

## Original

# Cross-cultural adaptation of the Portuguese version of the patient-generated subjective global assessment

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### Abstract

**Introduction:** The cross-cultural adaptation of the Patient-Generated Subjective Global Assessment is important so it can be used with confidence in Portuguese language.

**Objective:** To perform a cross-cultural adaptation of the Portuguese version of the Patient-Generated Subjective Global Assessment and to estimate its intrarater reliability.

**Material and methods:** This is a validation study. Face Validity was classified by 17 health professionals and 10 Portuguese language specialists. Idiomatic, semantic, cultural and conceptual equivalences were analyzed. The questionnaire was completed by 20 patients of the Amaral Carvalho Hospital (Jaú, São Paulo, Brazil) in order to verify the Comprehension Index of each item. Therefore, 27 committee members classified each item into "essential", "useful, but not essential" and "not necessary", in order to calculate the Content Validity Ratio. After, this version of the questionnaire was applied twice to 62 patients of the hospital cited above. The intrarater reliability of the nutritional status analyzed by Patient-Generated Subjective Global Assessment was estimated by Kappa statistics.

**Results:** The Portuguese version of the Patient-Generated Subjective Global Assessment presented 10 incomprehensible expressions. The items "a year ago weight" and "dry mouth symptom" presented the lowest Content Validity Ratio. Substantial intrarater reliability ( $k = 0.78$ ,  $p = 0.001$ ) was observed.

**Conclusion:** The cross-cultural adaptation of the Portuguese version of the Patient-Generated Subjective Global Assessment became simple and understandable for Brazilian patients. Thus, this version of the Patient-Generated Subjective Global Assessment was considered a valid and a reliable method.

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### ADAPTACIÓN TRANSCULTURAL DE LA VERSIÓN PORTUGUESA DE LA VALORACIÓN SUBJETIVA GLOBAL-GENERADA POR EL PACIENTE

### Resumen

**Introducción:** la adaptación transcultural del Patient-Generated Subjective Global Assessment es importante ya que se puede utilizar con confianza en la lengua portuguesa.

**Objetivo:** realizar una versión de adaptación transcultural al portugués del Patient-Generated Subjective Global Assessment y estimar su fiabilidad intra-observador.

**Material y métodos:** se trata de un estudio de validación. La validez aparente fue clasificada por 17 profesionales sanitarios y 10 lingüistas portugueses. Se analizaron las equivalencias idiomáticas, semánticas, culturales y conceptuales. El cuestionario fue completado por 20 pacientes del Hospital Amaral Carvalho (Jaú, São Paulo, Brasil) con el fin de verificar el Índice de comprensión de cada ítem. Por lo tanto, 27 miembros del comité clasificaron cada ítem en "esencial", "útil pero no esencial", e "innecesario" con el fin de calcular el cociente de validez del contenido. Después, se aplicó esta versión del cuestionario dos veces a 62 pacientes del hospital antes mencionado. La fiabilidad intra-observador del estado estado nutricional analizada por el Patient-Generated Subjective Global Assessment se estimó mediante los estadísticos Kappa.

**Resultados:** la versión portuguesa del Patient-Generated Subjective Global Assessment presentaba 10 expresiones incomprensibles. Los ítems "a year ago weight" y "dry mouth symptom" mostraron el menor cociente de validez del contenido. Se observó una fiabilidad intra-observador significativa ( $k = 0,78$ ,  $p = 0,001$ ).

**Conclusión:** La adaptación transcultural de la versión portuguesa del Patient-Generated Subjective Global Assessment fue sencilla y comprensible para los pacientes brasileños. Por lo tanto, esta versión del Patient-Generated Subjective Global Assessment se consideró un método válido y fiable.

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Palabras clave: Neoplasias. Estado nutricional. Caquexia. Estudios de validación. Psicometría.

## Introduction

Cancer represents a major global public health problem. Worldwide, it accounts for 7.1 million deaths annually.<sup>1</sup> Estimates predict that, in 2010, there will be 236.240 new cases in men and 253.030 in women in Brazil.<sup>2</sup> The main cancer symptoms are progressive and involuntary weight loss, anorexia, asthenia, anemia and immunosuppression.<sup>3,4</sup>

Malnutrition in patients with cancer is due to a variety of mechanisms involving the tumor, the host response to the tumor and/or anticancer therapies.<sup>3</sup> Martín Salces et al.<sup>5</sup> define malnutrition as a symptom and a clinical sign of cancer, even prior to diagnosis. Malnutrition in cancer patients can be defined as cachexia, which leads to morbidity and mortality in patients with advanced cancer<sup>3,6</sup> and it is associated with longer hospitalization stay, increased number of rehospitalization, increased healthcare costs, increased risk of death and decreased treatment tolerance.<sup>5,7,8</sup>

To assess nutritional status in surgical patients, specifically the nutritional risk, Detsky et al.<sup>9</sup> developed the Subjective Global Assessment (SGA) of Nutritional Status, defining early organic and functional disorders.<sup>10,11,12</sup>

According to some authors, the SGA of Nutritional Status presents the following advantages: easy to use, cost-effective and can be used by any health professional.<sup>13,14</sup> On the other hand, it seems not to be precise in detecting small variations, being limited in observing the patient's evolution.<sup>13,14</sup>

The Patient-Generated Subjective Global Assessment (PG-SGA) was adapted from the SGA of Nutritional Status and developed specifically for oncology patients.<sup>6</sup> It emphasizes the common symptoms of treatment and includes the physical examination and the form of defining the result of the original SGA. In practice, the patient is required to complete the first part of the instrument, which includes anthropometric measurements, food intake, symptoms and functional capacity. The remaining sections (diagnosis, metabolic demand, physical examination and nutritional status) are completed by a health professional.<sup>6</sup>

Examining the psychometric characteristics of this instrument, Bauer et al.<sup>15</sup> verified an adequate reliability ( $\alpha = 0.64$ ), sensibility (0.98) and specificity (0.82), ensuring its validity. Isenring et al.<sup>16</sup> found values of sensibility and specificity varying from 1.0 to 0.92, respectively. They also estimated the reproducibility of this method, obtaining an almost perfect concordance ( $k = 0.83$ ).

The PG-SGA was developed by Ottery,<sup>6</sup> in English, and translated into Portuguese by Barbosa-Silva.<sup>17</sup> However, once the method for screening has great importance to design the treatment, reliable and valid instruments must be used.<sup>18</sup> Thus, the cross-cultural adaptation of the PG-SGA is important so it can be used with confidence in Portuguese.

It is important to clarify that a cross-cultural adaptation involves the literal translation of words and sentences

from one language to another and takes into consideration the cultural context and life style of the target public.<sup>19,20</sup>

Cross-cultural adaptation can provide further explanation and comprehension about communication disorder and its specificities in different languages. Therefore, several steps must be strictly followed so that the instrument can be safely used in different cultural contexts, once the use of foreign instruments inaccurately adapted may put in risk the validity and reliability of the evaluations.<sup>20</sup>

Therefore, the aim of the present study is to perform a cross-cultural adaptation and to assess the intrarater reliability of the Portuguese version of the PG-SGA.

## Materials and methods

### *Study design and instrument*

In this validation study, the Portuguese version of the PG-SGA, by Barbosa-Silva,<sup>17</sup> developed in English by Ottery,<sup>6</sup> was used to classify oncology patients into (a) well-nourished, (b) moderately or suspected of being malnourished, and (c) severely malnourished.

Once the patient is required to complete the first four sections of the PG-SGA in order to determine the nutritional status, the questionnaire must be simple, coherent, and easy to understand. Therefore, the Face and Content Validity are necessary.

### *Face validity*

For face validity, a multidisciplinary group of 17 health professionals (Nutrition and Oncology) and 10 Portuguese-language specialists, high school and college Portuguese teachers (committee A), were recruited. Idiomatic, semantic, cultural and conceptual equivalences were analyzed aiming to obtain concordance and consensus of the instrument.

Twenty oncology patients of Amaral Carvalho Hospital (Jaú, São Paulo, Brazil), submitted to treatment in March, 2008, completed the questionnaire. The comprehension of each item of the questionnaire (Comprehension Index) was verified. For that, committee A and patients analyzed each item and indicated the ones which meanings were not clear and suggested new terms for them. When the Comprehension Index was  $\leq 80\%$ , the item was reformulated and re-submitted to pretest.<sup>20</sup>

When the Comprehension Index was  $> 80\%$ , the content was considered valid.

The number of committee members and patients for the pretest was in accordance with the literature.<sup>21,22</sup>

### *Content validity*

For content validity of the instrument, other 27 Nutritional and Oncology clinicians (committee B)

**Table I**  
*Frequency of the words considered difficult to understand (translation) and their substitution options (final version)*

Translation	Committee (n = 27)		Patients (n = 20)		Final version
	N	%	N	%	
Constipação	19	70.37	20	100.00	Intestino preso
Lesões na boca	10	37.04	14	70.00	Feridas (lesões) na boca
Capacidade funcional	11	40.74	20	100.00	Atividade diária
Suplementos nutricionais	14	51.85	20	100.00	Suplementos nutricionais (Sustagen®, Ensure®, Nutren Active®, Nutridrink®, Fortidrink®)
Ingestão alimentar	8	29.63	10	50.00	Alimentação
Pouca comida sólida	6	22.22	12	60.00	Pouca comida
Náusea (vomitar)	15	55.56	18	90.00	Estômago embrulhado (vontade de vomitar)
Habitualmente	9	33.33	8	40.00	Normalmente
Inalterada/alterada	9	33.33	8	40.00	Não mudou/mudou
Limitação	1	3.70	10	50.00	Limitação

were recruited. The items were classified into (a) “essential”, (b) “useful, but not essential”, and (c) “not necessary”, according to Silva & Ribeiro-Filho.<sup>22</sup>

For each item, the number of professionals classifying it “essential” was computed. The item was considered valid when  $\geq 50\%$  of the committee classified it essential. The content validity of each item is greater when a larger number of committee members classify it essential. To compute this index, the Content Validity Ratio (CVR) was used as follows:

$$CVR = \frac{n - \left(\frac{N}{2}\right)}{\frac{N}{2}} \quad (1)$$

Where:

CVR: Content Validity Ratio

n = number of committee members that classified the *item* “essential”

N = total number of committee members

The content validity ratio was calculated for each item during the validity process.

The study was approved by the Ethics Committee Research of Amaral Carvalho Hospital (CEPFHAC-01/08) and written consent was obtained from all the participants.

### Reliability

To estimate the reliability of the nutritional status screening, the PG-SGA Portuguese version was applied by a single examiner, in two different moments, with 2 days interval between them. In the period of April to August of 2008, 483 oncology patient were assisted in the Infirmary of Clinical

Oncologia of the Amaral Carvalho Hospital (Jaú, São Paulo), and 62 patient over of 18 years of age consented in participating in the research.

Patients in intensive care unit, terminal patients or amputee patients were not included in the sample. The intrarater reliability was estimated by Kappa statistics. The level of significance was 5%.

### Results

#### Face validity and Content validity

The mean age of the patients was  $51.20 \pm 8.77$  (ranging from 35-65 years). Fifty-five percent (11) were male. Twenty percent were single, 45% married, 20% widow, and 15% divorced.

Sixty-five percent of the patients presented incomplete primary school followed by complete elementary school or incomplete high school (35%) (low education). Three patients were diagnosed with breast cancer, 9 gastrointestinal, 7 head and neck and 1 genitourinary.

The committee members, composed by physicians, nurses, nutritionists and pharmacists, were all employees of Amaral Carvalho Hospital and work directly with oncology patients.

Table I shows the words considered difficult to understand by the committee members and patients, and their substitution options.

After reformulating the items according to the suggestions presented on Table 1, the instrument was completed again by the same patients. The comprehension index was  $> 80$  to all the items and the Content Validity was performed (table II).

The items “a year ago weight” and “dry mouth symptom” presented the lowest CVR. However, since these items presented some content validity, they were maintained in the questionnaire.

**Table II**  
*Content Validity Ratio (CVR) of the Patient-Generated Subjective Global Assessment (PG-GSA) items*

<i>Items</i>	<i>Essential</i>	<i>Useful, but not essential</i>	<i>Not necessary</i>	<i>CVR</i>
<i>Weight</i>				
Currently weigh	25	2	–	0.8518
Currently height	25	2	–	0.8518
A year ago weight	15	10	2	0.1111
Six months ago weight	23	3	1	0.7037
Weight change during the past weeks	23	4	–	0.7037
<i>Food Intake</i>				
Food intake change during the past month	24	3	–	0.7778
Actual food intake	26	1	–	0.9259
<i>Symptoms. I have had the following problems that kept me from eating enough:</i>				
No problems eating	22	4	1	0.6296
No appetite, just did not feel like eating	22	5	–	0.6296
Náusea	25	2	–	0.8518
Vomiting	27	–	–	1.0000
Constipation	24	3	–	0.7778
Diarrhea	27	–	–	1.0000
Mouth sores	27	–	–	1.0000
Dry mouth	18	9	–	0.3333
Pain	24	3	–	0.7778
Things taste funny or have no taste	22	4	1	0.6296
Smells bother me	20	6	1	0.4815
<i>Functional capacity. Over the past month, I would rate my activity as generally:</i>				
Normal with no limitations	23	4	–	0.7037
Not my normal self, but able to be up and about with fairly normal activities	22	5	–	0.6296
Not feeling up to most things, but in bed less than half the day	25	2	–	0.8518
Able to do little activity and spend most of the day in bed or chair	24	3	–	0.7778
Pretty much bedridden, rarely out of bed	26	1	–	0.9259

The final version of the questionnaire is shown in figure 1.

### *Reliability*

Sixty-two patients, being 55 (88.71%) men, participated in the study. The mean age was 50.66±9.39 years, ranging between 18 and 65 years. In relation to education, 4(6.45%) presented incomplete primary school, 39 (62.90%), incomplete elementary school, 8 (12.90%) incomplete high school and 11(17.75%) incomplete college degree.

Among them, 31 (50.00%) presented head and neck cancer diagnosis, 22 (35.48%) gastrointestinal, 2 (3.23%) breast cancer, 2 (3.23%) genitourinary, 2 (3.23%) gynecological, 1 (1.61%) soft tissue sarcoma, 1 (1.61%)

osteosarcoma, and 1 (1.61%) skin cancer. In relation to treatment, 58 (93.55%) went through chemotherapy, 3 (4.84%) through chemotherapy and radiotherapy sessions and 1 (1.61%) only through radiotherapy.

Table III presents the nutritional risk classification of the patients, analyzed in two different stages.

Using the PG-SGA Portuguese version, a “substantial agreement” was obtained<sup>23</sup> (k = 0.78, p = 0.001).

### **Discussion**

The nutritional status identification in oncology patients is of great importance. On the last years, the use of the PG-SGA, by Ottery,<sup>6</sup> has increased because it enables the assessment of nutritional risks using a wide and non-invasive approach.

<p><b>Avaliação Nutricional Subjetiva - Produzida pelo Paciente (ANS-PPP) adaptada culturalmente para o português do Brasil.</b></p> <p>Ao paciente: Preencha os espaços em branco (complete):</p> <p>Caso você não souber responder, não marque nada nos espaços. Consulte o pesquisador.</p>
<p><b>A. História</b></p> <p><b>1-Mudança de Peso</b></p> <p>Resumo do meu peso habitual e atual:          Meu peso normal é de _____ kg. Tenho 1m e _____ cm de altura.          Há um ano atrás meu peso era de _____ kg. Há seis meses atrás, eu pesava _____ kg.</p>
<p><b>Marque com X:</b></p> <p>Durante as duas últimas semanas meu peso:</p> <p><input type="checkbox"/> diminuiu  <input type="checkbox"/> não mudou  <input type="checkbox"/> aumentou.</p>
<p><b>2-Alimentação</b></p> <p>Em comparação ao normal, eu poderia considerar que minha alimentação <u>durante o último mês</u>:</p> <p><input type="checkbox"/> não mudou  <input type="checkbox"/> mudou: <input type="checkbox"/> estou comendo mais que o normal  <input type="checkbox"/> estou comendo menos que o normal</p> <p><u>Agora</u> estou me alimentando com:</p> <p><input type="checkbox"/> pouca comida  <input type="checkbox"/> muito pouca comida (quase nada)  <input type="checkbox"/> apenas suplementos nutricionais (Sustagen®, Ensure®, Nutren Active®, Nutridrink®, Fortidrink®)  <input type="checkbox"/> apenas líquidos  <input type="checkbox"/> no momento minha alimentação é feita com auxílio de sonda.</p>
<p><b>3-Sintomas</b></p> <p>Durante as <u>últimas 2 semanas</u>, eu tenho tido os seguintes <u>problemas</u> que me impedem de comer o suficiente (marque todos os que estiver sentindo):</p> <p><input type="checkbox"/> Não tenho problema para me alimentar  <input type="checkbox"/> Não tenho problemas para me alimentar, mas estou sem vontade de comer  <input type="checkbox"/> Estômago embrulhado (Vontade de vomitar)  <input type="checkbox"/> Vômito  <input type="checkbox"/> Intestino preso  <input type="checkbox"/> Diarréia  <input type="checkbox"/> Feridas (lesões) na boca  <input type="checkbox"/> Boca seca  <input type="checkbox"/> Dor: Onde ? : _____  <input type="checkbox"/> As coisas têm gosto estranho ou não têm gosto  <input type="checkbox"/> O cheiro da comida me enjoa</p>
<p><b>4-Atividade Diária</b></p> <p>Durante o <u>último mês</u>, eu consideraria minha <u>atividade</u> como:</p> <p><input type="checkbox"/> normal, sem nenhuma limitação  <input type="checkbox"/> não no meu normal, mas consigo realizar minhas atividades satisfatoriamente  <input type="checkbox"/> sinto-me incapaz de realizar a maioria das minhas atividades, mas passo pouco tempo na cama (menos da metade do dia)  <input type="checkbox"/> sinto-me capaz de fazer pouca atividade e passo a maior parte do dia na cadeira ou na cama  <input type="checkbox"/> fico quase sempre acamado, raramente fora da cama</p>
<p><b>O restante do questionário será preenchido pelo médico, enfermeiro ou nutricionista. Obrigado pela sua colaboração.</b></p>
<p><b>5-A. História (continuação)</b></p> <p>Doença e suas relações com as necessidades nutricionais</p> <p>Diagnóstico primário (especificar) _____</p> <p>Estadiamento, se conhecido _____</p> <p>Demanda metabólica (estresse): _____ nenhuma _____ baixa _____ moderada _____ alta</p> <p><b>B. Exame Físico (0=normal, 1=leve, 2=moderada, 3=grave)</b></p> <p>_____ perda de gordura subcutânea (tríceps e tórax) _____ perda muscular (quadríceps e deltóide)          _____ edema de tornozelo _____ edema sacral _____ ascite</p> <p><b>C. Resultado (escolha um)</b></p> <p>_____ A: Bem Nutrido _____ B: Moderadamente desnutrido (ou suspeita) _____ C: Gravemente desnutrido</p>

Fig. 1.—The cross-cultural adaptation of the Brazilian-Portuguese version of the Patient-Generated Subjective Global Assessment (PG-SGA).

Several authors have used this method as a nutritional assessment tool<sup>16,24,25,26,27,28</sup> pointing to its high reliability and validity. Moreover, the American Society of Parenteral

and Enteral Nutrition and the European Society for Clinical Nutrition and Metabolism have also recommended the use of the PG-SGA to identify nutritional status.



**Table III**  
*Nutritional risk classification of the patients studied, analyzed in two different stages*

<i>First stage</i>	<i>Second stage</i>			<i>Total</i>
	<i>Severely malnourished</i>	<i>Moderately or suspected of being malnourished</i>	<i>Well-nourished</i>	
Severely Malnourished	5	–	–	5
Moderately or Suspected of Being Malnourished	3	18	4	25
Well-Nourished	–	1	31	32
Total	8	19	35	62

Although the PG-SGA alone can not be used to diagnose the nutritional status, it can be useful to detect individuals with nutritional risk. However, it is important to remember that, in order to obtain accurate data, the patient must complete the instrument correctly.

Therefore, the questionnaire must be developed considering the cultural context of the patients. Nevertheless, there are few methods analyzing all these aspects, limiting the quality of the methods, mainly in epidemiologic studies.<sup>29,30</sup>

In Brazil, the PG-SGA version translated by Barbosa-Silva<sup>17</sup> has been used. However, the translation of questionnaires may not be successful if the linguistic and cultural differences among countries are not considered.<sup>31</sup> Thus, in the present study an accurate cross-cultural and content adaptation<sup>19,20</sup> of the Portuguese version of the PG-SGA was performed.

The PG-SGA adaptations (table I) enabled an improvement in the comprehension of the items. In this process, the participation of a multidisciplinary committee and oncology patients were important for the substitution of the words considered difficult to understand. Ten expressions were substituted and became understandable for the patients. In the Content Validity (table II), we opted to maintain all the items from the original version.

The PG-SGA reliability can be considered substantial ( $k = 0.78$ ), indicating concordance in the screening of nutritional status. The two-day period used between evaluations was defined considering that oncology patients are submitted to therapies with significant collateral effects, which could alter fast the clinical status and, consequently, their nutritional status. Abreu et al.<sup>32</sup> point out that the time interval between the applications of measurement instruments are not necessarily associated with the reliability results, since it is chosen adequately according to a study variable.

One of the factors which could interfere the reliability of the results is the patients' understanding of the questionnaire items. Thus, the face validation of the PG-SGA version was performed carefully with low education patients (up to incomplete secondary school). This can have assisted the instrument comprehension and, consequently, the adequate reliability of

it, since it can be observed that most of the patients presented low education levels.

Among the limitations of this study it is worth to mention the non-probabilistic sampling design. However, validation studies with this type of design are commonly used. Considering that the validity and reliability of an instrument are intrinsically related to the characteristics of the sample, it is expected that this study will contribute to provide an adequate instrument in Portuguese, as well as to the exposure of validation techniques that could be used in future studies with different samples.

## Conclusion

The cross-cultural adaptation of the Portuguese version of the Patient-Generated Subjective Global Assessment (PG-SGA) became simple and understandable for Brazilian patients, presenting idiomatic and cultural equivalences. This version of the PG-SGA was found to be a valid and a reliable method. Future researches are necessary to assess the construction and criteria validity of the instrument.

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