
My sleep was flawed by the wound	0.841
The wound treatment was tiring for me	0.840
I was exhausted because of the wound	0.832
I was discouraged because the healing took a long time	0.831
I was worried because of my wound	0.828
I was afraid that the wound would get worse or a new wound would come up	0.835
I was afraid of hitting the wound	0.841
I had difficulty moving because of the wound	0.834
I had difficulty going up the stairs because of the wound	0.838
I had problems with daily activities because of the wound	0.828
I had my leisure activities impaired because of the wound	0.834
I had to limit my activities with other people because of the wound	0.839
I felt dependent on other people's help because of the wound	0.837
The wound was a financial burden for me	0.849

Discussion

As a study limitation, is the fact that the instrument was applied in only one region of the country, besides having a sample with visual impairment, possibly related to the average age of 60.98 years, and difficulty in reading, perhaps due to the low education.

Having one or more hard-to-heal wounds can impact the patients both emotionally and in the loss of autonomy, affecting social relationships, reducing the work and daily activities of previously active individuals. The knowledge, by health professionals, of the difficulties and limitations that wounds are causing for these patients, can help to clarify doubts and improve their autonomy, since they will be able to know their limits and possibilities. The implementation of the Wound-QoL questionnaire, can assist both health professionals and patients, as its content makes enables

to capture information related to the quality of life of the patient's profile.

In this study, 51.0% of the participants were male. Despite the little difference with the female sex, these data corroborate other studies carried out in Brazil, in the cities of São Paulo and Manaus, and in India^(8,16), where the predominance was also in the male population. Regarding education, incomplete elementary education was a highlight in the population investigated, diverging from a study conducted in Germany⁽¹⁷⁾. Schooling is an important factor, since it increases the patient's ability to understand the disease, treatment management, prevention measures, its potential, in addition to discussing the limitations of adherence and self-care and achieving successful treatment⁽¹⁸⁾.

Low income, combined with low education, can predict a favorable lifestyle for the appearance of wounds. Also, it does not allow meeting the basic needs of this individual. It can hinder access to health services, materials, and care providers⁽¹⁸⁾. In this study, the identified income was between 1 and 3 minimum wages, corroborating a study carried out in India, in which 71.0% of the patients had monthly income in the range of 5,000 to 20,000 Indian rupees, equivalent to 365.20-1,460.78 *reais* (R\$)⁽¹⁶⁾.

The highest number of wounds in the study was of diabetic ulcers, followed by venous ulcers, possibly because the research was carried out in an outpatient clinic specialized in diabetic the foot, with a high number of diabetic patients (26.0%). This result was different from other studies carried out in the state of Minas Gerais, Brazil, with FLQA-WK, and in Germany, with Wound-QoL, where, respectively, 45.0% and 48.0% had venous ulcers^(7,17).

The validation of concurrent criteria with the Wound-QoL and FLQA-Wk questionnaires had a good correlation, except for the FLQA-Wk satisfaction domain. These data confirm the validation study of the original version of the Wound-QoL, in which it presented convergent validity with moderate correlations of the global item (0.48 to 0.69), minor correlations in

the psyche subscale (0.33 to 0.48), when compared to the FLQA-Wk, the Cardiff Questionnaire for assessing the impact of the wound, and the Würzburg Wound Score (WWS)⁽⁸⁾.

In the study carried out to verify the psychometric properties of the Wound-QoL, the original version, the correlation was greater than 0.80 in all scores, convergent validity with the FLQA-Wk, high in all scores, and significant with the Euro QoL questionnaires. Quality of Life questionnaire-5D-3L (EQ-5D-3L) and the Euro QoL-Visual Analogue Scales (EQ-VAS)⁽⁴⁾. In the Swedish version, the correlations were significant ($p < 0.010$)⁽¹⁹⁾, and in the Hebrew version, there was concurrent validity with high correlations (0.830 to 0.950)⁽²⁰⁾.

The FLQA-wk, the original version, had a highly significant and moderate convergent validity when related to the EQ-5D⁽⁶⁾. In the validation for the Brazilian version with the Ferrars & Powers Quality of Life Index - Wound Version (IQVFP-VF) it had a convergent validity with negative correlations, as the scores showed an inverse total⁽⁷⁾.

Regarding the reliability of the Wound-QoL questionnaire, a global Cronbach's alpha of 0.84 was obtained, corroborating the validation study of its original version, which presented an alpha of 0.91⁽⁷⁾, and a study carried out to verify its psychometric properties, which found an internal consistency > 0.80 ⁽⁴⁾. In its Swedish validation, the coefficient was 0.92 for the global score, and the Hebrew version showed values above 0.75 in all domains⁽¹⁹⁻²⁰⁾. In the FLQA-wk study, the original version, the result was ≥ 0.85 ⁽⁶⁾, and in its Brazilian version, it was 0.86 for the full scale⁽⁷⁾, all similar to this study. Thus, when comparing the Wound-QoL with these questionnaires, there was a similarity in their results since they all presented satisfactory reliability and validity.

Conclusion

The Wound Quality of Life questionnaire showed good psychometric properties assessed by using

internal reliability and criterion validity. Furthermore, it showed greater correlations between almost all domains when compared to the Freiburg Life Quality Assessment Wound.

The Wound-QoL questionnaire is presented as a reliable tool to be used both in clinical practice and in research, and can bring benefits in the health care of these individuals, as it is shorter, making it easier to answer for these patients' profile.

Collaborations

Vogt TN and Kalinke LP contributed to the conception and design, analysis, and interpretation of data, writing of the article, relevant critical review of the intellectual content and final approval of the version to be published. Santos PND, Mantovani MF and Tomim DH collaborated in the writing of the article and relevant critical review of the intellectual content. Guimarães PRB collaborated in the analysis and interpretation of the data.

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