



Brazilian Portuguese version of the Patient Scar Assessment Questionnaire

Validação da versão em português do Patient Scar Assessment Questionnaire

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■ ABSTRACT

Introduction: Scars and their associated signs and symptoms have the potential to impact many aspects of health. Given the growing number of individuals with new scars, it is essential to have reliable, sensitive, and specific assessment tools that analyze the influence that scars can have on the quality of life. The objective is to translate the Patient Scar Assessment Questionnaire (PSAQ) into Portuguese, adapt it to the Brazilian cultural context, and test its reproducibility, reliability, and validity. **Methods:** The questionnaire was applied to 121 individuals with post-surgical scars consecutively selected at a plastic surgery clinic from January 2015 to June 2016. The PSAQ consists of 39 questions divided into five subscales: appearance, symptoms, perception, satisfaction with appearance, and symptoms. Then its reproducibility, face, content, and construct validity were analyzed. Internal consistency was tested using Cronbach's alpha coefficient, and construct validation was performed by correlating the translated instrument with the QualiFibro and Patient and Observer Scar Assessment Scale (POSAS) questionnaires. **Results:** Analysis of the internal consistency of the PSAQ subscales obtained values >0.70 in all domains, showing good internal consistency. Reproducibility was demonstrated using Pearson's correlation and the Bland-Altman method, and the outcomes showed good reproducibility. In construct validation, a significant correlation was observed in all PSAQ domains with POSAS and QualiFibro. **Conclusion:** The PSAQ was translated into Portuguese and adapted to Brazilian culture, reproducible and presenting face, content, and construct validity. **Keywords:** Cicatrix; Surveys and questionnaires; Quality of life; Cross-cultural comparison; Psychometrics.

■ RESUMO

Introdução: Cicatrizes e seus sinais e sintomas associados têm potencial para impactar vários aspectos da saúde. Dado o número crescente de indivíduos que adquirem novas cicatrizes, é importante ter ferramentas de avaliação confiáveis, sensíveis e específicas que analisem a influência que as cicatrizes podem exercer sobre a qualidade de vida. O objetivo é traduzir o *Patient Scar Assessment Questionnaire* (PSAQ) para a língua portuguesa, adaptá-lo ao contexto cultural brasileiro e testar sua reprodutibilidade, confiabilidade e validade. **Método:** O questionário foi aplicado em 121 indivíduos portadores de cicatrizes pós-cirúrgicas selecionados consecutivamente em ambulatório de cirurgia plástica no período de janeiro de 2015 a junho de 2016. O PSAQ é constituído por 39 questões divididas em cinco subescalas: aparência, sintomas, percepção, satisfação com a aparência e com os sintomas. Foram analisados a reprodutibilidade, validade de face, conteúdo e construto. A consistência interna foi testada pelo alfa de Cronbach e a validação de construto foi realizada correlacionando o instrumento traduzido com os questionários QualiFibro e *Patient and Observer Scar Assessment Scale* (POSAS). **Resultados:** A análise da consistência interna das subescalas do PSAQ obteve valores maiores que 0,70 em

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todos os domínios, evidenciando uma boa consistência interna. A reprodutibilidade foi demonstrada através da correlação de Pearson e método de Bland-Altman, sendo observada boa reprodutibilidade. Na validação de construto observou-se correlação significativa entre todos os domínios do PSAQ com a POSAS e QualiFibro.

Conclusão: O PSAQ foi traduzido para o português e adaptado à cultura brasileira, mostrando-se reprodutível e apresentando validade de face, conteúdo e construto.

Descritores: Cicatriz; Inquéritos e questionários; Qualidade de vida; Comparação transcultural; Psicometria.

INTRODUCTION

Scarring is the last stage of the tissue repair process. Unlike lower vertebrates, humans do not heal through a process of regeneration that replaces injured tissues with the same type of tissue, identical to the original one¹. The ideal endpoint would be complete regeneration, with the new tissue retaining the same structural, aesthetic, and functional attributes as the original tissue. However, there are considerable quantitative and qualitative variations in healing potential between individuals and within the same individual^{2,3}.

Scars are often considered trivial, but they can be disfiguring and aesthetically unpleasant, causing loss of function, restriction of movement and growth, pain, sleep disorders, anxiety, depression, and disruption of daily activities, with physical, psychological, social, and functional sequelae^{4,5}.

Scar evaluation can be performed objectively or subjectively. Objective evaluation quantitatively measures the scar using instruments to assess its physical attributes. Subjective assessment is observer-dependent and provides a qualitative measure of scarring by the patient and physician. Scar assessment methods using scales have been developed to make them more objective⁶.

Scales to assess scars have been developed since 1990⁷. However, those early scales focused on the physician's opinion and the physical properties of the scar⁶ and did not capture unobservable concepts and the extent of the impact, which are known only by the patient. Most data collection instruments for assessing scars were formulated in English and targeted their respective populations. Thus, there was a need to translate and culturally adapt these instruments before they were applied to populations with different languages and cultures.

One of the instruments designed to assess scars, the Patient Scar Assessment Questionnaire (PSAQ) — validated and published by Piyush Durani et al.⁸ — was initially developed in English to assess the quality of life (QoL) in patients with postoperative linear scars. It consists of 39 questions divided into 5 subscales:

appearance, symptoms, perception, satisfaction with appearance, and satisfaction with symptoms. The PSAQ can be self-applied and completed in approximately 10 minutes.

Considering the scarcity of studies in Brazil on the impact of postoperative scars, it is important to use a scar assessment instrument that incorporates aspects related not only to the physical characteristics of the scar but also to its influence on the patient's QoL.

OBJECTIVE

In light of these considerations, the objective of this study was to validate the PSAQ in Brazilian Portuguese through the stages of translation, synthesis, review by the multidisciplinary group, back-translation, and cultural adaptation and test the measurement, reproducibility, and validity properties of this adaptation.

METHOD

The author previously authorized the translation into Portuguese, cultural adaptation, and validating of the PSAQ in Brazil. This study was characterized as a clinical, analytical, observational, cross-sectional, uncontrolled, and single-center study and was approved by the Research Ethics Committee of the Federal University of São Paulo (UNIFESP) through Plataforma Brasil (471.728/2013).

The sample consisted of individuals selected consecutively at the Plastic Surgery Outpatient Clinic of the Federal University of São Paulo (UNIFESP) from January 2015 to June 2016. The participants were of both sexes, aged 18–65 years, and had had post-surgical scars for more than 1 year and less than 5 years. The questionnaire was applied to 121 individuals: 65 in the cultural adaptation phase and 56 in the validation phase. All study participants were duly informed about the nature, justification, and objective of the project and were then invited to participate by signing an informed consent form.

The methodology used in the study was based on the proposal of Beaton et al.⁹, divided into the following steps: translation, synthesis, review by the

multidisciplinary group, back-translation (back to the original language), and pre-test (or cultural adaptation).

The first step in the process was the initial translation. Two direct translations of the original questionnaire were made by two independent bilingual translators, fluent in English and native to the language (Brazilian Portuguese) into which the instrument was being translated.

The next step was the synthesis of the translations. In this step, the two translated versions were evaluated and compared by a multidisciplinary group, and a single version of the questionnaire was created by consensus. This group consisted of bilingual individuals who were specialists in the studied disease and knowledgeable about the intention of the measures and the concepts to be explored.

After this translation was obtained, two other translators unfamiliar with the original version of the instrument performed a new translation into the original language. The back-translations were produced by two translators fluent in Portuguese but were native English speakers.

The expert committee met again to discuss the differences and discrepancies arising from the translation process. This analysis generated the first version of the questionnaire in Portuguese, preserving the idiomatic, semantic, conceptual, and cultural equivalences.

The first version was applied to a group of 28 individuals belonging to the target population. Items not understood by a percentage of $\geq 20\%$ of patients were reviewed by the same multidisciplinary group, which formulated a second version of the questionnaire. This second version was applied to another group of 38 patients with the same characteristics, obtaining an understanding greater than 80% in the entire series for all questions. After this evaluation, the questionnaire was considered to be translated into Portuguese and adapted to Brazilian culture.

The instrument's psychometric properties were evaluated after the cross-cultural adaptation process. The instrument's reliability (reproducibility and internal consistency) and face, content, and construct validity were tested.

The final version's reproducibility (test/retest) was evaluated in another 56 patients. The final version of the questionnaire was applied on an initial date and reapplied with the same interviewer after 15–30 days, without any surgical or therapeutic intervention on the scar. The statistical analysis to assess reproducibility was performed using the intraclass correlation coefficient and Pearson's linear correlation coefficient (r) between the individual values obtained in the first and second interviews, and a Bland–Altman analysis

for the mean of the two evaluations and the difference between the observations.

Internal consistency per subscale was analyzed using Cronbach's alpha coefficient, which varies between "0" and "1". The closer to 1, the greater the consistency between items on a scale or subscale. Values of α above 0.7 were considered satisfactory.

The validity of an instrument is defined as the ability to measure what it proposes to measure, and it can be classified into face, content, and construct validity. Face validity checks whether the instrument appears to measure what it was designed for.

Content validity corresponds to the relevance of each item in the instrument for measuring the topic addressed and examines the extent to which a questionnaire represents the universe of the concept or domains. In this study, face and content validity were determined by consensus by the multidisciplinary team that participated in elaborating the consensus version of the questionnaire in Portuguese.

Construct validity is present if the measurement is coherently related to other measures considered part of the same phenomenon. When testing constructs validity, hypotheses are worded according to the direction and power of expected relationships based on theory and literature. Validity is confirmed when the association confirms the hypothesis.

Construct validity was tested by correlating the measure obtained by the PSAQ with measures from instruments that assess constructs correlated with the sense of coherence that are reliable and valid. The instruments used for correlation were the Quality of Life of Patients with Keloid and Hypertrophic Scarring (QualiFibro)^{10,11} and the Patient and Observer Scar Assessment Scale (POSAS)^{12,13}.

Pearson's linear correlation tests were applied between the measures of the domains of the adapted version of the PSAQ and the instruments listed above. For the analysis of the values, correlation values between 0.50 and 0.75 (or -0.50 and -0.75) were considered moderate, those between 0.75 and 1.00 (or -0.75 and -1) were considered strong, and perfect if equal to 1 or -1 .

For all statistical tests, a significance level of 5% was adopted. The analyses were performed using the SPSS 20.0 and Stata 12.0 (Structural Equation Modeling/SEM) statistical packages.

RESULTS

The first version of the questionnaire was applied to a group of 28 individuals (pre-test group 1), consisting of 24 women and 4 men, with a mean age of 51.89 years (range 32–65 years). Nine items presented a comprehension index of less than 80%, and the

multidisciplinary committee reviewed the instrument. The second version of the questionnaire was applied to a group of 37 individuals (pre-test group 2), consisting of 35 women and 2 men, with a mean age of 47.21 years (range 21–65 years). All questions reached a comprehension rate of >89%, and no further modifications were needed. Cultural equivalence was considered complete (Chart 1).

Next, the reproducibility and validity of the questionnaire were evaluated. A new group of 56 patients participated in this phase, with a predominance of females (94.6%) and a mean age of 41.4 years. The same evaluator conducted two interviews at an interval of 15–30 days. The total score of the questionnaire was obtained by adding the scores for each question. Good reproducibility was observed, with values above 0.70 in all domains (Tables 1 e 2).

Reliability analysis was performed using the same questionnaires from the first reproducibility phase. Reliability was demonstrated using Cronbach's alpha, as shown in Table 3.

The PSAQ was also evaluated regarding face, content, and construct validity. To estimate the content validity, the conceptual framework of the impact of scars on the patient's quality of life was defined by conducting a literature review and seeking expert opinion. To determine the PSAQ's face validity, text clarity, probability of the target audience being able to answer the questions, questionnaire formatting, and style were evaluated. The multidisciplinary team evaluated the items and concluded that the Brazilian version of the PSAQ has face and content validity.

In assessing the construct validity, the PSAQ was correlated with POSAS and the Quality of Life of Patients with Keloid and Hypertrophic Scarring (QualiFibro). Strong positive correlations were observed between satisfaction with appearance and the score of psychological damage — QualiFibro ($r=0.711$, $p<0.001$) and POSAS ($r=0.811$, $p<0.001$), indicating that the greater the dissatisfaction with appearance, the greater the psychological damage (QualiFibro) or, the greater the problems caused by the scar (POSAS) (Table 4).

Chart 1. Translation into Portuguese of the Patient Scar Assessment Questionnaire (PSAQ).

1	How well does your scar's color match the skin surrounding it?	A cor da sua cicatriz combina com a pele ao seu redor?
2	Is your scar darker or lighter compared to the surrounding skin?	A sua cicatriz é mais escura ou mais clara do que a pele ao seu redor?
3	Do you think your scar is red at all?	Você acha que sua cicatriz é avermelhada?
4	In terms of length, my scar is:	Quanto ao comprimento, sua cicatriz é:
5	In terms of width, my scar is:	Quanto à largura, sua cicatriz é:
6	How flat do you think your scar is, compared to the surrounding skin?	Você acha que a sua cicatriz é plana em comparação à pele ao redor dela?
7	Does your scar look shiny to you?	Você acha sua cicatriz brilhante?
8	Does your scar feel 'lumpy' at all?	Sua cicatriz está 'encaroçada'?
9	In terms of texture, my scar feels:	Quanto à textura, sua cicatriz é:
10	Overall what do you think of the appearance of your scar	No geral, o que você acha da aparência de sua cicatriz?
11	Does your scar ever itch at all?	Sua cicatriz coça?
12	Does your scar cause you pain at all?	Sua cicatriz dói?
13	Is your scar ever uncomfortable at all?	Sua cicatriz causa desconforto?
14	Does your scar ever feel numb at all?	Sua cicatriz fica dormente?
15	Do you ever get odd sensations in your scar, e.g., tightening', 'pulling, or pins and needles?	Você tem alguma sensação estranha em sua cicatriz, como "enrijecimento", "repuxão" ou "alfinetadas e agulhadas"?
16	Does your scar ever catch on things, e.g., clothes?	Sua cicatriz enrosca nas coisas, por exemplo, nas roupas?
17	Overall, how troublesome are the symptoms of your scar?	Em geral, sua cicatriz causa algum incômodo?
18	How noticeable is your scar to you?	Para você, o quanto a sua cicatriz é visível?
19	How noticeable do you think your scar is to others?	Sua cicatriz é visível para os outros?
20	Do you think people ever stare at your scar?	Você acha que as pessoas olham para a sua cicatriz?
21	Do you make an effort to try and hide your scar?	Você se esforça para esconder a sua cicatriz?
22	How often do you think about your scar?	Com que frequência você pensa em sua cicatriz?
23	How often do you look at your scar?	Com que frequência você olha para sua cicatriz?

continued...

...continuation

Chart 1. Translation into Portuguese of the Patient Scar Assessment Questionnaire (PSAQ).

24	Overall, how self-conscious are you of your scar?	No geral, você se sente envergonhado(a) da sua cicatriz?
25	How satisfied are you with how the color of your scar matches the surrounding skin?	Você está satisfeito com a cor de sua cicatriz comparada à pele ao redor dela?
26	How satisfied are you with the redness of your scar?	Você está satisfeito com a vermelhidão de sua cicatriz?
27	How satisfied are you with the length of your scar?	Você está satisfeito com o comprimento de sua cicatriz?
28	How satisfied are you with the width of your scar?	Você está satisfeito com a largura de sua cicatriz?
29	How satisfied are you with the height of your scar compared to the surrounding skin?	Você está satisfeito com a altura de sua cicatriz comparada com à pele ao redor dela?
30	How satisfied are you with the texture of your scar (the way it feels to touch)?	Você está satisfeito com a textura de sua cicatriz (sensação ao toque)?
31	How satisfied are you with the 'lumpiness' of your scar?	Você está satisfeito com os 'caroços' de sua cicatriz?
32	How satisfied are you with the 'shininess' of your scar?	Você está satisfeito com o 'brilho' de sua cicatriz?
33	Overall, how satisfied are you with the appearance of your scar?	No geral, você está satisfeito com a aparência de sua cicatriz?
34	How satisfied are you with the itchiness from your scar?	Você está satisfeito com a coceira causada pela cicatriz?
35	How satisfied are you with the amount of pain from your scar?	Você está satisfeito com a dor causada pela cicatriz?
36	How satisfied are you with the amount of discomfort from your scar?	Você está satisfeito com o desconforto causada pela cicatriz?
37	How satisfied are you with the amount of numbness from your scar?	Você está satisfeito com a dormência causada pela cicatriz?
38	How satisfied are you with the amount of odd sensations you get from your scar?	Você está satisfeito com as sensações estranhas causadas pela sua cicatriz?
39	Overall, how satisfied are you with the amount of trouble you get from the symptoms of your scar?	No geral, você está satisfeito com os problemas causados pela sua cicatriz?

Table 1. Summary measures of PSAQ subscale scores

PSAQ (first interview)	Mean	Std Dev	Min.	Max.	First quartile	Median	Third quartile	N
Appearance (9 items)	18,1	4,1	12,0	29,0	15,0	17,0	21,0	56
Symptoms (6 items)	7,9	2,8	6,0	17,0	6,0	7,0	9,0	56
Perception of the scar (6 items)	12,3	4,7	6,0	24,0	9,0	11,0	16,0	56
Satisfaction with the appearance (8 items)	16,3	5,3	8,0	32,0	13,3	16,0	19,0	56
Satisfaction with the symptoms (5 items)	8,5	4,1	5,0	20,0	5,0	7,0	10,0	56
PSAQ (second interview)	Mean	Std Dev	Min.	Max.	First quartile	Median	Third quartile	N
Appearance (9 items)	17,5	3,8	11,0	26,0	14,3	16,5	20,0	56
Symptoms (6 items)	7,7	2,3	6,0	16,0	6,0	6,5	8,8	56
Perception of the scar (6 items)	12,3	4,9	6,0	24,0	9,0	10,5	16,0	56
Satisfaction with the appearance (8 items)	15,6	4,7	8,0	26,0	13,0	15,0	17,8	56
Satisfaction with the symptoms (5 items)	7,6	3,9	5,0	20,0	5,0	5,0	8,0	56

DISCUSSION

A scar assessment instrument must capture the extent of scar impact on a patient. The evaluation of results has usually focused on the physician's opinion and the physical properties of the scar⁶. However, such

measures do not capture unobservable concepts such as pain or QoL, which are known only to the patient.

One way to measure the severity and evolution of physical and psychological repercussions on individuals' daily lives is by using questionnaires that assess QoL. QoL is a multidimensional concept

Table 2. Intraclass correlations for the subscales and their 95% confidence intervals.

	Intraclass correlation (CI95%)	p
Appearance	0.865 (0.781–0.919)	<0.001
Symptoms	0.905 (0.844–0.943)	<0.001
Perception of the scar	0.940 (0.900–0.964)	<0.001
Satisfaction with the appearance	0.825 (0.719–0.893)	<0.001
Satisfaction with the symptoms	0.742 (0.597–0.840)	<0.001

Table 3. Overall Cronbach Alpha.

Subscales	Overall Cronbach's Alpha
Appearance (9 items)	0.770
Symptoms (6 items)	0.799
Perception of the scar (6 items)	0.832
Satisfaction with the appearance (8 items)	0.919
Satisfaction with the symptoms (5 items)	0.938

involving propositions beyond symptom control, reducing mortality, and increasing life expectancy. QoL is related to the individual's subjective perception of their position in life in the context of the culture and value system in which they live and concerning their goals, expectations, standards, and concerns. It is a broad concept that encompasses the complexity of the construct and interrelates the environment with physical and psychological aspects, level of independence, social relationships, and personal beliefs¹⁴.

Instruments with patient-reported outcomes are growing in importance in research. They can be used as primary outcomes or complement traditional surgical outcomes¹⁵.

Researchers who do not have an appropriate instrument in their own language should choose to (a) develop an instrument for their own cultural context;

(b) promote the development of a new instrument that is simultaneously adapted to different cultural contexts; (c) use a measure unrelated to QoL questionnaires that allows the individual to define the important domains for his or her own assessment; and (d) translate and adapt a preexisting instrument for their own language¹⁶.

The first three options demand considerable time and personal and financial commitment. The most feasible alternative, capable of generating instruments that allow comparison between cultures, has been the translation and cultural adaptation of existing instruments whose measurement properties have been demonstrated in their original language^{9,16}.

In this first study with the PSAQ, we carried out the translation and cultural adaptation and tested the properties: of face, content, and construct validity, as well as reproducibility and internal consistency. The processes adopted to translate and culturally adapt the PSAQ were the ones suggested by Beaton et al.⁹, which recommend the initial translation, the synthesis of translations, the back translation, the review by a committee of specialists, and the pre-test (cultural adaptation).

In the pre-test, the patients were selected consecutively, and the researcher read the questionnaire (administered application). When the respondent did not understand the meaning of a question, the researcher reread the question slowly. To avoid changing its original meaning, no synonyms or explanations of the question were given in other words. In the end, the subjects were asked to suggest changes in the wording of the questions or the choice of words if they felt that these suggestions could make the questions more understandable. At the end of the second pre-test, all terms reached a comprehension index of more than 80%, and no further changes were needed. The cultural equivalence was considered complete, and the second version became the final version of the questionnaire.

The reproducibility and validity of the questionnaire were then evaluated with a new group of 56 patients. The definition of reproducibility of a scale refers to

Table 4. Pearson's correlation (r^P) between PSAQ, QualiFibro, and POSAS scores.

	QualiFibro				POSAS	
	Psychological damages		Physical damages		r^P	p
	r^P	p	r^P	p		
Appearance	0.560	<0.001	0.364	0.006	0.628	<0.001
Symptoms	0.473	<0.001	0.515	<0.001	0.487	<0.001
Perception of the scar	0.628	<0.001	0.294	0.028	0.668	<0.001
Satisfaction with the appearance	0.711	<0.001	0.527	<0.001	0.811	<0.001
Satisfaction with the symptoms	0.558	<0.001	0.663	<0.001	0.664	<0.001

N=56

obtaining equal or very similar results in two or more administrations for the same individual, as long as there is no change in his/her clinical status¹⁷. Reproducibility aims to analyze random fluctuations in the same group of respondents on two or more occasions, quantifying the overall agreement of responses at the individual level. Good reproducibility was observed with values higher than 0.70 in all domains. The minimum acceptable value of 0.70 is in the original description of the questionnaire⁸.

The same interviews from the first reproducibility phase were used to evaluate the instrument's internal consistency, and the verification used Cronbach's alpha coefficient. Values below 0.5 were considered insufficient; values between 0.5 and 0.7 were moderate; and values above 0.7 were adequate. In the item-total correlation, values higher than 0.20 suggest that the items measure the same construct and are therefore considered adequate^{2,8}.

Internal consistency was considered satisfactory for all subscales. The one for "Appearance" obtained the lowest Cronbach's alpha value (0.770). We also noticed that the lower item-total correlation values suggest that these items probably measure more than one construct.

As for validity, the PSAQ was evaluated for face, content, and construct validity. Valid questionnaires have the following attributes: (i) have simplicity and feasibility, (ii) exhibit word reliability and accuracy, (iii) are appropriate for the problem intended to be measured, (iv) reflect the underlying theory or concept to be measured, and (v) can measure change¹⁸.

To estimate the content validity of the PSAQ, the researcher defined the conceptual framework of the impact of scars on patients' QoL by conducting a literature review and seeking expert opinion. Once the conceptual framework was created, the multidisciplinary group examined the items to ensure they were consistent and endorsed content validity.

Face validity is the easiest validation process to undertake but is the weakest form of validity as it assesses the appearance of the questionnaire in terms of feasibility, readability, consistency of style, formatting, and clarity of the language used. The multidisciplinary team evaluated the items and concluded that the Brazilian version of the PSAQ presents face and content validity.

The assessment of construct validity refers to the degree to which a measure correlates (converges) with other measures to which it is similar and is typically examined, using associations with other validated instruments that measure the same construct in a group of at least 50 patients¹⁹⁻²¹.

We observed strong positive correlations between satisfaction with appearance and psychological distress scores - QualiFibro ($r=0.711$, $p<0.001$) and POSAS ($r=0.811$, $p<0.001$), indicating that the greater the dissatisfaction with appearance, the greater the psychological distress (QualiFibro) or, the greater the problems due to scarring (POSAS). The other correlations presented variations between 0.294 and 0.668. Very high correlations may indicate that the measures evaluate the same thing and are redundant.

To assess the correlation between each of the general self-perception items of each subscale with their respective score, Spearman's correlation was used. According to Table 5, moderate/strong positive correlations are observed between the score of each subscale and the respective self-perception item. The correlations ranged from 0.612 to 0.875, indicating good internal validity. The data coincide with those obtained in the validation of the original instrument, which was moderate/high in all domains, ranging from 0.63 to 0.91.

The PSAQ was explicitly designed to evaluate linear scars and is planned to be self-administered, with all the necessary written information to avoid administrator bias. It has internal consistency and acceptable reproducibility for all subscales. The

Table 5. Spearman's correlation between general self-perception items of each subscale with their respective score.

	r^s	p
Appearance and Q10		
"Overall, what do you think your scar looks like?"	0.756	<0.001
Symptoms and Q17		
"In general, does your scar cause any discomfort?"	0.612	<0.001
Perception of the scar and Q24		
"In general, are you ashamed of your scar?"	0.828	<0.001
Satisfaction with the appearance and Q33		
"Overall, are you satisfied with the appearance of your scar?"	0.866	<0.001
Satisfaction with the symptoms and Q39		
"Overall, how satisfied are you with the problems caused by your scar?"	0.875	<0.001
N=56		

subscales can thoroughly discriminate between groups with known differences in scar appearance, and the appearance subscale can detect change over time⁸.

One of the PSAQ's main strengths is the fact that its subscales can be used in isolation when only a certain aspect needs to be evaluated. Since each subscale addresses a specific domain, researchers can use the most relevant subscale in isolation without affecting reliability or validity.

CONCLUSION

The PSAQ was translated into Brazilian Portuguese, culturally adapted, and reproducible, presenting global face, content, and construct validity. This adaptation was called PSAQ-BR (Annex 1).

This instrument can help multidisciplinary teams to determine the impact of scars on the QoL from the patients' perspective, thus providing a more comprehensive assessment of severity, in addition to providing high-quality evidence for use in clinical trials, in confronting treatment modalities and their impact, and in comparing results with international multicenter studies.

COLLABORATIONS

- ASO** Analysis and/or data interpretation, Conception and design study, Conceptualization, Formal Analysis, Investigation, Methodology, Project Administration, Resources, Validation, Writing - Original Draft Preparation, Writing - Review & Editing.
- FMGPF** Analysis and/or data interpretation, Conceptualization, Supervision, Writing - Review & Editing.
- EBG** Analysis and/or data interpretation, Final manuscript approval, Formal Analysis, Supervision, Writing - Review & Editing.
- LMF** Final manuscript approval, Formal Analysis, Supervision.

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Annex 1. PSAQ-BR Questionnaire and Scoring System.

The PSAQ consists of 5 subscales: Appearance, Symptoms, Consciousness, Satisfaction with Appearance and Satisfaction with Symptoms. The Symptoms subscale has been omitted from analysis due to reliability issues related to format and application in scar groups with minimal symptom prevalence.

Scoring System:

Each subscale consists of a set of items with 4-point categorical responses, scoring 1 to 4 points (with 1 point assigned to the most favourable category and 4 assigned to the least favourable). Each subscale also contains a single global assessment item that is not included in the summary subscale score, but is used to provide a clinically meaningful descriptor for the summary score generated, and also used for internal validation analysis.

In items with double response scales e.g. item 2 in the Appearance subscale, 'Is your scar darker or lighter compared to surrounding skin?': 'No' is assigned 1 point, but if the subject does decide the scar is darker or lighter, the remaining categories are assigned 2 (slightly darker OR slightly lighter), 3 (fairly darker OR fairly lighter) or 4 points (much darker OR much lighter).

Therefore the following range of scores is possible for each subscale, with higher scores reflecting a poorer perception of the scar related to the domain being evaluated:

	Number of Scored Items	Minimum Score	Maximum Score
Appearance	9	9	36
Consciousness	6	6	24
Satisfaction with Appearance	8	8	32
Satisfaction with Symptoms	5	5	20

Patient Id.

Date of completion

Month:

Patient Scar Assessment Questionnaire (PSAQ)**Part I: Attribute Rating****I. APPEARANCE****1. How well does the colour of your scar match with your skin surrounding it?**

Very well matched	Well matched	A little matched	Poorly matched
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Is your scar darker or lighter compared to surrounding skin?

No	<input type="checkbox"/>		
Yes, it looks DARKER	Slightly Darker <input type="checkbox"/>	Fairly Darker <input type="checkbox"/>	Much Darker <input type="checkbox"/>
Yes, it looks LIGHTER	Slightly Lighter <input type="checkbox"/>	Fairly Lighter <input type="checkbox"/>	Much Lighter <input type="checkbox"/>

3. Do you think your scar is red at all?

No	<input type="checkbox"/>		
Yes, it looks RED	Slightly Red <input type="checkbox"/>	Fairly Red <input type="checkbox"/>	Very Red <input type="checkbox"/>

Patient Id.

Date of completion

Month:

4. In terms of length, my scar is:

Very short	Short	Long	Very long
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

5. In terms of width, my scar is:

Very thin	Thin	Wide	Very wide
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. How flat do you think your scar is, compared to your surrounding skin?

It is FLAT and LEVEL	<input type="checkbox"/>		
It is RAISED	Slightly Raised <input type="checkbox"/>	Fairly Raised <input type="checkbox"/>	Very Raised <input type="checkbox"/>
It is SUNKEN	Slightly Sunken <input type="checkbox"/>	Fairly Sunken <input type="checkbox"/>	Very Sunken <input type="checkbox"/>

7. Does your scar look shiny to you?

No	<input type="checkbox"/>		
Yes, it looks SHINY	Slightly Shiny <input type="checkbox"/>	Fairly Shiny <input type="checkbox"/>	Very Shiny <input type="checkbox"/>

8. Does your scar feel 'lumpy' at all?

No	<input type="checkbox"/>		
Yes, it feels LUMPY	Slightly Lumpy <input type="checkbox"/>	Fairly Lumpy <input type="checkbox"/>	Very Lumpy <input type="checkbox"/>

9. In terms of texture, my scar feels:

Very smooth	Smooth	Rough	Very rough
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. Overall what do you think of the appearance of your scar?

Excellent	Good	Okay	Poor	Very Poor
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

II. SYMPTOMS**11. Does your scar ever itch at all?**

No	<input type="checkbox"/>		
Yes, it is ITCHY	Sometimes <input type="checkbox"/>	Often <input type="checkbox"/>	Always <input type="checkbox"/>
	<i>AND when it is itchy, it is:</i>		
	Slightly Itchy <input type="checkbox"/>	Fairly Itchy <input type="checkbox"/>	Very Itchy <input type="checkbox"/>

12. Does your scar cause you pain at all?

No	<input type="checkbox"/>		
Yes, it is PAINFUL	Sometimes <input type="checkbox"/>	Often <input type="checkbox"/>	Always <input type="checkbox"/>
	<i>AND when it hurts, it is:</i>		
	Slightly Painful <input type="checkbox"/>	Fairly Painful <input type="checkbox"/>	Very Painful <input type="checkbox"/>

Patient Id.

Date of completion

Month:

13. Is your scar ever uncomfortable at all?

No	<input type="checkbox"/>		
Yes, it is UNCOMFORTABLE	Sometimes <input type="checkbox"/>	Often <input type="checkbox"/>	Always <input type="checkbox"/>
<i>AND when it is uncomfortable, it is:</i>			
	Slightly Uncomfortable <input type="checkbox"/>	Fairly Uncomfortable <input type="checkbox"/>	Very Uncomfortable <input type="checkbox"/>

14. Does your scar ever feel numb at all?

No	<input type="checkbox"/>		
Yes, it feels NUMB	Sometimes <input type="checkbox"/>	Often <input type="checkbox"/>	Always <input type="checkbox"/>
<i>AND when it feels numb, it is:</i>			
	Slightly Numb <input type="checkbox"/>	Fairly Numb <input type="checkbox"/>	Very Numb <input type="checkbox"/>

15. Do you ever get odd sensations in your scar e.g. 'tightening', 'pulling' or 'pins and needles'?

No	<input type="checkbox"/>		
Yes, I get ODD sensations	Sometimes <input type="checkbox"/>	Often <input type="checkbox"/>	Always <input type="checkbox"/>

16. Does your scar ever catch on things, e.g. clothes?

No	<input type="checkbox"/>		
Yes, it does CATCH on things	Sometimes <input type="checkbox"/>	Often <input type="checkbox"/>	Always <input type="checkbox"/>

17. Overall, how troublesome are the symptoms from your scar?

Not at all troublesome	A little troublesome	Fairly troublesome	Very troublesome	Unbearable
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

III. SCAR CONSCIOUSNESS**18. How noticeable is your scar to you?**

Not at all noticeable	Slightly noticeable	Fairly noticeable	Very noticeable
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

19. How noticeable do you think your scar is to others?

Not at all noticeable	Slightly noticeable	Fairly noticeable	Very noticeable
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20. Do you think people ever stare at your scar?

No, never	<input type="checkbox"/>		
Yes, people stare	Sometimes <input type="checkbox"/>	Often <input type="checkbox"/>	Always <input type="checkbox"/>

21. Do you make an effort to try and hide your scar?

No, never	<input type="checkbox"/>		
Yes, I try and hide the scar	Sometimes <input type="checkbox"/>	Often <input type="checkbox"/>	Always <input type="checkbox"/>

Patient Id.

Date of completion

Month:

22. How often do you think about your scar?

Never	Sometimes	Often	Always
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

23. How often do you look at your scar?

Never	Sometimes	Often	Always
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

24. Overall, how self-conscious are you of your scar?

Not at all Self-conscious	Slightly Self-conscious	Fairly Self-conscious	Very Self-conscious
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Patient Scar Assessment Questionnaire (PSAQ)**Part II: Satisfaction Rating****I. SATISFACTION WITH APPEARANCE****25. How satisfied are you with the way the colour of your scar matches with surrounding skin?**

Very satisfied	Satisfied	Dissatisfied	Very Dissatisfied
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

26. How satisfied are you with the redness of your scar?

Very satisfied	Satisfied	Dissatisfied	Very Dissatisfied
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

27. How satisfied are you with the length of your scar?

Very satisfied	Satisfied	Dissatisfied	Very Dissatisfied
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

28. How satisfied are you with the width of your scar?

Very satisfied	Satisfied	Dissatisfied	Very Dissatisfied
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

29. How satisfied are you with the height of your scar compared to surrounding skin?

Very satisfied	Satisfied	Dissatisfied	Very Dissatisfied
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

30. How satisfied are you with the texture of your scar (the way it feels to touch)?

Very satisfied	Satisfied	Dissatisfied	Very Dissatisfied
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

31. How satisfied are you with the 'lumpiness' of your scar?

Very satisfied	Satisfied	Dissatisfied	Very Dissatisfied
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Patient Id.

Date of completion

Month:

32. How satisfied are you with the 'shininess' of your scar?

Very satisfied	Satisfied	Dissatisfied	Very Dissatisfied
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

33. Overall, how satisfied are you with the appearance of your scar?

Very satisfied	Satisfied	Dissatisfied	Very Dissatisfied
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

II. SATISFACTION WITH SYMPTOMS**34. How satisfied are you with the itchiness from your scar?**

Very satisfied	Satisfied	Dissatisfied	Very Dissatisfied
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

35. How satisfied are you with the amount of pain from your scar?

Very satisfied	Satisfied	Dissatisfied	Very Dissatisfied
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

36. How satisfied are you with the amount of discomfort from your scar?

Very satisfied	Satisfied	Dissatisfied	Very Dissatisfied
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

37. How satisfied are you with the amount of numbness from your scar?

Very satisfied	Satisfied	Dissatisfied	Very Dissatisfied
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

38. How satisfied are you with the amount of odd sensations you get from your scar?

Very satisfied	Satisfied	Dissatisfied	Very Dissatisfied
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

39. Overall, how satisfied are you with the amount of trouble you get from the symptoms from your scar?

Very satisfied	Satisfied	Dissatisfied	Very Dissatisfied
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>