

Content validation Living with Dysarthria

Validação conteúdo Vivendo com Disartria

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ABSTRACT

Purpose: to present the content validation of the Living with Dysarthria (LwD) questionnaire for Brazilian Portuguese. **Methods:** Methodological study for content validity of a speech self-assessment instrument in dysarthric individuals, in accordance with the recommendations of the Standards for Educational and Psychological Testing (SEPT). This phase included a panel of five expert judges who assessed the relevance and theoretical and textual relevance of each item that made up the LwD. The validity of the protocol was verified by the Content Validity Index (CVI) and Content Validation Coefficient (CVC). **Results:** When calculating the CVI on item relevance, six items on communication problems related to language and socialization scored below 0.59, being considered poor and excluded from the questionnaire. Still 17 items were excluded due to theoretical and textual relevance, they obtained a final CVC below 0.80. **Conclusion:** The LwD presents adequate validity evidence based on the test content. The final version of the instrument has 33 items, evaluated with an answer key on a six-point Likert scale. The importance of moving forward with sequential steps to obtain other evidence of validity is emphasized.

Keywords: Validation studies; Surveys and questionnaires; Self-assessment; Dysarthria; Quality of life

RESUMO

Objetivo: apresentar a validação de conteúdo do questionário Vivendo com Disartria) para o português brasileiro. **Métodos:** estudo metodológico para validade de conteúdo de instrumento de autoavaliação da fala em indivíduos disártricos, de acordo com as recomendações do *Standards for Educational and Psychological Testing*. Essa fase contou com um painel de cinco juízes especialistas que avaliaram relevância e pertinência teórica e textual de cada item que compunha o questionário. A validade do protocolo foi verificada pelo Índice de Validade de Conteúdo e Coeficiente de Validação de Conteúdo. **Resultados:** ao calcular o Índice de Validade de Conteúdo na relevância do item, seis itens sobre problemas de comunicação relacionados à linguagem e socialização tiveram pontuação abaixo de 0,59, sendo considerados ruins e excluídos do questionário. Ainda, 17 itens foram excluídos, pois, devido à pertinência teórica e textual, obtiveram Coeficiente de Validação de Conteúdo final abaixo de 0,80. **Conclusão:** o questionário Vivendo com Disartria apresenta evidências de validade adequadas com base no conteúdo do teste. A versão final do instrumento conta com 33 itens, avaliados com chave de respostas em escala Likert de 6 pontos. Enfatiza-se a importância de avançar com as etapas sequenciais para obtenção das demais evidências de validade.

Palavras-chave: Estudos de validação; Inquéritos e questionários; Autoavaliação; Disartria; Qualidade de vida

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INTRODUCTION

Changes in the Central Nervous System (CNS) can result in several types of language and/or speech disorders, with different repercussions, depending on the location and extent of the injury. Dysarthria is integrated in the group of neurological speech disorders and corresponds to the inability to control the structures involved in the production of the phonoarticulation⁽¹⁾. It is described as a group of neurogenic speech disorders, characterized by abnormalities in strength, speed, extension, stability or precision of the movements necessary for breathing, phonatory aspects, resonant, prosodic or articulatory of speech production and may adversely affect the intelligibility and/or naturalness of speech⁽²⁾.

The main manifestations of voice-related dysarthrias are: vocal tremor, stress and roughness, irregular articulation, sound prolongation and distortion, prosody with excessive or reduced accentuation, among others⁽³⁾.

The evaluation of dysarthria is based on qualitative characteristics by identifying aspects that point to the presence of these speech disorders and help to distinguish them from each other. The use of validated protocols for self-assessment is a relevant resource for understanding the impact of the change from the perspective of the subject experiencing it, in addition to monitoring the evolution of speech therapy⁽⁴⁾.

Two self-assessment questionnaires for dysarthria-related quality of life are available, none validated. The first is the Quality of Life in the Dysarthric Speaker (QoLDys)⁽⁵⁾, which evaluates the perceived difficulties in speech and the impact on daily life. The second is the protocol Living with Dysarthria (LwD), translated into Brazilian Portuguese and culturally adapted⁽⁶⁾.

Guidelines must be used to follow all test validation steps. The principles of the Standards for Educational and Psychological Testing (SEPT)⁽⁷⁾, a guideline proposed by three American organizations that compiles the most solid and used recommendations and definitions related to the psychometric aspects involved, can be listed, from the elaboration to the interpretation of tests. Once the LwD was translated and culturally adapted, this study brought the subsequent step, content validation.

The objective of content validation is to observe agreement between judges experts in the area, to analyze the relevance and theoretical and textual relevance of the items and verify whether the content is relevant and appropriate to what is intended to investigate and the target audience. This step may involve the specific analysis of the Content Validation Index (CVI) and Content Validation Coefficient (CVC), based on the theoretical relevance, practical relevance and language clarity of the LwD version for the Portuguese language of Brazil⁽⁸⁾.

Therefore, the objective of this study was to present the validation of content of the questionnaire Living with Dysarthria (LwD).

METHODS

Methodological study, which involved one of the validation phases of a speech-language instrument for self-assessment of speech in individuals with dysarthria. It met the terms of Resolution 466/12 of the National Health Council and was evaluated and approved by the Human Research Ethics Committee (REC) of the higher education institution where it was developed (n. 5.946.887).

The study followed the recommendations of SEPT. Content validation consisted of evaluation by experts in the subject addressed, to analyze the correspondence of the test items to their intended targets, the degree to which the items represented the intended content and cognitive specifications, as well as ranking the degree of relevance for the domain tested.

The participants were five judges, who signed the Informed Consent Form (ICF), all speech therapists, voice, orofacial motricity and/or gerontology specialists, with more than ten years of experience in neurological cases. The analysis was done individually and independently; each judge received the translated version of LwD⁶, with 50 questions divided into ten sections, which addressed specific difficulties in the production of speech and voice to the interference of behavioral, social and environmental issues. Each of the affirmations contained a 6-point Likert response key, namely: “totally disagree” (1), “strongly disagree” (2), “slightly disagree” (3), “somewhat agree” (4), “strongly agree” (5) and “totally agree” (6). The total score of the questionnaire was calculated by simple summation of each item, with a minimum of 50 points and maximum of 300.

The judges judged the relevance of the item in 4 points, to evaluate the quality of life of a dysarthric individual, classifying the theoretical relevance, analyzing whether the content of the item was representative of the individual’s speech, and the textual content, indicating the semantic and interpretative adequacy of the meaning of words (vocabulary and grammar). For the relevance of the item, a score between 1 and 4 was assigned: (1) not relevant, (2) needs major revision to be representative, (3) relevant, but requires minor changes and (4) absolutely relevant. Items marked as 1 and 2 should be adjusted.

The validity of the protocol was verified by the Content Validity Index (CVI) and Content Validation Coefficient (CVC). The CVI was verified in the relevance of the item, with the sum of the number of judges who assigned scores 3 and 4, divided by the total number of answers obtained for the item. Values above or equal to 0.78 were considered excellent, between 0.77 and 0.60, good and below 0.59, bad⁽⁹⁾.

The CVC was carried out for the answers of the judges regarding the theoretical and textual relevance of each item, with a calculation in five stages: averages of the judges’ notes; division of the averages by the maximum value that the question could receive; calculation of the error; division of the value by the number of judges, elevated by the same number of evaluators; subtraction of the average of the calculation obtained by the average of the error. Items with values above 0.80 were considered acceptable⁽¹⁰⁾.

RESULTS

As for the CVI on item relevance, six of them - 6, 9, 10, 15, 37 and 38 - had scores below 0.59, considered bad and excluded from the questionnaire (Table 1). Items 7, 8, 12, 27 and 32 were scored between 0.77 and 0.60, considered good; the others were considered excellent.

Regarding the theoretical and textual relevance, 17 items had CVC below 0.80 and were excluded. They were: 3, 4, 6, 7, 8, 9, 10, 12, 15, 18, 24, 27, 30, 32, 37, 38 and 45 (Table 1). Items 1, 5, 16 and 44 received suggestions for adjustments from the judges and textual modifications were performed by the researchers of the instrument. The LwD protocol obtained a final version with 33 items (Chart 1).

Table 1. Item agreement values by analyzing the Content Validity Index and the average Content Validation Coefficient of each item in the questionnaire

Items	Judges' evaluation					Mean CVI	Mean CVC	FINAL ITEM
	J1	J2	J3	J4	J5			
LWD1 I often run out of air when I talk (Eu fico sem ar quando falo)	4	4	3	4	4	1.0	0.89	MAINTAINED
LWD2 I often sound hoarse (Eu fico rouco)	4	4	4	3	4	1.0	0.89	MAINTAINED
LWD3 My speech is slow (Minha fala é lenta)	4	4	4	4	4	1.0	0.76	REMOVED
LWD4 My speech is slurred (Minha fala é arrastada)	4	3	4	3	4	1.0	0.73	REMOVED
LWD5 I often need to repeat what I've said because people don't understand me (Eu tenho que repetir o que falo porque as pessoas não me entendem)	4	4	4	4	4	1.0	0.96	MAINTAINED
LWD6 I have difficulty finding words when I speak (Tenho dificuldade em achar as palavras para falar)	4	1	1	1	4	0.40	0.79	REMOVED
LWD7 My speech is not very complex (e.g. short sentences, simple grammar) (Minha fala é simples (frases curtas, gramática simples))	4	2	3	3	2	0.60	0.59	REMOVED
LWD8 I need to think about what I'm saying and how I'm saying it when I speak (Tenho que pensar no que estou falando e como estou dizendo enquanto falo)	4	3	2	2	3	0.60	0.76	REMOVED
LWD9 Understanding new information takes a long time (Demoro para compreender uma informação nova)	4	1	1	1	4	0.40	0.66	REMOVED
LWD10 I don't always understand what people are saying to me (Nem sempre compreendo o que as pessoas me dizem)	4	1	1	1	4	0.40	0.59	REMOVED
LWD11 I rarely start conversations (Nem sempre compreendo o que as pessoas me dizem)	4	4	2	4	3	0.80	0.93	MAINTAINED
LWD12 I avoid 'deep' or complicated discussions or conversations (Eu evito discussões ou conversas profundas ou complicadas)	4	2	2	4	3	0.60	0.63	REMOVED
LWD13 I avoid situations where I'm expected to talk (Eu evito situações nas quais tenho que falar)	4	4	3	4	4	1.0	0.93	MAINTAINED
LWD14 I make only short remarks in discussions or conversations (Faço apenas pequenos comentários em conversas ou discussões)	4	3	3	4	4	1.0	0.86	MAINTAINED
LWD15 I cannot manage to concentrate enough to follow what is being said (Não consigo me concentrar o suficiente para acompanhar o que as pessoas dizem)	4	1	1	1	4	0.40	0.59	REMOVED
LWD16 My manner of communicating varies in a way that's difficult for me to predict (O modo de me comunicar varia de forma imprevisível)	4	4	2	3	4	0.80	0.83	MAINTAINED
LWD17 My speech difficulties get worse when I'm angry or sad (Minhas dificuldades de fala pioram quando estou triste ou com raiva)	4	4	3	4	4	1.0	0.99	MAINTAINED
LWD18 My speech difficulties negatively affect my self-image (Minhas dificuldades de fala afetam negativamente minha auto-imagem)	4	3	3	4	4	1.0	0.79	REMOVED
LWD19 My mood affects how I interact with others and how I communicate (O meu humor afeta como eu interajo com os outros e como eu me comunico)	4	4	1	4	4	0.80	0.89	MAINTAINED
LWD20 I worry about my speech difficulties (Eu me preocupo com minhas dificuldades de fala)	4	4	4	4	4	1.0	0.99	MAINTAINED
LWD21 I'm treated differently by people that I communicate with (Eu sou tratado de um modo diferente pelas pessoas com quem me comunico)	4	3	4	4	4	1.0	0.86	MAINTAINED
LWD22 It's difficult to communicate with members of my family (É difícil me comunicar com pessoas da minha família)	4	4	3	4	4	1.0	0.93	MAINTAINED
LWD23 It's difficult to communicate with relatives and friends (É difícil me comunicar com parentes e amigos)	4	1	3	4	4	0.80	0.93	MAINTAINED
LWD24 It's difficult to communicate with people I know, at work or in stores (É difícil me comunicar com as pessoas que eu conheço, no trabalho ou no comércio, nas lojas, padarias, restaurantes, farmácias)	4	3	4	4	4	1.0	0.76	REMOVED
LWD25 It's difficult to communicate with people that I've never met before (É difícil me comunicar com pessoas que não conheço)	4	2	4	4	4	0.80	0.93	MAINTAINED
LWD26 It's difficult to talk with one or two people at home (É difícil falar com uma ou duas pessoas em casa)	4	4	2	4	4	0.80	0.89	MAINTAINED
LWD27 It's difficult to talk when we have friends visiting (É difícil falar quando os amigos me visitam)	4	2	2	4	4	0.60	0.79	REMOVED
LWD28 It's difficult to talk on the telephone (É difícil falar ao telefone)	4	4	4	4	4	1.0	0.99	MAINTAINED
LWD29 It's difficult to talk in a group of people that I don't know (É difícil falar em um grupo de pessoas que eu não conheço)	4	4	4	4	4	1.0	0.99	MAINTAINED
LWD30 It's difficult to talk about emotional things (É difícil falar sobre questões emocionais)	4	3	1	4	4	0.80	0.79	REMOVED
LWD31 express basic need (get attention, express feelings, etc.) (Expressar as necessidades básicas (chamar a atenção, expressar sentimentos, etc))	4	4	4	4	4	1.0	0.86	MAINTAINED
LWD32 exercise my role as a family member in the way I would want to (Exercitar meu papel como membro da família como eu gostaria)	4	2	1	4	4	0.60	0.76	REMOVED
LWD33 take part in social gatherings with relatives and friends in the way I would want to (Participar de reuniões sociais com parentes e amigos como eu gostaria)	4	4	3	4	4	1.0	0.86	MAINTAINED
LWD34 actively take part in work and studies in the way I would want to (Participar no trabalho e em estudos como eu gostaria)	4	3	4	4	4	1.0	0.86	MAINTAINED
LWD35 express my personality in the way I would want to (Expressar minha personalidade como eu gostaria)	4	3	4	4	4	1.0	0.86	MAINTAINED
LWD36 The speech difficulties themselves (As próprias dificuldades de fala)	4	4	2	4	4	0.80	0.89	MAINTAINED
LWD37 Difficulties with the language (Dificuldades com a linguagem)	4	4	2	4	4	0.80	0.69	REMOVED
LWD38 Difficulties in thinking, remembering and concentrating (Dificuldade de pensar, lembrar e em concentrar)	4	1	1	2	4	0.40	0.66	REMOVED
LWD39 Fatigue (Cansaço)	4	1	1	1	4	0.40	0.89	MAINTAINED
LWD40 Physical difficulties (Dificuldades físicas)	4	4	3	4	4	1.0	0.83	MAINTAINED
LWD41 I don't communicate in the way I would want to (Eu me comunico como eu gostaria, mas é difícil)	4	4	2	4	4	0.80	0.89	MAINTAINED
LWD42 I communicate like I want to, but not as much or as often as I would like (Eu me comunico como eu gostaria, mas os outros completam minhas frases e tentam me ajudar)	4	4	3	4	4	1.0	0.96	MAINTAINED

Subtitle: J1, J2, J3, J4, J5 = judges; CVI = Content Validity Index; CVC = Content Validation Coefficient; LWD = Living with Dysarthria Questionnaire; 1 = Item not relevant; 2 = Item needs major revision to be representative; 3 = Item relevant, but needs minor changes; 4 = Item absolutely relevant

Table 1. Continued...

Items	Judges' evaluation					Mean CVI	Mean CVC	FINAL ITEM
	J1	J2	J3	J4	J5			
LWD43 I communicate like I want to, but it's difficult (Eu tenho que pedir ajuda aos outros para ser capaz de me comunicar como eu gostaria)	4	4	3	4	4	1.0	0.99	MAINTAINED
LWD44 I communicate like I want to, but listeners often fill in words or try to help out (Eu não me comunico como eu gostaria)	4	4	4	4	4	1.0	0.99	MAINTAINED
LWD45 I have to rely on others to be able to communicate like I want to (Eu me comunico como eu gostaria, mas não o quanto eu gostaria)	4	4	4	4	4	1.0	0.73	REMOVED
LWD46 I believe that my speech can be changed (Eu acho que minha fala pode mudar)	2	4	2	4	4	0.60	0.99	MAINTAINED
LWD47 I explain my communication difficulties to other people (Eu falo para os outros que tenho um problema de fala/comunicação)	4	4	3	4	4	1.0	0.93	MAINTAINED
LWD48 I try to express myself in another way when I'm not understood (Eu repito de outro jeito quando as pessoas não me entendem)	4	4	3	4	4	1.0	0.93	MAINTAINED
LWD 49 I take a break and rest a little when I notice that I'm not being understood (Eu paro e descanso um pouco, quando noto que não estou sendo compreendido)	4	4	3	4	4	1.0	0.89	MAINTAINED
LWD50 I don't speak if I think that it'll be hard to make myself understood (Eu paro e descanso um pouco, quando noto que não estou sendo compreendido)	4	4	4	4	4	1.0	0.96	MAINTAINED

Subtitle: J1, J2, J3, J4, J5 = judges; CVI = Content Validity Index; CVC = Content Validation Coefficient; LWD = Living with Dysarthria Questionnaire; 1 = Item not relevant; 2 = Item needs major revision to be representative; 3 = Item relevant, but needs minor changes; 4 = Item absolutely relevant

Chart 1. Living with Dysarthria Questionnaire, final version after content validation

Communication related to speech
1 I often run out of air when I talk (Eu fico sem ar quando eu falo)
2 I often sound hoarse (Eu fico rouco)
3 I often need to repeat what I've said because people don't understand me (Eu tenho que repetir o que falo porque as pessoas não me entendem)
Communication problems mainly related to fatigue
4 I rarely start conversations (Eu raramente começo uma conversa)
5 I avoid situations where I'm expected to talk (Eu evito situações nas quais tenho que falar)
6 I make only short remarks in discussions or conversations (Faço apenas pequenos comentários em conversas ou discussões)
Effects on emotion
7 My manner of communicating varies in a way that's difficult for me to predict (O modo de me comunicar varia de forma imprevisível)
8 My speech difficulties get worse when I'm angry or sad (Minhas dificuldades de fala pioram quando estou triste ou com raiva)
9 My mood affects how I interact with others and how I communicate (O meu humor afeta como eu interajo com os outros e como eu me comunico)
10 I worry about my speech difficulties (Eu me preocupo com minhas dificuldades de fala)
Effects on different people
11 I'm treated differently by people that I communicate with (Eu sou tratado de modo diferente pelas pessoas com quem me comunico)
12 It's difficult to communicate with members of my family (É difícil me comunicar com pessoas da minha família)
13 It's difficult to communicate with relatives and friends (É difícil me comunicar com parentes e amigos)
14 It's difficult to communicate with people that I've never met before (É difícil me comunicar com pessoas que não conheço)
Effects on different situations
15 It's difficult to talk with one or two people at home (É difícil falar com uma ou duas pessoas em casa)
16 It's difficult to talk on the telephone (É difícil falar ao telefone)
17 It's difficult to talk in a group of people that I don't know (É difícil falar em um grupo de pessoas que eu não conheço)
My communication difficulties hinder my chances of...
18 express basic need (get attention, express feelings, etc.) (Expressar as necessidades básicas (chamar atenção, expressar sentimentos..))
19 take part in social gatherings with relatives and friends in the way I would want to (Participar de reuniões sociais com parentes e amigos como eu gostaria)
20 actively take part in work and studies in the way I would want to (Participar no trabalho e em estudos como eu gostaria)
21 express my personality in the way I would want to (Expressar minha personalidade como eu gostaria)
What do you think contributes to the changes in your communication?
22 The speech difficulties themselves (As próprias dificuldades de fala)
23 Fatigue (Cansaço)
24 Physical difficulties (Dificuldades físicas)
How is my communication changed?
25 I don't communicate in the way I would want to (Eu me comunico como eu gostaria, mas é difícil)
26 I communicate like I want to, but not as much or as often as I would like (Eu me comunico como eu gostaria, mas os outros completam minhas frases e tentam me ajudar)
27 I communicate like I want to, but it's difficult (Eu tenho que pedir ajuda aos outros para ser capaz de me comunicar como eu gostaria)
28 I communicate like I want to, but listeners often fill in words or try to help out (Eu não me comunico como eu gostaria)
How do you perceive changes and the possibility of changing your way of speaking?
29 I believe that my speech can be changed (Eu acho que minha fala pode mudar)
30 I explain my communication difficulties to other people (Eu falo para os outros que tenho um problema de fala/comunicação)
31 I try to express myself in another way when I'm not understood (Eu repito de outro jeito quando as pessoas não me entendem)
32 I take a break and rest a little when I notice that I'm not being understood (Eu paro e descanso um pouco, quando noto que não estou sendo compreendido)
33 I don't speak if I think that it'll be hard to make myself understood (Eu nem falo se acho que vai ser difícil das pessoas me entenderem)

The 6-point response scale was evaluated and did not undergo any modification.

DISCUSSION

The self-assessment protocols provide information about who lives with a certain condition and allow perception and understanding regarding the impacts on quality of life. LwD focuses on people who have motor speech or phonoarticulatory change, such as dysarthria and its implication in everyday life. The study allowed the presentation of the validation of content of this instrument, resulting in a smaller version and faster application, after agreement with the panel of experts, under the specific and contemporary guidelines of SEPT.

After the process of translation and cross-cultural adaptation, the literature⁽⁷⁾ defined five steps used to demonstrate the validity of a test: (a) evidence based on content; (b) evidence based on response process; (c) evidence based on internal structure; (d) evidence based on the relationship with external variables; (e) evidence based on the consequences of the test (responsiveness), in addition to reliability and accuracy, for greater robustness of the instrument⁽⁷⁾

The content validation step was essential and, from the calculations of CVI and CVC, it was possible to adjust semantics, syntactic and contextual issues of the version of the instrument. There was the exclusion of less comprehensive items, with impact on the product, which became more concise and robust.

Items that had low scores and therefore were excluded were: “my speech is slow,” “my speech is dragged,” “I have difficulty finding the words to speak,” “my speech is simple,” “I have to think about what I am talking about and how I am saying while I talk,” “I take time to understand new information”, “I don’t always understand what people say”, “I avoid deep or complicated discussions or conversations”, “I can’t concentrate enough to follow what people say”, “my speech difficulties negatively affect my self-image”, “it is difficult to communicate with people I know, at work, or in trade, or in stores, bakeries, restaurants, pharmacies.”, “it’s hard to talk when friends visit me,” “it’s hard to talk about emotional issues,” “to exercise my role as a family member as I would like,” “difficulties with language (understanding and expressing ideas and feelings)”, “difficulty thinking, remembering and concentrating,” “I communicate as I would like, but not as much as I would like”. These items presented characteristics such as redundancy in the content, presence of almost identical elements or that verified the same information, making them repetitive for the respondent. In addition, some items consisted of long questions and difficult to understand and interpret.

The version produced in this study, with more representative items, allows a faster and direct application. It should be noted that there were no protocols that involved the quality of life construct in patients with dysarthria validated for Brazilian Portuguese. The reasons listed amplify the scientific relevance of the study in question.

In general, the items that were kept in LwD bring relevant questions and can represent the impact of dysarthria on the individual’s quality of life in areas related to speech, communication, language, emotions and socialization.

Future research will be carried out in order to follow the other stages of validity, reliability and accuracy to obtain a more precise,

sensitive and specific instrument for this population. Following all the steps will ensure methodological rigor and interpretation of results, which can confirm as a valid and reliable test.

CONCLUSION

The LwD presents adequate validity evidence, based on the content of the test. The current version of the instrument is composed by 33 items with the objective of evaluating the perception of quality of life impacted by speech difficulty of individuals with dysarthria, with maintenance of the key answers in a 6-point Likert scale.

The importance of advancing with sequential steps to obtain evidence of validity based on internal consistency, response processes, relationship with other variables, reliability, equity, accuracy and test result to obtain the final version of the questionnaire.

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