

# RIASE

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## **DYSPHAGIA IN THE ELDERLY AFTER CEREBROVASCULAR ACCIDENT: CHECKLIST FOR SCREENING**

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## ABSTRACT

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**Objective:** To build a checklist to identify deglutition changes in the elderly after cerebrovascular accident by health professionals.

**Method:** Methodological research of quantitative and qualitative approach, conducted in July 2019 after an integrative review, construction of the instrument as a checklist and semantic validation of its content, layout and confirmation of usefulness in practice by health professionals. Two groups participated in this research: GD (group of doctors, speech-language therapy experts), and GP (group of health professionals, non-speech therapists working at primary care and mid-complexity health services).

**Results:** Presentation of a checklist to screen changes in deglutition in the elderly after CVA, which may be completed by health professionals.

**Conclusion:** The checklist is a screening instrument for dysphagia in the elderly after cerebrovascular accident, and its applicability may lead to the need for a more specific speech-language evaluation as well as rehabilitation.

**Descriptors:** Deglutition; deglutition disorders; stroke; aged; speech; language and hearing science.

## INTRODUCTION

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Aging grows rapidly around the world. The increased life expectancy associated with decreased fertility rates leads to reflect on rapid and profound changes in the Brazilian population<sup>(1)</sup>.

As life expectancy and the number of elderly people increase, cardiovascular complications become more frequent, which modify the health profile of the population and the demand on the health system; chronic diseases and their complications, such as the Cerebrovascular Accidents (CVA), have higher rates of occurrence, thus causing problems in several areas of functionality<sup>(2)</sup>. Globally, CVA is the second leading cause of death, having a significant mortality rate, becoming one of the main causes of hospitalizations and mortality. Brazil has also a significant rate of mortality from CVA<sup>(3)</sup>.

As a sequel of CVA, dysphagia corresponds to the change that may compromise the whole deglutition process. Neurogenic dysphagia is well incident in the post-CVA, and the major changes occur in oral and pharyngeal phases of deglutition, being related to the high prevalence of morbidity and mortality, because they cause nutritional changes, pulmonary aspiration of saliva, secretions or foods, which cause clinical complications of dehy-

dration, malnutrition, risk of aspiration pneumonia and repetition<sup>(4)</sup>. In addition to interfering negatively in pleasure and socialization provided by the food<sup>(5)</sup>.

The elderly person with swallowing disorders (dysphagia) need to be directed to the speech-language pathologist quickly and efficiently, early reducing the risks of complications and ensuring an effective rehabilitation of sequels. Therefore, it is clear the need for referring the patient in the post-CVA, and under Palliative Care to the speech-language pathologist by professionals of health services. Thus, there emerged the idea to structure an instrument to send these users to the Homecare Service (HCS) and to the speech-language pathologist in order to provide food quality of life for the elderly assisted in the household, as well as preserve safely the pleasure of oral feeding.

Therefore, this study intended to develop this checklist to contribute to the better referral of the elderly in the post-CVA to the speech-language pathologist, for assistance to those who have swallowing disorders, and enable a faster recovery process.

Thus there arose the interest in developing a study from the following guiding question: What is the instrument able to screen changes in swallowing in the post-CVA elderly? And, to answer the question, this study aimed to: identify changes in deglutition in the post-CVA elderly in scientific publications and to build a checklist to screen changes in swallowing in the elderly who suffered cerebrovascular accident, by health professionals.

## **METHOD**

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This is a methodological research of quantitative and qualitative approach, structured in two steps: step 1 was the completion of an integrative literature review on the changes in deglutition of the post-CVA elderly, identified in national and international journals published in the last 10 years (2008- 2017), subsidizing the first version of the checklist.

Step 2 consisted of the construction of the instrument as a checklist for screening changes in deglutition in elderly patients who suffered CVA, identified by health professionals and, subsequently, the validation of its content, by means of the content validity index (CVI) and the layout, in July 2019.

The research was conducted at a health service that composes the Primary Family Health Strategy José Américo I/USF and at a mid-complexity Homecare Service (HCS), both located in the city of João Pessoa-PB. The services were duly chosen by the fact of receiving a great demand for the elderly to health services, when affected by CVA.

The study sample was comprised by health professionals who work at the aforementioned places. The professionals were selected intentionally, being divided into two groups: group of doctors (GD), composed by 10 speech-language pathologists with doctorate degree; and group of professionals (GP) formed by 20 health professionals who are not speech-language pathologists: Community Health Agent (CHA), physicians, nurses, nursing technicians, nutritionists, physiotherapists, social workers, and psychologists. According to the literature, at least four expert doctors are necessary to evaluate this type of instrument; 20 participants were invited to evaluate the checklist and compose its CVI<sup>(6)</sup>.

The inclusion criteria established for participation in the group of doctors (GD) were: speech-language pathologists, with doctorate degree, experts in the study area, professors or not, with care or teaching, research and/or extension activity in dysphagia, of both sexes. The inclusion criterion established for participation in the group of health professionals (GP) was: health professionals of both sexes, who were not speech-language pathologists, who have experience of at least 1 year in care practice in primary care or in mid-complexity, with the elderly who have suffered some type of CVA, being active at health services. The exclusion criteria established for the two groups were: incomplete data collection instrument.

The present study was approved by the Ethics Committee of the Health Sciences Center (CEP: 58051-900/CCS) of UFPB and approved under the number: 2.778.418 of 20 July 2018, CAAE: 87676518.6.0000.5188.

The instrument used for data collection was a questionnaire for the evaluation of the checklist consisting of 12 questions. The data collection was carried out through the presentation of the checklist to participants of the GD by e-mail in order to perform the first evaluation. After the voluntary acceptance of participation and signing the Informed Consent Form (ICF), they were asked to issue an opinion, through the completion of the questionnaire, with return within 10 calendar days. Then, there was the analysis of the responses given by the participants of the GD whose opinions supported the second version of the checklist that was generated and directed to the appreciation of the GP. The second version of the checklist was delivered in hands for each member of the GP (health professionals) that work at the places chosen for this study, which should be returned to the researcher on the same day.

The data were categorized and allocated on digital spreadsheet in Microsoft Excel. Subsequently, the variables were analyzed descriptively: presentation of the results was performed by simple descriptive statistics (absolute frequency and percentage) and the discussion was based on publications related to the subject, in order to verify the association between the opinion of doctors and health professionals about the checklist.

The evaluation of the judging doctors and health professionals was constructed from closed questions regarding information contained in the checklist, considering its relevance and usefulness for professionals who were not speech-language pathologists working with the elderly. For the validation of the content of the instrument, the content validity index (CVI) used was greater than or equal to 0.78. This method is widely used in the health area and measures the proportion that the experts and health professionals agree on certain aspects of the instrument. The method employed a Likert scale score from 1 to 4<sup>(6,7)</sup>. The index was calculated by the sum of 3 or 4 items that correspond to the answers appropriate and entirely appropriate, respectively. These items were evaluated by judges (experts and health professionals) and subsequently divided by the total number of answers.

From the results analyzed, the third version of the Checklist was created to identify changes in deglutition in the elderly who suffered CVA and help health professionals who meet these people in a better referral to the speech-language pathologist, contributing to an integral care and, consequently, to a better quality of life for the elderly affected by CVA.

## RESULTS

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The sample consisted of 30 health professionals, being 10 doctors, experts in the area of swallowing disorders, which included: a male and nine female aged 30-65 years and 20 health professionals who were not speech-language therapists working in health care practice in primary care with the elderly. These latter included: five CHA four nursing technicians, two social workers, six nurses, a psychologist, a nutritionist and a doctor, among them, 18 women and two men, all aged 25-65 years.

Table 1 shows the content validity index for each answer of both participating groups.

Table 1 - Content validity index (CVI) by question of the GD and GP.  
João Pessoa, PB, 2019.

CVI by question	GD	GP
1 - Are consistent with the needs of the elderly	1	1
2 - Contributes to changing behavior and attitudes	0.8	1
3 - Can circulate in the scientific field in the area of dysphagia and public health	0.9	1
4 - The checklist is appropriate for the elderly	0.9	1
5 - The questions are clearly and objectively	1	1
6 - The questions presented are scientifically correct	1	1
7 - The questions are well structured in concord and spelling	1	1
8 - Language is appropriate to the level of knowledge of the target audience (health professionals)	0.9	0.9
9 - The checklist proposes to the health professional evaluate swallowing changes in the elderly after cerebrovascular accident	1	1
10 - The checklist addresses the subjects necessary for referral to the speech-language professional, aiming at the recovery of the health of the elderly.	0.9	1
11 - It is suitable to be used as an effective and celebrated decision-making technology, helping to recover the health of the elderly.	0.9	1
12 - It is feasible	1	0.9

GD - group of doctors.

GP - group of professionals who are not speech-language pathologists.

The CVI calculation ranged between 0.8 and 1 for the experts, being 0.9 and 1 for health professionals for all items, characterizing a content validation index (CVI) greater than 0.78 as advocated in the literature<sup>(6)</sup>.

Next, table 2 refers to the evaluation items of the checklist applied to doctors and health professionals.

Table 2 – Answers of the doctors and professionals, non-speech-language pathologists, regarding the evaluation items of the checklist.

João Pessoa, PB, 2019.

Checklist evaluation items	Questions	Doctors								Health professionals							
		Inadequate		Partially adequate		Adequate		Entirely adequate		Inadequate		Partially adequate		Adequate		Entirely adequate	
		N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
1. Instrument's goal	1.1	0	0	0	0	4	40	6	60	0	0	0	0	1	5,3	19	94,7
	1.2	0	0	0	0	2	20	8	80	0	0	0	0	1	5,3	19	94,7
	1.3	0	0	0	0	2	20	8	80	0	0	0	0	1	5,3	19	94,7
2. Instrument's structure and presentation	2.1	0	0	0	0	6	60	4	40	0	0	1	10	8	33	12	67
	2.2	0	0	0	0	1	10	9	90	0	0	2	2	9	18	11	82
	2.3	0	0	0	0	3	30	7	70	0	0	0	0	8	33	12	67
	2.4	0	0	0	0	5	50	5	50	0	0	0	0	1	5,3	19	94,7
	2.5	0	0	0	0	2	20	8	80	0	0	0	0	2	10,6	18	89,4
3. Instrument's relevance	3.1	0	0	0	0	4	40	6	60	0	0	0	0	6	43	14	57
	3.2	0	0	1	10	5	50	4	40	0	0	0	0	4	25	16	75
	3.3	0	0	0	0	3	30	6	60	0	0	0	0	8	33	12	67
	3.4	0	0	0	0	3	30	7	70	0	0	0	0	6	43	14	57

Table 2 shows the responses of the groups regarding the evaluation items of the checklist. In both groups, most answers are between "adequate" and "entirely adequate", and the latter reaches 90% in the group of experts. Concerning the experts' comments, the suggestions to improve the proposed checklist were accepted so that they facilitated the communication of both parties (professionals and the elderly). In both groups, there were compliments for the checklist, recommending it, and highlighting its importance.

Table 3, described below, show the suggestions and comments of doctors and health professionals about the checklist assessed.

**Table 3 – Comments of doctors and health professionals, non-speech-language pathologists, about the checklist evaluated (versions 1 and 2). João Pessoa, PB, 2019.**

Research volunteer	Participating group	Comments about the Checklist
V1	Doctor	"(...) I believe the instrument can circulate in the scientific field and in health care, which will help professionals when sending the patient to the speech-language pathologist".
V2	Professional (Community Health Agent)	"Qualification/guidance are necessary to use such instrument, thus achieving its main goal".
V7	Professional (Nurse)	"I suggest qualification so that we can use the instrument, thus facilitating the better referral of the elderly to the speech-language pathologist".
V8	Professional (Nutritionist)	"I find it an extremely necessary instrument to meet the elderly and detect difficulties unable to be seen so far. This questionnaire would facilitate for us, non-speech-language pathologists, to realize these difficulties of the elderly".

The study participants (doctors and health professionals, non-speech-language pathologists) raised suggestions and compliments to the offered proposal. Of the 10 doctors, some presented constructive considerations in the improvement of language or in the form of addressing the issues of the checklist. As for health professionals, of the 20 interviewees, four commented in a satisfactory way the entire contents of the second version of



the checklist. At evaluation, all showed satisfaction in answering the survey instrument for later obtaining answers to the service, especially on the part of the CHA who carefully read and understand the contents. The greater availability of professionals to answer the survey instrument were from community health agents, nursing technicians and nurses by the factors time and interest.

## DISCUSSION

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The proposed checklist, based on the analysis of various indicators present in researches related to the theme, passed through the first stages of the validation, including content-based evidence<sup>(6)</sup>. This entire process makes it more reliable, mainly because it considered responses from judges, speech-language pathologists or not, with academic and care experience with the elderly who suffered CVA.

The volunteers' evaluation aimed to improve the version initially proposed, in order to make the checklist a tool for easy application by professionals and easily understood by patients and caregivers. It is composed of questions, whose answers are yes or no. In case of 21 or more answers YES, due to the presence of more than 50% of signs and symptoms of changed in deglutition, present in the screening, the patient must be sent to the speech-language pathologist immediately<sup>(6)</sup>.

Approximately 90% of the judges study participants are female. In the speech-language pathology, the professionals are predominantly women<sup>(8)</sup>. Similarly, health professionals are mostly women, which justifies the greater participation of the public in the study<sup>(9)</sup>.

In addition to dysphagia being a common symptom in people who suffered CVA, it may be associated with malnutrition, dehydration, pneumonia and death<sup>(10)</sup>. Due to this whole repercussion, the American Stroke Association (ASA) suggests the application of a deglutition screening instrument even before any medication, liquid or food to be administered for the post-CVA individual in order to avoid the complications of dysphagia<sup>(11,12)</sup>.

This study allowed for the elaboration of a checklist to be applied by any health professional from primary health care to elect the patient who suffered CVA for the speech-language evaluation, in order to ensure the intake of oral diet safely and effectively, and a better quality in the assistance.

Table 1 presents the responses of volunteers (GD and GP) for each of the twelve questions that assessed the concept of the checklist. Both groups demonstrated the validity of the content of the instrument created for the elderly who suffered CVA. The result demonstrated how the "checklist is ready to use in this audience with the purpose of preventing further damage to their health. Moreover, the index is above the value suggested in the literature<sup>(6)</sup>.

Table 1 shows the qualification of the checklist when most judges' answers were "adequate" or "entirely adequate". Those considered "partially adequate" were reviewed and the researchers considered all suggestions relevant, demonstrating the effort to make the tool as practical and effective as possible for professionals and the elderly.

The fact that volunteers from various areas participated in the study reveals how the checklist has a simple and practical application, which can be used by professionals with secondary education or higher, especially by the CHA, whose assignment is to visit the PC users in the household. Many of these patients have difficulty in locomotion, and the CHA is an essential bridge for access to other members of the team<sup>(13)</sup>.

The checklist aims to detect early changes in deglutition in the elderly with CVA and send them to the evaluation of a specialized professional. The speech-language pathologist will rehabilitate the deglutition function in these individuals, providing a better food quality to avoid complications associated with dysphagia and possible hospitalization<sup>(14)</sup>.

In addition to contributing to the operational course of services, the use of this instrument in the routine of health professionals will positively direct the procedures with elderly patients who suffered CVA<sup>(15)</sup>. The purpose of the checklist is to enable the elderly person with deglutition changes from the CVA the referral to the speech-language pathologist, quickly and safely, from health professionals who are not speech-language pathologists. The referral and characterization of the deglutition disorder can help minimize the indices of morbidity and facilitate recovery<sup>(16)</sup>. Below, there is the description of the third version of the checklist in figure 1.

Figure 1 - Checklist for screening changes in deglutition in the post-cerebrovascular accident elderly - 3rd version. João Pessoa, PB, 2019.

**Identification:**  
 Screening date:    /    /  
 1. Patient's Name: \_\_\_\_\_  
 2. Birth date:    /    /  
 3. Age: \_\_\_\_\_  
 4. Sex:    Female ( )    Male ( )  
 5. Type of CVA:    Ischemic ( )    Hemorrhagic ( )  
 6. Vital Signs:  
 Arterial Blood Pressure: \_\_\_\_\_ Saturation: \_\_\_\_\_  
 Heart Reate: \_\_\_\_\_ Temperature: \_\_\_\_\_  
 Respiratory Rate: \_\_\_\_\_

<b>Cognitive aspects:</b>	Y	N
Cognition		
1. Does the elderly patient obey simple orders and verbal commands?		
2. Are the responses adequate to the verbal commands?		
3. Does he/she present good social interaction?		
<b>Food aspects:</b>		
Food Route	Y	N
4. Oral		
5. Tube and Oral (Mixed)		
6. Nasoenteral Tube		
7. Nasogastric Tube		
8. Gastrotomy		
9. Jejunal Tube		
<b>Pulmonary and nutritional aspects:</b>		
Breathing and Nutrition	Y	N
10. Oral Breathing		
11. Nasal Breathing		
12. Tracheal Breathing		
13. Is there any difficulty breathing (dyspnea) during alimentation?		
14. Any case of pneumonia?		
15. Is there increased saliva in the oral cavity?		
16. Malnutrition (marked weight loss)?		
17. Dehydration?		
<b>Aspects of deglutition:</b>		
Food Habits	Y	N
18. Does the elderly patient want to or fell like eating?		
19. Does he/she fell pleasure in eating?		
20. Does he/she fear alimentation?		
21. Has the feeding time increased? Does he/she take too long to eat?		
22. Does he/she choose the food?		
23. Was there any change in diet regarding consistence?		
24. Is there preference for pasty or softened food?		
25. Does he/she present voluntary coughing?		
26. Does he/she present weak coughing?		
27. When eating and swallowing, does he/she cough and choke?		
28. When coughing and coking, does he/she get empurpled (cyanotic)?		
29. Does he/she feel tired when eating?		
30. After eating, does the voice change?		
31. Does he/she feel suffocated/asphyxiated during alimentation?		
Signature/stamp of the Professional:		

\*In case of 21 items with answer Yes, or more, quickly send to speech-language assessment.

## CONCLUSION

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The checklist is a tool that can be applied by health professionals who work with the elderly to screen changes in deglutition after the CVA in the elderly and early send them the speech-language pathologist, for a more specific evaluation, providing the opportunity of targeting strategies and adaptations by promoting better comfort, safety and quality of life for patients and their families. It should be emphasized the relevance of the instrument and, for this reason, there is a need to provide matrix support for health professionals for its proper use and correct application.

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