Original articles

Translation and cultural adaptation of Swallowing disturbance questionnaire for Brazilian Portuguese

Tradução e adaptação cultural do Swallowing disturbance questionnaire para o português-brasileiro

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ABSTRACT

Purpose: to translate and culturally adapt to Brazilian Portuguese Swallowing the disturbance questionnaire (SDQ) for dysphagia detection risk in individuals with Parkinson's disease (PD).

Methods: this was translated into Portuguese, back-translation into English, instrument reliability analysis, the final version applied to participants and conducted retesting after two weeks. Was selected participants at a clinic for movement disorders of a reference hospital in Rio Grande do Sul. It was included individuals diagnosed with PD. It excluded individuals with impaired speech or hearing that prevented the understanding of the questionnaire and diagnosis of other neurological diseases.

Results: the sample consisted of 23 individuals. The participants answered all questions. There was no question of disposal. In the analysis of test-retest reliability intraclass correlation coefficient of the final score in the two periods was 0.912 with $p < 0.001$ (95% CI = 0.792 to 0.963), demonstrating that the data are highly homogeneous. In the analysis by question, there was no significant difference between the two application times. The value of α Cronbach the instrument was 0.63.

Conclusion: there was cultural equivalence of the SDQ for Brazilian Portuguese, with good internal reliability of the instrument.

Keywords: Dysphagia; Parkinson Disease; Triage

RESUMO

Objetivo: traduzir e adaptar culturalmente para o português brasileiro o Swallowing disturbance questionnaire (SDQ) para detecção de risco de disfagia em indivíduos com Doença de Parkinson (DP).

Métodos: realizou-se tradução para o português, retradução para o inglês, análise de confiabilidade do instrumento, sendo a versão final aplicada aos participantes e realizado o reteste após duas semanas. Selecionou-se os participantes em um ambulatório de distúrbios do movimento de um hospital de referência no Rio Grande do Sul. Incluiu-se indivíduos com diagnóstico de DP. Excluiu-se indivíduos com alteração de linguagem ou audição que impossibilitasse a compreensão do questionário e com diagnóstico de outras doenças neurológicas.

Resultados: a amostra foi composta por 23 indivíduos. Os participantes responderam a todas as questões. Não houve eliminação de nenhuma questão. Na análise da confiabilidade teste-reteste o coeficiente de correlação intraclasse do escore final nos dois momentos foi de 0,912 com $p < 0,001$ (95%IC=0,792-0,963), demonstrando que os dados são altamente homogêneos. Na análise por questão, não houve diferença significante entre os dois momentos de aplicação. O valor de α de Cronbach do instrumento foi de 0,63.

Conclusão: houve equivalência cultural do SDQ para o português brasileiro, com boa confiabilidade interna do instrumento.

Descritores: Disfagia; Doença de Parkinson; Triagem

INTRODUCTION

Currently, the Parkinson's Disease (PD) is the second most prevalent neurodegenerative disease in the world[1], with global incidence from 1 to 20, per 1000 individuals/year[2]. Although it is characterized as a mainly motor disease, the PD presents non-motor symptoms, such as oropharyngeal dysphagia, which is an aggravating symptom of the disease. It may result in complications such as tracheal aspiration, malnutrition, dehydration and lung diseases. Data from literature indicate that respiratory infection is the main cause of death in PD individuals, and it is associated with immobility and dysphagia[3-7].

The dysphagia prevalence indexes in PD vary from 70-100% of the individuals. It might be present in the disease initial phases, not only associated with PD severity[6-10]. Dysphagia causes negative impacts on PD individuals' health, such as: decline on quality of life, impaired food and drugs ingestion, risk of laryngeal penetration and aspiration, malnutrition, dehydration and lung diseases[2-5].

While such alterations may be detected since initial PD stages, in some cases they progress silently, up to the moment when the clinical complaints appear, usually in late or advanced stages, when the rehabilitation options are reduced[11]. Thus, it is verified the necessity of proactive clinical approaches in cases of dysphagia, aiming at preventing or delaying the consequences of this symptom, not only limited to individuals' self-perception, because it is known that several individuals with dysphagia do not report complaints, since there is silent aspiration, which is not a perceptible symptom by the patients and family/guardians[3,12,13].

It is highlighted the importance of instruments to detect dysphagia, which can be used in a simple and quick way by all health professionals who are in contact with this patients, in order to accomplish proper conducts when the symptom is in initial phases, eliminating and/or minimizing negative impacts.

Several instruments have been created, with different purposes, to help speech and language therapists to detect and to diagnose dysphagia, as it is evidenced by the review by Etges et al. (2014)[14]. However, most of these instruments are available only in their original language, most of them in English. From the 20 found instruments, in the present review, only one, the Swallowing disturbance questionnaire (SDQ)[15] regards a population with PD. This instrument

is only available in its original version (in English) and translated and validated to Persian and Japonese[16,17].

The SDQ was conceptually developed to trace dysphagia in individuals with PD. In its original version, it was validated, being sensitive and specific to detect symptoms of dysphagia and to provide useful information of swallowing alterations clinical evaluation in these individuals. This instrument consists of 15 items about swallowing alterations. In 14 of these items, the individual should mark the symptoms frequency from 1-3, when 0 is considered as never and 3 as very often, and in one item they should respond yes or no. The 15 items regard 5 questions about swallowing oral phase and 10 questions related to pharyngeal phase. The instrument cut point is 11. Scores equal or greater than this value signalize risks for dysphagia[15].

Therefore, with the authors' consent, this study has the purpose of translating and culturally adapting to a Brazilian version the the Swallowing disturbance questionnaire (SDQ).

METHODS
Study population

The sample consists of 23 participants, all Brazilian subjects, with PD diagnosis. The participants were selected from a movement disorders ambulatory in a reference hospital in Rio Grande do Sul, Brazil. All participants signed the free and clarified consent term. The present study was approved by the hospital ethics in research committee, number 140520.

The inclusion criteria were: to present PD diagnosis, according to the London's Brain Bank criteria[18] and to accept participating in the study. It was excluded individuals with dementia, language or hearing alterations which could impair the questionnaire understanding and individuals with other Parkinsonian syndromes.

Linguistic and cultural validation

In order to use the instrument in other countries with different languages and cultural realities, it should be translated and adapted according to the international rules. Next, it must present its measures properties demonstrated in the specific cultural context of use[19-21].

The translation of the questionnaire to Brazilian Portuguese was authorized by the instrument authors[15]. So, the questionnaire was translated according to criteria described by literature[19-21]. The process phases are described in Figure 1. The professionals

who performed the Portuguese-English translation are Brazilian Portuguese native speakers with English proficiency, and, in the English-Portuguese version, the professionals are native English speakers with proficiency in Brazilian Portuguese. From these phases, it was developed the final version of the Swallowing disturbance questionnaire (SDQ) in Portuguese, called *Questionário de detecção de risco de disfagia em indivíduos com Doença de Parkinson* (SDQ-DP) (Annex 1).
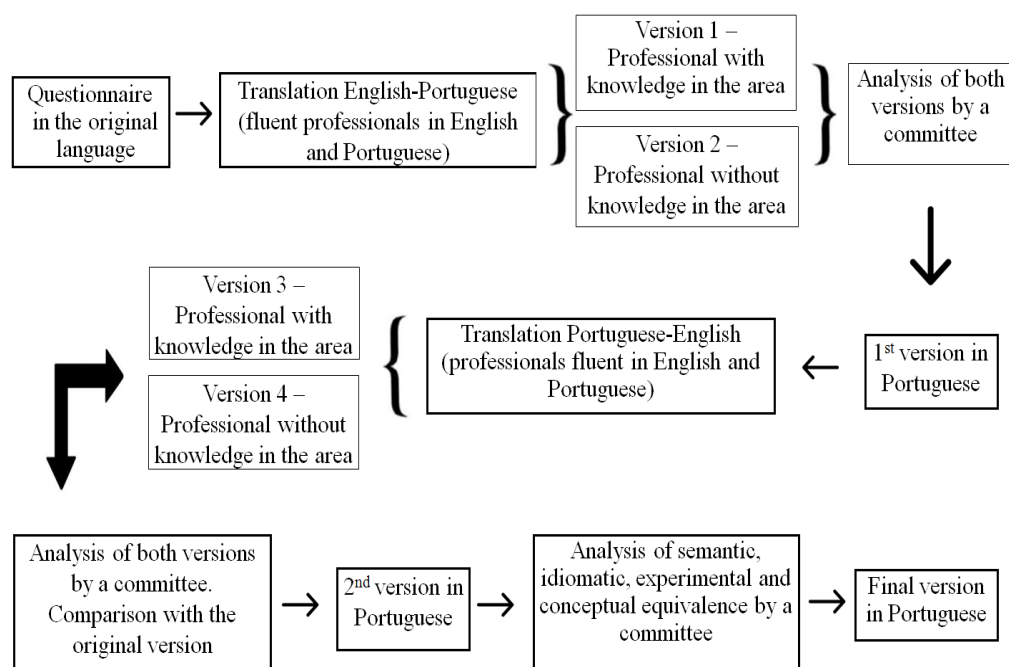

Figure 1: Fluxogram of the questionnaire translation phases

Content validity and internal consistency

The questionnaire was applied in the ambulatory of movement disorders at the referred hospital. It was read to the participants, by the researcher, because some of the individuals were not literate. The questionnaire retest was applied after two weeks to evaluate the instrument content validity. In order to verify the internal consistency, it was calculated the α Cronbach coefficient of the instrument in Brazilian Portuguese. The retest was applied in this period of time to have less chances of answers changes, because of the individuals' dysphagia changes of symptoms, according to literature[22].

Statistical analysis

The statistical analysis was performed through the *Statistical Package for Social Sciences* (SPSS), version 20.0. It was applied descriptive analysis for the ordinal variables (age, education, time with disease and H&Y), by expressing the results in average and standard deviation, and for the nominal variable (sex) the results were expressed in percentage. The internal consistency was tested through the α Cronbach coefficient calculation. The test-retest reliability was calculated through the McNemar-Bowker's Test for each question and through the intraclass correlation coefficient to verify the homogeneity of the final scores in both moments of test application. The Kappa coefficient was applied to evaluate the concordance level of the total obtained scores. It was considered as statistically significant $p < 0.05$.

RESULTS

The data about the participants' demographic variables are described in Table 1.

Table 1. Sociodemographic and clinical data

Variables	Average (SD)
Age (years)	63.7 (±9.4)
Education level (years)	7.3 (±4.6)
Time of disease (years)	11.3 (±6.1)
H&Y	2.2 (±0.8)
Sex (women)	14 (60.9%)

SD: standard deviation; H&Y: Hoehn and Yahr scale

In the process of translation and cultural adaptation, there was no question elimination, but conceptual adjustments were made, with change in the following terms: cookie by *bolacha recheada* (stuffed cookies); palate by *céu da boca* (roof of the mouth); reduced voice by decreased voice. Besides, question 13 was reformulated, because it was verified understanding difficulties by the individuals.

The score final average in the questionnaire was 5.9 points (±5.0), and only four individuals presented final score greater than or equal to 11 points. Thus, according to the cut point by Manor et.al. (2007)[15] only four individuals should be referred to swallowing evaluation.

The final version of the SDQ-DP, after cultural and linguistic adaptation, presents 15 questions, with five questions related to the swallowing oral phase and 10 questions related to the pharyngeal phase. Besides, 14 questions were classified in a scale of four points, when 0 means never, 1 means rarely, 2 means frequently and 3 means very frequently, and one "yes/no" question.

The α Cronbach value of the instrument was 0.63, indicating that the SDQ-DP had positive internal consistency. Question 6 had the lowest α Cronbach, 0.58%, and question 1 had the highest α Cronbach, 0.064. The Kappa index is a statistic of adjusted concordance, which varies from 'minus 1' to 'plus 1' – as nearer 1, better is the concordance level among the observers; its distribution and the respective interpretation level are: < 0.00= bad; 0.00 to 0.20= weak; 0.21 to 0.40= tolerable; 0.41 to 0.60= regular; 0.61 to 0.80= good; 0.81 to 0.99= great; 1.00 =perfect (16). As acceptation criterion, it was established concordance higher than 0.61 among the evaluators[23].

In the retest reliability analysis, it was observed that 23 participants completed the SDQ-DP in the moment 1 and 2. The intraclass correlation coefficient, when it was analyzed the final score of both moments was 0.912 with p<0.001 (95%IC=0.792-0.963), showing highly homogeneous data. In the analysis per question,

it is observed that there was no significant difference between both application moments, according to the content of Table 2.

Table 2. Analysis per question of both application moments

Question	p-value
1 pre x 1 post	1
2 pre x 2 post	0,247
3 pre x 3 post	1,000
4 pre x 4 post	0,564
5 pre x 5 post	0,223
6 pre x 6 post	0,564
7 pre x 7 post	0,157
8 pre x 8 post*	--
9 pre x 9 post	1,000
10 pre x 10 post	0,306
11 pre x 11 post	0,317
12 pre x 12 post	1,000
13 pre x 13 post	0,392
14 pre x 14 post	1,000
15 pre x 15 post	1,000

McNemar-Bowker Test; *it was not possible to perform the analysis because there was a unique variable

DISCUSSION

The Brazilian version of the Swallowing disturbance questionnaire (SDQ) presented positive internal consistency, but lower than the one from the original version (in English) of the questionnaire (α=0.89)[15]. It was verified good test-retest reliability, with high homogeneity between the final sore of both application moments. In the translation process, it was not excluded any question, remaining the same number of questions of the original version, only with some conceptual reformulations, modifying some expressions, aiming at better cultural adaptation.

The literature is clear in relation to the necessity of specifying a risk identification protocol to dysphagia in PD[14,24-26]. The SDQ-DP provides an instrument to identify risks to dysphagia, facilitating the specialized intervention process of symptoms precocious diagnosis. The author of the original version suggest that individuals of a population equal or greater than 11 should be referred to swallowing specific evaluation. In this questionnaire version, during the validation phase, it was selected individuals with shorter PD time (in the original 6.7 (± 5.3) years versus 11.3 (± 5.3) in

the present study population), more advanced age (in the original 69 (± 10) years versus 63.7(± 10) in the present study population) and lower prevalence of men in the original sample. This data justifies the necessity of score validation and verification in the Brazilian population[15].

It is important to highlight that the SDQ-DP is a simple questionnaire, of fast application, which can be applied in ambulatorial environment by all health professional who meet this population. Such factor helps dysphagia precocious diagnosis, as well as referral to language, hearing and speaking evaluation before the individual presents complication of this symptom or severity, what may decrease rehabilitation possibilities. Besides, it is contributed to costs reduction of treatment complications and to quality of life improvement. It is important to consider that this questionnaire is not supposed to evaluate self-perception of dysphagia by individuals with PD, because according to literature[3,12,13] this population does not present complaints, even in presence of dysphagia. Therefore, this questionnaire, in its original version, was sensitive to detect individuals with signs and symptoms of dysphagia, symptomatic or not, being used to find this population.

Study limitations

To verify the questionnaire discriminatory power, it is highlighted the importance of further studies which validate the instrument.

CONCLUSION

Therefore, it is verified that the translation and cultural adaptation of the Swallowing disturbance questionnaire (SDQ) Brazilian version accomplished a detailed process of translation and adaptation, compatible with the current recommendations to this process. During this procedure, some small changes in the questionnaire were necessary, so it can be performed in individuals with PD, in the Brazilian population, being considered as proper for clinical use. The questionnaire use in individuals with PD will facilitate the dysphagia detection in this population, helping the precocious diagnosis.

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ANNEX 1

Questionário de detecção de disfagia em pacientes com Doença de Parkinson (SDQ-DP)				
0 = Nunca; 1 = Raramente (1 vez ao mês ou menos); 2 = Frequentemente (1 a 7 vezes na semana); 3 = Muito frequentemente (mais de 7 vezes na semana)				
Questões	**0**	**1**	**2**	**3**
1. Você tem alguma dificuldade em mastigar comidas sólidas como uma maçã, uma bolacha de água e sal ou uma bolacha recheada?				
2. Depois de engolir o alimento, algum resto de comida ainda fica na sua boca, bochecha, embaixo da língua ou no céu da boca?				
3. Quando você come ou bebe, o alimento ou o líquido saem pelo seu nariz?				
4. O alimento mastigado escapa para fora da sua boca?				
5. Você sente que tem muita saliva na sua boca? Você baba ou tem dificuldades em engolir sua saliva?				
6. Você tenta engolir várias vezes a comida mastigada antes que ela realmente desça pela garganta?				
7. Você tem dificuldades em engolir comida sólida? (Por exemplo, maçã e bolachas ficam presas na sua garganta?)				
8. Você tem dificuldades em engolir alimentos pastosos?				
9. Você sente como se a comida estivesse presa na sua garganta enquanto você come?				
10. Você tosse enquanto engole líquidos?				
11. Você tosse enquanto engole comida sólida?				
12. Você sente sua voz se modificar imediatamente depois de comer ou beber? Como se estivesse mais rouca ou fraca?				
13. Fora das refeições, você tem dificuldade de engolir a saliva? Você tosse ou se engasga com a sua saliva?				
14. Você apresenta dificuldade para respirar durante as refeições?				
	Sim		**Não**	
15. Você teve alguma infecção respiratória (pneumonia, bronquite) durante o último ano?				