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Charing Cross Venous Ulcer Questionnaire – Brazil: bicentric study of reliability

Charing Cross Venous Ulcer Questionnaire – Brasil: estudo bicêntrico de confiabilidade

Charing Cross Venous Ulcer Questionnaire – Brasil: estudio bicéntrico de confiabilidad

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Abstract

Objective: To verify the internal consistency and stability of the Charing Cross Venous Ulcer Questionnaire - Brazil (CCVUQ-Brazil).

Methods: This was a methodological study conducted in two cities from different regions of Brazil (Goiania and Niterói), from June 2016 to June 2018. The sample for internal consistency was composed of 112 individuals and for stability 74 participants were evaluated. All the individuals presented with a venous ulcer and received care in the public health network. For internal consistency analysis the Cronbach's alpha was calculated. The questionnaire was administered twice with a 30 minutes interval and for the stability analysis the intraclass correlation coefficient (ICC) was calculated.

Results: The CCVUQ-Brazil presented a Cronbach's alpha score of 0.92, and for the domains (social interaction, domestic activities, aesthetics and emotional state) it was above 0.70. The stability was excellent (ICC = 0.96) for total score of the questionnaire and for the majority of the domains.

Conclusion: The CCVUQ- Brazil showed good internal consistency, considering the two locations analyzed, and excellent stability in the Goiania.

Resumo

Objetivo: Verificar a consistência interna e estabilidade do *Charing Cross Venous Ulcer Questionnaire* – Brasil (CCVUQ-Brasil).

Métodos: Trata-se de uma pesquisa metodológica realizada em duas regiões do Brasil (Goiania e Niterói), no período de junho de 2016 a junho de 2018. A amostra para a consistência interna foi composta por 112 pessoas e para a estabilidade foram avaliados 74 participantes, todos com úlcera venosa atendidas na rede pública de saúde. Para análise da consistência interna foi calculado o alfa de Cronbach. Para estabilidade, o questionário foi aplicado duas vezes com intervalo de 30 minutos e para sua análise foi calculado o coeficiente de correlação intraclass (CCI).

Resultados: O CCVUQ-Brasil apresentou alfa de Cronbach para pontuação total do questionário igual 0,92 e para os domínios (interação social, atividades domésticas, estética e estado emocional) foi acima de 0,70. A estabilidade foi excelente (CCI=0,96) para pontuação total do questionário e para a maioria dos domínios.

Conclusão: O CCVUQ – Brasil obteve boa consistência interna considerando os dois cenários estudados e excelente estabilidade no cenário Goiania.

Resumen

Objetivo: Verificar la consistencia interna y estabilidad del *Charing Cross Venous Ulcer Questionnaire* – Brasil (CCVUQ-Brasil).

Métodos: Se trata de una investigación metodológica realizada en dos regiones de Brasil (Goiania y Niterói), en el período de junio de 2016 a junio de 2018. La muestra para la consistencia interna fue compuesta por 112 personas y, para la estabilidad, 74 pacientes fueron estudiados, todos con úlcera venosa atendidos en la red pública de salud. Para analizar la consistencia interna se calculó el alfa de Cronbach. Para la estabilidad, se aplicó el cuestionario dos veces con un intervalo de 30 minutos y para analizarlo se calculó el coeficiente de correlación intraclass (CCI).

Resultados: El CCVUQ-Brasil presentó alfa de Cronbach igual a 0,92 en la puntuación total del cuestionario y en los dominios (interacción social, actividades domésticas, estética y estado emocional) fue superior a 0,70. La estabilidad fue excelente (CCI=0,96) en la puntuación total del cuestionario y en la mayoría de los dominios.

Conclusión: El CCVUQ – Brasil obtuvo una buena consistencia interna considerando los dos escenarios estudiados y una excelente estabilidad en el escenario Goiania.

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Introduction

Quality of life is a subjective construct, with different meanings, and involves several dimensions of human life.⁽¹⁾ Using the Ferrans and Powers (1992)⁽²⁾ analysis allows us to understand this phenomenon, which considers quality of life, such as the sense of well-being of the individual that stems from how much he/she is satisfied with what is important to him/her.

Several factors may affect people's perceptions of their quality of life, and among them, one's health condition is included.⁽³⁾ In this context, the presence of wounds, such as venous ulcers,⁽⁴⁾ are injuries which can cause changes in physical health, functional capacity, as well as emotional and social aspects.⁽⁴⁾ The volume, appearance, and odor produced by the wound⁽⁵⁾ may also contribute to a negative impact.

With regard to comprehensive care, professionals should evaluate the quality of life of the person with a venous ulcer and establish appropriate intervention strategies.^(6,7)

This evaluation can be grounded in qualitative or quantitative strategies; the qualitative strategy is based on non-standardized measures that enable the emergence of the really important aspects of quality of life for the individual.⁽⁸⁾

The central method for quantitative evaluation is the use of instruments of measurement, which produce scores, allowing the measurement of a construct.⁽⁹⁾ This can be performed using generic measurement instruments and/or specific instruments.⁽⁸⁾

Several specific instruments have been developed to evaluate the quality of life of individuals with wounds, such as the Hyland Ulcer Specific Toll.⁽¹⁰⁾ Others instruments exclusively address the quality of life of people with venous ulcers, such as the Venous Leg Ulcer Quality of Life Questionnaire⁽¹¹⁾ and the Charing Cross Venous Ulcer Questionnaire.⁽¹²⁾

The Venous Leg Ulcer Quality of Life Questionnaire (VLU-QoL) is an instrument developed from the SKINDEX-29, which was composed of 34 items that evaluated three dimensions of quality of life: activities, psychological, and symptoms distress.⁽¹¹⁾ The VLU-QoL was developed in England, in 2007, and was translated and adapted into Brazilian Portuguese in 2014.⁽¹³⁾

The psychometric properties of VLU-QoL were tested for use in the Brazilian population and satisfactory results were obtained, with an internal consistency of 0.94 (Cronbach's alpha); in the evaluation of the reproducibility, the intra-class correlation index equaled 0.78 ($p < 0.01$). The study was conducted with a sample of patients receiving care at a university hospital in the state of São Paulo and, although validated, the author suggests other evaluations of the performance of this instrument in different regions of Brazil.⁽¹³⁾

The Charing Cross Venous Ulcer Questionnaire (CCVUQ) is composed of 21 items distributed in four domains: social interaction, domestic activities, emotional state, and aesthetics.⁽¹²⁾ It was translated into several languages, such as Chinese,⁽¹⁴⁾ Spanish⁽¹⁵⁾ and Portuguese.⁽¹⁶⁾

The CCVUQ - Brazil version⁽¹⁶⁾ was administered to a sample of 50 patients in the northeastern region of Brazil, achieving significant construct validity with reference to the Medical Outcomes Short-Form Health Survey (SF-36), excellent internal consistency, and high correlation in the evaluation of reproducibility.⁽¹⁷⁾ The study conducted in Spain also identified adequate psychometric properties.⁽¹⁸⁾

Notwithstanding the great contribution of these studies, it is recommended^(19,20) that internal consistency reliability analyses include five to 20 participants for each instrument question; so, further studies are needed to evaluate the reliability of this instrument in Brazil.

Considering the continental dimensions of Brazil, and the sociocultural differences in each region of the country, and that the study on the psychometric properties of the CCVUQ - Brazil was conducted only in a concentrated locale in the northeast region,⁽¹⁷⁾ other studies in different locations are recommended.

Thus, the present study aimed to verify the internal consistency and stability of the Charing Cross Venous Ulcer Questionnaire - Brazil.

Methods

This was a methodological, observational study integrated into a broader project, entitled "Translation,

cross-cultural adaptation, reliability and responsiveness of scales for evaluation of functional capacity, healing, and quality of life of people with venous ulcers”, approved by the Committee of Ethics in Research of the Federal University of Goiás (protocol number 1,500,799).

The data collection occurred in public health facilities in two cities, one in the state of Goiás (Goiania) and the other one in Rio de Janeiro (Niteroi), from June of 2016 to June of 2018.

The population was comprised of individuals with venous ulcers, treated at these units during the study period.

For inclusion in the sample the following criteria were required: age equal to or greater than 18 years, clinical signs of venous ulcer, with reports of follow up by a vascular surgeon, or use of adjuvant medication for venous circulation prescribed by this professional, or doppler scan with a report of venous insufficiency, ability to express oneself coherently and in a clear manner, and a satisfactory score on the Mini-mental State exam,^(21,22) based on the level of education measure. Individuals with severe deafness or visual deficit were excluded.

In order to verify the internal consistency, the sample was estimated to require 105 participants, considering the number of items on the instrument, and a proportion of 5 to 20 participants per item⁽¹⁹⁾. For stability verification, a convenience sample was used, only in the Goiania.

The CCVUQ - Brazil consists of four domains: social interaction (6 items), domestic activities (5 items), aesthetics (6 items) and emotional state (5 items). The domains are organized in a Likert scale ranging from 1 to 5, with the total scores of the questionnaire ranging from 0 to 100, in which higher values indicate a poorer quality of life.^(12,16)

The research was conducted in two stages: the first focused on the analysis of internal consistency, and the second focused on the stability analysis. Researchers from both cities were trained to administer the scale.

During the pre-tests and the organization of the logistics in the field, the need for an adaptation in the administration of the CCVUQ – Brazil was verified, in order to achieve participant comprehen-

sion. The answers to the items in question 3 involve a Likert scale, ranging from “definitely false” to “definitely true”. In this case, the approach to these questions occurred in two stages: first, the options “false”, “true” or “do not know” were presented, and then the scores for “definitely” and “mostly”.

Items that did not correspond to the life context of the participant were considered as non-applicable items, and encoded as 0 (zero). One of the situations in this case was item “d” of question five, which refers to the limitation that the ulcer causes to the person’s ability to care for their yard. An area with these characteristics (yard, porch, garage, slab, or similar) was not always integrated within the living environment of the participants.

Recruitment, at both places, occurred in the waiting room of the offices where the participants would receive treatment for their ulcers. After their agreement, the eligibility criteria were verified. Those who met the inclusion criteria were invited to participate, and signed the Terms of Free and Informed Consent form.

The data collection occurred in the health unit, according to the patients’ usual scheduling for care.

Sociodemographic data (sex, age, education, income per capita), and characteristics of the wound (wound length of time) were collected using a protocol, and later the CCVUQ - Brazil was administered.⁽¹⁶⁾ This first administration of CCVUQ – Brazil was used as reference for the internal consistency analysis.

Previous studies on stability of the CCVUQ used wide-ranging intervals (from 7 days to 6 weeks),⁽¹²⁻¹⁸⁾ with no consensus. Thus, to analyze the stability, in our study, the CCVUQ - Brazil⁽¹⁶⁾ was administered a second time, with an approximate interval of 30 minutes. In the meantime, the patient answered other protocols of the matrix research, or performed the wound dressing, reducing the risk of memory bias.

The figure 1 shows the flowchart of the recruiting, selecting and data collecting process.

Statistical software was used to analyze the internal consistency using the Cronbach’s alpha coefficient. Values ≥ 0.70 were adopted as good internal consistency^(19,23).

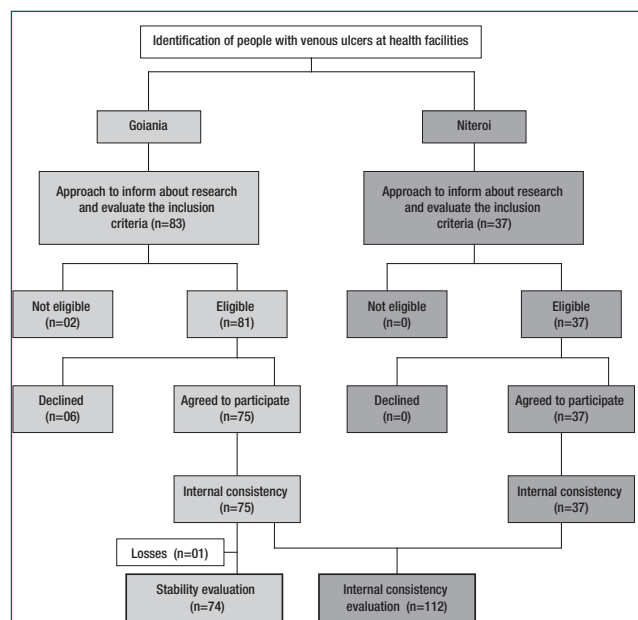


Figure 1. Process for recruiting and selecting participants

The stability analysis was performed by comparing the first and second evaluation (test-retest) by means of the Intraclass correlation coefficient (ICC). Values < 0.5 = poor reliability; ≥ 0.5 and ≤ 0.75 = moderate reliability; > 0.75 and ≤ 0.90 = good reliability; and > 0.90 = excellent reliability.⁽²⁴⁾

Results

A total of 120 individuals were invited, however two did not meet the eligibility criteria, six declined to participate; there was a loss of follow-up only in the sample for stability. Thus, 112 people with venous ulcers participated in the study, 50.0% were female, with a mean age of $61.39 \text{ years} \pm 11.86$.

Regarding education, 10.7% ($n=12$) were illiterate, 58.0% ($n=65$) had incomplete elementary education, 6.3% ($n=7$) had elementary education, 10.7% ($n=12$) had incomplete middle school education, and 13.4% ($n=15$) had a middle school education. Only 0.9% ($n=1$) had completed higher education.

The per capita income showed a median of US\$251.00 (75th percentile equal to US\$ 283.00).

The median wound length of time was 60 months (75th percentile equal to 120 months).

Internal consistency

As shown in table 1, the internal consistency was good for both the total score and for all domains. Cronbach's alpha for the entire instrument was 0.92.

Table 1. Internal consistency of the total score and all the domains of the Charing Cross Venous Ulcer Questionnaire - Brazil, Goiania and Niteroi, 2018 ($n = 112$)

CCVUQ-Brazil	Questions	Cronbach alpha	95% CI ¹	Internal consistency
Total score	All	0.920	0.896-0.941	Good
Social interaction	2A. 2B. 2C. 2D. 3A. 8	0.774	0.702-0.803	Good
Domestic activities	3A. 5A. 5B. 5C. 5D	0.824	0.764-0.872	Good
Aesthetics	3C. 3E. 4. 7A. 7B. 7C	0.815	0.756-0.863	Good
Emotional state	3F. 3B. 6. 3E. 3D	0.773	0.700-0.833	Good

¹95% CI- 95% confidence interval

Stability was excellent for the total score and for most domains (Table 2).

Table 2. Stability of the total score and domains of the Charing Cross Venous Ulcer Questionnaire - Brazil, Goiania, 2018 ($n = 74$)

CCVUQ-Brazil	CCI ¹	95% CI ²	F Test	p-value	Stability
Total score	0.962	0.939-0.976	26.04	< 0.001	Excellent
Social interaction	0.897	0.836-0.935	9.73	< 0.001	Good
Domestic activities	0.963	0.939-0.977	26.99	< 0.001	Excellent
Aesthetics	0.915	0.864-0.946	11.72	< 0.001	Excellent
Emotional state	0.940	0.904-0.962	16.62	< 0.001	Excellent

¹ICC- Intraclass correlation coefficient; ²95% CI= Confidence interval of 95%

Discussion

A possible limitation of the study was that the stability evaluation was conducted in only one of the city. However, a more comprehensive sample was used, to evaluate this psychometric property of the CCVUQ - Brazil,⁽¹⁷⁾ and it was conducted in a region of the country different from the place where it was previously translated and tested, which enlarges the current information about the stability of the instrument.

Regarding internal consistency, the study involved a calculated sample, and it was performed in two cities from distinct regions of the country, with adjustments for its comprehensibility.

The Cronbach's alpha value obtained in this study is similar to the original version of the questionnaire, which presented a value of 0.93.⁽¹²⁾ The

sample of the present study, conducted in Goiania (GO) and Niteroi (RJ), was composed of individuals with low levels of education, and mean age of 61.39 years. The mean age of patients in the study conducted in England was 76 years, and the level of education was not described.⁽¹²⁾

In a study conducted in China with 100 patients, mean age of 70 years, the CCVUQ showed a total Cronbach's alpha of 0.95, and a value equal to or greater than 0.90 for all the domains.⁽¹⁴⁾ In this context, no more detail was provided about the level of education or income.

Lower values were identified in the evaluation of the internal consistency of the questionnaire in a sample analyzed in Uruguay, composed of 50 individuals with a mean age of 63.4 years and low level of education; the Cronbach's alpha value of the total score was 0.83 and the social interactions domain obtained a Cronbach's alpha of only 0.61. According to the authors, the study presented a small and homogeneous sample, which may have contributed to the lower values.⁽²⁵⁾ On the other hand, it should be considered that in populations with low levels of education, some adjustments may be necessary when presenting the response options to the participants, and this may not have been considered in that study.

Considering Brazil, similar values were found in a study conducted in the Northeast region, where the participants had a mean age of 63.02 years, with a predominance of individuals with complete elementary education; Cronbach's alpha was found to be 0.92 for the total score, and values were between 0.73 and 0.89 for all the domains.⁽¹⁷⁾

The context in which the instrument is used can affect the psychometric properties. Factors related to the sample, such as age, socioeconomic conditions and level of education may interfere in the evaluation of the reliability and validity of the measurement instruments.⁽²⁶⁾

The stability of CCVUQ – Brazil showed an Intraclass correlation coefficient (ICC) of 0.96 for the overall score of the questionnaire, which was considered excellent.⁽²⁴⁾ The Intraclass correlation coefficient obtained was similar to the result found in the Chinese version of the questionnaire (ICC =

0.94), which adopted a six-week interval between applications.⁽¹⁴⁾

The original instrument was submitted to test-retest with a two-week interval and found a lower value (ICC=0.84),⁽¹²⁾ but represented good stability.⁽²⁴⁾

In a study conducted in Brazil, which used a range of seven to 15 days between tests, showed ICC = 0.95 and could be considered similar to that of the present study.⁽¹⁷⁾

Therefore, the CCVUQ – Brazil showed stability at different tests intervals.

Validated and reliable measurement instruments, which aim to recognize the impact of a venous ulcer on the life of the patient, should be used to evaluate the quality of life of patients.^(11,27) The results obtained in the present investigation reinforce the adequate internal consistency of the questionnaire in its use in the Brazilian population.

Conclusion

The CCVUQ – Brazil obtained good internal consistency in the two locations studied, and excellent stability in the Goiania location.

Collaborations

Amaral KVA, Melo PG, Alves GR, Soriano JV, Ribeiro APL, Oliveira BGRB and Bachion MM contributed to the study design, analysis, data interpretation, article writing, critical analysis of the relevant content, and final approval of the version to be published.

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