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ARTICLES

Speech therapy instruments for tracking and screening: scope review

Instrumentos fonoaudiológicos para rastreamento e triagem: revisão de escopo

Instrumentos de focoterapia para seguimiento y detección: revisión del alcance

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Abstract

Introduction: The instruments for screening in speech therapy aim to quickly and cost-effectively identify individuals with a greater likelihood of developing a specific condition or disease. **Objective:** Map the speech therapy instruments used for tracking and screening in the different areas of Speech Therapy. **Method:** Scoping review study registered on the Open Science Framework (OSF) platform. The steps consisted of developing the question, defining the inclusion and exclusion criteria, systematically searching for studies, selecting studies first by reading the titles and abstracts and then by reading the full texts, extracting data, presenting the results and analyzing the risk of bias. The PCC strategy was used: Population - individuals of different age groups; Concept - screening instruments; Context - areas of Speech Therapy. Thus, the research question was: what are the main screening instruments used in individuals of different age groups, in the different areas of Speech Therapy? **Results:** 1800 articles

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published between 1980 and 2024 that addressed screening programs in Speech-Language Pathology were identified; however, with the selection criteria, 190 were included. The speech-language pathology areas of these instruments were distributed as follows: Voice, Language, Audiology, Neuropsychology, Orofacial Motricity (OM), Dysphagia, Hospital Speech-Language Pathology, Educational Speech-Language Pathology and Fluency, for a total of 112 instruments identified. **Conclusion:** There are speech-language pathology instruments for screening aimed at specific areas of Speech-Language Pathology, most frequently in the areas of Language, Voice and Audiology. It is considered necessary to expand studies and develop new screening instruments, especially for speech-language pathology areas with the where they are scarcer.

Keywords: Mass Screening; Triage; Speech, Language and Hearing Sciences; Risk factors.

Resumo

Introdução: Os instrumentos para rastreamento na fonoaudiologia visam realizar de forma rápida e com menor custo a identificação precoce de indivíduos com maior probabilidade de desenvolver uma condição específica ou doença. **Objetivo:** Mapear os instrumentos fonoaudiológicos utilizados para rastreamento e triagem nas diversas áreas da Fonoaudiologia. **Método:** Estudo de revisão de escopo registrado na plataforma *Open Science Framework* (OSF). As etapas consistiram na elaboração da pergunta, definição dos critérios de inclusão e exclusão, busca sistemática dos estudos, seleção dos estudos primeiro pela leitura dos títulos e resumos e posteriormente pela leitura dos textos na íntegra, extração dos dados, apresentação dos resultados e análise do risco de viés. Utilizou-se a estratégia PCC: População-indivíduos de diferentes faixas etárias; Conceito-instrumentos de rastreamento; Contexto-áreas da fonoaudiologia. Dessa forma, a pergunta de pesquisa foi: quais os principais instrumentos de rastreamento utilizados em indivíduos de diferentes faixas etárias, nas diversas áreas da Fonoaudiologia? **Resultados:** Foram identificados 1800 artigos publicados entre 1980 e 2024 que abordaram sobre programas de rastreamento na Fonoaudiologia; no entanto, com os critérios de seleção, foram incluídos 190. As áreas fonoaudiológicas desses instrumentos foram distribuídas em: Voz, Linguagem, Audiologia, Neuropsicologia, Motricidade Orofacial (MO), Disfagia, Fonoaudiologia Hospitalar, Fonoaudiologia Educacional e Fluência, num total de 112 instrumentos identificados. **Conclusão:** Existem instrumentos fonoaudiológicos para rastreamento destinados a áreas específicas da Fonoaudiologia, com maior frequência nas áreas de Linguagem, Voz e Audiologia. Considera-se necessário ampliar os estudos e desenvolver novos instrumentos de rastreamento, principalmente para as áreas fonoaudiológicas em que são mais escassos.

Palavras-chave: Programas de Rastreamento; Triagem; Fonoaudiologia; Fatores de Risco.

Resumen

Introducción: Los instrumentos de detección en terapia del habla tienen como objetivo identificar de forma rápida y rentable a las personas que tienen mayor probabilidad de desarrollar una afección o enfermedad específica. **Objetivo:** Mapear los instrumentos logopédicos utilizados para el seguimiento y triaje en las diferentes áreas de la Logopedia. **Método:** Estudio de revisión de alcance registrado en la plataforma Open Science Framework (OSF). Los pasos consistieron en desarrollar la pregunta, definir los criterios de inclusión y exclusión, buscar sistemáticamente los estudios, seleccionar los estudios primero leyendo los títulos y resúmenes y luego leyendo los textos completos, extraer los datos, presentar los resultados y analizar el riesgo de sesgo. Se utilizó la estrategia PCC: Población-individuos de diferentes grupos de edad; Instrumentos de seguimiento de conceptos; Áreas de contexto de la terapia del habla. Por lo tanto, la pregunta de investigación fue: ¿cuáles son los principales instrumentos de tamizaje utilizados en individuos de diferentes grupos etarios, en las diferentes áreas de la Logopedia? **Resultados:** Se identificaron 1800 artículos publicados entre 1980 y 2024 que abordaron programas de tamizaje en Terapia del Habla; Sin embargo, con los criterios de selección se incluyeron 190. Las áreas de terapia del habla de estos instrumentos se distribuyeron en: Voz, Lenguaje, Audiología, Neuropsicología, Motricidad Orofacial (MO), Disfagia, Terapia del Habla Hospitalaria, Terapia del Habla Educativa y Fluidez, para un total de 112 instrumentos identificados. **Conclusión:** Existen instrumentos de tamizaje fonoaudiológico dirigidos a áreas específicas de la Logopedia, con mayor frecuencia en las áreas de Lenguaje, Voz y Audiología. Se considera necesario ampliar estudios y desarrollar nuevos instrumentos de seguimiento, especialmente para áreas de logopedia donde son más escasos.

Palabras clave: Tamizaje Masivo; Triage; Fonoaudiología; Factores de Riesgo

Introduction

The speech-language pathologist is the professional responsible for health promotion, assessment and diagnosis, guidance, therapy (habilitation and rehabilitation), and the enhancement of all aspects related to speech-language pathology[1]. It is within their scope of practice to propose actions involving the selection, indication, and application of appropriate therapeutic methods, techniques, and procedures tailored to the individual characteristics and specific needs of each patient/client[2].

In speech-language pathology practice, screening tools aim to quickly and cost-effectively identify individuals at risk of developing a potential disorder or injury within a population, followed by referral for more comprehensive diagnostic procedures and, if necessary, treatment[3]. Although often used interchangeably, screening tools are designed to identify individuals with a higher likelihood of having a disorder, even if asymptomatic; whereas triage tools are intended to classify and prioritize care for individuals who already present with symptoms, to ensure appropriate and timely intervention. These tools must demonstrate accuracy through properties such as eligibility, sensitivity, and specificity. Eligibility defines the criteria for application, that is, the target population; sensitivity refers to the tool's ability to correctly identify individuals with the condition; and specificity refers to its ability to correctly identify individuals without the condition[4–5].

Screening tools are of great relevance in Speech-Language Pathology, as they allow for the early detection of impairments across various domains such as Language, Voice, Hearing, Orofacial Motricity (OM), and Speech, differentiating individuals with and without alterations[6]. They differ from assessment instruments and diagnostic tests, which are typically more precise and provide greater detail about the condition or disorder, thereby contributing to the establishment of a diagnosis[3]. Speech-language screening instruments are characterized as tools intended solely for the early identification of individuals with a higher probability of having a specific disorder or condition, and under no circumstances should they replace a comprehensive speech-language assessment[7].

Given the relevance of this topic to clinical speech-language pathology practice, the aim of this scoping review was to map the main screening instruments used across different age groups and domains of Speech-Language Pathology as reported in the existing literature.

Methods

This study is a scoping review and follows the recommendations of the PRISMA-ScR guidelines. The protocol was registered on the Open Science Framework (OSF) platform (10.17605/OSF.IO/QRNZK). The stages of the review included the formulation of the research question, definition of inclusion and exclusion criteria, systematic search of the literature, selection of studies based initially on title and abstract screening and subsequently on full-text reading, data extraction, presentation of results, and risk of bias analysis.

The literature search was conducted on February 2, 2024, across the following electronic databases: Latin American and Caribbean Health Sciences Literature (LILACS), Scientific Electronic Library Online (SciELO), National Library of Medicine (NIH) via PubMed, and the CAPES Periodicals Portal. These databases were selected due to their relevance in the health sciences field at both national and international levels, and for including research in the area of Speech-Language Pathology. No time restriction was applied in the search, as the goal was to identify, collect, and analyze the scientific output produced over the years. The search strategy, detailed in Table 1, involved the combination of descriptors using the Boolean operator AND, as well as applying the full-text online filter across all databases.

Chart 1. Combinations of descriptors with Boolean operators in Portuguese and English.

Portuguese	English
"Fonoaudiologia" AND "Fatores de Risco" AND "Programas de Rastreamento"	"Speech Therapy" AND "Risk Factors" AND "Mass Screening"
"Fonoaudiologia" AND "Programas de Rastreamento"	"Speech Therapy" AND "Mass screening"
"Fonoaudiologia" AND "Fatores de Risco" AND "Triagem"	"Speech Therapy" AND "Risk Factors" AND "Screening"
"Fonoaudiologia" AND "Triagem"	"Speech Therapy" AND "Screening"
"Fonoaudiologia" AND "Fatores de Risco" AND "Programas de Rastreamento" OR "Triagem"	"Speech Therapy" AND "Risk Factors" AND "Mass Screening" OR "Screening"

Eligibility criteria were defined using the PCC framework (Population, Concept, Context). The eligibility for this review was as follows: Population – individuals across different age groups; Concept – screening instruments; Context – areas of Speech-Language Pathology. In the first selection stage, which involved screening titles and abstracts, eligible studies were identified by two independent reviewers. These reviewers, working separately and without direct interaction, conducted the screening simultaneously, following the previously defined search strategies. In cases of disagreement, a third reviewer was consulted. In the subsequent stage, the full texts of the selected studies were reviewed, and those that met all eligibility criteria were analyzed in detail. This analysis included the extraction of information regarding the screening program, its purpose, target population, and the area of Speech-Language Pathology addressed. The results of this review were derived from the summarized information of the included studies and analyzed descriptively.

The articles included in the review were classified according to the speech-language pathology specialties regulated by the Brazilian Federal Council of Speech-Language Pathology and Audiology (CFFa)[8], which include: Language, Audiology, Voice, Orofacial Motricity, Public Health, Dysphagia, Educational Speech-Language Pathology, Occupational Speech-Language Pathology, Gerontology, Neurofunctional Speech-Language Pathology, Neuropsychology, Fluency, Forensic Speech-Language Pathology, Hospital Speech-Language Pathology, and Otoneurology. Excluded articles were systematic reviews, opinion pieces, incomplete manuscripts, and duplicate publications (only one version was considered).

Results

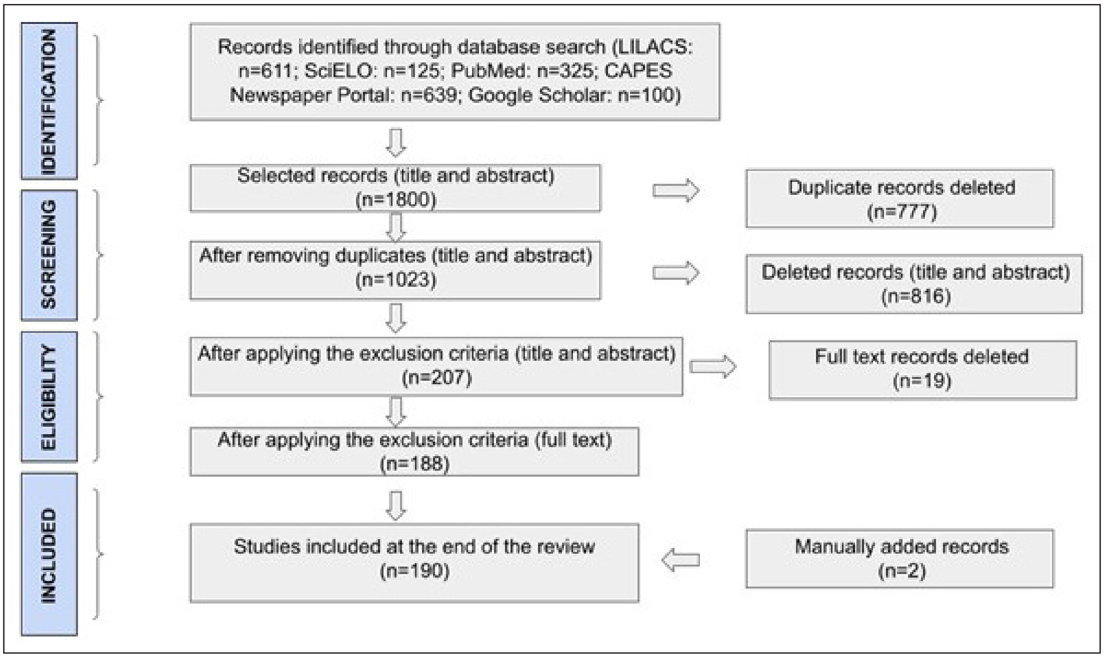
The selection process of studies included in this scoping review is presented in the flowchart (Figure 1), according to the different phases of the research.

To avoid the erroneous exclusion of well-established instruments in the field of Speech-Language Pathology, additional manual searches were conducted for both national and international tools that are widely recognized by researchers in the field, allowing their inclusion in the study.

A total of 1,800 publications were identified across the following databases: Latin American and Caribbean Health Sciences Literature (LILACS): 611 articles; Scientific Electronic Library Online (SciELO): 125 articles; National Library of Medicine (NIH) via PubMed: 325 articles; CAPES Periodicals Portal: 639 articles; and Google Scholar: 100 articles. Due to the high number of results retrieved from Google Scholar, only the first 100 articles ranked by relevance were considered.

A total of 777 duplicate records were identified and removed. After deduplication, 1,023 studies remained for screening. Based on the inclusion and exclusion criteria, 816 studies were excluded for the following reasons: 88 were various types of review articles, 46 were case reports, 2 were theses, 5 were letters to the editor, 24 were not available as open access publications, and 651 were unrelated to the objective of this review.

Thus, 207 articles were selected for full-text review, of which 19 were excluded for not addressing topics aligned with the study objective. Additionally, 2 studies were included through manual search, resulting in a final total of 190 studies included in this review, as depicted in Figure 1.

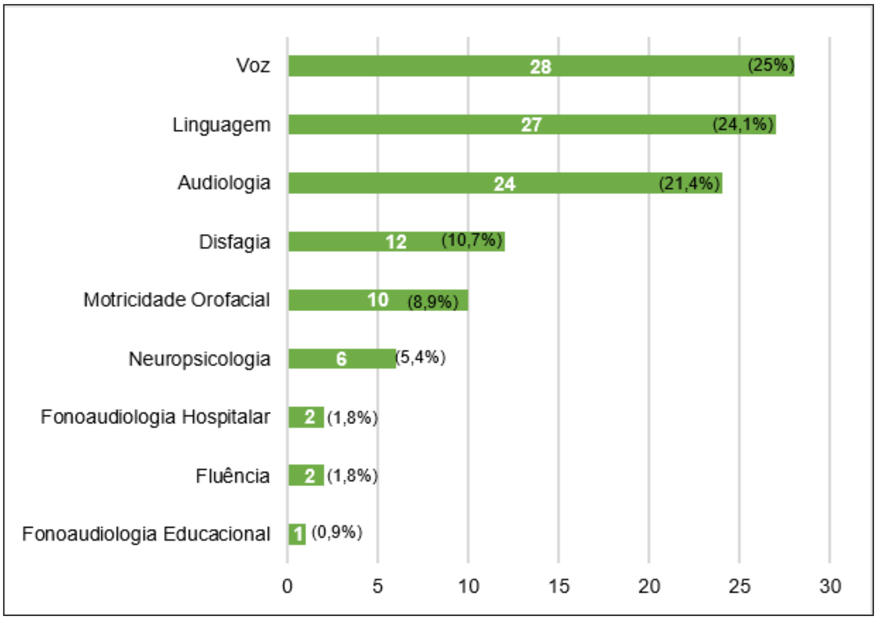


Legend: n= number of studies.
Source: Authors (2024).

Figure 1. Flowchart of the study selection process, with a description of the number of articles

Following the manual search and based on the full-text articles selected, screening and triage instruments were identified along with their respective objectives and target populations, totaling 112 instruments distributed across the various areas of Speech-Language Pathology, as reported in the 190 studies included in this review. It is important to note that the number of instruments is lower than the number of articles retrieved, as several instruments were cited in more than one study.

The selected studies presented speech-language pathology instruments for screening and triage across distinct specialties, as illustrated in Figure 2.



Source: Authors (2024).

Figure 2. Graph of the distribution of instruments according to the areas

The area of Voice stood out the most in terms of the identification of screening instruments, accounting for 28 (25%) of the total. These instruments address the presence of dysphonia and vocal complaints and are mostly intended for the general population. However, some are designed for specific groups, such as individuals engaged in particular occupational activities—e.g., theater actors and musicians—or for specific populations, such as male-to-female transgender individuals, as presented in Table 1.

Table 1. Characteristics of screening instruments in the speech-language pathology area of Voice

Instrument Name	Instrument objective	Instrument target population
Instrumento de Rastreio da Disfonia-IRD (BR)[7,9]	Screen for dysphonia.	Patients with voice-related complaints.
Instrumento de Rastreio para a Disfonia em português europeu - IRD-PT[9]	Screen for dysphonia.	European Portuguese-speaking patients with voice-related complaints.
Protocolo de Triagem de Risco de Disfonia para Atores (DRSP-A)[10,11]	Detect possible vocal alteration, considering the specific aspects of professional voice use.	Theater actors.
Instrumento Brasileiro de Triagem de Disfonia (Br-DST)[4,7]	Screen for dysphonia by examining items from traditional vocal self-assessment instruments.	General population.
Questionário Bahasa Malaysia versão do Voice Handicap Index (mVHI-10)[12]	Differentiate between dysphonic and normal voice samples.	Bahasa Malaysia-speaking population.
Questionário de Voz para Transexuais Masculino-Feminino – TVQ (MtF)[13]	Assess quality of life through self-perception of voice (current and ideal voice).	Male-to-female transgender individuals.
Protocolo Geral de Triagem de Risco para Disfonia (DRSP-G)[14]	Conduct dysphonia risk screening.	General population.
Lista de Sinais e Sintomas Vocais – LSS[15,16]	Distinguish between vocally healthy individuals and those with vocal complaints, considering occupational activity.	Adults.
Índice de Função Glótica – IFG16	Assess the presence and degree of vocal dysfunction in adults.	Adults.
Escala de Sintomas Vocais – ESV[4,7,16–18]	Identify vocal symptoms that reflect clinical responses to dysphonia treatments.	Adults.
Índice de Triagem de Distúrbio de Voz (ITDV)[19–27]	Screen individuals with possible vocal alterations.	Individuals with possible vocal alterations.
Qualidade de Vida em Voz (QVV)[7,27]	Screen for dysphonia.	Individuals whose vocal alterations affect daily life.
Índice de Desvantagem para o Canto Moderno (IDCM)[27]	Screen for dysphonia.	Singers.
Triagem da Afinação vocal2[8,29]	Conduct screening to differentiate between in-tune and out-of-tune individuals.	Musicians.
GRBAS[30]	Perform perceptual-auditory voice assessment.	General population.
Índice de Desvantagem Vocal - IDV [7,17,24,31–33]	Identify the presence of dysphonia.	General population.
IDV-10[7,17,34]	Detect minor vocal alterations based on the impact of voice problems.	General population.
Protocolo de Triagem Vocal (PTV)[18,35]	Screen for dysphonia.	General population.
Protocolo de Rastreio de Risco de Disfonia (PRRD)[36,37]	Screen for dysphonia risk.	Women, children, and older adults.
Consensus Auditory-Perceptual Evaluation of Voice (CAPE-V)[26,36]	Assess auditory perception of voice.	General population.
Qualidade de Vida da Universidade de Washington (UWQOL)[38]	Identify information related to quality of life.	Patients with head and neck cancer.
Índice de Qualidade Acústica de Voz (AVQI) - versões do AVQI-Persa[39]	Discriminate between normal and pathological voices.	Persian-speaking population.
Índice de Desvantagem Vocal (IDV) para o Português Europeu (PE)[31]	Identify the presence of dysphonia.	European Portuguese speakers with voice disorders.
Versão abreviada (IDV-10) para o Português Europeu (PE)[31]	Differentiate among the most prevalent laryngeal pathologies in voice clinics, such as nodules and Reinke's edema.	European Portuguese speakers with voice disorders.
Rastreio de Alteração Vocal em Idosos (RAVI)[32,34]	Screen for voice-related complaints.	Older adults.
Screen6[40]	Conduct screening for vocal symptoms.	Adults.
Índice Sueco de Desvantagem Vocal (Sw-VHI)[40]	Assess the negative impact of voice problems on daily life.	Adults.
Protocolo Específico de Triagem de Risco de Disfonia para Profissionais Jurídicos (DRSP-LP)[41]	Conduct dysphonia risk screening.	Legal professionals.

A total of 27 instruments (24.1%) were identified in the area of Language. The objectives of these instruments focus on skills involving various aspects of language, including reading, pronunciation, and comprehension; receptive and expressive abilities; communication skills; pragmatics, such as communicative initiative; and discourse abilities. Regarding the target population, it is noteworthy that 19 instruments (70.37%) are aimed at children, while 8 (29.63%) are intended for adults and older adults, as shown in Table 2.

Table 2. Characteristics of screening instruments in the speech-language pathology area of Language.

Instrument Name	Instrument objective	Instrument target population
Instrumento de Rastreio da Comunicação de Crianças de 0 a 36 meses (IRC-36)[42]	Screen communication.	Parents/caregivers and children (0 to 36 months).
Modified Checklist for Autism in Toddlers (M-Chat)[43–45]	Screen early for Autism Spectrum Disorder.	Parents/caregivers of children (18 to 24 months).
Questionário de Habilidades Comunicativas[46]	Identify functional communication characteristics related to different language development profiles	map pragmatic abilities such as communicative initiative and interactivity, communicative means, functional diversity, discourse abilities, and sociocommunicative adaptation in children with language disorders.
Questionário de Indicadores de Risco para o Desenvolvimento Infantil (IRDI- -questionário)[44,45,47]	Detect risk for child development.	Parents/caregivers of children (18 months to 7 years).
Teste de triagem NWR[48]	Correlate nonword repetition tasks (NWR) with language skills and distinguish between typically developing (TD) children and those with specific language impairment (SLI) across languages.	Slovak-speaking children.
Assessment of Conversational Pragmatics (ACP)[49]	Screen pragmatic aspects of language difficulty.	Children (6 to 12 years old), French-speaking.
ERTL 4[50]	Detect language disorders.	Children.
Lista de idiomas pré-escolares (PLC)[51]	Identify risk of language difficulties.	Children.
Teste de Triagem de Linguagem (LAST)[52,53]	Screen language with focus on speech comprehension, word repetition, and naming.	Patients with acute stroke.
Renfrew Action Picture Test (RAPT)[54]	Screen for language development.	Children.
Short Assessment of Health Literacy for Portuguese speaking Adults (SAHLPA)[55]	Assess reading, pronunciation, and comprehension skills.	Portuguese-speaking adults.
SAPS - 'Sprach systematisches Aphasie screening'[56]	Screen for systematic language-related aphasia.	Post-stroke individuals with aphasia.
Western Aphasia Battery - Revised (WAB-R)[57]	Assess language impairment.	Adults (18 to 89 years).
Teste de triagem de afasia para falantes de azeri na população iraniana[58]	Screen for early diagnosis of aphasia.	Azeri-speaking Iranian population.
Teste de Triagem de Afasia do Mississippi (MAST)[59]	Assess expressive and receptive language skills in patients with aphasia.	Individuals with aphasia.
Aphasia Rapid Test (ART)[60,61]	Assess severity of aphasia.	Individuals with aphasia.
Dyslexia Early Screening Test – Second Edition (DEST-2*)* para o Português Brasileiro[62]	Identify risk of reading and writing disorders/dyslexia in children before learning difficulties appear.	Children (4 years and 6 months to 6 years and 5 months).
Lista de Verificação de Comunicação Infantil (CCC-2)[63,64]	Provide general screening for communication disorders and identify pragmatic/social interaction deficits.	Children.

Instrument Name	Instrument objective	Instrument target population
Instrumento de triagem do vocabulário receptivo e expressivo – TRILHAR[65,66]	Screen receptive and expressive vocabulary.	Children (3 to 7 years).
PRISE-P[67]	Assess development of pre-verbal vocalizations.	Children (3 months or older), Persian-speaking.
Escala de Desenvolvimento Newsha[68]	Assess receptive and expressive speech and language skills in children born through assisted reproductive technology (ART).	Children born through ART.
The Verbal & Non-Verbal Communication Screening Checklist for Persian Speaking Children[69]	Determine whether a child is at risk for speech and language delay or disorder.	Children (12 to 24 months), Persian-speaking.
Teste Português de Rastreio de Fala e Linguagem Pediátrica (RALF)[70]	Identify children who may need a speech-language diagnosis or referral for speech therapy services.	Portuguese-speaking children.
MacArthur Communicative Development Inventory[71]	Assess communicative abilities.	Children.
Versão persa da terceira forma do Inventários de Desenvolvimento Comunicativo MacArthur-Bates CDI (CDI-III)[72]	Assess communication skills.	Persian-speaking children.
MacArthur-Bates Communicative Development Inventories-Korean (M-B CDI-K)[73]	Screen for speech and language development.	Korean-speaking children.
NeuroBel[74]	Assess psycholinguistic aspects of basic oral comprehension and language production flexibility.	Older adults.

A total of 24 screening instruments (21.4%) were identified in the area of Audiology, of which 7 (29.16%) were specifically designed for newborns (newborn hearing screening). The remaining instruments are directed at various target populations, including adults and older adults, children, school-aged children, construction workers, among others, as detailed in Table 3. Notably, the field demonstrates innovation, with some instruments being implemented digitally—for example, those available as mobile applications and administered in electronic format.

Table 3. Characteristics of screening instruments in the speech-language pathology area of Audiology

Instrument Name	Instrument objective	Instrument target population
Emissões Otoacústicas Evocadas Transientes (EOA-T)[75–93]	Conduct hearing screening.	Children.
Emissões otoacústicas evocadas por produto de distorção (EOA-PD)[78,85,94–96]	Conduct newborn hearing screening.	Newborns.
Potencial de emissão auditiva de tronco encefálico automatizado (PEAE-A)[75,82,85,86,89,91,93,97–100]	Conduct newborn hearing screening.	Newborns.
Aplicativo *Mobile Based Affordable Screening Audiometer* (MoBASA)[101]	Conduct hearing screening in adults and older adults with disabling hearing loss.	Adults and older adults.
Triagem Auditiva Neonatal (TAN)[93,94,102–129]	Conduct newborn hearing screening.	Newborns.
Teste de Fusão Auditiva Revisado – AFT-R[130]	Assess the time difference, in milliseconds (ms), at which the listener can perceive a brief silent interval between two pure tones.	Children.
Triagem auditiva com o aplicativo uHear[131]	Conduct hearing screening.	General population.
SSQ5 em português brasileiro[132]	Screen for hearing loss.	Adults.
Reflexo cócleo-palpebral (RCP)[84]	Conduct newborn hearing screening.	Newborns.
Audiômetro Telessaúde, baseado em software[101]	Conduct hearing screening.	General population.
Versão eletrônica do questionário e-HHIE-S[101]	Identify disabling hearing loss.	Adults and older adults.
Respostas Auditivas em Estado Estável (RAEE)[133]	Conduct hearing screening.	School-age children with difficulty performing subjective hearing tests.
Triagem otoneurológica[134]	Screen for otoneurological signs and symptoms.	Construction workers.
Teste de Sussurro (triagem auditiva)[135,136]	Screen for hearing acuity.	Older adults.
Hearing Handicap Inventory for the Elderly - Screening Version (HHIE-S)[32,137–140]	Screen hearing to identify hearing loss.	Older adults.
Autoavaliação para Triagem Auditiva do Idoso (SHSE)[141]	Self-assess the degree of hearing loss.	Older adults.
Triagem simplificada do processamento auditivo (ASPA)[142]	Conduct simplified auditory processing screening.	Children (4 to 5 years and 11 months).
Screening Test for Auditory Processing Disorders (SCAN)[143,144]	Detect auditory processing disorder early.	Adults, adolescents, and children.
Avaliação Simplificada do Processamento Auditivo (triagem)[145,146]	Screen auditory processing.	Children with deviant speech acquisition.
Questionário *Scale of Auditory Behaviors* (SAB)[147,148]	Identify risk for auditory processing disorder.	Parents/caregivers and teachers of children.
AudBility: programa online para triagem do processamento auditivo central em escolares de 6 a 8 anos[149,150]	Screen auditory processing.	School-aged children (6 to 8 years).
Teste dicótico de dígitos (TDD)[142,151,152]	Analyze figure-ground ability in binaural integration and separation tasks for verbal sounds using a dichotic task.	General population.
OtoLeitor[153]	Conduct universal newborn hearing screening using a mobile platform.	Newborns.
Rastreador neonatal ABR, MB11 BERAphone[154]	Conduct newborn hearing screening.	Newborns.

Ten screening and triage instruments (8.9%) were identified in the area of Orofacial Motricity (OM). The objectives of these instruments are diverse, ranging from applications in neonatal populations—such as identifying breastfeeding difficulties and detecting alterations in the lingual frenulum—to use in children, addressing functions related to speech articulation. It is evident that some instruments focus on specific aspects, such as individuals with Obstructive Sleep Apnea Syndrome (OSAS), as presented in Table 4.

Table 4. Characteristics of screening instruments in the speech-language pathology area of Orofacial Motricity

Instrument Name	Instrument objective	Instrument target population
Stop-Bang[155]	Screen for risk of Obstructive Sleep Apnea Syndrome in health promotion programs.	Population with Obstructive Sleep Apnea Syndrome.
The Nordic Orofacial Test – Screening (NOT-S)[156]	Assess orofacial dysfunctions.	Children.
Questionário de Triagem de Identificação de Sinais e Sintomas de DTM[157]	Screen for complaints of signs and symptoms of Temporomandibular Disorder.	General population.
Triagem Neonatal do Protocolo validado de avaliação do frênulo da língua em bebês (Teste da Linguinha)[158–160]	Detect alterations of the lingual frenulum.	Newborns.
Protocolo de Observação da Mamada – UNICEF[158–160]	Identify breastfeeding difficulties.	Infants
Procedimento de Triagem Ortodôntico-Logopédica[161]	Screen for myofunctional disorder.	General population.
Teste de Rastreamento de Distúrbios Articulatórios de Fala (TERDAF)[162,163]	Identify speech problems.	Children with speech alterations.
Teste experimental de triagem de fala para ingressantes na escola[164]	Screen for articulation and speech disorders.	Children entering school.
Teste de palavra única para avaliação da produção de sons da fala em crianças que falam persa[165,166]	Assess speech sound production.	Persian-speaking children.
Escala de Contexto de Inteligibilidade (ICS-Persa)[167]	Screen speech intelligibility.	Persian-speaking children (4 to 6 years old).

In addition to the instruments identified in the areas of Voice, Language, Audiology, and Orofacial Motricity (OM), as presented in Tables 1 to 4, respectively, screening and triage tools were also identified in other domains of Speech-Language Pathology. A total of 12 instruments (10.7%) were found in the field of Dysphagia, namely: the *Protocolo Multiprofissional de Rastreamento de Disfagia em Pacientes HIV*[168], aimed at the early identification of swallowing difficulties and prevention of potential pulmonary complications in patients with HIV; the *Rastreamento para Disfagia Orofaríngea no Acidente Vascular Encefálico (RADAVE)*[169], for screening oropharyngeal dysphagia in stroke patients; the *Instrumento de Rastreamento para o Risco de Disfagia Pediátrica – IRRD-Ped*[170], designed to identify dysphagia risk in hospitalized children through caregiver reporting; the *Protocolo de Triagem de Disfagia*[171], which identifies dysphagia risk factors and helps determine the appropriate duration of non-oral intake in stroke patients at bedside; the *South African Dysphagia Screening (SADS)*[172], developed for patients with stroke at risk of dysphagia in South Africa's public hospitals; the *Adapted Formal Dysphagia Screening Protocol*[173], used for bedside swallowing screening in at-risk patients; the *Gugging Swallowing Screen (GUSS)*[174], intended for identifying post-extubation dysphagia in acute stroke patients and those in intensive care units; the *Oxygen Desaturation Test combined with the 50 ml Water Swallow Test*[175], to detect aspiration risk in patients with acute stroke; the *Swallowing*

Disturbance Questionnaire (SDQ)[176], used to detect dysphagia complaints in individuals with neurodegenerative diseases; the *Northwestern Dysphagia Patient Check Sheet (NDPCS)*[177], focused on older adults with oropharyngeal dysphagia; the *Eating Assessment Tool (EAT-10)*[178–179], for screening dysphagia risk in the elderly; and the *Modified Volume-Viscosity Swallow Test (mV-VST)*[180], used for screening aspiration and dysphagia in ICU patients.

In the field of Neuropsychology, six instruments (5.4%) were identified: the *ASQ-3*[181–182], designed to screen neurodevelopmental domains such as communication, gross and fine motor skills, problem-solving, and personal-social functioning in children aged 1 to 66 months; the *Ages & Stages Questionnaires (ASQ)*[167, 182–183], which identify general developmental delays in children; the *MCAST*[184], used to screen communicative behavior in mental capacity evaluations of individuals with communication difficulties; the *Bayley Scales of Infant and Toddler Development – Third Edition (Bayley-III)*[185], which assess cognitive, receptive and expressive language, fine and gross motor skills, adaptive behavior, and socioemotional development in children aged 16 days to 42 months and 15 days; the *PEDS – Developmental Milestones (PEDS-DM)*[43], aimed at evaluating fine and gross motor, socioemotional, self-help, expressive and receptive language, as well as literacy and numeracy in children from birth to eight years; and the *Denver Developmental Screening Test (DDST)*[42, 71, 147, 186–191], intended for developmental screening in pediatric populations. Notably, the primary target of these instruments is the pediatric population, with a focus on identifying developmental delays.

Two screening instruments (1.8%) were identified in the area of Hospital Speech-Language Pathology: the *Protocolo de Triagem para Identificação das Manifestações Fonoaudiológicas na Hanseníase*[192], intended to identify speech-language manifestations in patients with leprosy; and the *Palliative Performance Scale (PPS)*[193], used to grade functional status in patients receiving palliative care.

Two instruments (1.8%) were also found in the field of Fluency: the *Protocolo de Risco para a Gagueira do Desenvolvimento (PRGD)*[194], aimed at early intervention for developmental stuttering in children; and the *Instrumento de Rastreamento para a Gagueira do Desenvolvimento (IRGD)*[195], which seeks to identify risk of developmental stuttering in preschool-aged children.

One instrument (0.9%) was identified in the field of Educational Speech-Language Pathology: the *Developmental Dyslexia Screening Scale (DD)*[196], designed to screen for symptoms of developmental dyslexia and intended for teachers and professionals working with literacy-stage children.

All screening and triage instruments included in this review were published between 1980 and 2024.

Discussion

The screening instruments included in this study reveal a higher number of publications in the more traditional areas of Speech-Language Pathology—namely, Language, Voice, and Audiology—relative to the historical emergence of the profession, as well as in more recently established areas such as Dysphagia, Hospital Speech-Language Pathology, Educational Speech-Language Pathology, Neuropsychology, and Fluency.

The distribution of instruments in the older fields of the profession may be related to the historical context of their development. The origins of Speech-Language Pathology in the 1920s and 1930s are linked to issues in both education and health, particularly concerning efforts to promote literacy among immigrant populations, as part of the nationalist policies of that period[197].

In the early stages of the profession, there was a strong emphasis on standardizing spoken language in Brazil, aiming to suppress regional and foreign-accented variations due to the influx of immigrants. At that time, specialized teachers, known as orthophonists, were responsible for correcting what were considered speech deviations[197]. Consequently, some individuals were identified with language difficulties that could hinder the literacy process. Since then, both educators and healthcare professionals have emphasized the detection and intervention of language-related issues. Throughout its history, the field has witnessed the development and refinement of clinical techniques that laid the foundation for what would become Clinical Speech-Language Pathology[198], through the application of structured methods, diagnostic tests, and tools tailored to clinical reasoning.

Based on this context, it can be inferred that traditional screening tools in Speech-Language Pathology represent a method for the rapid identification of individual risk factors—from pediatric to geriatric populations—aimed at detecting the presence of specific disorders or impairments, thereby supporting referrals to specialists or more detailed evaluations[184].

It is important to note that the screening instruments examined in this study address diverse target populations and span a wide range of age groups, from early childhood[50] to older adults[74]. The pediatric age range covered includes neonates[158–160], infants[159–160], preschoolers[142], and children[65–66]. Additionally, some instruments[43–45] include the participation of caregivers, and others involve the collaboration of educational professionals[196] for literacy-related screening.

Some instruments, although classified under the domains of Voice, Language, and Audiology, are used with older adults and therefore pertain to Gerontology, which became an officially recognized specialty within Speech-Language Pathology in 2015, according to Resolution CFFa No. 463[198]. For this reason, considering the historical development of the specialties—particularly Gerontology, which is relatively recent—some instruments in this study were categorized under older areas rather than being specifically assigned to Gerontology.

A similar situation applies to the specialty of Otoneurology, which was only recently regulated by Resolution CFFa No. 718, issued on December 15, 2023[199]. As a result, instruments specific to this area[142,145,146] were classified under Audiology, as Otoneurology was previously subsumed within that field.

It is understood that the expansion and establishment of new areas emerging from the traditional domains of Speech-Language Pathology—as observed with Gerontology and Otoneurology—reflect the profession's growth, often driven by clinical practice and interventions targeted to specific populations, as well as by scientific advancements, as evidenced by the body of research produced in the field.

Similarly, in the specialty of Occupational Speech-Language Pathology, officially recognized by Resolution CFFa No. 467[200] on April 24, 2015, some instruments related to this field are categorized under other specialties, namely Voice and Audiology. In the present review, the presence of instruments aimed at identifying risk factors is evident across various areas—for instance, in Voice, to detect vocal alterations; in Language, to uncover manifestations of language development that may lead to disorders; and in Audiology, to identify hearing loss.

There are particularities regarding the settings in which these instruments are applied. Most notably, those in the areas of Hospital Speech-Language Pathology and Dysphagia are predominantly used in hospital settings, particularly at the bedside[173], as they aim to detect risk factors related to swallowing disorders. In the field of Dysphagia, specific indications for patients with comorbidities[171] are also highlighted, across different life stages. It is worth noting that the number of instruments identified in Hospital Speech-Language Pathology—regulated by Resolution CFFa No. 656, dated March 3, 2022[201]—is lower than that in Dysphagia, which was regulated earlier, by Resolution CFFa No. 383, dated March 20, 2010[202]. This discrepancy may be associated with the time of official recognition of each specialty. It is reasonable to consider that the growing demand for speech-language pathologists in hospital settings may have contributed to the establishment of this new specialty, even if it still relies on previously developed instruments for Dysphagia.

The formation of specialties within Speech-Language Pathology tends to follow the increasing demand in specific areas and the growth of scientific knowledge in those domains. In this review, it became evident that instruments originally developed for one area are often used in other areas, some of which have only recently been regulated. Moreover, instruments originating from other fields, such as Medicine[187]—particularly those used for neuropsychomotor development screening and assessment of cognitive abilities—are also applied by speech-language pathologists, given that their administration is permitted across multiple health professions.

In general, screening instruments may be intended for large populations across various age groups and for services with high demand, provided they have defined cutoff values suited to the specific context[16]. These tools must be quick to apply, easy to administer, and pose minimal risk to individuals, while ensuring results with good sensitivity[42]. Although the present review did not aim to assess the validation processes of the included instruments, it is essential that psychometric properties such as validity and accuracy[42], as well as eligibility, sensitivity, and specificity, are considered.

It was possible to identify that some instruments offer innovative forms of application, especially in the area of Audiology, where there are online screening programs[149], electronic-format questionnaires[101], smartphone-based screening applications[76], and software-based audiometers[101]. Based on recommendations for improvement, further research involving adaptations to existing instruments may be proposed. In the present review, it was noted that some instruments[203] were reformulated to meet specific demands or target populations, based on prior studies; such re-adaptations led to significant improvements aimed at enhancing the achievement of the intended objectives of these instruments.

The analysis of this review also revealed a common practice of adapting and validating instruments, including cross-cultural adaptations, to support the development of other tools[44–45,48]. Adapted instruments often rely on existing protocols and are modified following pilot testing, with the goal of achieving greater detail[46] prior to subsequent formal testing. An example is the development of a tool[45] adapted by Brazilian researchers to screen for Autism Spectrum Disorder (ASD) and developmental risks in children, which was validated for use in Brazil by healthcare professionals[44].

The creation of new instruments through adaptation can be explained by the scarcity of tools tailored to specific populations. For instance, in the pediatric population, instruments[170] are sometimes adapted from those originally designed for adults. While speech-language pathology services are more frequently directed at adults (ages 20 to 59), the number of instruments available for children appears to be lower[204].

According to Resolution No. 147/96 of the CFFa, the first areas of specialization in Speech-Language Pathology were Language, Audiology, Voice, and Orofacial Motricity (OM)[205], with the latter being associated with the smallest number of screening instruments found in this review.

In some cases, assessment instruments are partially used for screening purposes in specific populations, as observed in a study in the area of Orofacial Motricity (OM), which applied an assessment protocol[206] in a summarized manner for triage purposes, in order to investigate potential stomatognathic alterations. This finding highlights the importance of expanding research aimed at developing new screening instruments not only in OM but also across other speech-language pathology specialties. Screening tools, which are designed for the simple, cost-effective, and rapid detection of a likely disorder or injury in any individual, followed by referral for confirmatory diagnosis and treatment[9], differ conceptually and functionally from assessment tools.

The limitations identified in this scoping review mainly concern the difficulty in locating speech-language screening instruments using the key descriptor "screening programs," as recommended by the DeCS. This created a constraint in adhering strictly to the methodological search strategy, particularly regarding descriptor terminology. It is important to note that several instruments[157] were inaccurately described as "assessment" tools, even though they were intended for triage purposes. This limitation, however, did not compromise the results of the review, as the researchers conducted a meticulous analysis of the included articles and also manually added widely used instruments in the field.

It is also worth noting that this review may not have captured all articles that include speech-language pathology screening and triage instruments, as it was not possible to retrieve articles that did not utilize the recommended DeCS/MeSH health sciences descriptors. Another limitation was the difficulty in accessing screening and triage instruments published in book chapters and foundational speech-language pathology reference texts, as well as those used in outpatient clinics and academic institutions that have not yet been published in scientific journals. Similarly, challenges arose in accessing instruments developed in theses, dissertations, or even scientific articles that were not published in open-access journals. The authors sought to mitigate these limitations through careful and detailed analysis.

In light of these considerations, particularly regarding the importance of developing, designing, and adapting screening instruments, it is hoped that the present study will underscore the need to expand research efforts aimed at creating new screening tools, thereby providing enhanced resources to support clinical practice across the various specialties within Speech-Language Pathology.

Conclusion

There are several speech-language pathology screening and triage instruments developed for specific areas of the field, with a higher concentration in the more traditional domains of Language, Voice, and Audiology. It is considered necessary to expand research and develop new instruments for the other areas of Speech-Language Pathology, including Orofacial Motricity (OM) and more recently established specialties such as Dysphagia, Hospital Speech-Language Pathology, Educational Speech-Language Pathology, Fluency, and Neuropsychology. The goal is to guide professional decision-making and enhance clinical reasoning and intervention strategies.

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