Cross-cultural adaptation to Portuguese of tools for assessing the nutritional status of patients on dialysis

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ABSTRACT

Introduction: The 7 point subjective global assessment (7p-SGA) and the malnutrition inflammation score (MIS) are tools commonly applied for the assessment of nutritional status in dialyzed patients. Both were developed in English and require translation to Portuguese to be applied in Brazil. The cross-cultural equivalence process ensures semantic and measurement equivalence of a translated tool. **Objective:** To perform the cross-cultural adaptation to Portuguese of the 7p-SGA and MIS. **Methods:** Semantic equivalence was performed by the back-translation method and by assessing the degree of similarity between the original instrument and that back-translated from Portuguese to English (Back-translation). The assessment of the equivalence measurement was made by evaluating the intern reliability (Cronbach's α) and interobserver reliability (two observers). One-hundred and one elderly patients on hemodialysis (HD) were included. **Results:** Both instruments showed a high degree of semantic similarity with results close to the maximum value (7p-SGA 96.8 ± 7.8 and MIS 99.6 ± 1.4). The intern consistency showed a Cronbach's α value for 7p-SGA of 0.72 and of 0.53 for MIS. The interobserver reproducibility of 7p-SGA was moderate (intraclass coefficient [ICC] = 0.74 [95% CI: 0.58; 0.84]), while for MIS was strong (ICC = 0.88 [95% CI: 0.81; 0.93]). **Conclusion:** The 7p-SGA and MIS translated into Portuguese can be applied for assessing the nutritional status of elderly patients on HD. Studies testing the applicability of these instruments in adult patients on HD and in peritoneal dialysis should yet be performed.

Keywords: dialysis; malnutrition; nutrition assessment.

INTRODUCTION

Nutritional status assessment is important in the care of patients with chronic kidney disease (CKD). International treatment guides for patients with CKD as the National Kidney Foundation/ Clinical Practices Guidelines for Chronic Kidney Disease (Nutrition) (Nutrition K/DOQI),[1] the European Best Practice Guidelines in Nutrition (EBPG),[2] as well as the Nutritional Therapy Guidelines for Hemodialysis Patients of the Brazilian Society of Parenteral and Enteral Nutrition (SBNPE),[3] recommend the use of objective and subjective methods to assess nutritional status, in order to obtain a more accurate nutritional diagnosis.

The most used objective methods to assess the nutritional status of CKD patients in clinical practice include anthropometry, bioelectrical impedance, handgrip strength, feed intake data and laboratorial tests.[1-3] With respect to the combined methods for assessing nutritional status, Subjective Global Assessment (SGA) and the Malnutrition and Inflammation Score (MIS) are the most commonly used subjective instruments in this group of patients.[4]

SGA is considered an instrument that encompasses subjective and objective aspects of the physical and clinical history of the patient and can be applied by any properly trained health care professional.[4] This tool is recommended by the Nutrition-K/DOQI, the EBPG and the SBNPE for the nutritional assessment of patients in dialysis.[1-3] SGA was originally developed by Detsky *et al.*,[5] in 1984,

with the aim of assessing the nutritional status of surgical patients. According to the final outcome of the instrument, nutritional status is classified as: (A) Well Nourished; (B) Mildly to Moderately Malnourished, or (C) Severely Malnourished. Since then, this instrument has been redesigned by researchers in diverse populations with the goal to increase its reproducibility and predictive value.[6]

The first SGA validation for patients on hemodialysis (HD) and peritoneal dialysis (PD) was performed by Enia *et al.*,[7] in 1993, demonstrating that patients with protein energy malnutrition (PEM) diagnosed by SGA had lower values of albumin, low body fat content, short arm muscle circumference and low protein intake when compared to well-nourished patients. Subsequently, a multicenter study involving patients on PD proposed an expansion to the nutritional status classification scale of the original SGA (A, B and C) to 7 points (SGA-7p), in which the lower the number of points, the greater the degree of malnutrition. The results showed a strong association between nutritional status deterioration and increased mortality, in which a 1-point reduction in the SGA-7p was associated with a 25% increase in mortality likelihood.[8]

In 2007, the SGA-7p has been validated for patients on HD by Steiber *et al.*,[9] through concurrent validation with objective measures of nutritional status. In another study, also using the SGA-7p, it was shown that patients on dialysis (HD and PD) classified as malnourished had a higher mortality risk.[10] After these studies, several others have employed SGA-7p to assess the nutritional status of patients with CKD.[11-13]

In 2001, Kalantar-Zadeh *et al.*[14] modified the original SGA and proposed a modified version called dialysis malnutrition score which subsequently gave rise to the malnutrition inflammation score (MIS). The MIS is a tool that results in a score between 0 and 30 points, in which 70% of the issues are common to the SGA and the rest are objective components such as albumin, total iron binding capacity (TIBC) and body mass index (BMI). In MIS, the higher the score, the worse the nutritional status. In studies including HD patients, it was shown that values indicative of malnutrition were associated with increased risk of hospitalizations and mortality.[14]

A particularity of SGA-7p and the MIS is that, although they are widely used and having been validated for patients for HD, they are originally available in English. Thus, to use it in our country, it would be necessary to make a cultural adaptation of the instrument, including its careful translation into Portuguese. Such approach is important, since the simple translation into a foreign language can compromise the quality of the translated instrument.[15]

The cross-cultural term adaptation is a process that first includes the stages of translation and cultural adaptation of an instrument for use in another country, so that the original and translated instruments have semantic equivalence.[16] This initial step is the basis for assessing the equivalence measurement, another stage of cultural adaptation, which involves evaluating the reliability and validity of the translated instrument.[15] Thus, the process of cultural adaptation seeks, above all, that the translated instrument produces an effect similar to the original so that it can be used safely in another culture.

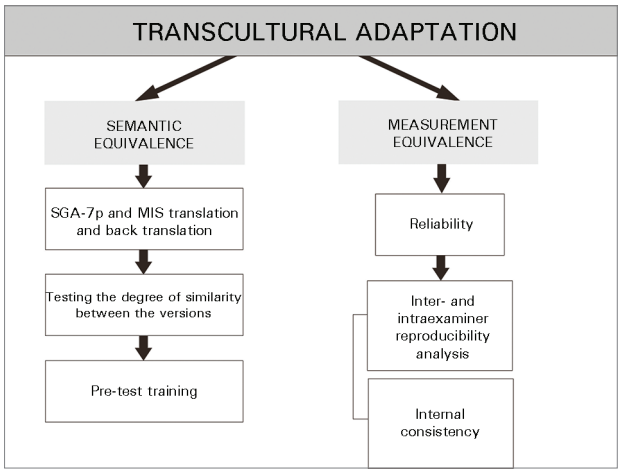
Thus, if we consider that the SGA-7p and MIS are important tools for assessing the nutritional status of patients with CKD and that they have not gone through a process of cultural adaptation, this study aims to carry out a cross-cultural adaptation of the English language into Portuguese for these two instruments.

Patients and methods

This study is observational and sectional, inserted into a larger research project that aims to assess the nutritional status of elderly patients on chronic HD. For the present study, our sample had 101 patients on chronic HD treatment from 5 dialysis centers in the city of Rio de Janeiro. The eligibility criteria include: age > 60 years, HD treatment lasting for more than 3 months under dialysis three times per week on alternate days, with each session lasting 3-4 hours. Elderly institutionalized individuals; wheelchair patients with amputated limbs; patients with cancer, human immunodeficiency virus (HIV) syndrome, Alzheimer's and Parkinson's disease were not included. This project was approved by the Ethics in Research Committee of the State University of Rio de Janeiro and all participants signed a Consent Form.

The process of cultural adaptation was performed by means of semantic equivalence and measurement equivalence,[17,18] as illustrated in Figure 1.

Figure 1. Transcultural adaptation process by semantic and measurement equivalence.



Semantic equivalence

The first phase of the process was the translation of the SGA-7p and the MIS from English into Portuguese using the back-translation method.[18] Therefore, two native Portuguese speaking dietitians who were also fluent in English (CMA and MAK) independently translated the SGA-7p and the MIS from English into Portuguese. The original SGA-7p and MIS models were available for review on the subject.[4] Subsequently, the two versions translated into Portuguese of each instrument were analyzed by two other dietitians (RFL and JC) and they generated a Portuguese synthesis of each instrument. In the second phase, the summary version in Portuguese was retranslated into English by a native bilingual Brazilian who was an English teacher (RB). In the third phase, we tested the degree of similarity of the versions in which a native English speaking dietitian (AS) compared the original English version with the back-translated version of the Portuguese into English. For this, we used a specific form to assess aspects of semantic equivalence based on the referential (denotative) and general (connotative) meaning of the words. For referential meaning, we used visual analogue scales (VAS)[19] as response option. In this scale, the equivalence between pairs of issues is continuously evaluated on a scale of 0 to 100. To assess the general meaning, we used a differential scale with four levels of discrete responses (unchanged, slightly altered, greatly altered and completely altered) of all the questions contained in the instruments (7 questions in the SGA-7p and 12 questions in the MIS).

After completion of this step, we conducted a pre-test with 10 elderly patients in HD in order to assess whether the translated instruments were easily understood by the examiners (dietitians) and the interviewees (patients). There was no difficulty in applying the tools in Portuguese by both parties.

To implement the instruments we used a three-session training. The first session consisted of a theoretical training on the questions of clinical assessment and physical examination. Later there was a practical training in which the dietitian examiners watched the dietitian responsible for training applying the instrument to five patients who were part of the sample from another research protocol, also conducted with elderly patients on HD. In the third session, the trainees applied the instruments under the supervision of a trainer dietitian. This training was conducted over a period of a week at the Interdisciplinary Nutritional Status Assessment Laboratory of (LIAN) of the Institute of Nutrition (INU) of the UERJ. The steps of semantic equivalence of the process are illustrated in Figure 2.

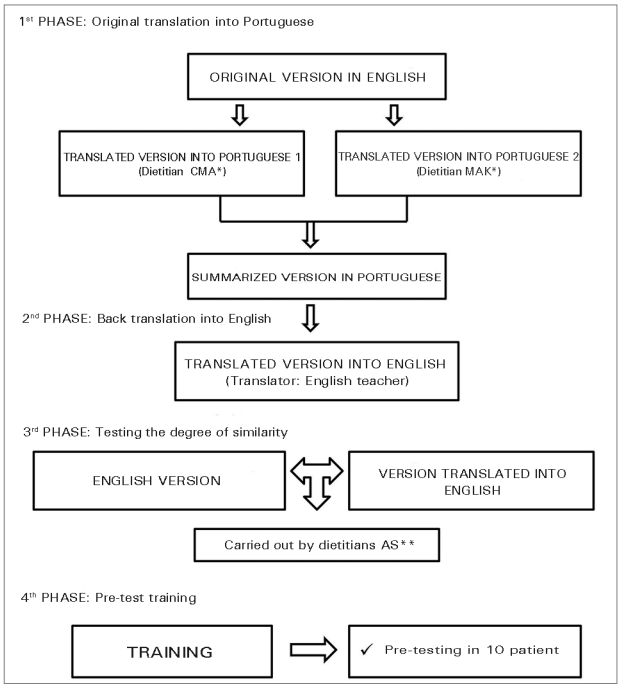
Measurement equivalence

Was assessed the measurement equivalence by measuring the reliability of the instruments translated into Portuguese. A measure of reliability is based on the internal consistency and inter-and intraexaminer reproducibility. In the present study, the interexaminer reproducibility was carried out by two dietitians who applied the SGA-7p and MIS instruments on the same day independently in 54 patients. We did not assess the intraexaminer reliability in this study.

Anthropometric measurements

Body weight (kg; electronic scale, Filizola®, up to 150 kg) and height (m; stadiometer attached to the electronic scale) were evaluated as described by Lohman *et al.*[20] after the HD session. We calculated the BMI (current weight in kilograms divided by their height in meters squared) using the cutoff points proposed by the World Health Organization (WHO).[21]

Figure 2. Translation; back translation; assessing the degree of similarity between the questionnaires; training and pre-testing. * Portuguese native language; ** English native language.



Laboratory analysis

We dosed: Serum urea, albumin (bromocresol green colorimetric method) and TIBC. For albumin, we used the normal range > 3.8 g/dL, as proposed by Fouque *et al.*[22] To calculate urea Kt/V we used the Daugirdas II[23] equation from the midweek dialysis. Urea Kt/V values > 1.2 were considered indicative of good efficiency dialysis.[24]

Statistical analysis

The data are presented as mean ± standard deviation or median and interquartile limits depending on the distribution of the variable. The variable distribution was tested by the Kurtosis test. For measurement equivalence, we employed the reliability testing that assessed SGA-7p and MIS internal consistency and interexaminer reliability. For internal consistency assessment we used the α Cronbach coefficient following Nunnally & Bernstein[25] decision criteria, in which it considers a coefficient value of $\alpha \geq 0.70$ and the α Cronbach coefficient values were considered adequate as we eliminated each item from the instruments. The percentage value of increasing or decreasing the α coefficient vis-à-vis the removal of each item from the instrument had to be substantial (> 10%).[26] The interexaminer reliability was evaluated by the intraclass correlation (ICC), following the decision criteria established by Shrout[27]: ≤ 0.1: absent; > 0.1-0.4: weak; > 0.4-0.6: mild; > 0.6-0.8: moderate; > 0.8-1.0: strong. Statistical tests were performed using the SPSS version 18.0 for Windows (SPSS, Inc., Chicago, USA). Values of $p < 0.05$ were considered significant.

Results

101 patients in HD were evaluated, 75.2% (n = 76) were males aged 70.8 ± 7.0 years with HD duration of 2.3 (1.0, 5.3) years. Regarding comorbidities, hypertension (70.2%, n = 71) and *diabetes mellitus* (29%, n = 29) were the most frequent. The average BMI was 25.5 ± 4.9 kg/m^2, indicating overweight, and 53.5% (n = 54) had a BMI < 25 kg/m^2; 33.7% (n = 34) BMI ≥ 25 kg/m^2 and < 30 kg/m^2 and 12.8% (n = 13) BMI ≥ 30 kg/m^2. Regarding laboratory parameters, there was a good dialysis adequacy (Kt/V = 1.5 ± 0.43) and reduced plasma albumin (3.7 ± 0.4 g/dL). Figure 3 describes the distribution of scores obtained by SGA-7p and MIS. There was a higher patient concentration in the range of 5 to 6 points for SGA-7p and from 6 to 8 and 11 points to MIS.

Semantic equivalence

The results from the Portuguese version (translated) of the instruments SGA-7p and MIS are depicted on Charts 1 and 2.

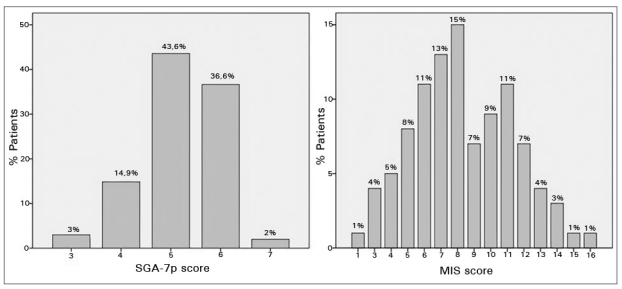
The degree of similarity test between the original instrument in English and the one translated back into English showed a high degree of similarity of the referential meaning for both SGA-7p and the MIS, since the value obtained was close to the maximum score of 100 points (SGA-7p = 96.8 ± 7.8 points and MIS = 99.6 ± 1.4 points). As to the general meaning similarity, we noticed that of the seven questions contained in the instrument, six were found to be unchanged and only one was slightly altered. For the MIS, all the 12 questions of the instrument were considered unchanged.

Measurement equivalence

Reliability

As described on Table 1, we calculated the Cronbach α coefficient values for the SGA-7p and the MIS of the entire instrument, as well as the coefficient when

Figure 3. Nutritional status score distribution assessed by the 7-point Subjective Global Assessment (SGA-7p) and by the Malnutrition and Inflammation Score (MIS) (n = 101).



excluding each item alone from the instrument. We also calculated the item-total correlation, which measures the degree of association of the item with the total scale. The Cronbach's α coefficient was obtained from the use of the SGA-7p and MIS in the 101 patients included in the study.

With respect to the SGA-7p, the Cronbach's α coefficient was satisfactory. The α coefficient estimates showed a slight improvement in the result upon excluding one item alone from the body weight history. The Cronbach's α percentage change upon excluding one of the items was within the expected values (Table 1).

For MIS, the total Cronbach α coefficient value was below the satisfactory value. The α coefficient estimates upon excluding one item from the scale showed better results with the removal of the items: change in body weight and gastrointestinal symptoms. The Cronbach's α percentage of change as we excluded one of the items came to be outside the expected range (> 10% or < 10%) for items: change in body weight, functional capacity, physical examination of body fat and muscle mass (Table 1).

With respect to interexaminer reproducibility (Table 2) for the SGA-7p, the ICC was indicative of moderate reproducibility and, for MIS the ICC was indicative of a strong reproducibility. With respect to the reproducibility values assessed for each item of the instruments, we noticed that on the SGA-7p, items with interexaminer moderate to strong reproducibility were body weight history, gastrointestinal symptoms, functional capacity, comorbidity and physical exam of body fat. For MIS they were: body weight change, gastrointestinal symptoms, comorbidities and functional capacity, which showed moderate to strong interexaminer reproducibility. We did not assess the interexaminer reproducibility of the MIS objective items (BMI, albumin and TIBIC), since these are not subject to interexaminer variability.

Discussion

This study refers to the cultural adaptation from English into Portuguese of two methods used for assessing nutritional status, SGA-7p and MIS. These methods have been widely used in CKD patients on HD, both in clinical practice and in clinical and epidemiological trials.[9-12,28-30] In Brazil, these instruments have been used in a smaller scale, possibly due to the lack of validation of these translations into Portuguese. Thus, the relevance of this study in presenting results that contribute to clinical practice and research regarding the evaluation of nutritional status in patients with CKD.

The Portuguese versions of the SGA-7p and the MIS presented in this paper were obtained by the back-translation method, which ensures the semantic quality of the translated instrument.[16-18] As shown, both SGA-7p and MIS were semantically equivalent, having presented a high degree of similarity vis-à-vis the total and referential meanings between the original version and the one back-translated into English. Other studies in the general population which underwent back-translation were considered well translated with degree of similarity rates matching those found in our study.[31,32] Thus, the translated instruments presented hereby are suitable for use in Brazil.

In our study, we noticed that the Portuguese version of the SGA-7p and MIS showed different internal consistencies. The SGA-7p obtained a Cronbach α coefficient greater than that of the MIS, indicative of adequate internal consistency (α > 0.70). Moreover, on the SGA-7p the assessment of the association between the outcomes of each item composing the instrument with the end result denoted homogeneity of items. This finding is confirmed by the reduced value of the percentage of change in total α by excluding some item (< 10%). In other words, there was no item with greater importance than others to the overall result of SGA-7p. As for the MIS, the Cronbach α did not indicate satisfactory internal consistency (α < 0.70). Indeed, the individual removal of some items from the instrument distanced significantly the total α (> 10%). This difference of internal

Chart 1 Final summarized portuguese version of the 7-point subjective global assessment (SGA-7p)

Subjective Global Assessment - 7 points	
Patient: Date:	
HISTORY	
	Score: 1 to 7
WEIGHT/WEIGHT CHANGE 1. Previous weight (kg) _____ (dry weight from 6 months ago) Current weight (kg) _____ (dry weight today) Weight loss/last 6 months _____ (%)/_____ (Kg): loss since the beginning or the last SGA. 2. Weight change in the past 2 weeks: _____ No change _____ Increase _____ Reduction	
FOOD INTAKE No change (adequate): ____ No change (inadequate) ___ 1. Change: reduced intake: ___ protein: ___ kcal: ___ time observed ___ Liquid only: ___ Liquid hypocaloric: ___ Fasting: ___	
GASTROINTESTINAL SYMPTOMS Symptoms — Frequency — Duration ___ None _____ _____ ___ Anorexia _____ _____ ___ Nausea _____ _____ ___ Vomit _____ _____ ___ Diarrhea _____ _____ Frequency: Never, daily, 2 to 3x/week; 1 to 2 x/week Duration: > 2 weeks/< 2 weeks	
FUNCTIONAL CAPACITY Description — Duration ____ No changes _____ ____ With changes _____ ____ Difficulty walking _____ ____ Difficulty in performing activities (those "normal" to the patient) _____ ____ Light activity _____ ____ Seating down/lying in bed with little or no activity _____ ____ Improved to perform activities _____	
DISEASES AND COMORBIDITIES ASSOCIATED WITH THE NUTRITIONAL NEEDS Main diagnosis: _____ Comorbidities: _____ Requirement: Normal: ____ Increased: ____ Reduced: ____ Acute metabolic stress: None: ____ Low: ____ Moderate: ____ High: ____	
PHYSICAL EXAM	
___ Reduction in subcutaneous fat (triceps, biceps, chest, under the eyes) All areas: ___ Some areas: ___ ___ Muscle reduction (Temporal regions, clavicles, scapulae, ribs, quadriceps, calves, knee and interosseous) All areas: ___ Some areas: ___ ___ Edema (associated with malnutrition/use this item to assess weight changes)	
General score	
Very mild risk for malnourished to well-nourished = 6 to 7 for most of the categories or with continuous or significant categories.	
Mild to moderate malnutrition = 3, 4 or 5. Without clear sighs of severe malnutrition or normal nutritional status.	
Severe malnutrition = 1 or 2 for most categories/with important signs of malnutrition.	

Chart 2 Final summarized version in portuguese of the malnutrition and inflammation score (MIS)

MALNUTRITION AND INFLAMMATION SCORE			
(A) Patient's medical history:			
1. Dry weight change (after HD session) in the past 3 to 6 months			
0	1	2	3
No reduction in dry weight or < 0.5 kg weight reduction.	Weight reduction (≥ 0.5 kg, but < 1kg).	Weight reduction > 1kg buts < 5%.	Weight reduction > 5%.
2. Food intake			
0	1	2	3
Good appetite and no worsening in feeding pattern.	Solid diet intake, but with sub-optimal food intake.	Moderate reduction in food intake, moving on to liquid diet only.	Fasting or hypocaloric liquid diet.
3. Gastrointestinal symptoms			
0	1	2	3
No symptoms with good appetite.	Mild symptoms, little appetite or occasional nausea.	Occasional vomit with moderate GI symptoms.	Frequent diarrhea or vomits or severe anorexia.
4. Functional capacity			
0	1	2	3
Normal functional capacity or with improvement. Feels well.	Occasional difficulty to walk or frequently feeling tired.	Difficulty to perform activities which the patient performs without help (e.g. using the bathroom).	Confined to bed or the chair, with little or no physical activity.
5. Comorbidity, including the number of years in dialysis			
0	1	2	3
In dialysis for less than 1 year, and feeling well.	In dialysis for 1 to 4 years, or with mild comorbidities, excluding MC*.	In dialysis > 4 years, or with moderate comorbidities (including MC*).	Any multiple severe comorbidity, severe, with 2 or more MC*.
(B) Physical exam (according to SGA criterion)			
6.Reduced body fat reserve or reduction in subcutaneous fat (triceps, biceps, chest and under the eyes).			
0	1	2	3
Normal (no change)	Mild	Moderate	Severe
7. Signs of reduced muscle mass (temporal region, clavicle, ribs, quadriceps, knee, interosseous).			
0	1	2	3
Normal (no change)	Mild	Moderate	Severe
8. Body Mass Index (BMI)			
0	1	2	3
BMI ≥ 20 kg/m^2	BMI: 18-19.99 kg/m^2	BMI: 16-17.99 kg/m^2	BMI < 16.00 kg/m^2
9. Serum albumin			
0	1	2	3
Albumin ≥ 4.0 g/dL	Albumin: 3.5 to 3.9 g/dL	Albumin: 3.0 to 3.4 g/dL	Albumin: < 3.0 g/dL
10. Total iron biding capacity (TIBC) or Transferrin**			
0	1	2	3
TIBC ≥ 250 mg/dL	TIBC: 200 a 249 mg/dL	TIBC: 150 a 199 mg/dL	TIBC < 150 mg/dL
Total score = adding up the 10 components above (0-30):			

* MC: Main comorbidities include class III or IV congestive heart failure; AIDS; severe coronary artery disease; moderate to severe chronic obstructive pulmonary disease; severe neurologic sequela; malignant metastatic disease or recent chemotherapy. ** Suggestion of equivalent increments for serum transferrin are > 200 (0); 170 to 200 (1); 140 to 170 (2), and < 140 mg/dL (3).

Table 1 Internal consistency of the 7-point subjective global assessment and malnutrition inflammation score (n = 101)

Instrument item	A	d (%)
Total SGA-7p	0.72[a]	
Body weight history	0.73[b]	2.1
Body weight change	0.71[b]	-1.1
Food intake	0.67[b]	-6.7
Gastrointestinal symptoms	0.69[b]	-4.2
Functional capacity	0.65[b]	-8.8
Comorbidities	0.70[b]	-2.2
Physical exam: Fat	0.68[b]	-5.2
Muscle mass	0.66[b]	-8.1
Total MIS	0.53[a]	
Body weight change	0.59[b]	11.74[c]
Food intake	0.51[b]	-2.84
Gastrointestinal symptoms	0.55[b]	3.97
Functional capacity	0.46[b]	-12.5[c]
Comorbidities	0.53[b]	1.13
Physical exam: Fat	0.41[b]	-23.1[c]
Muscle mass	0.41[b]	-22.0[c]
Body mass index	0.52[b]	-1.7
Albumin	0.50[b]	-5.3
TIBC	0.48[b]	-8.7

SGA-7p: 7-point Subjective Global Assessment; MIS: Malnutrition Inflammation Score; TIBC: Total Iron Binding Capacity. α Cronbach Coefficient; [a] Total α questionnaire coefficient; [b] α coefficient estimate upon excluding the total score item; d: Percentage of change to the total α upon excluding the item (Positive sign: percentage increases; Negative sign: reduce percentage); [c] Total α change percentage upon excluding the item (> 10%).

Table 2 Seven-point subjective global assessment and malnutrition inflammation score interexaminer reproducibility analysis.

	Interexaminer reproducibility[a] (n = 54)
Total SGA-7p	0.74 (95% IC: 0.58 a 0.84)
SGA-7p item	
Body weight history	0.87 (95% IC: 0.79 a 0.92)
Body weight change	0.49 (95% IC: 0.26 a 0.67)
Food intake	0.50 (95% IC: 0.26 a 0.67)
Gastrointestinal symptoms	0.82 (95% IC: 0.70 a 0.89)
Functional capacity	0.82 (95% IC: 0.71 a 0.89)
Comorbidities	0.62 (95% IC: 0.43 a 0.76)
Physical exam: Fat	0.60 (95% IC: 0.39 a 0.74)
Muscle mass	0.54 (95% IC: 0.32 a 0.70)
Total MIS	0.88 (95% IC: 0.81 a 0.93)
MIS item	
Body weight change	0.80 (95% IC: 0.68 a 0.88)
Food intake	0.37(95% IC: 0.11 a 0.60)
Gastrointestinal symptoms	0.66 (95% IC: 0.48 a 0.79)
Functional capacity	0.81 (95% IC: 0.69 a 0.88)
Comorbidities	0.90 (95% IC: 0.83 a 0.94)
Physical exam: Fat	0.58 (95% IC: 0.37 a 0.73)
Muscle mass	0.41 (95% IC: 0.17 a 0.61)

SGA-7p: 7-point Subjective Global Assessment; MIS: Malnutrition and Inflammation Index; TIBC: Total Iron Binding Capacity; [a] ICC: Intraclass Correlation Coefficient (95% confidence interval [CI]).

consistency between the SGA-7p and the MIS may be due to the way with which the final score of each instrument is given. In the SGA-7p, the final score results from the value that prevails on all items, so that there is greater examiner involvement in the final score. In the MIS, the final score comes from the sum of scores from each item, thus reducing examiner participation. Furthermore, in the SGA-7p all items including the final score may be worth from 1 to 7 points, whereas in the MIS, each item can vary from 0 to 3 and the final results vary between 0 and 30. This wider score range may also have contributed to the worse MIS internal consistency. However, we cannot say whether this finding is due to the translation of the instruments or a characteristic of those instruments, since the original SGA-7p and MIS studies do not describe internal consistency data.[9-14]

Regarding the interexaminer reproducibility, we noticed a moderate reproducibility for the SGA-7p. This result was similar to that found in other studies involving patients with CKD.[9,33] However, a study carried out including cancer patients in our country, assessed SGA's intraexaminer reproducibility generated by the patient. The authors reported a high reproducibility (kappa test 0.78, $p < 0.001$).[34] For MIS, interexaminer reproducibility was strong, a result contrary to that of another study including patients on HD, which found moderate interexaminer reproducibility (kappa 0.68, CI 0.52-0.72).[35] Since the SGA-7p operates in a more subjective decision mode than the MIS, the best reproducibility found in the MIS could arise from the same scoring format.

A limitation of our study is the fact that it involved only elderly patients (> 60 years), not representing the general population in HD. On the other hand, the semantic equivalence of the AGS-7p and MIS translation process is independent of the age range studied. The internal consistency results, which were evaluated in elderly on HD, deserves to be further investigated both in the group of elderly patients on PD, as well as in adults in both dialysis modalities. However, it is expected that the results obtained in elderly recur in adults.

Conclusion

In conclusion, the SGA-7p and MIS translated into Portuguese can be used in elderly patients on HD. We still need other studies that test the applicability of these versions translated into Portuguese in a group of patients with different ages and on PD.

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