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Review articles

Categories of the International Classification of Functioning, Disability and Health in studies of people with aphasia: a scoping review

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ABSTRACT

Purpose: to identify, through a scoping review, the categories of the International Classification of Functioning, Disability and Health described in studies on aphasia.

Methods: the search was performed by DECs, MeSH terms and free terms related to the "International Classification of Functioning, Disability and Health" and "aphasia" in five databases, EMBASE, LILACS, PubMed, Scopus and Web of Science, and four search engines of grey literature. The PRISMA recommendations were used. EndNote and Rayyan managers were used to remove duplicates and read titles, abstracts and full studies. Papers that contained "aphasia" and some aspect from the International Classification of Functioning, Disability and Health were eligible, published from 2001. The data recorded were: type of study, level of evidence, sample, objectives and categories.

Literature Review: 1,366 studies were located in the databases and 341 in the grey literature. The mostly described first level categories in the 13 selected studies were: Structures of the Nervous System (Brain); Mental Functions (Language); Communication (Conversation); Support and Relationships (Immediate Family). Gender and age were some of the most identified Personal Factors.

Conclusion: this review provides support to the use of the International Classification of Functioning, Disability and Health for performance with people with aphasia.

Keywords: International Classification of Functioning Disability and Health; Aphasia; Review; Communication; Language

INTRODUCTION

Aphasia is an acquired language disorder with 30% of incidence after the occurrence of a Cerebrovascular Accident (CVA)[1]. Studies on aphasia after a CVA prevalently focus on linguistic abilities. Works on aphasias related to communication activities and social participation[2] are scarce. Communication is required in many daily activities but there are limitations for the person with aphasia, such as difficulty in expressing feelings, in grasping commands or even medication schedules[3]. Moreover, restrictions in individuals' participation, less engagement in living situations, such as minimum involvement in conversations, lack of self-care management occur, among others[3].

The use of the International Classification of Functioning, Disability and Health (ICF) contributes to characterize the functional profile with a holistic view that, according to the biopsychosocial model, comprises the health components regarding the Body Functions and Structures, the dimensions of Activities and Participation and the Contextual, Environmental and Personal Factors[4,5]. The ICF biopsychosocial model is based on an interactive, multidirectional process, in which a person's functioning is defined by the complex relation between the health status or condition and the contextual factors[5]. The ICF, developed by the World Health Organization in 2001 was created to provide a systematic scheme of coding to be applied in Health Information Systems. The Classification is organized in two parts: part I, Functioning and Disability comprises Body Functions and Structures and Activities and Participation; part II, Contextual Factors is divided in Environmental Factors and Personal Factors. Each ICF component entails several categories, which are classification units that can be expressed in positive or negative terms[4,5].

Regarding the health professionals' performance caring for people with aphasia, the use of the ICF contributes to the definition of the individual therapeutic planning in the multidimensional view, which provides interprofessional collaboration[6]. That occurs because the ICF establishes a common, standardized language, which enables the description of health and health-related states and favors communication among people who use it, such as health professionals, disabled people and also professionals from other sectors, such as social security, education, social policies, policy development[4,5]. By using the ICF, the intervention management of a person with aphasia also considers his/her context[3]. Therefore, careful conversation with a person with aphasia is essential to determine his/her tolerance to the proposed treatment, which must consider what is applicable to his/her reality[2].

In view of the importance of the ICF use to care for the person with aphasia, the analysis of the most commonly described categories in this Classification in studies on aphasia may facilitate the selection of the essential aspects for the management of the health professionals who care for people with aphasia, their caregivers and family members.

Previous reviews on aphasias reported the ICF concepts[2,7]. A systematic review specifically analyzed the social participation of people with aphasia[7], and a scoping review, focusing on one aspect of the therapy, featured some categories of the ICF[2]. Thus, the need of a broader understanding on the ICF concepts applied to the aphasic patients is justified. Therefore, this study aims to answer the following question, by means of a scoping review: what are the categories of the components for the Body Functions and Structures, Activities and Participation and Environmental Factors in the ICF and the Personal Factors described in studies on aphasias? In this sense, this article aims to identify the categories of the International Classification of Functioning, Disability and Health described in studies on aphasia by means of a scoping review.

METHODS

It is a scoping review, elaborated in light of the recommendations of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement[8].

Search strategy

Search was conducted on November 13 2021 using the terms of the Medical Subject Heading (MeSH), the Health Sciences Descriptors (Decs) and the free terms (Chart 1), related to the "International Classification of Functioning" and to the "Aphasia", with their corresponding terms in English and Spanish. Embase, Virtual Health Library (LILACS), PubMed/Medline, Scopus and Web of Science Databases were consulted. Additionally, on the same date, grey literature was consulted by means of search on Google Scholar, Open Grey, ProQuest (theses and dissertations) and MedVrix (Chart 1). The reference list of relevant studies was consulted and experts were contacted to improve the search strategy. References were managed and duplicates were removed by means of EndNote®X7 reference manager[9].

Chart 1. Search strategies used in databases and grey literature

Data-base	Search held on November 13 2021
EMBASE	#3 #1 AND #2 #2 ('aphasia'/exp OR 'aphasia' OR 'aphasia, broca'/exp OR 'aphasia, broca' OR 'aphasia, wernicke'/exp OR 'aphasia, wernicke' OR 'aphasia, conduction'/exp OR 'aphasia, conduction' OR 'aphasia, primary progressive'/exp OR 'aphasia, primary progressive' OR 'primary progressive nonfluent aphasia'/exp OR 'primary progressive nonfluent aphasia' OR 'progressive aphasia' OR 'progressive aphasias' OR 'acquired aphasia'/exp OR 'acquired aphasia' OR 'global aphasia'/exp OR 'global aphasia' OR 'global aphasias' OR 'post-traumatic aphasia' OR 'post-traumatic aphasias' OR 'functional aphasia' OR 'functional aphasias' OR 'graphomotor aphasia' OR 'graphomotor aphasias' OR 'semantic aphasia'/exp OR 'semantic aphasia' OR 'semantic aphasias' OR 'syntactical aphasia' OR 'syntactical aphasias' OR 'auditory discriminatory aphasia' OR 'auditory discriminatory aphasias' OR 'dysphasia'/exp OR 'dysphasia' OR 'mixed aphasia' OR 'mixed aphasias') #1 ('international classification of functioning, disability and health'/exp OR 'international classification of functioning, disability and health' OR 'disability evaluation'/exp OR 'disability evaluation' OR 'disability evaluations')
LILACS	("International Classification of Functioning, Disability and Health" OR "Disability Evaluation" OR "Disability Evaluations" OR "Classificação Internacional de Funcionalidade, Incapacidade e Saúde" OR "Clasificación Internacional del Funcionamiento, de la Discapacidad y de la Salud" OR "Avaliação da Deficiência" OR "Evaluación de la Discapacidad") AND ("Aphasia" OR "Aphasia, Broca" OR "Aphasia, Wernicke" OR "Aphasia, Conduction" OR "Aphasia, Primary Progressive" OR "Primary Progressive Nonfluent Aphasia" OR "Progressive Aphasia" OR "Progressive Aphasias" OR "Acquired Aphasia" OR "Global Aphasia" OR "Global Aphasias" OR "Post-Traumatic Aphasia" OR "Post-Traumatic Aphasias" OR "Functional Aphasia" OR "Functional Aphasias" OR "Graphomotor Aphasia" OR "Graphomotor Aphasias" OR "Semantic Aphasia" OR "Semantic Aphasias" OR "Syntactical Aphasia" OR "Syntactical Aphasias" OR "Auditory Discriminatory Aphasia" OR "Auditory Discriminatory Aphasias" OR "Dysphasia" OR "Mixed Aphasia" OR "Mixed Aphasias" OR "Afasia" OR "Afasia de Broca" OR "Afasia de Condução" OR "Afasia de Conducción" OR "Afasia de Wernicke" OR "Afasia Primária Progressiva" OR "Afasia Progresiva Primaria" OR "Afasia Primária Progressiva não Fluente" OR "Afasia Progresiva Primaria no Fluente") AND (db:("LILACS"))
PubMed/ Medline	("International Classification of Functioning, Disability and Health"[MeSH Terms] OR "International Classification of Functioning, Disability and Health"[All Fields] OR "Disability Evaluation"[MeSH Terms] OR "Disability Evaluation"[All Fields] OR "Disability Evaluations"[All Fields]) AND ("Aphasia"[MeSH Terms] OR "Aphasia"[All Fields] OR "Aphasia, Broca"[MeSH Terms] OR "Aphasia, Broca"[All Fields] OR "Aphasia, Wernicke"[MeSH Terms] OR "Aphasia, Wernicke"[All Fields] OR "Aphasia, Conduction"[MeSH Terms] OR "Aphasia, Conduction"[All Fields] OR "Aphasia, Primary Progressive"[MeSH Terms] OR "Aphasia, Primary Progressive"[All Fields] OR "Primary Progressive Nonfluent Aphasia"[MeSH Terms] OR "Primary Progressive Nonfluent Aphasia"[All Fields] OR "Progressive Aphasia"[All Fields] OR "Progressive Aphasias"[All Fields] OR "Acquired Aphasia"[All Fields] OR "Global Aphasia"[All Fields] OR "Global Aphasias"[All Fields] OR "Post-Traumatic Aphasia"[All Fields] OR "Post-Traumatic Aphasias"[All Fields] OR "Functional Aphasia"[All Fields] OR "Functional Aphasias"[All Fields] OR "Graphomotor Aphasia"[All Fields] OR "Graphomotor Aphasias"[All Fields] OR "Semantic Aphasia"[All Fields] OR "Semantic Aphasias"[All Fields] OR "Syntactical Aphasia"[All Fields] OR "Syntactical Aphasias"[All Fields] OR "Auditory Discriminatory Aphasia"[All Fields] OR "Auditory Discriminatory Aphasias"[All Fields] OR "Dysphasia"[All Fields] OR "Mixed Aphasia"[All Fields] OR "Mixed Aphasias"[All Fields])

Data-base	Search held on November 13 2021
SCOPUS	(TITLE-ABS-KEY ("International Classification of Functioning, Disability and Health" OR "Disability Evaluation" OR "Disability Evaluations") AND TITLE-ABS-KEY ("Aphasia" OR "Aphasia, Broca" OR "Aphasia, Wernicke" OR "Aphasia, Conduction" OR "Aphasia, Primary Progressive" OR "Primary Progressive Nonfluent Aphasia" OR "Progressive Aphasia" OR "Progressive Aphasias" OR "Acquired Aphasia" OR "Global Aphasia" OR "Global Aphasias" OR "Post-Traumatic Aphasia" OR "Post-Traumatic Aphasias" OR "Functional Aphasia" OR "Functional Aphasias" OR "Graphomotor Aphasia" OR "Graphomotor Aphasias" OR "Semantic Aphasia" OR "Semantic Aphasias" OR "Syntactical Aphasia" OR "Syntactical Aphasias" OR "Auditory Discriminatory Aphasia" OR "Auditory Discriminatory Aphasias" OR "Dysphasia" OR "Mixed Aphasia" OR "Mixed Aphasias"))
Web of Science	"International Classification of Functioning, Disability and Health" OR "Disability Evaluation" OR "Disability Evaluations" (Todos os campos) and "Aphasia" OR "Aphasia, Broca" OR "Aphasia, Wernicke" OR "Aphasia, Conduction" OR "Aphasia, Primary Progressive" OR "Primary Progressive Nonfluent Aphasia" OR "Progressive Aphasia" OR "Progressive Aphasias" OR "Acquired Aphasia" OR "Global Aphasia" OR "Global Aphasias" OR "Post-Traumatic Aphasia" OR "Post-Traumatic Aphasias" OR "Functional Aphasia" OR "Functional Aphasias" OR "Graphomotor Aphasia" OR "Graphomotor Aphasias" OR "Semantic Aphasia" OR "Semantic Aphasias" OR "Syntactical Aphasia" OR "Syntactical Aphasias" OR "Auditory Discriminatory Aphasia" OR "Auditory Discriminatory Aphasias" OR "Dysphasia" OR "Mixed Aphasia" OR "Mixed Aphasias" (All Fields)
Grey literature	
Google Scholar	("International Classification of Functioning, Disability and Health" OR "Disability Evaluation") AND ("Aphasia" OR "Aphasia, Broca" OR "Aphasia, Wernicke" OR "Aphasia, Conduction" OR "Aphasia, Primary Progressive") file type: PDF
Open Grey	"International Classification of Functioning, Disability and Health"
ProQuest	NOFT ("International Classification of Functioning, Disability and Health" OR "Disability Evaluation" OR "Disability Evaluations") AND NOFT ("Aphasia" OR "Aphasia, Broca" OR "Aphasia, Wernicke" OR "Aphasia, Conduction" OR "Aphasia, Primary Progressive" OR "Primary Progressive Nonfluent Aphasia" OR "Progressive Aphasia" OR "Progressive Aphasias" OR "Acquired Aphasia" OR "Global Aphasia" OR "Global Aphasias" OR "Post-Traumatic Aphasia" OR "Post-Traumatic Aphasias" OR "Functional Aphasia" OR "Functional Aphasias" OR "Graphomotor Aphasia" OR "Graphomotor Aphasias" OR "Semantic Aphasia" OR "Semantic Aphasias" OR "Syntactical Aphasia" OR "Syntactical Aphasias" OR "Auditory Discriminatory Aphasia" OR "Auditory Discriminatory Aphasias" OR "Dysphasia" OR "Mixed Aphasia" OR "Mixed Aphasias")
MedVrix	"International Classification of Functioning, Disability and Health" AND "Aphasia"

Eligibility criteria

The inclusion criteria adopted in the current study met the following structure of the "PEOS" acronym:

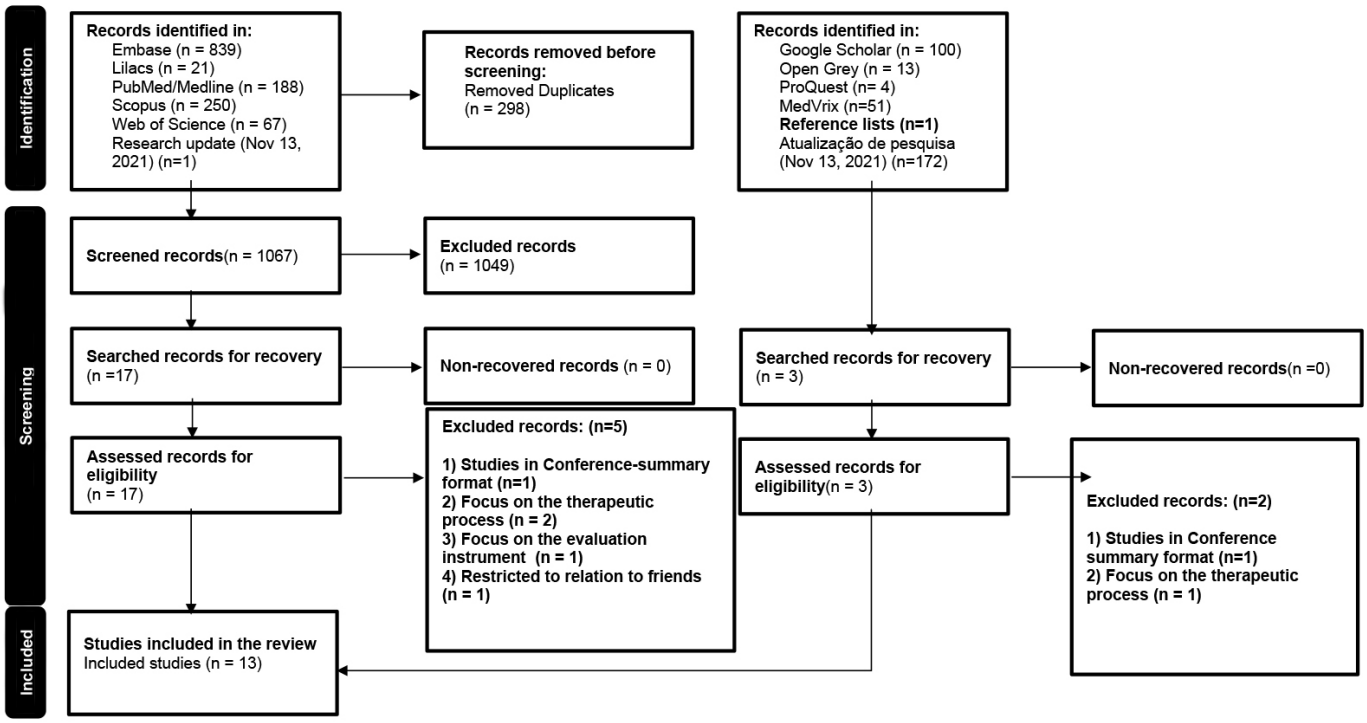
- Population (P): People;
- Exposure (E): Aphasia;
- *Outcome* (O): International Classification of Functioning Disability and Health;
- *Studies* (S): Primary studies – observational studies and case reports.

Idiom was not delimited. Studies addressing aphasia and a concept from the ITF were included. As exclusion criteria, the following studies were not considered: literature review; studies on CVA not specifying aphasia; on communication disorders not focusing on aphasia; describing tests or assessment instruments of the language or activities of the daily living or the performance in those instruments; on therapy for patient conditions with aphasia; or on quality of life. Moreover, there was time delimitation, being considered studies from 2001 on, that is, when the ICF was published.

Selection process

The article selection was carried out by two independent reviewers. The blinding process was granted by the use of Rayyan. The first phase comprised title and abstract reading, guided by the eligibility criteria. In the second phase, the reviewers fully read the selected articles. At the end of each phase, consensus meetings were held, and to solve probable divergences, a third reviewer was consulted.

Figure 1 shows, according to PRISMA (2021)[10] recommendation, the flowchart with details of the article selection process under the eligibility criteria.



Source: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71. For more information, visit: http://www.prisma-statement.org/

Figure 1. PRISMA 2020 flow diagram for new systematic reviews which included searches of databases, registers and other sources

Process of data extraction

Information on the aspects regarding each component of the ICF was recorded: Body Functions and Structures; Activities and Participation; Environmental and Personal Factors. Each ICF component entails several categories, featuring a system of alphanumeric system, in which letters represent the components, followed by a numeric code which starts with the number of the chapter, one digit (first-level category), and followed by two more digits (second-level category))[4,5]. For the Body Structures component, for example, the nervous system is represented by the second-level category s110[4,5]. All the categories presented in the study and described in the ICF were recorded. The record included alphanumeric data and their corresponding description. The Personal Factors component does not comprise any categories, referring to the private life history and lifestyle of an individual[5].

Data synthesis

From the selected studies, authorship data, year of publication, type of study, level of evidence, objectives, sample composition, body structures, body functions, activities and participation, environmental and personal studies. The first-level categories, represented by a letter and a digit, and the second-level categories, with two digits more, were presented, and the corresponding description of each alphanumeric information. The results of the second-level categories contemplate the most referred categories in the reviewed articles.

Level of evidence

The classification of the level of scientific evidence was based on 10 hierarchical levels, in which level 1 stands for the lowest level of scientific evidence and 10 stands for the highest level of evidence[11]. For example, level 1 corresponds to literature review, level 5 refers to observational studies and level 10 comprises systematic reviews with meta-analysis of randomized clinical trials[11].

LITERATURE REVIEW

After search in the databases, 1,366 articles and 341 grey literature studies were identified. Duplicates, 298, were removed. After reading the title and abstract, 17 articles were obtained from the databases and 3 from

grey literature. After reading the full text, 13 articles were selected for the qualitative synthesis.

The findings were changed into categories, according to the ICF, as subsequently detailed. Table 1 shows the characteristics of the articles included in this scoping review: authors, year, type of study, level of evidence, objective, sample and ICF categories presented along the study.

Table 1. Characteristics of the studies included in this review on aphasia and International Classification of Functioning, Disability and Health categories

Author(s)	Year	Type of study and Level of Evidence	Objectives	Sample	Body Structure*	Body Functions*	Activities and Participation*	Environmental Factors*	Personal Factors
Parr[12]	2001	Cross-sectional 5	To review the different meanings of the psychosocial term and identify the ways in which social and psychological sequelae from aphasias can be explored.	50 people with aphasia.	Not described	b167, b730.	d230, d310, d329, d330, d350, d710, d720, d740, d750, d830, d845, d850, d860, d870, d910, d920, d930, d940, d950	e125, e310, e330, e335, e355, e410, e430, e435, e450, e460, e465, e555, e560, e575, e580, e590	Age, gender, housing situation, severity of aphasia
Brown et al.[13]	2006	Cross-sectional 5	To identify the environmental factors (barriers and facilitators) that influence the community participation of adults with aphasia in the perspective of a shopping mall workers.	24 workers from a shopping mall which had a sales program for disabled people.	Not-described.	Not-described.	Non-described.	e115, e125, e155, e165, e250, e340, e360, e420, e425, e430, e435, e440, e445, e460, e465, e515, e565, e575, e580, e585, e590.	Age, gender, profession, job length, contact with aphasic individuals, previous CVA.
Simmons-Mackie, Kagan[3]	2007	Clinical Case 4	To describe the aphasia using the ICF constructs.	Clinical case of a 55-year-old woman who underwent a CVA.	s110.	b117, b126, b140, b144, b167, b230, b330.	d166, d167, d210, d230, d310, d325, d330, d345, d350, d570, d640, d650, d710, d720, d750, d845, d850, d920.	e125, e250, e310, e320, e355, e440, e450, e550.	Age, gender nationality, aphasia length, personality
Sherratt et al.[14]	2011	Cross-sectional 5	To analyze the objectives established by speech therapists to their clients with aphasia and their respective family members based on the ICF components.	34 speech therapists referred by 50 people with aphasia.	Not-described.	b126, b130, b167, b176, b330.	d155, d310, d325, d330, d345, d350, d710, d835.	e125, e310, e355, e410, e450.	Age, gender, time from the CVA.

Author(s)	Year	Type of study and Level of Evidence	Objectives	Sample	Body Structure*	Body Functions*	Activities and Participation*	Environmental Factors*	Personal Factors
Worrall et al.[15]	2011	Cross-sectional 5	To describe the objectives of people with aphasia according to the ICF categories.	Semi-structured interviews with 50 aphasic participants after CVA.	s750.	b144, b152, b164, b220, b280, b320, b420, b440, b510, b730, b760.	d110, d115, d135, d140, d145, d155, d166, d170, d210, d310, d315, d325, d330, d335, d350, d360, d410, d445. d450, d465, d470, d475, d510, d550, d570, d620, d630, d660, d730, d750, d760, d830, d850, d855, d860, d865, d870, d910, d920.	e110, e115, e120, e125, e130, e140, e155, e220, e250, e310, e315, e320, e325, e330, e340, e345, e355, e555, e575, e580.	Age, gender, idiom, region and time from the CVA, severity of the aphasia.
Le Dorze et al.[16]	2014	Cross-sectional 5	To analyze the factors that facilitate or hinder the participation according to people with aphasia.	17 participants with aphasia after CVA.	Not-described.	b126, b130, b144, b152, b167, b730.	d138, d155, d172, d175, d230, d240, d310, d330, d350, d450, d455, d475, d550, d710, d750, d770, d855, d870, d910.	e120, e125, e310, e320, e325, e355, e410, e450, e535, e555, e575, e580.	Age, gender, time from the CVA, personality, determination, severity of the aphasia.
Matos, Jesus, Cruice et al., [17]	2014	Croos-sectional 5	To report the outcomes in the daily living of people with aphasia in the perspective of 38 people who live with or work with aphasia (patients, family members, friends and speech therapists).	14 people with aphasia 14 family members and 10 speech therapists.	Not described.	b110, b126, b130, b140, b144, b147, b152, b164, b167, b172, b176, b299, b399, b499, b599, b799.	d199, d299, d345, d350, d399, d450, d455, d469, d475, d499, d540, d599, d630, d699, d799, d859, d879, d920.	Not described.	Age, gender, schooling profession, proficiency in English, European Portuguese speakers, time from the CVA, previous CVA.
Pommerehn, Delboni, Fedosse et al.[18]	2016	Cross-sectional 5	To identify and analyze the impact of aphasias on the social participation and activities of the daily living in people suffering from aphasias and apprehend the implications of environmental factors in the limitations and barriers for their participation according to the ICF.	12 people with aphasia.	s110, s720, s730, s740, s750, s760.	b114, b134, b140, b144, b152, b156, b164, b167, b210, b235, b280, b410, b420, b440, b710, b730, b735.	d115, d140, d145, d150, d159, d175, d210, d220, d310, d315, d330, d335, d350, d430, d440, d450, d510, d520, d540, d570, d620, d630, d640, d660, d710, d720, d730, d740, d750, d760, d770, d810, d850, d860, d910, d920, d930, d950.	e110, e115, e120, e150, e155, e225, e310, e320, e325, e340, e355, e360, e410, e420, e440, e450, e455, e540, e570, e580, e585, e590.	Age, gender, schooling profession, therapy length, CVA, time from the stroke.

Author(s)	Year	Type of study and Level of Evidence	Objectives	Sample	Body Structure*	Body Functions*	Activities and Participation*	Environmental Factors*	Personal Factors
Wallace et al.[19]	2016	Cross-sectional 5	To summarize the findings of three studies that explored the perspectives of groups of people interested in the treatment of aphasia (people with aphasia, family members, researchers and clinicians).	Result analysis of three previous studies.	Not described.	b126, b130, b140, b144, b152, b160, b167, b180, b230, b310, b320, b340.	d155, d166, d170, d177, d210, d220, d230, d240, d310, d330, d350, d355, d360, d570, d660, d710, d720, d750, d760, d770, d839, d845, d860, d910, d920.	e165, e310, e330, e340, e355, e410, e415, e420, e430, e440, e450, e460, e565, e575, e580, e585, e590.	Not described.
Purdy et al.[20]	2016	Clinical Case 4	To discuss, based on the ICF, the impact of hearing loss, of the difficulties in auditory processing, of aphasia and other difficulties of a clinical case after a CVA.	Clinical case of a 35-year-old man after undergoing a CVA.	s110, s250, s260.	b126, b130, b156, b166, b167, b230.	d166, d310, d325, d330, d350, d845, d859.	e250, e310, e355, e580.	Age, gender, profession, schooling, time from the CVA.
O'Halloran, Carragher, Foster[21]	2017	Clinical Case 4	To understand the impact of the environment on the participation of the person with aphasia in his/her perspective.	Clinical case of a person with aphasia for over 15 years.	Not-described.	b126, b130, b152, b167, b730.	d175, d240, d310, d330, d350, d450, d610, d620, d720, d770, d845, d850, d870, d940.	e120, e310, e410, e525, e570, e575, e580.	Age, nationality, profession depression.
Pettit, T"onsing, Dada[22]	2017	Cross-sectional 5	To describe and compare the classifications provided by adults with aphasia, other meaningful people and speech therapists on the adaptations of activities and participation.	15 people with aphasia, other meaningful people in their contexts and their15 speech therapists.	s110.	b126, b130, b167, b730.	d199, d240, d399, d445, d450, d499, d599, d699, d799, d899, d920.	e120, e310, e325, e355.	Age, gender, schooling, native idiom, time from the CVA.
Wallace et al.[23]	2017	Cross-sectional 5	To identify the important domains for people with aphasia and their family members by means of qualitative analysis and the ICF.	39 people with aphasia and 29 family members.	Not described.	b126, b130, b140, b144, b152, b160, b167, b230, b310, b320, b340, b799.	d155, d166, d170, d210, d220, d230, d240, d310, d330, d350, d355, d360, d499, d570, d710, d720, d750, d839, d845, d860, d920.	e125, e310, e330, e340, e355, e430, e460, e565, e580, e585, e590.	Age, gender, schooling, profession, country, language, severity and time of aphasia, undergoing therapy.

Captions: ICF – International classification of Functioning, Disability and Health; CVA – Cerebrovascular Accident; b – Body Function component; d – Activities and Participation component; s – Body Structure component; and – Environmental Factors component. *ICF Alphanumeric System, in which letters represent the components and numbers represent the category. A letter and a digit represent a first-level category and the alphanumeric sequence with two digits represents a second-level category.

Results regarding the ICF categories are shown in Table 2 and the discussion was presented in the sequence, as follows: Body Structures, Body Functions, Activities and Participation, Environmental Factors and Personal Factors.

Table 2. Components and categories of the International Classification of Functioning, Disability and Health identified in the study

Components	First-level Categories (chapters)	Number of articles that mentioned the first-level category	Number of mentioned second-level categories in each chapter
Body Functions	b1 Mental functions	12	18
	b2 Sensory functions and pain	7	6
	b3 Voice and speech functions	6	5
	b4 Functions of the cardiovascular, hematological, immunological and respiratory systems	3	4
	b5 Functions of the digestive, metabolic and endocrine systems	2	2
	b7 Neuromusculoskeletal and movement-related functions	8	5
Body Structure	s1 Structures of the nervous system	4	1
	s2 Eye, ear and related structures	1	2
	s7 Structures related to movement	2	5
Activities and Participation	d1 Learning and applying knowledge	11	16
	d2 General tasks and demands	10	5
	d3 Communication	12	11
	d4 Mobility	7	11
	d5 Self-care	8	6
	d6 Domestic life	7	7
	d7 Interpersonal relations and interactions	11	8
	d8 Major life areas	12	13
	d9 Community, social and civic life	10	5
Environmental Factors	e1 Products and technology	11	9
	e2 Natural environment and human-made changes to environment	5	3
	e3 Support and relationships	12	11
	e4 Attitudes	9	12
	e5 Services, systems and policies	10	13

From the reviewed articles, only five referred a category from the ICF component – Body Structures[3,15,18,20,22], while the other studies did not describe any categories of this component[12-14,16,17,19,21,23]. The first-level category prevalently described was s1[3,18,20,22], regarding the structures of the nervous system (Table 2). This finding meets the expected, as aphasias have neurological origin, and CVA is their major cause[1]. The CVA may have outcomes in other structures[24,25], as also identified in the current study with the first-level categories: Eye, Ear and Related Structures (s2)[20], and Structures Related to Movement (s7)[15,18].

This review demonstrated only three categories of Body Structures described in the studies on aphasia, all of them straight correlated to neurological impairment, while 6 out of 8 categories from the ICF regarding Body Functions were addressed in the reviewed articles. The most addressed second-level categories in that component were: Mental Functions of the Language, b167, described in 11 (85%) reviewed articles; Temperament and Personality Functions, b126, described in 9 (69%) studies; Energy and Impulse Functions, b130, described in 8 (62%); Memory and Emotional Functions, b144 e b152, addressed in 7 (54%), and Muscle Power-related Functions, b730, described in 6 (46%) studies. Therefore, those categories most frequently refer to the Mental Functions[3,12,14-23], b1; Voice and Speech[3,14,15,17,19,23], b3; Sensory and Pain[3,15,17-20,23], b2; and Movement[12,15-18,21-23], b7, according to what is shown in Table 2. The findings concerning the Body Functions described in the studies on aphasia corroborate the functions included in the clinical assessment proposed by the scale used worldwide for the investigation of the Stroke

impact: Consciousness, Vision, Movement, Speech and Language[26] Functions. In addition, these Body Functions are listed in the ICF Core-Set for Stroke Categories[27].

Despite the ICF has a global view of health and stresses the aspects of functioning and disability, it is observed the prevalence of the description of Body Functions related to the disabilities. That occurs because those Mental functions of the Language, Temperament and Personality, Energy and Impulse, Emotional, Memory and Muscle Power correspond to the common symptoms after a CVA, such as the neuropsychiatric symptoms[28] and the comorbidities occurring along with the aphasias[29], such as the cognitive functioning disorders and motor sequelae[30].

Knowledge on those functions is important for intervention planning, understanding of the prognosis-related factors and choice of therapeutic strategies, according to individual functioning and need. For example, by including therapeutic language activities which depend on motor responses, such as pointing or writing, it is fundamental to have knowledge on the motor function, as the b730 (Muscle Power-Related Functions), in order to adapt, if necessary, the strategy application to another type of response. In this case, some possibilities of adaptations would include eye response, the use of the non-dominant hand or writing by means of magnetic-letter sorting. The person with aphasia must participate in the decision of the likely use of the impaired hand. Despite the selection of the categories describes the negative aspects caused by the disease, such as the motor function impairment, the relevance of the positive aspects associated with the broad concept of health is highlighted, as they allow to identify facilitating strategies in several contexts, in which the person is inserted. These positive aspects influence health, recovery and reduce the situations of disability[31]. The use of indicative and representative gestures can be a communicative resource spontaneously used by the aphasic patients that does not flow or is stimulated in therapy if the motor function of their upper limbs allows the use of that strategy. Thus, for the work with aphasic patients, the description of a category, for example, the motor function of the upper limbs, can be essential, even in the absence of impairment.

Still concerning the categories of the Body Functions component, by analyzing the perspective of people with aphasia and speech therapists, regarding the aphasia outcomes in their daily living, some different categories were selected, according to the perspective of each of them[17]. For example, among the most identified categories in this review, b130 (Functions of Energy and Impulses) was reported in the study by Matos, Jesus and Cruice (2014) only by people with aphasia, while b126 (Functions of the Temperament and Personality) and b152 (Emotional Functions) were only described by the speech therapists[17]. Thus, this work reviewed studies which addressed the ICF categories not only reporting the perspective of people with aphasia[12,15-18,22,23], but also in the perspective of the speech therapist[14,17,22], the researcher[3,20,21], the family member[17,22,23] and others[13,22]. This review supports who interacts with aphasic people, professional, family member or others, and the person with aphasic him/herself for the selection of the relevant categories to their life.

Only some first-level categories of Body Functions and Structures were described. On the other hand, all of them regarding the components Activities and Participation and Environmental Factors were addressed in the reviewed studies. The greatest characterization of those components suggests that the categories in those aspects are the ones which best represent the general view of the person's health status prioritized by the ICF[4,5], in which the person is the focus, not the disease outcome. Concerning the ICF components, Activities and Participation and Environmental Factors, Figures 2 and 3 feature the most identified categories in this review.

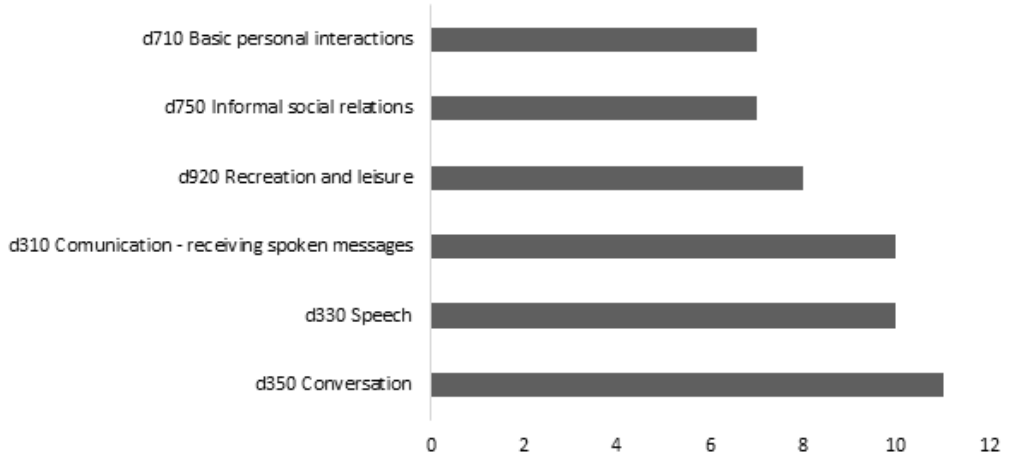


Figure 2. Categories of the Activities and Participation component described in the studies on aphasias

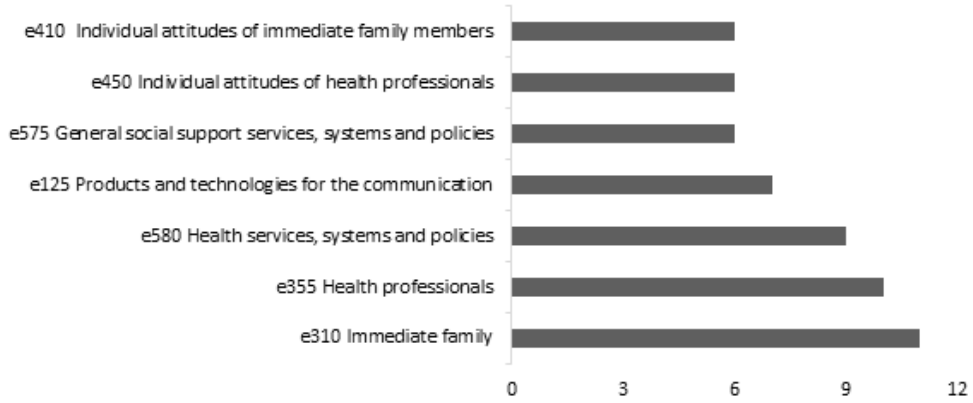


Figure 3. Categories of the Environmental Factors component described in the studies on aphasias

The thorough analysis of the most frequently described categories for the Activities and Participation (Figure 2) shows: d350, Conversation[3,12,14-21,23]; d330, Speech[3,12,14-16,18-22,23]; d310, Communication[3,12,14-16,18-2,23]; d920, Recreation and Leisure[3,12,15,17-19,22,23]; d710, Basic Interpersonal Interactions[3,12,14,16,18,19,23]; d750, Informal Social Relations[3,12,15,16,18,19,23]. The prevalence of the description of the negative aspects was observed in the 82 categories of Activities and Participation identified in the reviewed studies, among them, Education; Work; Religion; Interpersonal Relations; Walk; Move; Eat; Human Rights, among others. The communication is necessary for many daily activities, that is why the aphasia impact can be significant[3]. Activities on education, work, religion and several interpersonal interactions involve communication. The verbal, oral communication is the most natural and usual one, depending on the mental function of the language, impaired by aphasia. The presentation of the positive aspects is fundamental to identify the ability and performance under Activities and Participation, formerly addressed in the discussion regarding the positive and negative aspects of the Body Functions. For example, three people with similar health status regarding Body Functions, with anomic aphasia, have the capacity to carry out work tasks identified as a mild problem, but regarding performance, one of them may report complete restriction, the second may report moderate restriction, while the third one may report no participation problem. Therefore, it is important to report the Activities and Participation of the person with aphasia in the tasks performed before the CVA, not only when restrictions are reported, for better understanding of the current health status.

Most of the second-level categories of the Activities and Participation shown in Table 2 and Figure 2 in this study are not listed in the Core Set for Stroke[27]. Such a divergence regarding the Core Set for Stroke is believed to be due to the focus of the current study, which is on aphasia, and not on global neurological

impairment. The communicative difficulties in aphasia have significant implications for the participation in social situations after the CVA[30]. The use of the Core Set or reviews like that help health practice, but they may have restricted application to some contexts. Thus, the professional who made use of the ICF must be attentive to the need of complementary information with data that are not present in the Core Set or in the list of categories addressed in review studies.

The results regarding Environmental Factors are shown in Figure 2. The predominantly described categories in the studies were, as follows: e310, Immediate Family[3,12,14-16,18-23]; e355, Health Professionals[3,12,14-16,18-20,22,23]; e580, Health Services, Systems and Policies[12-15,18-21,23]; e125, Communication Products and Technology[3,12-16,23]; e575, General Social Support Services, Systems and Policies[12,13,15,16,19,21]; e410 and e450, Individual Attitudes of Immediate Family Members[12,14,16,18,19,21] and Health Professionals[3,12,14,16,18,19]. It is relevant to point out some facilitators, such as the use of visual and technological information[13], of attendants' uniforms[13] and publicly disclosed information[13]. However, for the Environmental Factors to be facilitators, Brown et al. (2006)[13] pointed out the importance of the population awareness on aphasia.

In Brazil, the only Law concerning aphasia awareness is Law number 14,485/- 2007 from the municipality of São Paulo, São Paulo State, which turned it into a commemorative date in 2019[32]. Since 2020, in June, Brazilian Society of Speech and Language Therapy meets professionals who work with aphasias and people affected by this communication disorder in order to encourage national awareness[33]. Regarding the public policies, the recognition of the need of the aphasia awareness, has a lot to develop at federal, state and municipal levels so that contextual factors actually enable the social inclusion and participation of people with aphasia. Being the qualified professional to assess and conduct therapy for the communication disorders (Law 6,965/81)[34], the inclusion of the speech therapist in healthcare teams, from the primary to the tertiary healthcare, contributes to the aphasia awareness. However, that professional has not always been included in the teams, which unveils the importance of public policies demanding a speech therapist in healthcare units. Additionally, strategies should be implemented in order to facilitate the social participation of people affected by aphasia, as it occurs with people having other types of special needs.

In spite of not being classified in the ICF, the Personal Factors are included in the context of the subjects' life status (Contextual Factors), as well as the Environmental Factors. The Personal Factors have utmost importance for encompassing subjects' history and characteristics. Concerning individuals with aphasia, the most addressed Personal Factors in the assessed studies are related to gender[3,12-18,20,22,23], age[3,12-18,20-23], health states[3,12-18,20-23], profession[13,17,18,20,21,23] and schooling/ educational level[17,18,20,22,23]. The Personal Factors play an important role in the process of rehabilitation, as the environment in which the individual is inserted is straight correlated to his/her health status[35].

The identification of the ICF components in order to work with aphasias may define goals and interventions, facilitate the interdisciplinary communication, and guide actions and decisions of health managers and government. By using the ICF, the intervention management of the affected subjects with aphasia considers their context, in order to promote a significant, positive change in their lives[3].

It is important for people who work or interact with aphasic subjects to know the ICF categories and use them to identify their actual life conditions. Such identification helps the recognition of the positive and negative aspects that should be kept or can be modified to provide better quality of life to all.

The study has limitations, as the identified categories in this review cannot be helpful in some contexts. It highlights that the work with aphasic people requires an individualized view, which may demand the selection of ICF categories not described in this review.

CONCLUSION

This review described the components, as follows: Body Functions and Structures, Activities and Participation, Environmental and Personal Factors, that is, the most frequently addressed in works on aphasia. The most described first-level categories for each component, Body Structures and Function, Activities and Participation and Environmental Factors were: s1, Structures of the Nervous System; b1, Mental Functions; d3 and d8, Communication and Major Life Areas; and e3, Support and Relationships. The most frequent second-level categories in the reviewed studies were: s110, Brain Structure; b167, Mental Functions of the Language; and d350 Conversation; e310, Immediate Family. The most described Personal Factors in the assessed studies were: gender, age, health condition, profession and education.

To all the ICF components, the studies on aphasias unveiled that the categories are associated with aphasia as well as with the baseline neurological impairment.

The ICF prioritizes broad health description, and for that, this study points out that the categories of the Activities and Participation and Environmental Factors components are the ones that best define the individuality and scope related to the concept of health. The use of the ICF while caring for the individual presented with aphasia is recommended, as its approach enables the identification of the pluralities and biological, psychological and social influences, apart from developing a multidimensional investigation centered in the presence or absence of individual conditions and in the contextual factors influencing that subject's health condition.

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