




Larissa Mendonça dos Anjos¹ 
Francisco Tiago Meireles da Silva² 
Leandro Pernambuco^{1,3} 

Translation and cross-cultural adaptation of the Swallow Outcomes After Laryngectomy (SOAL) Questionnaire for Brazilian Portuguese

Tradução e adaptação transcultural do Swallow Outcomes After Laryngectomy Questionnaire (SOAL) para o português brasileiro

Descriptors

Laryngectomy
Total Laryngectomy
Dysphagia
Swallowing Disorders
Validation Studies
Translation

Descritores

Laringectomia
Laringectomia Total
Disfagia
Transtornos de Deglutição
Estudos de Validação
Tradução

ABSTRACT

Purpose: To adapt the Swallow Outcomes After Laryngectomy (SOAL) Questionnaire for the Brazilian culture. **Method:** Validation study restricted to translation and cross-cultural adaptation. The following steps were taken: discussion of the need for the instrument in the Brazilian context, two independent translations, summary of the translations, analysis by a committee of 12 expert judges in dysphagia and oncology, analysis of the judges' comments and of the content validity indexes of each item and of the questionnaire as a whole, application of the questionnaire in a sample of 10 total laryngectomy patients, back translation and final summary. **Results:** It was necessary to perform semantic, syntactic/grammatical, experiential, idiomatic and content equivalences, mainly after the analysis by experts. The content validity indexes of each item and of the questionnaire were acceptable for all evaluated aspects. The back translation was equivalent to the original version. The comparison of the original, translated and back-translated versions indicated that the final version of the instrument was viable. **Conclusion:** The SOAL was adapted to the Brazilian culture was developed. The validation process will continue using the version presented in this study.

RESUMO

Objetivo: desenvolver a adaptação do questionário *Swallow Outcomes After Laryngectomy Questionnaire* – SOAL para a cultura brasileira. **Método:** estudo de validação restrito à tradução e adaptação transcultural. Foram seguidas as seguintes etapas: discussão sobre a necessidade do instrumento no contexto brasileiro, duas traduções independentes, síntese das traduções, análise por comitê de 12 juízes especialistas nas áreas de Disfagia e Oncologia, análise dos comentários dos juízes e dos Índices de Validade de Conteúdo por item e do questionário, aplicação do questionário numa amostra de 10 laringectomizados totais, retradução e síntese final. **Resultados:** foi necessário realizar equivalências semântica, sintática/gramatical, experiencial, idiomática e de conteúdo, principalmente após análise dos especialistas. O Índice de Validade de Conteúdo por item e do questionário foram aceitáveis em todos os aspectos avaliados. A retradução foi equivalente à versão original. A comparação entre as versões original, traduzida e retraduzida viabilizou a versão final do instrumento. **Conclusão:** foi desenvolvida a adaptação do SOAL para a cultura brasileira. O processo de validação continuará a partir da versão apresentada neste estudo.

Correspondence address:

Leandro Pernambuco
Universidade Federal da Paraíba,
Departamento de Fonoaudiologia
Cidade Universitária, João Pessoa
(PB), Brasil, CEP: 58051-900.
E-mail: leandroape@globocom

Received: January 28, 2020

Accepted: July 26, 2020

This study was conducted at the Programa Associado de Pós-graduação em Fonoaudiologia, Universidade Federal da Paraíba – UFPB – João Pessoa (PB), Brasil.

¹ Programa Associado de Pós-graduação em Fonoaudiologia, Universidade Federal da Paraíba – UFPB - João Pessoa (PB), Brasil.

² Programa de Pós-graduação em Linguística, Universidade Federal da Paraíba – UFPB – João Pessoa (PB), Brasil.

³ Departamento de Fonoaudiologia, Universidade Federal da Paraíba – UFPB – João Pessoa (PB), Brasil.

Financial support: nothing to declare.

Conflict of interests: nothing to declare.



This is an Open Access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

Total laryngectomy is the most frequently indicated treatment in cases of advanced or recurrent laryngeal tumours and consists of complete removal of the larynx and hyoid bone⁽¹⁾ with closure of the hypopharyngeal mucosa, dissociation of communication between the airway and the digestive tract, and the establishment of a definitive tracheostomy, with the trachea communicating directly with the skin⁽²⁾. Thus, several functional sequelae may occur after the surgical procedure, including swallowing disorders⁽¹⁾. The severity of the change to swallowing is linked to the extent of resection^(1,2) and the structures involved, the method used to construct the neopharynx and the residual mobility of the structures⁽³⁾.

Although the permanent dissociation of the respiratory and digestive tracts removes the risk of laryngotracheal aspiration, other swallowing changes may occur in total laryngectomy patients, such as inefficient formation and ejection of the bolus, increased oral and pharyngeal transit time, the formation of residues in the oral cavity and high resistance of the neopharynx to the passage of food^(1,2). Therefore, swallowing disorders in total laryngectomy patients may cause weight loss and nutritional impairment and have a negative impact on quality of life⁽¹⁾.

The perception of swallowing disorders is also reported by total laryngectomy patients, and the most frequent complaints are difficult swallowing dry solid food, the feeling of having food stuck in the throat and the need for multiple swallows⁽¹⁾. In the literature, there are swallowing self-assessment questionnaires for patients with head and neck cancer, such as the M.D. Anderson Dysphagia Inventory (MDADI); the University of Washington Quality of Life Questionnaire (UW-QOL); the Functional Assessment of Cancer Therapy (FACT-H&N); and the European Organization for Research and Treatment of Cancer questionnaire (EORTC-C30/H&N35)⁽⁴⁾.

However, in addition to being primarily focused on quality of life, these questionnaires are mostly general, prioritize aspiration markers and do not consider the specificities of swallowing after total laryngectomy; thus, some signs and symptoms may not be captured properly⁽⁵⁾. In this context, the Swallow Outcomes After Laryngectomy (SOAL) Questionnaire was proposed to meet this need^(5,6).

The SOAL consists of 17 questions that address symptoms of swallowing changes in total laryngectomy patients. The score ranges from 0 to 34 points and assigns degrees of intensity to the symptoms; the higher the score is, the worse the result. In addition, the SOAL verifies whether the symptom is uncomfortable for the patient and suggests further investigation to determine the therapeutic approach. The psychometric properties of the original version of the SOAL were verified, and the questionnaire was proven adequate for identifying symptoms of swallowing disorders in total laryngectomy patients^(5,6). However, in Brazil, there is no instrument with these characteristics that considers the specificities of total laryngectomy.

To fill this gap, this study aims to develop an adaptation of SOAL to the Brazilian culture to begin the process of validating this instrument for Brazilian Portuguese.

METHOD

This is a validation study restricted to translation and cross-cultural adaptation. It was approved by the Human Research Ethics Committee of the Health Sciences Center of the Federal University of Paraiba, Brazil, under opinion number 2.190.242/2017, according to Resolution 466/2012 of the National Health Council (CNS, for its acronym in Portuguese). All subjects who agreed to participate in the study signed an informed consent form.

The process of translating and adapting the SOAL to Brazilian Portuguese was guided by guidelines and recommendations proposed in the literature⁽⁷⁻⁹⁾. After authorization was received from the researcher responsible for the original questionnaire, the following steps were followed:

- 1) *Translation*: The original version was translated into Brazilian Portuguese by two independent translators who were native to the Brazilian Portuguese language and culture and fluent in the English language and culture. One translator was an expert in the field of oncology, and the other one was not an expert in oncology. Both were unaware of the SOAL and were aware of the objective of the study. Two versions were generated: T1 and T2.
- 2) *Summary of the translations*: The T1 and T2 versions were analysed and compared by a committee of three speech therapists with experience in dysphagia care and proficiency in the English language; one of them also had a degree in literature. The discrepancies found were discussed and, when necessary, modifications were performed by consensus, which generated a summary version (T3).
- 3) *Committee of experts*: Version T3 was sent by e-mail to a committee of 23 speech-language pathologists with expertise in the areas of dysphagia and oncology. The invitation was accepted by 12 professionals, who performed an analysis of the relevance of the items, their appropriateness to Brazilian culture and the adequacy of the summary of the translations. The judges were also asked to make comments or suggestions that they considered relevant.

Regarding relevance and feasibility, the judges indicated on a Likert scale if they considered the item: (1) irrelevant or unfeasible; (2) minimally relevant or feasible; (3) relevant or feasible; (4) very relevant or very feasible. In addition, they judged whether the summary of the translations was adequate or inadequate.

The content validity index per item (CVI-I) was calculated to constitute the level of intra-judge agreement⁽¹⁰⁾, and items with CVI-I above 0.78 were considered acceptable. In turn, the content validity index of the questionnaire (CVI-Q) was determined by

the arithmetic mean of the CVI-I of all of the items evaluated, and 0.90 was the minimum value considered acceptable for the CVI-Q.

The CVI-I and CVI-Q values and the comments and suggestions from the experts were analysed by the committee of researchers who, by consensus, weighed the necessary adjustments and generated the pre-test version (T4).

- 4) *Pre-test*: Version T4 was administered in a real-life context to analyse the application of the items in terms of structure and adequacy, which corresponds to obtaining evidence of validity based on the response processes⁽⁹⁾. Volunteers of both genders aged 18 years or older who underwent total laryngectomy were included in the study. Individuals with difficulty understanding simple orders; those who had psychiatric, neurological, neuromuscular or neurodegenerative changes that were either self-reported or recorded in medical records; those who perceived having cognitive decline or had cognitive decline reported by a companion; those with a lowered level of consciousness; and those who had had previous head and neck surgeries or any type of oncological treatment prior to total laryngectomy were excluded from the study.

The convenience sample consisted of 10 total laryngectomy patients with a post-operative time ranging from five months to 13 years and an age between 54 and 83 years. Of these, eight were males, six were residents of the capital city, four were residents of other cities in the state, two were illiterate, four had incomplete primary education, and four had complete secondary education.

All participants who met the eligibility criteria underwent a cognitive interview to verify that they understood the items on the instrument. For each item, the volunteer reported whether he/she had understood the question and was asked to repeat it (paraphrase strategy). In addition, he/she had the opportunity to suggest modifications. Operational difficulties and the nonverbal reactions of the volunteers, such as expressions of lack of interest or unfamiliarity with the questionnaire items, were also recorded. All interviews were conducted by the same researcher. The analysis of the results of this stage was performed by consensus by the committee of researchers responsible for the study, which generated the version T5.

- 5) *Back-translation*: To evaluate whether the items in version T5 reflected the content of the original version, back-translation was performed by two translators who were native to the English language and culture, were fluent in Brazilian Portuguese, were unaware of the questionnaire and were aware of the objective of the study. Thus, versions T6 and T7 were generated.
- 6) *Summary of back-translations*: Versions T6 and T7 were analysed and compared by the research committee. Adjustments were made by consensus, generating a summary version (version T8).
- 7) *Final summary*: Version T8 was compared to the original version of the questionnaire, and the semantic, idiomatic,

experiential, conceptual, syntactic/grammatical and operational equivalences were considered. Discrepancies were discussed by the same committee of researchers that participated in the previous stages, and the final version (version T9) – with cultural and linguistic equivalence to the original questionnaire – was obtained.

The equivalences explored in the aforementioned steps were analysed according to the following concepts⁽⁷⁾: (1) semantic equivalence: analyses whether the words have the same meaning; (2) idiomatic equivalence: analyses whether colloquialisms were adapted by using equivalent expressions in the target version; (3) experiential equivalence: verifies whether the original item was replaced by a similar item existing in the target culture; (4) conceptual equivalence: considers whether any word or expression was removed or modified because it did not have a similar conceptual meaning between cultures; (5) syntactic/grammatical equivalence: determines whether there was a need for adjustments related to orthographic/grammatical issues; (6) operational equivalence: evaluates changes to be made regarding the adequacy, structure and application of the items.

RESULTS

Each step of the translation and cross-cultural adaptation process is included in Chart 1.

During the synthesis of the translations, the committee of researchers made some standardizations and decided that the word “swallowing” would always refer to the verb “engolir” (“to swallow” in English) because the Brazilian population understands this translation better and because this verb is a linguistic variation of the verb “deglutir” (“to swallow” in English). At this stage, it was necessary to establish semantic equivalences that considered the meaning of the words and the context of the items in the target culture (Chart 1).

As Chart 1 shows, most of the adjustments in the questionnaire were made after judgement by the expert committee. Based on the analyses and suggestions of the 12 experts and the discussions among the members of the research committee, items that had examples of foods such as “milkshake” and “shepherds’ pie” were replaced with foods from the Brazilian cultural context that have similar consistencies, are prepared in a similar way and have a similar cost. In this stage, there were also suggestions of a semantic, idiomatic, experiential and conceptual nature.

The CVI-I and CVI-Q results are shown in Table 1. All items were considered relevant and feasible according to the indexes. The maximum CVI-I of 1.00 was achieved by 14 items for the relevance aspect and by all items for the feasibility aspect. The indexes were also satisfactory in regard to the summary of the translations.

In the pre-test phase, the items were well understood by the patients, and there was no need for adjustments. The back-translated version was equivalent to the content of the original version, and both included the same number of items. Therefore, after having been translated and adapted to Brazilian Portuguese (Appendix 1), the SOAL corresponded to the original version.

Chart 1. Versions obtained during the process of translation and cross-cultural adaptation for Brazilian Portuguese of the Swallow Outcomes After Laryngectomy (SOAL) Questionnaire.

Original	Version T3 (T1 + T2 Summary)	Version T4 or pre-test	Version T5 or pre-final	Version T8 (Summary of T6 + T7)	Final version (T9)	Equivalences
1. <i>In your opinion, do you have a swallowing problem now?</i>	Em sua opinião, você tem problema para engolir atualmente?	Na sua opinião, você tem problema para engolir atualmente?	Na sua opinião, você tem problema para engolir atualmente?	<i>In your opinion, do you have a problem swallowing?</i>	Na sua opinião, você tem problema para engolir atualmente?	Syntactic/ Grammatical
						Semantic
2. <i>Do you have a problem swallowing thin liquids (tea, water, juice)?</i>	Você tem problema para engolir líquidos finos (chá, água, suco)?	Você tem problema para engolir líquidos finos (chá, água, suco)?	Você tem problema para engolir líquidos finos (chá, água, suco)?	<i>Do you have a problem swallowing fine liquids (tea, water, juice)?</i>	Você tem problema para engolir líquidos finos (chá, água, suco)?	-
3. <i>Do you have a problem swallowing thick liquids (soup, milkshakes, supplement drinks)?</i>	Você tem problema para engolir líquidos grossos (sopa, milkshake, vitamina)?	Você tem problema para engolir líquidos engrossados (sopa liquidificada, vitamina)?	Você tem problema para engolir líquidos engrossados (sopa liquidificada, vitamina)?	<i>Do you have a problem swallowing thick liquids (liquified soup, smoothie)?</i>	Você tem problema para engolir líquidos engrossados (sopa liquidificada, vitamina)?	Experiential
						Semantic
4. <i>Do you have a problem swallowing soft/mashed foods (bread, biscuits)?</i>	Você tem problema para engolir alimentos moles/macios (lasanha, purê)?	Você tem problema para engolir alimentos pastosos/macios (lasanha, banana)?	Você tem problema para engolir alimentos pastosos/macios (lasanha, banana)?	Do you have a problem swallowing soft foods (lasagne, banana)?	Você tem problema para engolir alimentos pastosos/macios (lasanha, banana)?	Experiential
						Semantic
5. <i>Do you have a problem swallowing dry solid food (bread, biscuits)?</i>	Você tem problema para engolir alimentos duros/secos (pão/biscoitos)?	Você tem problema para engolir alimentos duros/secos (pão francês/biscoitos)?	Você tem problema para engolir alimentos duros/secos (pão francês / biscoitos)?	<i>Do you have a problem swallowing hard/dry foods (rolls, biscuits)?</i>	Você tem problema para engolir alimentos duros/secos (pão francês / biscoitos)?	Experiential
6. <i>Do liquids stick in your throat when you swallow?</i>	Os líquidos ficam presos em sua garganta quando você engole?	Após você engolir, sente que o líquido fica parado na garganta?	Após você engolir, sente que o líquido fica parado na garganta?	<i>After you swallow, do you feel that the liquid sticks in your throat?</i>	Após você engolir, sente que o líquido fica parado na garganta?	Syntactic/ Grammatical
						Semantic
7. <i>Does food stick in your throat when you swallow?</i>	Os alimentos ficam presos em sua garganta quando você engole?	Após você engolir, sente que o alimento fica parado na garganta?	Após você engolir, sente que o alimento fica parado na garganta?	<i>After you swallow, do you feel that the food sticks in your throat?</i>	Após você engolir, sente que o alimento fica parado na garganta?	Syntactic/ Grammatical
						Semantic
8. <i>Does food or liquid come back up into your mouth or nose when you eat or drink?</i>	Os alimentos ou líquidos voltam para sua boca ou nariz quando você come ou bebe?	Os alimentos ou líquidos voltam para sua boca ou nariz quando você come ou bebe?	Os alimentos ou líquidos voltam para sua boca ou nariz quando você come ou bebe?	<i>Do foods or liquids come back to your mouth or nose when you eat or drink?</i>	Os alimentos ou líquidos voltam para sua boca ou nariz quando você come ou bebe?	-
9. <i>Do you need to swallow liquid to help the food go down?</i>	Você precisa beber líquido para ajudar o alimento a descer?	Você precisa beber líquido para ajudar o alimento a descer?	Você precisa beber líquido para ajudar o alimento a descer?	<i>Do you need to drink liquid to help food go down?</i>	Você precisa beber líquido para ajudar o alimento a descer?	-
10. <i>Do you need to swallow each mouthful many times to help the food or drink go down?</i>	Você precisa engolir muitas vezes para ajudar a comida ou bebida a descer?	Você precisa engolir muitas vezes para ajudar o alimento ou bebida a descer?	Você precisa engolir muitas vezes para ajudar o alimento ou bebida a descer?	<i>Do you need to swallow many times to help food or drink go down?</i>	Você precisa engolir muitas vezes para ajudar o alimento ou bebida a descer?	-
11. <i>Do you avoid certain foods because you cannot swallow them?</i>	Você evita certos alimentos porque não consegue engoli-los?	Você evita certos alimentos porque não consegue engoli-los?	Você evita certos alimentos porque não consegue engoli-los?	<i>Do you avoid certain foods because you can't swallow them?</i>	Você evita certos alimentos porque não consegue engoli-los?	-
12. <i>Does it take longer to eat a meal?</i>	Você leva muito tempo para comer uma refeição?	Você leva muito tempo para comer uma refeição?	Você leva muito tempo para comer uma refeição?	<i>Do you take a long time to eat a meal?</i>	Você leva muito tempo para comer uma refeição?	-
13. <i>Has your enjoyment of food reduced?</i>	Você perdeu o prazer em alimentar-se?	Você perdeu o prazer em se alimentar?	Você perdeu o prazer em se alimentar?	<i>Have you lost the pleasure of feeding yourself?</i>	Você perdeu o prazer em se alimentar?	Syntactic/ Grammatical
						Semantic

Chart 1. Continued...

Original	Version T3 (T1 + T2 Summary)	Version T4 or pre-test	Version T5 or pre-final	Version T8 (Summary of T6 + T7)	Final version (T9)	Equivalences
14. <i>Has the size of your meal reduced?</i>	A quantidade de sua refeição diminuiu?	A quantidade de sua refeição diminuiu?	A quantidade de sua refeição diminuiu?	<i>Has the amount of your meal decreased?</i>	A quantidade de sua refeição diminuiu?	-
15. <i>Has your appetite reduced because you cannot taste or smell food normally?</i>	Seu apetite diminuiu porque você não consegue sentir o sabor ou cheiro dos alimentos normalmente?	Seu apetite diminuiu porque você não consegue sentir o sabor ou cheiro dos alimentos normalmente?	Seu apetite diminuiu porque você não consegue sentir o sabor ou cheiro dos alimentos normalmente?	<i>Has your appetite decreased because you can't taste the flavour or smell foods normally?</i>	Seu apetite diminuiu porque você não consegue sentir o sabor ou cheiro dos alimentos normalmente?	-
16. <i>Has your eating been more difficult due to dry mouth?</i>	Sua alimentação tem ficado mais difícil devido a boca seca?	Sua alimentação tem ficado mais difícil devido a sensação de boca seca?	Sua alimentação tem ficado mais difícil devido a sensação de boca seca?	<i>Has your feeding become more difficult due to the sensation of dry mouth?</i>	Sua alimentação tem ficado mais difícil devido a sensação de boca seca?	Experiential
17. <i>Do you feel self-conscious eating with other people?</i>	Você se sente constrangido comendo com outras pessoas?	Você se sente constrangido comendo com outras pessoas?	Você se sente constrangido comendo com outras pessoas?	<i>Do you feel awkward eating with other people?</i>	Você se sente constrangido comendo com outras pessoas?	Conceptual Idiomatic

Table 1. Content validity index per item (CVI-I) and for the questionnaire (CVI-Q) according to the relevance and feasibility of the items.

Item	Relevance			Feasibility			Summary		
	Yes	No	CVI-I	Yes	No	CVI-I	Adequate	Inadequate	CVI-I
01	12 (100)	0 (0)	1.00	12 (100)	0 (0)	1.00	10 (83.3)	2 (16.7)	0.83
02	12 (100)	0 (0)	1.00	12 (100)	0 (0)	1.00	11 (91.7)	1 (8.3)	0.91
03	12 (100)	0 (0)	1.00	12 (100)	0 (0)	1.00	09 (75.0)	3 (25.0)	0.75
04	12 (100)	0 (0)	1.00	12 (100)	0 (0)	1.00	09 (75.0)	3 (25.0)	0.75
05	12 (100)	0 (0)	1.00	12 (100)	0 (0)	1.00	09 (75.0)	3 (25.0)	0.75
06	11 (91.7)	1 (8.3)	0.91	12 (100)	0 (0)	1.00	09 (75.0)	3 (25.0)	0.75
07	12 (100)	0 (0)	1.00	12 (100)	0 (0)	1.00	10 (83.3)	2 (16.7)	0.83
08	12 (100)	0 (0)	1.00	12 (100)	0 (0)	1.00	11 (91.7)	1 (8.3)	0.91
09	12 (100)	0 (0)	1.00	12 (100)	0 (0)	1.00	12 (100)	0 (0)	1.00
10	12 (100)	0 (0)	1.00	12 (100)	0 (0)	1.00	11 (91.7)	1 (8.3)	0.91
11	12 (100)	0 (0)	1.00	12 (100)	0 (0)	1.00	12 (100)	0 (0)	1.00
12	12 (100)	0 (0)	1.00	12 (100)	0 (0)	1.00	11 (91.7)	1 (8.3)	0.91
13	11 (91.7)	1 (8.3)	0.91	12 (100)	0 (0)	1.00	11 (91.7)	1 (8.3)	0.91
14	12 (100)	0 (0)	1.00	12 (100)	0 (0)	1.00	12 (100)	0 (0)	1.0
15	12 (100)	0 (0)	1.00	12 (100)	0 (0)	1.00	12 (100)	0 (0)	1.0
16	11 (91.7)	1 (8.3)	0.91	12 (100)	0 (0)	1.00	11 (91.7)	1 (8.3)	0.91
17	12 (100)	0 (0)	1.00	12 (100)	0 (0)	1.00	11 (91.7)	1 (8.3)	0.91
			CVI = 0.98			CVI = 1.00			CVI = 0.88

Legend: CVI-I = content validity index per item; CVI-Q = content validity index questionnaire.

DISCUSSION

This study made it possible to determine the cultural and linguistic equivalence of the translation and adaptation of the SOAL questionnaire into Brazilian Portuguese, thus preparing the questionnaire for the next steps of the validation process. Although there is no methodological consensus regarding translation and cross-cultural adaptation^(9,11), the procedures performed in this study were systematized according to a set of recommendations proposed in the literature⁽⁹⁾.

In translation and cross-cultural adaptation, it is recommended that instead of simply literally translating the original instrument, discrepancies between cultures and language should be resolved⁽¹²⁾

because it is essential to consider the diversity of the population in different cultural^(12,13), idiomatic, and lifestyles contexts⁽¹²⁾. In this sense, it is worth noting that the expert committee and representatives of the target population were crucial in ensuring the cultural and linguistic equivalence of the SOAL in Brazilian Portuguese. In addition, the adequate CVI-I and CVI-Q values reinforced the relevance, feasibility and need for the availability of the questionnaire in the Brazilian culture.

The SOAL is considered the instrument with the most appropriate psychometric properties for the self-assessment of swallowing after total laryngectomy⁽⁶⁾. It is expected that, just as in its original version⁽⁶⁾, the routine clinical use of the SOAL in the Brazilian context may help to identify and monitor the

symptoms of swallowing disorders in total laryngectomy patients and thus may encourage early intervention and minimize the worsening of associated comorbidities. To this end, the translated and adapted version of the SOAL presented in this study will undergo to the next steps of the validation process.

CONCLUSION

The SOAL was adapted for Brazilian culture and has semantic, idiomatic, experiential, conceptual and syntactic/grammatical equivalence to the original version. Thus, the version of the SOAL adapted for Brazilian Portuguese is prepared for the next stages of the validation process.

REFERENCES

1. Arenaz Bua B, Pendleton H, Westin U, Rydell R. Voice and swallowing after total laryngectomy. *Acta Otolaryngol.* 2018;138(2):170-4. <http://dx.doi.org/10.1080/00016489.2017.1384056>. PMID:28978261.
2. Coffey M, Tolley N. Swallowing after laryngectomy. *Curr Opin Otolaryngol Head Neck Surg.* 2015;23(3):202-8. <http://dx.doi.org/10.1097/MOO.000000000000162>. PMID:25943964.
3. van der Kamp MF, Rinkel RNPM, Eerenstein SEJ. The influence of closure technique in total laryngectomy on the development of a pseudo-diverticulum and dysphagia. *Eur Arch Otorhinolaryngol.* 2017;274(4):1967-73. <http://dx.doi.org/10.1007/s00405-016-4424-4>. PMID:28004260.
4. Patel DA, Sharda R, Hovis KL, Nichols EE, Sathe N, Penson DF, et al. Patient-reported outcome measures in dysphagia: a systematic review of instrument development and validation. *Dis Esophagus.* 2017;30(5):1-23. <http://dx.doi.org/10.1093/dote/dow028>. PMID:28375450.
5. Govender R, Lee MT, Davies TC, Twinn CE, Katsoulis KL, Payten CL, et al. Development and preliminary validation of a patient-reported outcome measure for swallowing after total laryngectomy (SOAL Questionnaire). *Clin Otolaryngol.* 2012;37(6):452-9. <http://dx.doi.org/10.1111/coa.12036>. PMID:23039924.
6. Govender R, Lee MT, Drinnan M, Davies T, Twinn C, Hilari K. Psychometric evaluation of the Swallowing Outcomes After Laryngectomy (SOAL) patient-reported outcome measure. *Head Neck.* 2016;38(S1, Suppl. 1):E1639-45. <http://dx.doi.org/10.1002/hed.24291>. PMID:26613682.
7. Guillemin F, Bombardier C, Beaton D. Cross-cultural adaptation of health-related quality of life measures: literature review and proposed guidelines. *J Clin Epidemiol.* 1993;46(12):1417-32. [http://dx.doi.org/10.1016/0895-4356\(93\)90142-N](http://dx.doi.org/10.1016/0895-4356(93)90142-N). PMID:8263569.
8. Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine.* 2000;25(24):3186-91. <http://dx.doi.org/10.1097/00007632-200012150-00014>. PMID:11124735.
9. Pernambuco L, Espelt A, Magalhães HV, Lima KC. Recommendations for elaboration, transcultural adaptation and validation process of tests in Speech, Hearing and Language Pathology. *CoDAS.* 2017;29(3):e20160217. PMID:28614460.
10. Polit DF, Beck CT. The content validity index: are you sure you know what's being reported? Critique and recommendations. *Res Nurs Health.* 2006;29(5):489-97. <http://dx.doi.org/10.1002/nur.20147>. PMID:16977646.
11. Epstein J, Santo RM, Guillemin F. A review of guidelines for cross-cultural adaptation of questionnaires could not bring out a consensus. *J Clin Epidemiol.* 2015;68(4):435-41. <http://dx.doi.org/10.1016/j.jclinepi.2014.11.021>. PMID:25698408.
12. Alexandre NMC, Coluci MZO. Validade de conteúdo nos processos de construção e adaptação de instrumentos de medidas. *Cien Saude Colet.* 2011;16(7):3061-8. <http://dx.doi.org/10.1590/S1413-81232011000800006>. PMID:21808894.
13. Sousa VD, Rojjanasirrat W. Translation, adaptation and validation of instruments or scales for use in cross cultural health care research: a clear and user friendly guideline. *J Eval Clin Pract.* 2011;17(2):268-74. <http://dx.doi.org/10.1111/j.1365-2753.2010.01434.x>. PMID:20874835.

Author's contribution

LMA, participated in the data collection, analysis, writing, and final review of the paper; FTMS participated in the data collection and analysis; LP participated in the conception, mentoring, analysis, writing, and final review of the paper

Appendix 1. Swallow Outcomes After Laryngectomy Questionnaire (SOAL) – versão em português brasileiro

Para cada uma das questões abaixo, favor indicar (✓) na resposta que melhor se encaixa para o que você tem sentido ou vivido hoje ou nos últimos dias.

Pergunta	Não	Um pouco	Muito	Se você respondeu um pouco ou muito, isso incomoda você? Favor indicar Sim (S) / Não (N)
1. Na sua opinião, você tem um problema para engolir atualmente?				
2. Você tem problema para engolir líquidos finos (chá, água, suco)?				
3. Você tem problema para engolir líquidos engrossados (sopa liquidificada, vitamina)?				
4. Você tem problema para engolir alimentos pastosos/ macios (lasanha, banana)?				
5. Você tem problema para engolir alimentos duros/ secos (pão francês, biscoitos)?				
6. Após você engolir, sente que o líquido fica parado na garganta?				
7. Após você engolir, sente que o alimento fica parado na garganta?				
8. Os alimentos ou líquidos voltam para sua boca ou nariz quando você come ou bebe?				
9. Você precisa beber líquido para ajudar o alimento descer?				
10. Você precisa engolir muitas vezes para ajudar o alimento ou bebida descer?				
11. Você evita certos alimentos porque não consegue engoli-los?				
12. Você leva muito tempo para comer uma refeição?				
13. Você perdeu o prazer em se alimentar?				
14. A quantidade de sua refeição diminuiu?				
15. Seu apetite diminuiu porque você não consegue sentir o sabor ou cheiro dos alimentos normalmente?				
16. Sua alimentação tem ficado mais difícil devido a sensação de boca seca?				
17. Você se sente constrangido comendo com outras pessoas?				

Obrigada pelo seu tempo!

Pontuação (para o clínico): Atribua uma pontuação de 0 para (não); 1 para (um pouco); e 2 para (muito). Some as colunas para obter a pontuação de até 34. Pontuação baixa indica poucos problemas e melhor função da deglutição.

Incômodo: Itens marcados (sim) devem ser investigados clinicamente para determinar se mais discussões/ intervenções durante a reabilitação podem ser úteis para o paciente.