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Review articles

Impact of the pandemic on scientific production in audiology: A scoping review protocol

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ABSTRACT

Purpose: to present a scoping review protocol aimed at mapping the main characteristics of systematic reviews published in the field of Audiology, during the COVID-19 pandemic, and to evaluate the methodological quality of the studies found.

Methods: a scoping review guided by the recommendations of the Joanna Briggs Institute and the PRISMA-ScR guidelines, registered on the Open Science Framework (OSF.IO/F8N7Y). The databases included PubMed, Lilacs, Scopus and Web of Science. In the first stage, two reviewers will independently evaluate the articles based on their titles and abstracts. The selected articles will be read in full based on the eligibility criteria. Any ambiguity or disagreement will be discussed and decided consensually. The results will be presented in the form of a flowchart and a narrative summary, following the PRISMA-ScR guidelines.

Final Considerations: this scoping review protocol was developed in accordance with current guidelines and will seek to analyze the literature on systematic reviews in Audiology, during the pandemic, identifying gaps and existing evidence.

Keywords: Systematic Review; Pandemics; Coronavirus; Audiology

A study conducted at the Federal University of Santa Catarina, Florianópolis, Santa Catarina, Brazil.

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INTRODUCTION

Evidence-based practice focuses on classification systems, generally characterized hierarchically and according to the design of the study, i.e., the methodological approach chosen for the research[1,2].

Systematic reviews (SRs) with high quality evidence can be used to provide a synthesis on the safety and efficacy of an intervention, and are also commonly used to synthesize evidence on diagnosis, etiology and prognosis[1,2]. They are particularly useful for integrating information from a set of studies carried out separately on a given therapy/intervention, which may present conflicting or coinciding results, as well as identifying topics that need guidance for future research[1-3].

Well-conducted SRs considerably assist health professionals in making decisions based on the best evidence, providing a convenient and unbiased summary of the evidence on a given topic[4,5].

A search of the PubMed database with the filter «systematic review» identified 167,656 SRs studies published until 2019[6]. In 2020, with the pandemic of the new coronavirus, during which in-person practice of clinical research was interrupted for a long time, there was a significant increase in the number of SRs, revealing a total of 80,514 published between 2020 and 2021 in different areas of health[6].

It is important to note that, despite the increase in the production of SRs, specific financial investments for this type of research are still limited, especially when compared to the resources directed towards basic research and clinical trials[1-5]. However, researchers with limited resources have used SRs as a valuable tool to generate impact in the scientific community.

However, although SRs can be conducted at relatively low cost compared to other types of studies, there is still a need for investment in infrastructure, staff training and access to specialized databases to guarantee the quality and reliability of the results. Therefore, it is essential that there is a balance between the availability of financial resources and the quality of the research. This is always aimed at producing robust and reliable evidence for clinical and political decision-making.

The relevance of a systematic review (SR) is intrinsically linked to methodological rigor, the findings and the clarity of the report[5,7]. While financial support is a tangible aspect, it is crucial to understand that the value of an SR goes beyond the received funding. Readers should be judicious when assessing the quality of reports. Although the application of GRADE (Grading of Recommendations, Assessment, Development and Evaluations) may be limited in certain situations, due to the nature of the topic or the availability of data, it is essential that authors adopt evaluation methods that are appropriate for the review in question. This approach ensures a transparent and reliable analysis of the evidence. The use of tools such as GRADE, when applicable, facilitates the systematic assessment of the quality of evidence and the interpretation of the results, providing a more accurate understanding of the strengths and weaknesses of the reviews[7].

Scoping review techniques are widely used in the health sciences to synthesize and disseminate research results on a topic of interest[4-7]. The aim of the scoping analysis is to represent the state of the art of a subject in a rigorous and transparent manner, without critically evaluating or summarizing evidence from different investigations, as occurs in an SR[1-7].

In Speech and Hearing Therapy, Audiology is a comprehensive area of research that produces everyday knowledge about hearing and hearing disorders in different life cycles, addressed mainly by speech and hearing therapists and otorhinolaryngologists[8]. Thus, better understanding the production of SRs in this specialty will contribute to the improvement and development of reliable, high-impact science.

Currently, there is no data available on quantitative evaluation of SRs published in Audiology, or details on the conduct of these reviews considering the different addressed issues (epidemiological, therapeutic, diagnostic, among others)[9-11]. In addition, no scoping reviews were found in the literature with similar goals to those outlined in this study, which aims to explore a wide range of characteristics of SRs in Audiology, such as mapping the evidence, the main concepts covered, theories, sources, methodological quality and mapping knowledge gaps[12].

Thus, the aim of this study is to present a scoping review protocol aiming at mapping the main characteristics of systematic reviews published in the field of Audiology, during the COVID-19 pandemic period, and evaluating the methodological quality of the studies found.

METHODS

This review was prepared according to the methodology of a scoping review, recommended by the Joanna Briggs Institute[13]. This study has been registered with the Open Science Framework (OSF.IO/F8N7Y). The results will be published in full as a product

of the scoping review and presented in a flow chart for scoping reviews, as recommended by the PRISMA extension for scoping reviews (PRISMA-ScR)[12].

The guiding question of this study was: «What are the characteristics of systematic reviews in Audiology?». The question followed the acronym PCC, in which the population (P) was a SR study with or without meta-analysis, the concept (C) was the characteristic of the included studies and the context (C) was the approach within the specialty of Audiology[14].

Eligibility Criteria

The inclusion criteria are: systematic review articles, with or without meta-analysis, of any type (prevalence, association, diagnosis, intervention, among others), which claim to follow the PRISMA[15] reporting guideline for SR, in which the main topic was the specialty of Audiology[8]. Studies published between 01/01/2019 (the year before the pandemic) and 12/31/2021 are included, without language restrictions.

Exclusion criteria are: integrative literature reviews, scoping reviews, narrative or critical reviews; theoretical studies of any kind, such as letters, editorials, errata, book chapters, theses, dissertations and papers presented at scientific events.

Search Strategies

A systematic search will be carried out in the main health databases to answer the research question, including PubMed, Lilacs, Scopus and Web of Science. To survey the studies, descriptors and synonyms listed in the PubMed indexing vocabulary, Medical Subject Headings (MeSH terms), in Portuguese and English ("Audiologia"; "Audição"; "Perda Auditiva"; "Testes Auditivos" and "Revisão Sistemática"; «Audiology»; «Hearing»; «Hearing Loss»; «Hearing Tests» and «Systematic Review», respectively), will be selected. Advanced search strategies will be adapted for each of the electronic databases, consisting of a combination of descriptors and synonyms with the Boolean operators «OR» and «AND». Thus, the framework proposed for the initial search for studies will be used (Chart 1).

Chart 1. Search Strategy

Search	Keyword	Records found
# 1	((«Audiology»[Mesh] OR «Audiology») OR («Hearing Loss» [Mesh] OR «Hearing Loss» OR «Hypoacusis» OR «Hearing Impairment» OR «Transitory Deafness» OR «Transitory Hearing Loss»)) OR («Hearing»[Mesh] OR «Hearing»)) OR («Hearing Tests»[Mesh] OR «Hearing Tests»))	
# 2	(«Systematic Review» [Publication Type] OR «Systematic Review»)	
# 1 AND # 2	(((("Audiology"[Mesh] OR "Audiology") OR ("Hearing Loss" [Mesh] OR "Hearing Loss" OR "Hypoacusis" OR "Hearing Impairment" OR "Transitory Deafness" OR "Transitory Hearing Loss")) OR ("Hearing"[Mesh] OR "Hearing")) OR ("Hearing Tests"[Mesh] OR "Hearing Tests")) AND ("Systematic Review" [Publication Type] OR "Systematic Review")))) Filters: from 2019 - 2021	

The references obtained in this search will be imported into the Endnote Web® reference manager, where duplicate studies will be removed automatically. Subsequently, the references will be imported into Rayyan - Intelligent Systematic Review so that two independent reviewers will apply the eligibility criteria.

Selection of Studies

Two independent reviewers will select the studies in a double-blind process by reading the titles and abstracts using Rayyan (Blind On mode). Any conflicts detected will be resolved by consensus.

The search results will be fully reported in the scoping review, according to PRISMA-ScR[12], and presented in a PRISMA flowchart[15].

Data Extraction

Two reviewers will independently extract the main information from the included references, following the items listed in Chart 2. Some information may be added depending on the data extraction process and the sources of evidence selected.

Chart 2. Data extraction guide

Article title:	
Author:	
Year of publication:	
Country:	
Journal:	
Population:	Systematic reviews with or without meta-analysis
Concept:	Compliance with PRISMA checklist items
Context:	Main theme of the systematic review in the specialty of Audiology

Data Analysis and Presentation

The data will be synthesized according to the objectives of the research, characterizing SR studies in the specialty of Audiology, published during the pandemic, in a quantitative and qualitative way.

The presentation of a proposed data extraction protocol will be useful in guiding researchers to properly follow the ideal steps for carrying out a quality SR. The results will be presented in tables and flowcharts and, finally, a narrative summary will be carried out to detail the studies and to answer the research question.

DISCUSSION

Social distancing generated by the COVID-19 pandemic has limited researchers around the world in the design and/or completion of primary studies, with many studies having to be interrupted or terminated altogether due to concerns about the safety risk to participants and the research team[16,17]. Therefore, scientists from different areas of research have redirected their research, and SR studies have become an alternative[16,17]. However, this large volume of production also raises concerns about the quality and evidence generated by these studies. Thus, it is important to check that GRADE is being used properly.

The specialty of Audiology is a broad area within Speech and Hearing Therapy, which is directed towards the promotion, prevention, diagnosis and rehabilitation of auditory and vestibular function, with the aim of guaranteeing communication and quality of life. In addition, it is related to other areas of health, producing diverse knowledge for the professionals who work in this context[8]. Therefore, this study will contribute to the survey of specific thematic gaps, where comprehensive SRs have not yet been carried out or have not been updated to include recent evidence.

Knowing the importance of constantly updating studies focused on this area, in order to increasingly improve the best practices, this scoping review aims to map the main characteristics of systematic reviews published in the field of Audiology during the COVID-19 pandemic, and assess the methodological quality of the studies.

The publication of studies evaluating the scientific production of SRs in Audiology is of the utmost importance, especially if they are conducted in accordance with the PRISMA-ScR[15] guidelines, so that it is clear to the readers how the whole process was conducted, checking for inconsistent methodology, which results in reviews of heterogeneous quality. Therefore, SRs in this area should be carefully designed to contribute to the dissemination of high quality, high impact knowledge.

In addition, this study will help professionals involved in the subject to carry out new studies and better evidence-based practices with the aim of continuous improvement and the well-being of health service users.

FINAL CONSIDERATIONS

This scoping review protocol has been developed in accordance with current guidelines and follows standards for immediate action. The study to be conducted, based on this protocol, will provide an objective analysis of the current state of the literature on systematic reviews in Audiology, during the pandemic period, identifying gaps and highlighting existing evidence.

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Authors' contributions:

GER: Conceptualization; Data analysis; Writing - Original draft.

EBP: Methodology; Writing - Revision and editing.

DPCS: Project administration; Resources; Supervision; Writing - Revision & editing.

Data sharing statement:

As this study is a scoping review protocol, the data to be shared will include: inclusion and exclusion criteria, a complete list of articles included and excluded in the review, tools and checklists used such as PRISMA-ScR and the Joanna Briggs Institute protocol, and any additional relevant data identified during the review process. The data will be publicly accessible indefinitely or permanently through the Open Science Framework repository (OSF.IO/F8N7Y). If additional information or specific supplementary data is required, interested parties may contact the study authors directly to request it.

Appendix 1. Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist[12]

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	1
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	1
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	2-3
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	3
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	3
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	4
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	4
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	4
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	4
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	4
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	Click here to enter text.
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	Click here to enter text.
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	5
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	Click here to enter text.
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	Click here to enter text.
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	Click here to enter text.
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	Click here to enter text.
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	Click here to enter text.

DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	Click here to enter text.
Limitations	20	Discuss the limitations of the scoping review process.	Click here to enter text.
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	Click here to enter text.
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	Click here to enter text.