ANALYSIS OF SCHOLARLY COMMUNICATION ON DYSPHAGIA IN THE YEARS OF 2021 AND 2022: A SCIENTOMETRIC STUDY

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SEPTEMBER 2023

CERTIFICATE

This is to certify that this dissertation, entitled "**Analysis of Scholarly Communication on Dysphagia in the Years of 2021 and 2022: A Scientometric Study**" is a bonafide work submitted in part fulfilment for the degree of Master of Science (Speech Language Pathology) of the student Registration number P01II21S0001. This has been carried out under the guidance of a faculty of this institute and has not been submitted earlier to any other University for the award of any other Diploma or Degree.

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September, 2023

CERTIFICATE

This is to certify that this dissertation entitled "**Analysis of Scholarly Communication on Dysphagia in the Years of 2021 and 2022: A Scientometric Study**" is a bonafide work submitted in part fulfilment for degree of Master of Science (Speech-Language Pathology) of the student with Registration Number: P01II21S0001. This has been carried out under my supervision and guidance. It is also certified that this dissertation has not been submitted earlier to any other University for the award of any other Diploma or Degree.

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DECLARATION

This is to certify that this dissertation entitled "**Analysis of Scholarly Communication on Dysphagia in the Years of 2021 and 2022: A Scientometric Study**" is the result of my own study under the guidance of Dr. K. Yeshoda, Associate Professor in Speech Sciences, Department of Speech-Language Sciences, All India Institute of Speech and Hearing, Mysuru, and has not been submitted earlier to any other University for the award of any other Diploma or Degree.

Mysuru
September, 2023

Registration Number: P01II21S0001

DEDICATION

In the name of God,

This dissertation is dedicated to almighty (for giving me the strength), son (Mohamed Omar Hyzin), parents, grandparents (late), family, all my teachers, friends, and well-wishers.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

In the present scenario, as the world of research witnesses an ever-rising surge of scientific publications year after year, assessing publication quality becomes necessary. Scientometrics is one way to quantitatively analyze the quality of research articles in any discipline (Saritas & Burmaoglu, 2015). *Scientometrics* concerns the quantitative features and characteristics of science and scientific research. Emphasis is placed on investigations in which statistical, mathematical methods study the development and mechanism of science. A study, a researcher, or a research institution's significance may be reflected in scientometrics by using indexes to give objective data. Thus, within the field of science, it is possible to compare the influence of a particular article, journal, author, or organization (https://www.springer.com/journal/11192).

The term Scientometrics was coined by Vassily V Nalimov and Z M Mulchenko in 1969 as the Russian equivalent of 'naukometriya'. Tague-Sutcliffe (1992) defined scientometrics as "the study of the quantitative aspects of science as a discipline or economic activity. It refers to scientific policy-making and is a component of the sociology of science. It involves quantitative analyses of scientific activity, such as publication. It hence overlaps bibliometrics". The focus of Scientometrics is the measurement of science and is therefore concerned with the growth, structure, interrelationship and productivity of scientific disciplines (Hood & Wilson, 2001).

"Scientometrics" in the literature is the quantitative study of scientific disciplines based on published literature and communication. This includes identifying new fields of science, analyzing how research has changed over time, or analyzing how

research is distributed geographically and organizationally (Glossary of Thompson Scientific Terminology, 2008).

The collaboration patterns in three Speech, Language, and Hearing Sciences publications were examined by Ramkumar et al. in 2016. The authors' top three choices in the field of Speech, Language, and Hearing were Journal of Speech, Language, and Hearing Research (JSLHR), published by the American Speech, Language, and Hearing Association (ASHA), Asia Pacific Journal of Speech, Language, and Hearing (SLH), and Journal of the All India Institute of Speech and Hearing (JAIISH). It was looked at from 2009 to 2013. They uses scientometric tools such as the MCC (modified collaborative coefficient), CC (collaborative coefficient), CI (collaboration index), and DC (degree of collaboration). Local collaborative index, domestic collaborative index, and international collaborative index were three new analysis parameters that were introduced. The quantity of journal articles increased linearly. Between 2009 and 2013, the quantity of papers published in journals increased linearly. Most of the publications were collaborative, as seen by the high collaborative index. In their topic-wise analysis, they discovered that language had more publications than the domains of speech and hearing. It was determined that local collaborations were more prevalent than national and international collaborations.

Gupta et al. (2017) analyzed autism research in India during 2007-16. The research examined 446 Indian articles on autism research that were included in the Scopus database between 2007 and 2016. These publications had an average yearly growth rate of 23.86 % and a citation impact of 9.02 throughout this time. The study concluded that the needs of the collective autism community were extensive and varied which included:

- Early detection of autism symptoms and signs necessary for early intervention and to fully realize the potential for reducing disability;
- Understanding the biological bases that helped explaining the symptoms of autism that aid the groundwork for future research;
- Identifying environmental and genetic risk factors;
- Development of a variety of safe and efficient interventions and treatments applicable to all ages;
- Ensuring that high-quality, evidence-based services and supports made available and accessible to everyone who needs them; indicating that persons with autism may have changing requirements and disabilities as they aged and that further research was necessary to comprehend the focused needs.
- Therefore, essential infrastructure for autism research be furthered to coordinate, accelerate, and boost the efficiency of such research; and to improve autism surveillance efforts to enable a more accurate assessment of Autism Spectrum Disorder (ASD) prevalence in populations in India.

Batcha and Chaturbhuj (2019) did analysis of scholarly communications on phonology from 2000 to 2017 through articles, book reviews, reviews, proceeding papers, book chapters, letters, and reprints. A statistical tool was used to examine the outcome characteristics, which included the collaborative index, relative growth rate, collaboration coefficient, and degree of collaboration. Single-authored publications were found to be more prevalent than multi-authored ones. They also observed a low collaborative index, indicating that collaboration in the field of phonology was limited. The United States was reported to have the highest proportion of publications on this subject.

Architha (2021) did the scientometric analysis for the articles in the field of voice (science, disorders, and therapy). The articles from the 'Journal of Voice' for the years 2019 and 2020 were selected and subjected to analysis. The results revealed that the majority of documents published were scientific publications (92.9%), which were followed by review articles (5.7%). Additionally, it was noted that multi-authored publications (95.3%) outnumbered single-authored papers (4.7%) by a wide margin. The collaboration index displayed a similar pattern for both years, with an average of 3.5 to 5.5 authors. The percentage of multi-authored publications was higher than that of single-authored papers, according to the CC which ranged from 0.57 to 0.77 and the DC, which ranged from 0.8 to 1.0. With four articles each published in 2019 and 2020, 'Sataloff' held the top spot among the authors. In 2019 and 2020, inter-local cooperation came out on top, followed by national cooperation and global cooperation. The results also suggested that the USA ranked first in 2019 (50 articles) and 2020 (69 articles) in Journal of Voice. The USA topped the international partnership category in 2019 and 2020. Articles with adult-only participants, as well as those with both adults and geriatric people, had the greatest number of human participants. In 2019 and 2020, the USA held the top spot with 50 and 69 articles, respectively. The USA topped the international partnership category in 2019 and 2020. Articles with adult-only participants, as well as those with both adults and geriatric people, had the greatest number of human participants.

A scientometric analysis of literature that were published in the year 2021 of the Journal of Aphasiology was carried out by Haripriya (2022). According to the findings, the degree of collaboration and the collaboration coefficient ranged between 0.6 and 1.00, and the collaboration index spanned from 2.60 to 5.00 suggesting more multiauthored articles than single-authored papers were published. The highest level of

collaboration was at the international level, then at the local level, and finally at the country level. The country with the most articles published was the United States of America. Assessment and management publications for aphasia were published the most frequently (42.50%), followed by articles that included both assessment and management. People with aphasia were the subject of the majority of studies (70.00%). The most studies were conducted on adults and the elderly.

South American scientific clusters were investigated by Cassanego and De Souza Arajo (2023). This study was quantitative, cluster research, with the primary objective of detailing the particularities of the universe or recognizing aspects to define the nature of this connection. The results revealed that the 150 articles made up the sample textual corpus cover 60 journals and 348 authors and co-authors who had established accounts with Scopus. The collection of published articles in the area between 1996 and 2019 was included in the registration period. There was a steady rise in publications, with 2012 and 2017 having the maximum amount, 18 articles each year, and 24% of the corpus of texts. In terms of the number of citations, 2009 saw the publication of 9 publications, totaling 232. Following the number of articles published, it was evident that from 2012 to 2019, publications remained consistent, fluctuating only slightly but always publishing more than 10 articles annually, making up 75.3% of the corpus of text under analysis.

The scientometric analysis have been done in different communication disorders. The scientometric analysis help the researchers to identify the trend and gaps in the researches that further leads to quality research. So, there is a necessity to do scientometric analysis in different conditions.

Scientometric Study and Dysphagia

There are scientometric studies done in areas of speech and hearing, including Voice, Aphasiology, and Phonology. Dysphagia is an emerging field for an SLP. Dysphagia is difficulty swallowing, such as taking more time and effort to move food or liquid from the mouth to the stomach. In some cases, swallowing is impossible. People with dysphagia have difficulty swallowing and may even experience pain (odynophagia). Some people may be completely unable to swallow or have trouble safely swallowing liquids, foods, or saliva. (Myoclinic, 2023)

Dysphagia is an abnormal delay in the movement of a food bolus from the oropharynx to the stomach (Jalil et al, 2015). The American Speech-Language-Hearing Association (ASHA) describes dysphagia as a "swallowing disorder involving the oral cavity, pharynx, esophagus, or gastroesophageal junction". The Mayo Clinic (2022) reports, "Dysphagia is difficulty swallowing - taking more time and effort to move food or liquid from your mouth to your stomach. Dysphagia can be painful. In some cases, swallowing is impossible". Dysphagia may result from neuromuscular disease or mechanical obstruction (Argov et al., 2021). Prevalence of dysphagia According to ASHA, dysphagia may occur in 22% of adults over 50 years of age. There are several estimates of the prevalence of dysphagia as it is associated with common neurological diagnoses: 29% - 64% of stroke patients, up to 90% of individuals with Parkinson's disease or ALS, and 13% to 57% of those with dementia (Mayoclinic, 2023).

It is necessary to understand the progress of the research happening in the dysphagia field to popularize the same. It is necessary to find out the trend and progress of research in deglutology, which will help further the field's development. It will improve patient care and provisions for better quality services to the needful. Currently,

limited studies (Krishnamurthy & Balasubramanium, 2021) exist on the analysis and visualization of dysphagia research. It would be relevant to reproduce this research work every decade to trace the history and trends.

1.1 Need for the study

By referring to the literature, there is a need for scientometric study in the field of dysphagia. There is a need to estimate the research gap and evaluate the status of the collaboration. To understand the research trend in dysphagia for researchers, students, surgeons, and academicians. We need to understand the type of collaboration between authors, institutions, and Countries. There is a need to understand the position where Indian research stands and also to determine the direction of research in India. The present study also will help to understand the trend of the authorship pattern, i.e., whether a single author or multiple authors publish the articles and will provide knowledge about the Country-wise and author-wise research output. Scientometric studies also provide information about the types of funding given by different funding agencies. This will help researchers in their future studies. The results of the present study would help dysphagia researchers explore more on certain areas of dysphagia where minimal work has been done.

1.2. Aim of the Study

The study aimed to analyze the scholarly communication on dysphagia in the years of 2021 and 2022.

1.3. Objectives

- To quantify the topic-wise distribution of publication of articles on Dysphagia in the years of 2021 and 2022.
- To examine the nature of the authorship pattern of the articles in dysphagia.
- To recognize the country-wise distribution of articles on dysphagia

- To identify the funding agencies and pattern of funding in dysphagia
- To quantify the year-wise distribution of publication and growth of literature on dysphagia in the years 2021 and 2022.

CHAPTER II

REVIEW OF LITERATURE

The literature review's emphasis is on scientometric research in the area of speech, language, and hearing. The investigations done in the fields of phonology, dementia, autism, audiology, ADHD, dysgraphia, etc. are the main subject of the book.

The Web of Science (WoS) database was used by Gazni et al. (2012) to analyze publications to map collaboration trends across nations and areas from 2000 to 2009. The researchers collected 1, 39,17,488 papers in total. The papers were categorized into 22 disciplines using the Essential Science Indicators (ESI), while journals were split into five domains (life sciences, social sciences, physical sciences, medicine, and multidisciplinary).

Their research revealed an increase in publications from 69 to 78 percent. From 3.3 to 4.1 authors were on average found in each manuscript. The majority of the articles (57%) have 1-3 written documents. In the biology sciences, co-authorship was more common than in the social sciences. Collaboration between institutions increased from 39% to 48%. A little over 56% of the authors worked together within the same institution. In the realm of space science, institution-to-institution cooperation was encouraged. Collaboration across borders increased from 14% to 18%. In physics and mathematics, international collaboration was preferred. 30% of the publications in the globe came from the United States, while 20% came through international collaboration. The United States, the United Kingdom, Germany, France, Italy, and Canada are the centres of an international collaborative network. Additionally, they claimed that countries with higher incomes had more publications produced by international cooperatives. The highest percentage of international publications was obtained from the multidisciplinary field.

Scientometric Study in Speech, Language, and Hearing

Ramkumar and Narayanasamy (2017) looked into the networking and collaboration of research grant projects in the field of speech, language, and hearing sciences. The research grant programs listed in the All India Institute of Speech and Hearing, Mysore, annual reports from 2001-02 to 2015-16 were examined by the writers. They separated the data into two groups, each with seven years of projects, and termed them Span I (2001-02 to 2007-08) and Span II (2009-10 to 2015- 16).The data set had 211 research projects in total. From Span I to Span II, the number of projects grew by a factor of 3.39. The biggest, highest, and lowest ARF projects, with 38 and 4, respectively, occurred in 2011–12 and 2001–02. The authors separated the data into domains in order to calculate productivity in each domain. With 18 ideas, Speech won the first place in Spanish I, and Language won with 47 projects in Spanish II. With 19 and 74 projects in Spans I and II, respectively, two- authored projects were the most common investigator pattern.

Significantly, single-authored projects decreased from 31.25 percent (span I) to 17.17 percent (span II). The collaborative co-efficient increased from 0.40 to 0.49, indicating collaboration becoming more common. Local collaborations were the most common, with 137 projects, and overseas collaborations were the least common, with only nine projects. An upsurge in both domestic and international collaboration was noted. The majority of international partners were American universities and, Manipal College of Allied Health Sciences, Manipal, contributed the most in domestic collaboration. The pattern of professional networking, according to the authors, was strongest between junior and senior professors (19.85 percent), followed by networking with clinical personnel (15.81 %). The authors concluded that the increase in faculty members was responsible for the increase in research project productivity. The type of

professional networking pattern identified enhanced the transfer of knowledge from elders to juniors. They also advised that certain policies be introduced in order to boost international collaboration.

Nandeesha and Begum (2017) analyzed the collaboration in speech and hearing research literature, institution wise author productivity, and subject wise distribution of articles using the 'Journal of All India Institute of Speech and Hearing (JAIISH), which is a publication of All India Institute of Speech and Hearing (AIISH), Mysuru, Karnataka, India. The published research works were collected from 2010-2015. A total of 155 papers published during this period and two author and three author papers were in maximum numbers. The year 2010 produced a maximum number of articles with 35 papers which is contributing 21.93 percent. Of the 450 authors of these 5 years, Sreedevi contributed a maximum number of papers which was 14 papers representing 9.03 percent. AIISH has contributed the maximum number of research outputs (67.11 percent). The subject wise distribution indicates that studies in speech (33%) were greater than language (29%), hearing (20%) and combined speech and language studies (14%).

Ramkumar (2022) conducted a scientometric analysis of master's theses that focused on the fields of speech, language, and hearing sciences. The dataset used a bibliometric and analytical methodology and included 1111 master's dissertations from eight Indian institutions between the years of 2012 and 2017. According to the results of the dissertation's domain-wise research, the research on hearing abnormalities (45.82%) was higher than that of speech disorders (29.79%), which was higher than that of language disorders (21.42%). It was found that studies on voice disorders were more prevalent than phonology, articulation, and their disorders, which in turn were more prevalent than fluency disorders. In language disorders, studies in child language

disorders were more prevalent than adult language disorders. Considering the dissertation in audiology, research in diagnostic audiology was more in number than rehabilitative audiology. Hearing aids and cochlear implants, balance issues, sensorineural hearing loss, tinnitus, and hyperacusis were the clinical areas of audiology that were most frequently covered. Stuttering, cleft lip and palate, aphasia, eating, and swallowing, autism spectrum disorders, and intellectual (Learning) disability were the top five clinical areas in speech-language pathology. It was suggested that the institutes set a targeted research program to match national and international demands.

There have been a couple of scientometric studies exploring the researches on more specific topics that can be placed under the domain of speech and hearing. The scientometric studies were done on different speech and hearing disorders. The review of the scientometric literature of each specific topic is explained under the following headings:

1. Scientometric Study in Audiology
2. Scientometric Study in Autism
3. Scientometric Study in Dementia
4. Scientometric Study in Dysgraphia
5. Scientometric Study in Phonology
6. Scientometric Study in Voice
7. Scientometric Study in Eye-tracking
8. Scientometric Study in Attention Deficit Hyperactivity Disorder.
9. Scientometric Study in Dyslexia
10. Scientometric Study in Aphasiology

Scientometric Study in Audiology

Nandeesha and Begum (2017) studied documents in the field of Audiology from 1989 to 2016 in the Web of Science (WoS) database. There were 1382 documents compiled by the authors in the field of audiology. Scientific articles were the most common category of document, accounting for 1180 (85%) of the total, followed by Conference proceedings, which accounted for 93 (7%) of the total. They observed a growth in the number of publications from 5 in 1989 to 144 in 2016. Citations grew from 0 in 1989 to 1739 in 2016, according to the authors. Swanepoel (2017) placed highest among the authors who published in this field, with 20 publications, followed by an anonymous author with 18 publications. The University of Pretoria was the most productive university, with 32 publications. The United States came out on top in terms of productivity, with 507 (36.69 percent) papers produced. England, Germany, Australia, and Canada were among the top five most productive countries.

The authors reported that the majority of the publications were published in English (1284), with German coming in second (79). Other languages used included Portuguese, Spanish, Turkish, French, and Polish. They also looked at production, and the International Journal of Audiology came out on top with 135 publications, followed by the Journal of The American Academy of Audiology with 99 with 815 and 410 articles, respectively. They also noted that the National Institute of Deafness and Other Communication Disorders (NIDCD) ranked 1 in terms of funding 23 publications. This kind of research helps in appreciating the contributions made to the field of audiology research by specific authors, universities, and topic areas.

Scientometric Study in Autism

Even though the scientometric studies are limited in Autism Spectrum Disorders (ASD), there are some bibliometric studies revealing the scholarly informations on the same.

Lorenzo et al. (2016) analyzed the evolution of the Asperger's syndrome research topic from 1990 to 2014 using bibliometric markers. They used Web of Science, Medline, Inspec, Biosis Citation Index, SciELO Citation Index, and Current Contents Connect to compile their findings. On this topic, there were a total of 3452 scientific articles found. The researchers claimed that the volume of studies on this topic has been rising rapidly. In both the period from 2003 to 2014 and between 1990 and 2001, there were more articles. However, there was a decline in scientific output in 2002. The authors report that out of 574 journals published papers on this subject, Journal of Autism and Developmental Disorders accounting for 17.14% of the total. The average number of pages for an article in the Journal is ten. Two, three, four, or five-author publications accounted for 65% of the data collected. Additionally, 126 articles with ten or more authors were found.

Since 1990, the quantity of citations has gradually climbed. With 143 papers, Baron Cohen was reportedly the most productive author up to 2016. There were 708 to 1083 citations for three papers. Theme articles on Asperger's syndrome were mostly published in the category of psychology and behavioral sciences. The United States and England were the two most producing nations in the field. Majority of studies were based on psychological studies. The study was unable to place a high priority on the methodological elements of the intervention due to the limited sample size used. Looking at the study's strengths, it clearly demonstrated the upward trend in Asperger's

syndrome scientific production over the preceding eight years and highlighted the underdeveloped bibliometric indicators in the social science domains.

By examining scholarly articles from 2018 to 2022, Lim et al. (2022) investigated current advancements in autism genetic research. According to this scientometric analysis, CiteSpace was used to assess 14,818 different articles that were taken from Scopus. Recent literature on ASD genetic research can be roughly categorized into 12 distinct clusters, each of which represents a different sub-topic, according to an optimal DCA analysis. The study's potential uses are discussed along with a brief description of these clusters. "Gut Microbiota" was assigned to Cluster 1. Guang et al.'s major citing article in this cluster has a GCS of 98 and a coverage of 38. Regarding the cluster's name, many referencing and cited studies in the cluster concentrate on the effect of bacteria found in ASD patients' gut microbiomes on symptoms. Groups 2 and 3: Rat Models -Clusters 2 (manually renamed "Fragile X Syndrome") and 3 (manually renamed "SHANK1,2,3 Genes") are discussed together, in contrast to the prior clusters, which had thematic focuses, mostly due to the use of animal models in their study methodologies. With a coverage of 64 (GCS = 8) and 46 (GCS = 23), respectively, the publications written by Wang et al. and Verma et al. are the most significant citing documents in cluster 2. Wang et al. and Soler et al. are the primary authors of the significant citing documents in Cluster 3, with a coverage of 54 (GCS = 8) and 40 (GCS = 26), respectively.

In clusters 4 and 6 St. Clair and Johnstone (coverage = 22; GCS = 13) and Lord et al. (coverage = 23; GCS = 211) are the primary authors of the key referencing documents for Clusters 4 and 6, respectively. In papers in Cluster 4, prenatal development processes are mimicked using stem cells to determine the pathogeneses of ASD. In Cluster 6, research approaches go a step further by simulating the structure

and operation of the human brain using brain organoids, a self-organizing tissue made of these stem cells. Al-Dewik et al.'s significant citing work, which has a coverage of 20 papers and a GCS of 5, is found in Cluster 5. Numerous studies in this cluster use big data, such as genome-wide associations or transcriptome analysis, to identify the genetic causes of ASD, as the phrase "Genomic Architectured" suggests.

Like these, the authors have divided subtopics as clusters and quantitative analysis were done. It is hoped that the results of this scientometric review would motivate researchers to fully utilize the body of literature that is already accessible in this area and incorporate information from other clusters and subspecialties into their future work. It should be emphasized that none of the clusters primarily focused on the creation of multidisciplinary treatments with medical, psychological, and occupational perspectives, as well as the translation of laboratory findings to clinical applications. More interdisciplinary cooperation in genetic research on ASD may be seen in the future to speed up the transition from "bench to bedside." However, genetic discoveries by themselves hold fascinating possibilities for customized therapy, genetic counseling, and early intervention techniques.

Scientometric studies in Dementia

Analysis of recent research on Assistive Technologies (AT) for Dementia patients was investigated by Asghar et al. (2017). They looked at articles published between 2000 and 2014. The authors used information from the Scopus and Citation databases. They gathered a total of 1902 publications and ran bibliometric and scientometric analyses on them. They observed an overall increase in research production on AT-related studies of 29 percent on a yearly basis. United States ranked first in terms of country-wise productivity, with 503 publications, followed by the United Kingdom with 399 publications. Even in collaborative research papers, the

United States came out on top, followed by the United Kingdom. The authors also suggest that future assistive technologies should prioritize simplified user interfaces, the incorporation of large fonts, basic functions, and the promotion of regional languages. Interesting recommendations like including reminders for prayer times and context-sensitive health monitoring may help AT acceptance and use. The creators of the AT may get around these restrictions by using user-centered development techniques. Future studies may utilize questionnaires to collect similar data. Comparing qualitative and quantitative data would be interesting to better accurately assess the usability of AT.

In the scientometric review done on Cognitive research and Dementia by Pestana and Sobral (2019), the intellectual structure, developing patterns, and relevant alterations in the growth of available knowledge were examined. Data Between 1998 and 2017 from Web of Science yielded increased webwork of 564 articles as well as 12,504 citations. A scientometric review of the co-citation network visualized was performed using Cite Space. The author Stern Y has the most publications and citations, according to the findings. Neurology, Harvard University, and the United States were found to be first, second, and third, respectively, in the network of journals, institutions, and countries. While cognitive reserve is still the most studied aspect of this discipline, research on functional ability, executive control, mortality data, and reserve mechanisms has risen significantly. The literature that has been published in other languages, if any, is unknown and neglected as the paper was limited to English-language publications. Other significant papers may have been included inside other databases, despite the WoS databases importance to CR and dementia research.

A scientometric study titled "Neuroimaging research on dementia in Brazil in the last decade: scientometric analysis, challenges, and peculiarities" was examined by

Rizzi et al. in 2021. Due to limited investments and diverse demographics, structural and functional neuroimaging research is difficult in low- and middle-income nations. In addition to highlighting the significance of detecting mild cognitive impairment and dementia, the study aimed to provide an overview of Brazilian neuroimaging dementia research. A brief scientometric study of quantitative data describing this field's evolution over the previous ten years is included in the review. Additionally, examines certain features and difficulties that have restricted neuroimaging dementia research in large and diverse Latin American nation. The authors conducted a systematic assessment of the Brazilian authors' published work from 2010 to 2020 that presented results related to dementia syndrome in the field of neuroimaging. Morphometrics, fMRI, and DTI were, in order, the most common neuroimaging techniques used. Alzheimer's disease, moderate cognitive impairment, and vascular dementia, respectively, were the main disorders examined. Furthermore, the majority of Brazil's scientific effort has been concentrated in a small number of facilities in the Southeast, and funding may be the main force behind publications.

The number of publications per year was comparatively stable, the citation impact has historically lagged below the global average, and the author's gender inequality is unimportant in this particular field. Brazil is far from being a developed nation with widespread neuroimaging research.

Scientometric studies in Dysgraphia

Gupta et al. (2018) investigated 493 global dysgraphia research papers that have been indexed in the Scopus database throughout the previous ten years, from 2007 to 2016. These articles experienced an average yearly growth rate of 4.02 percent, and the average number of citations per paper was 7.90. The top 10 most productive nations among the 64 that took part in the dysgraphia global research each contributed a global

share ranging from 3.04 percent to 20.69 percent, with the USA providing the highest global publication share of 20.69 percent, followed by Italy (11.76 percent), the UK, (11.36%), Japan (8.32%), and so forth. Between 2007 and 2016, the top 10 most productive nations' combined global publishing share accounted for 81.34 % of all publications worldwide and 96.74 % of all citations. The relative citation indexes for Canada (2.85), the United States (1.51), the United Kingdom (1.46), and Israel (1.39) were all higher than the global average of 1.19 between 2007 and 2016. In research on dysgraphia from 2007 to 2016, the proportion of worldwide collaborative publications from the top 10 most productive nations ranged from 7.32 to 39.13 percent. During the period of 2007–16, publications on dysgraphia were most frequently published in the medical field (72.41%), followed by the neurosciences (36.51%), psychology (30.53%), and so on. During the period of 2007–16, the top 15 and 10 most productive organizations and authors collectively provided 22.92 and 13.18 percent of global publications and 33.50 and 17.27 percent of global citations, respectively.

The top 10 journals produced 26.68 percent of articles to the worldwide journal production from 2007 to 2016 out of the 381 total journal papers (or 26.68 percent of total journal output). Only the top 17 highly cited articles received citations ranging from 42 to 191, comprising 1242 citations with an average of 73.06 citations per article. These 15 highly cited publications, which were written by 106 authors and 77 organizations and published in 13 journals, included 1 paper from each of the other journals and 6 papers that were published in Cortex.

Scientometric Studies in Phonology

Batcha and Chaturbhuj (2019) investigated collaboration and authorship patterns in studies of phonology. They chose an 18-year period, from 2000 to 2017and used data from the Web of Science to compile their findings (WoS). They discovered 5015 records in all. They analyzed the data using scientometric variables such as the collaboration index, degree of collaboration, collaborative coefficients, modified collaborative coefficients, relative growth rate, and doubling time. The authors observed that scientific publications had the most entries, with 4019, followed by book reviews and paper proceedings, which had 397 and 214 records, accordingly. They obtained a 5.82 percent rise in research production from 2000 to 2017. It was observed that single authors and two authors authored 41.81% (2097) and 23.39% (1173) of the articles, respectively. The year 2012 had the highest collaboration index with a score of 2.70. According to the authors, the average degree of collaboration was 0.57. In the year 2013, a score of 0.63 was the highest level of collaboration. The modified collaboration coefficient was similar to the average collaboration coefficient (0.36 and 0.37, respectively). In 18 years, the average relative growth was 0.07, while the average Doubling time was 0.044.

Goswami (2019) was the highest-ranking author, with 34 records, followed by Iris Berent, (2019) who had 33 records. Lingua had the most articles in the discipline of phonology, with 192, followed by Clinical Linguistics and Phonetics, which had 111. They also discovered that the United States was the country with the most number of articles published (1928), followed by the United Kingdom with 1302 articles published. They arrived at the conclusion that single-author articles were more common in the subject of phonology. As a result, the collaboration coefficient was less than 0.5, resulting in a modified collaborative coefficient of 0.37.

Scientometric study in Voice

Pestana et al. (2019) used text mining, clustering, and scientometric techniques to evaluate the trend of singing voice from 1949 to 2016. The authors gathered data from the PubMed database and separated it into two periods: the first period (1949-2010) and the second period (2011-2016). In this field, there were a total of 754 publications published. They discovered that between 1949 and 2016, there was a rise in the number of articles published in this sector, totaling 225 publications. Additionally, they stated that throughout the course of each decade, the number of papers published rises continuously. They added that 162 journals had published articles on the singing voice. The Journal of Voice had the most articles published in both time periods, it was also found. They said that, until 2010, opera singers were the most widely studied subtopic within the field of professional singing. The focus shifted from the singing voice's intrinsic structure to its practical aspects, with male vocalists as the primary subject.

They arrived at the conclusion that singing voice research has progressed, the number of articles published on this subject has increased, and study into the functional elements of singing voice has become more important. Almost all of the research in the area that has been done over the years is summarized in this article. The article employs both bibliometric and scientometric approaches to review the body of previous work on the topic in innovative and vibrant ways. The study gives an introduction, compares current research trends in the subject, and shows how the fields covered themes have changed over time. Due to time constraints, the researchers in this study restricted their search to PubMed; as a result, the potential and existence of a selection bias cannot be ruled out. Additional search engines could be added to boost the results and include more areas.

Architha (2021) did the scientometric analysis for the articles in the Voice (Science, disorders, and therapy) field as a part of dissertation. The articles from the 'Journal of Voice' of the year 2019 and 2020 were selected and subjected to analysis. The results revealed that the majority of documents published were scientific publications (92.9%), which were followed by review articles (5.7%). Additionally, it was noted that multi-authored publications (95.3%) outnumbered single-authored papers (4.7%) by a wide margin. The Collaboration Index displayed a similar pattern in both years, with an average of 3.5 to 5.5 authors. The percentage of multi authored publications was higher than that of single-authored papers, according to the Collaboration Coefficient, which ranged from 0.57 to 0.77 and the Degree of Collaboration, which ranged from 0.8 to 1.0. With four articles each published in 2019 and 2020, Sataloff held the top spot among the authors. In 2019 and 2020, inter local cooperation came out on top, followed by national cooperation and global cooperation. The results also suggested that the USA ranked first in 2019 (50 articles) and 2020 (69 articles) in journal of Voice. The USA topped the international partnership category in 2019 and 2020. Articles with adult-only participants, as well as those with both adults and geriatric people, had the greatest number of human participants. In 2019 and 2020, the USA held the top spot with 50 and 69 articles, respectively. The USA topped the international partnership category in 2019 and 2020. Articles with adult-only participants, as well as those with both adults and geriatric people, had the greatest number of human participants.

Puig-Herreros et al. (2022) conducted scientometric research on the topic "Contemporary Trends on Euphonic Voice Research". The authors analyzed the characteristics of normal voice-related publications to identify research trends, publications type, and their numerical and temporal evolutions and the most-used

descriptors over the last 11 years. Methods of the study included data from 2011 to 2021 obtained through several databases. Subsequently, using viewer software, a science mapping analysis was made. Results indicate that a total of 901 publications were obtained. The analysis indicated that slight increase over the last 11 years of scientific production, with an average of 82 publications per year in the field of study regarding the euphonic voice. Co-authorship analysis revealed 6215 authors contributing to the field with 901 articles, and Jiang, J.J. headed with 18 articles.

Based on this research, we can say that there has been a increase in the number of publications in research pertaining to the euphonic voice during the last 11 years (75 in 2011 vs. 102 in 2021), with an average of 82 articles each year. Studies in this field are published in several general and specialized journals. The lack of variation in the terminology employed in the field of voice and the lack of a rise in variety over the study period were underlined by keyword co-occurrence analysis. This scientometric study highlights the need for this area of research to be more diverse and for strong research groups to be established in order to promote it. More study is required to characterize the euphonic voice, as well as the associated conditions and contributing factors, such as epidemiological studies in various groups.

Scientometric study in eye tracking

Aryadoust and Ang (2021) used data from 27 language science journals that were listed in Scopus and/or the Social Science Citation Index to conduct a thorough scientometric analysis of 341 research papers and their 14,866 references published between 1994 and 2018. The writers included a number of nations, universities, and academic organizations that have published a sizable number of articles on eye-tracking studies in language. Additionally, a variety of connected research trends that have impacted the shape and development of eye tracking research were discovered.

Particularly, a co-citation analysis of documents revealed several significant study clusters, together with their core topics, connections, and bursts (sudden citation spikes). They then examined how the patterns that had been identified had influenced the creation of new trends in light of a data-driven interpretation of the scientific revolution. This work has a variety of implications for future research because it is the first scientometric examination of eye tracking research in language studies.

Scientometric study in ADHD

The scientific literature on ADHD was subjected to a scientometric study by Cortese et al. (2022), which evaluated important topics and trends throughout the previous decades and provided guidance for future research directions. The authors searched the Web of Science Core Collection systematically for scholarly articles on ADHD up to November 15th, 2021, and found 28,381 articles. The authors observed four significant research trends. These include ADHD therapy, risk factors, and evidence synthesis. Then includes neurophysiology, neuropsychology, and neuroimaging. The third trend was genetics and the fourth was comorbidity. Tricyclic antidepressants, ADHD diagnosis/treatment, bipolar disorder, EEG, polymorphisms, sleep, executive functions, genetics, environmental risk factors, emotional dysregulation, neuroimaging, non-pharmacological interventions, default mode network, Tourette, polygenic risk score, sluggish cognitive tempo, evidence-synthesis, toxins/ chemicals, psychoneuroimmunology, Covid-19, and physical exclusion were among the themes that were identified in chronological order. The first known paper was written in 1963 by Zrull and colleagues and compared the effects of chlordiazepoxide, D-amphetamine, and placebo on children with the hyperkinetic syndrome (Zrull et al., 1963). From 10 to 147 articles per year in the time frame of 1990– 1997, the number of publications progressively grew. From 264 to 2067 articles

in the period from 1999–2020, the number of publications increased exponentially at an average growth rate of 11.12 percent per year. From 2.3 in 1990 to 4.7 in 2020, the annual average number of citations increased.

In conclusion, a medical model has primarily guided research on ADHD during the past few decades. There is a need for research on important psychosocial components of ADHD, such as societal pressure, the idea of neurodiversity, and stigma, even if the neurobiological correlates of ADHD are evident and essential.

Scientometric study in Dyslexia

In the year 2022, Janarthananan and Kannan conducted a scientometric investigation of research outputs on dyslexia: during the period of 2015–2019. In the period between 2015 and 2019, 7623 authors produced 1677 research papers, of which 134 were written by lone authors and 314 by trios of authors. The average relative growth rate and doubling time for the 12 research papers by author Tzipi Horowitz-Kraus are 0.027 and 13.227, respectively. The preferred language of authors was determined to be English in 1639 (97.73%) research publications on dyslexia, with the United States contributing 398 of them, ranking first nationally, and India contributing 13 of them, placing 20th. The 134 research papers (7.99%) that the journal "Dyslexia" (Chichester, England) submitted are in first place. 15 research papers were contributed by prolific institutes, with First Place being held by the Behavioral Science Institute of the Netherlands.

According to the authors, the mean degree of cooperation is 0.920, meaning that 92% of the contributions are from collaborative authors. Given that India's prevalence of dyslexia is surprisingly low, it is imperative to raise awareness among the general public. The funding organizations and the Indian government should take the lead in motivating the scholars to submit more research articles on dyslexia. The authors came

to the additional conclusion that international cooperation was necessary for researchers to advance their understanding of dyslexia.

Scientometric study in Aphasiology

A scientometric analysis of literatures that were published in the year 2020 of the Journal of Aphasiology was carried out by Nazir (2022). In 2020, there were a total of seventy-two (72) articles published in the journal Aphasiology. Scientific articles made up the majority of the documents published this year, accounting for 86.11% of all publications. In terms of article count, management was the category with the most entries. Of all publications, the articles in this category made up 33.33% (24) of them. The majority of publications (61.11%) published in 2020 included the PWA (Persons with Aphasia) participant group in their research. Participants taken into account in 55.56% of the publications that were published in that year belonged to the combined age group of adults and geriatric people. Most publications that were published in 2020 (94.44%) had several authors. A minimum of four authors contributed to the majority of the papers that year (61.38%). In 2020, most articles that were published showed evidence of collaboration, while 5.56 percent of articles were either single-authored or did not exhibit any collaboration.

Local collaborations were discovered to be at their peak in 2020 (45.28%), making them the most common type of collaboration. International collaborations took third place, followed by national collaborations. Range of the article's Collaboration Index values between 2.25 to 14.00 was the. Values for issue-specific collaboration coefficients show that every issue contained articles that were essentially co-authored by multiple authors. Since all of the articles in 8 of the 12 issues had a degree of cooperation rating of 1, all of the articles in those issues displayed some form of collaboration. The maximum number of papers published per author was found to be

three. Eight authors were there, with a maximum of three publications. In terms of national research productivity, the USA came in first place with 30 publications in 2020.

The maximum amount of citations per article as of July 13th, 2020, was 45, and Issue No. 1 was shown to have had the most citations per issue in 2020. By funding a maximum of 8 publications to be published in 2020, the National Institute on Deafness and Other Communication Disorders at the National Institutes of Health took first place among the funding organizations.

A scientometric analysis of literature that was published in the year 2021 of the Journal of Aphasiology was carried out by Haripriya (2022). The results show that the collaboration index ranges from 2.60 to 5.00 and that the degree of collaboration and the collaboration coefficient typically fall between 0.6 and 1.00. This shows that multi-authored publications were published more frequently than single-authored studies. The level of collaboration that was the highest was at the worldwide level, followed by the local level and then the national level. The United States of America published the most articles worldwide. The most commonly published articles for aphasia (42.50%) featured both assessment and management, then studies that only included management. The bulk of studies (70.00%) involved people with aphasia. The majority of studies involved adults and the elderly. Scientometric studies in the field of communication disorders majorly started after 2000's. So far, scientometric studies has been done in the field of Autism, Dementia, Phonology, Dysgraphia, etc. These studies have an essential role in identifying the gap in the area and the ongoing trends. But scientometric studies on dysphagia are very less in number. Scientometric analysis is essential in the field of dysphagia to find the research gaps and research opportunities.

CHAPTER III

METHOD

Material

The information was collected from the select journals, i.e., journal named "Dysphagia" and "JSLHR (Journal of Speech, Language and Hearing Research)". Each article's detail was collected from the journal within the timeline from January 2021 to December 2022. The database for selecting articles was from the E-Journal facility provided by the Library and Information Centre of All India Institute of Speech and Hearing (AIISH), Mysore. The online versions (soft copy) of the journals published articles was considered for this study.

Procedure

Information was collected by reviewing each article individually and then the details were organized, tabulated, and segregated issue-wise. Microsoft Excel sheet was used for the systematic segregation and tabulation of data. Keywords used were dysphagia, swallowing, feeding, deglutition, and aspiration.

The parameters on which the articles were segregated were as per Architha (2021) and are as shown below:

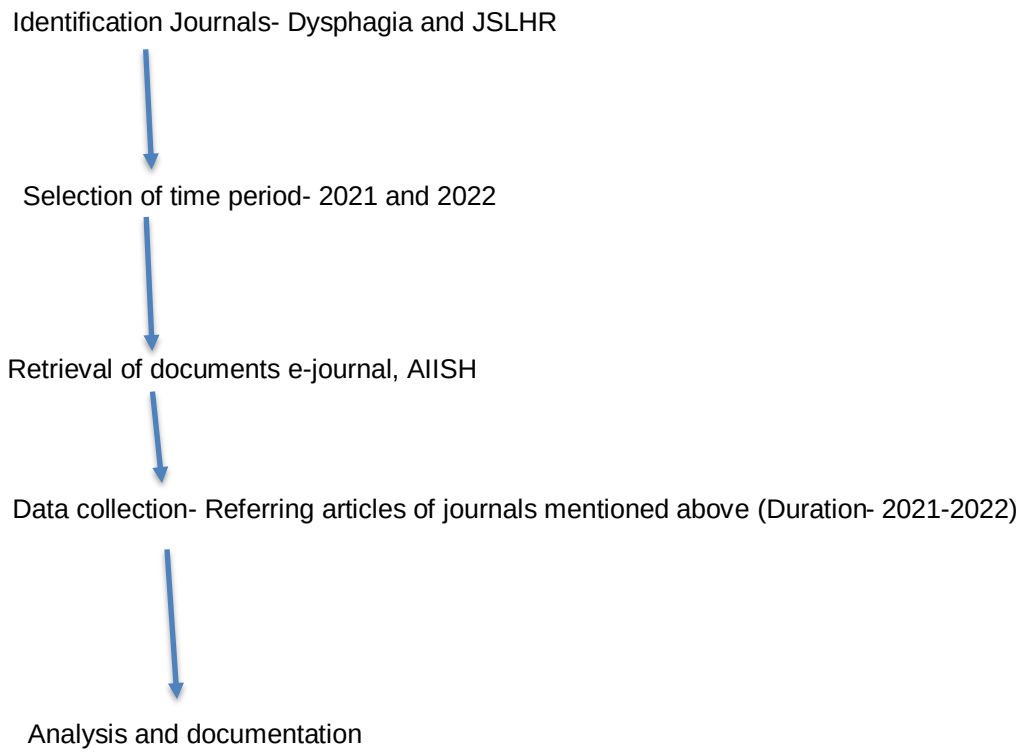
- *The number of articles*: the total number of articles in each issue of the Journal,
- *Document/Article type*: Scientific articles (SA), Reviews (RW) [which contained systematic reviews, literature reviews, and book reviews], and Letter to the editor & reply to the editor (TE & RE) were considered under this,
- *Title of the article.*
- *The names and number of authors* (authorship pattern),

- *The country from which the authors were* (Country-wise productivity),
- *Collaboration* from different institutes (Collaborative pattern): local collaboration (within the same institute or the same state/province), national collaboration (between two or more states/provinces), and international collaboration (between two countries), Inter-profession and within profession collaboration.
- *Topic-wise distribution of article* such as Dysphagia medicine (articles containing pharmacological options), Surgery for Dysphagia (articles including novel surgery techniques, outcomes of surgical techniques and evaluation of surgical techniques), SLPs Dysphagia assessment [articles containing instrumental, perceptual and self-rating scales [(Dysphagia Handicap Index, fiberoptic endoscopic evaluation of swallowing (FEES), Penetration Aspiration Scale, Four finger test, etc], SLP management (articles containing outcomes of different therapy techniques, use of a therapy technique on different disorders and direct/indirect therapy outcomes), combined treatment effects (articles which contained surgery and medication, and medical and non-medical management) and others (articles related to personality, factors affecting the appointment schedule, and cost analysis, letter to the editor and reply to the editor),
- *The type of participants* [Human, Non-human (articles involving animals), both (human and non-human) or Not applicable (review articles, articles with algorithms, simulations)],
- *Age group of the participants* [Not specified (articles with human participants whose age is not mentioned), Pediatric (1-12 years), Adults (12.1-55 years), and Geriatrics (>55 years)],
- *The number of citations* of the article (it was determined using the web search engine called Google Scholar),

- *Funding source* for the research article (List of funding agencies and top three agencies were ranked based on the number of articles funded), and
- *Research trends* in the field of dysphagia (issue-wise analysis on the number of articles was done for each year and compared between 2021 and 2022).

All this collected information was tabulated and segregated using Microsoft Excel sheet.

Figure 1: Method depicting the steps of the current scientometric study



Scientometric tools

Collaboration Index (CI)

The average number of authors per joint paper is used to calculate the Collaboration Index (Savanur & Srikanth, 2010). Single-authored papers were always excluded from the collaboration index analysis. So, for CI, the formula was CI = (Total author) / (Total joint paper). The statistical formula for Collaboration Index was,

$$CI = \frac{\sum_{j=1}^{A} jf_j}{N}$$

Where *fj* is the number of j authored papers, *j* is the number of authors, and *N* was the total number of research papers.

Degree of Collaboration (DC)

The ratio of collaborative research papers to the overall number of research publications in a discipline over a given period is known as the degree of collaboration (Subramanyam, 1983). The formula for Degree of Collaboration was.

$$DC = \frac{Nm}{Nm + Ns}$$

Where *Nm* was the number of multi-authored papers, and *Ns* was the number of single-authored papers.

Collaborative Co-efficient (CC)

The collaboration coefficient is a measure of research collaboration that takes into account both the average number of authors per publication and the percentage of multi-authored papers (Ajiferuke et al., 1988). The equation to calculate the CC was,

$$CC = 1 - \frac{\sum_{j=1}^{A} \left(\frac{1}{j}\right) f_j}{N}$$

Where fj was the number of j-authored papers, j was the number of authors, and N was the total number of research papers.

Statistical analysis

The data pertaining to the articles were tabulated and analyzed using SPSS software (version 20). Variables such as Topic-wise distribution of articles, the number of authors, the country from which the authors were, collaboration from different institutes, the number of citations for the paper, and the research article's funding source were quantified in terms of frequency and percentage.

CHAPTER IV

RESULTS

The study aimed to analyze the scholarly communication on dysphagia from January 2021 to December 2022 in the journals, “Dysphagia” and “Journal of Speech, Language and Hearing Research (JSLHR)”. ‘Dysphagia’ journal publishes its issues once in two months each year, totaling six issues for each year. The JSLHR publishes twelve issues annually, once every month in a year. In the present study, a total of twelve issues from Dysphagia (2021 and 2022) and twenty-four issues from JSLHR (2021 and 2022) were analyzed. As fewer articles related to the specific topic of “dysphagia” were published in JSLHR only written description of results are provided avoiding tables and figures to control exaggeration of the data.

4.1 The number of articles

Total number of articles obtained from the journal ‘Dysphagia’ was 301. Documents like abstracts, editorials, comments, and announcements were excluded. In 2021, the total number of articles published were 119, and the 4th issue (August 2021) had 25 (21.16%) articles, which was highest. In 2022, the total number of articles published was 182, and the December issue had the highest number of articles, i.e., 46 (25.2%). Tables 1 and 2 depict the total number of articles in each issue in the years 2021 and 2022 respectively.

Total number of articles related to dysphagia obtained from the journal JSLHR was fourteen and shown in Tables 3 and 4. In 2021, the total number of articles related to dysphagia was four, and the February issue had two articles which was the highest in 2021. In 2022, the total number of articles published related to the topic was ten, and the February, July, and August issues had two articles each.

Table 1

Total number of articles in 'Dysphagia' for year 2021

Year, issue	No of articles (N, %)
2021, Feb-01	14 (11.76)
2021, Apr-02	18 (15.12)
2021, Jun-03	24 (20.16)
2021, Aug-04	25 (21.66)
2021, Oct-05	18 (15.12)
2021, Dec-06	20 (16.80)
TOTAL	119

Table 2

Total number of articles in 'Dysphagia' for year 2022.

Year, Issue	No of articles (N, %)
2022, Feb-01	24 (13.18)
2022, Apr-02	26 (14.2)
20022, Jun-03	25 (137.3)
2022, Aug-04	35 (19.23)
2022, Oct-05	26 (14.2)
2022, Dec-06	46 (25.27)
TOTAL	182

Table 3

Total number of articles related to dysphagia in JSLHR for the year 2021

Year, Issue	No of articles (N, %)
2021, Feb-02	2 (50)
2021, Jun-06	1 (25)
2021, Sep-03	1 (25)
TOTAL	4

Table 4

Total number of articles related to dysphagia in JSLHR for the year 2022

Year, Issue	No of articles (N, %)
2022, Jan-01	1 (10)
2022, Feb-02	2 (20)
2022, Mar-03	1 (10)
2022, May-05	1 (10)
2022, Jul-07	2 (20)
2022, Aug-08	2(20)
2022, Sept-09	1(10)
TOTAL	10

4.2 Document/ Article type-wise distribution

In 2021, out of the 119 published documents in 'Dysphagia' journal, 87 (73.1%) were scientific articles (SA), 16 (13.44%) were review article (RW), 4 (3.33%) were communication to the editor, i.e., "letter to the editor" and "reply to editor" (TE and RE), and 13 (7.11%) were clinical conundrum (in which a unique case or condition was described). Out of 182 published documents in 2022, 142 (78.02%) were scientific

articles, 26 (14.28%) were review articles (RW), 13 (7.14%) were clinical conundrum and 1 (0.54%) was communication to the editor i.e., Letter to the editor and reply to editor (TE and RE). Tables 5 and 6 and figures 1 and 2, depict these details in each issue for years 2021 and 2022 respectively. In both the years, scientific articles ranked first, review article ranked second, clinical conundrum ranked third and letters to the editor and reply to the editor articles were the least.

Table 7 and table 8 depict the different document types of each issue in the Journal of Speech, Language and Hearing Research for 2021 and 2022 respectively. In JSLHR of 2021, of the 4 published documents related to dysphagia, 3 (75%) were SA, 1 (25%) was RW and 0 (0%) was communication to the editor. In the year 2022, out of 10 published documents on dysphagia, 9 (90%) were SA and 1 (10%) was RW. In both years scientific articles ranked first and review articles ranked second.

Table 5

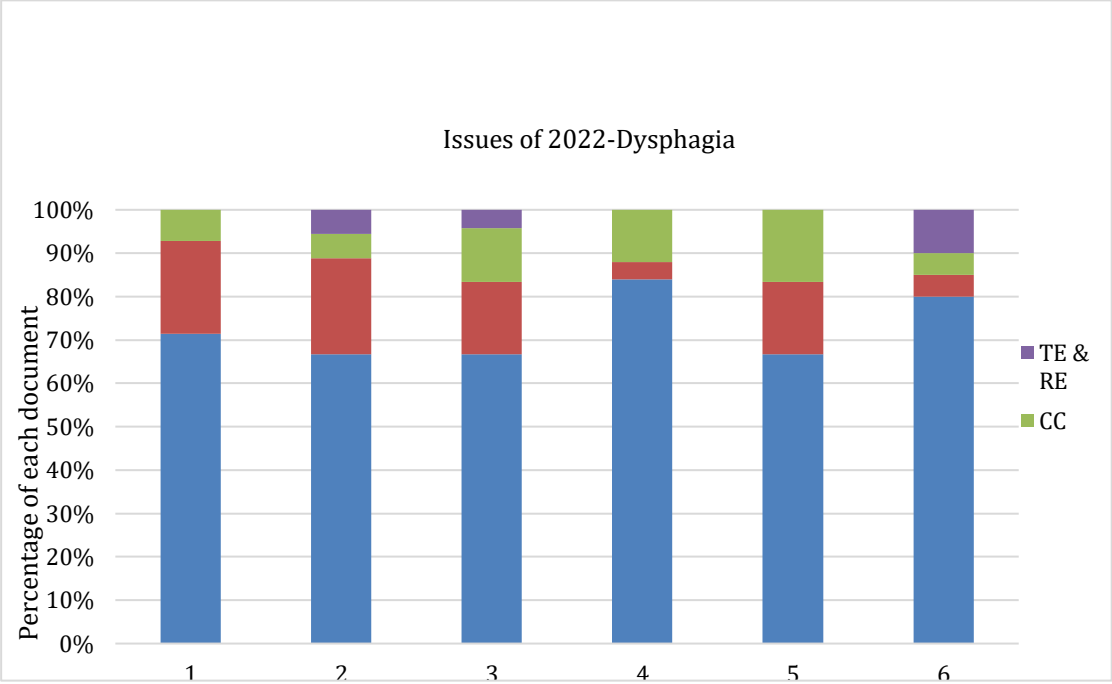
Document/article type-wise distribution in 'Dysphagia' for year 2021

Year, Issue	SA (N, %)	RW (N, %)	TE & RE (N, %)	CC (N, %)
2021, Feb-01	10 (71.42)	3 (21.4)	0 (0)	1(7.14)
2021, Apr-02	12 (66.66)	4(22.22)	1(0.8)	1(5.55)
2021, Jun-03	16 (66.66)	4 (16.66)	1 (4.16)	3(12.5)
2021, Aug-04	21 (84)	1(4)	0 (0)	3(12)
2021, Oct-05	12 (66.66)	3 (16.66)	0(0)	3(16.66)
2021, Dec-06	16 (80)	1 (5)	2 (10)	1(5)
TOTAL	87 (73.1)	16 (13.44)	4(3.36)	12(10.08)

(Note. SA-Scientific articles, RW-Review articles, and TE & RE-Letter to the editorand Reply to the editor, CC-clinical Conundrum)

Figure 1

Issue-wise document type distribution in 'Dysphagia' for year 2021



(*Note.* SA-Scientific articles, RW-Review articles, and TE & RE-Letter to the editorand Reply to the editor, CC-clinical Conundrum)

Table 6

Document/article type-wise distribution in 'Dysphagia' for year 2022

Year, Issue	**SA (N, %)**	**RW (N, %)**	**TE & RE (N, %)**	**CC (N, %)**
2022, Feb-01	22 (91.66)	1 (4.16)	0 (0)	1(4.16)
2022, Apr-02	20 (76.92)	3(11.53)	1(3.84)	2(7.69)
2022, Jun-03	20 (80)	1 (4)	0 (0)	4(16)
2022, Aug-04	26 (74.28)	8(22.85)	0 (0)	1(2.85)
2022, Oct-05	20 (76.92)	2 (7.69)	0(0)	4(15.38)
2022, Dec-06	34 (73.91)	11(23.91)	0(0)	1(2.17)
TOTAL	142(78.02)	26 (14.28)	1(0.54)	13(7.14)

(Note. SA-Scientific articles, RW-Review articles, and TE & RE-Letter to the editorand Reply to the editor, CC-clinical Conundrum)

Figure 2

Issue-wise document type distribution in the 'Dysphagia' for year 2022

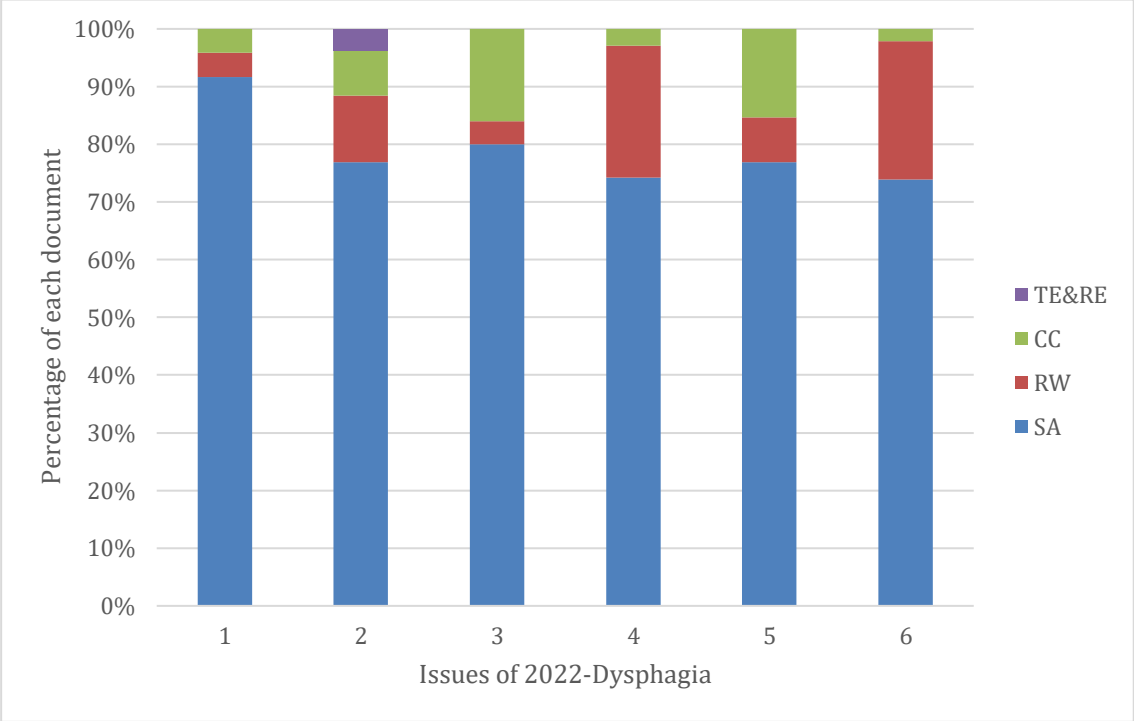


Table 7

Document/article type-wise distribution in the JSLHR for year 2021

Year, Issue	SA	RW	TE & RE
2021, Feb-02	1(50)	1(50)	0(0)
2021, Jun-06	1 (100)	0 (0)	0 (0)
2021, Sep-03	1 (100)	0(0)	0 (0)
TOTAL	3 (75)	1(25)	0(0)

(Note. SA-Scientific articles, RW-Review articles, and TE & RE-Letter to the editorand Reply to the editor.)

Table 8

Document/article type-wise distribution in the JSLHR for year 2022

Year, Issue	SA	RW	TE & RE
2022, Jan-01	1(50)	1(50)	0 (0)
2022, feb-02	2(100)	0 (0)	0 (0)
2022, Mar-03	1 (100)	0(0)	0 (0)
2022, May-04	1(100)	0 (0)	0 (0)
2022, Jul-05	2(100)	0(0)	0 (0)
2019, Aug-06	1(100)	0 (0)	0 (0)
2022, Sept-6	1(100)	0 (0)	0 (0)
TOTAL	9 (90)	1(10)	0 (0)

(Note. SA-Scientific articles, RW-Review articles, and TE & RE-Letter to the editorand Reply to the editor.)

4.3 Authorship pattern

Articles were classified based on the number of authors. For this section, single author, two authors, three authors, four or more authors were considered.

In journal Dysphagia, among 301 articles of both the years, four or more authored articles ranked first with 235 (78.97%) articles. Three authored papers ranked second with 34 (11.29%) articles, two authored papers ranked third with 27 (8.97%) articles, and single authored papers ranked last with 5 (1.66%) articles. A similar pattern was observed where four or more authored papers ranked first with 82 (68.90%) articles and 153 (84.96%) articles in 2021 and 2022 respectively. Tables 9 and 10 and figures 3 and 4 represents authorship pattern of the year 2021 and 2022 respectively.

Among the 14 articles related to dysphagia in JSLHR, four or more authored articles ranked first with 10 (71.42%) articles, three authored papers ranked second with 3 (21.42%) articles, two authored papers ranked third with 1 (7.14%) article, and single

authored paper was 0 in number. A similar pattern was observed where four or more authored papers ranked first with 6 (60%) and 4 (100%) articles in 2021 and 2022 respectively.

Table 9

Authorship pattern in 'Dysphagia' for year 2021

Year, Issue	**Single author (N, %)**	**Two authors (N, %)**	**Three authors (N, %)**	**Four or more authors (N, %)**
2021, Feb-01	0 (0)	2 (14.28)	2(14.88)	10(71.42)
2021, Apr-02	0 (0)	1(5.55)	5(27.77)	12(66.66)
2021, Jun-03	2 (8.33)	6 (25)	4 (16.66)	12 (50)
2021, Aug-04	0 (0)	1(4)	3 (12)	21(84)
2021, Oct-05	1(5.55)	2(11.11)	1(5.55)	14(77.77)
2021, Dec-06	0 (0)	3 (15)	4 (20)	13(65)
TOTAL	3 (2.52)	15 (12.60)	19(15.96)	82(68.90)

Figure 3

Authorship pattern by issue-wise in 'Dysphagia' for year 2021

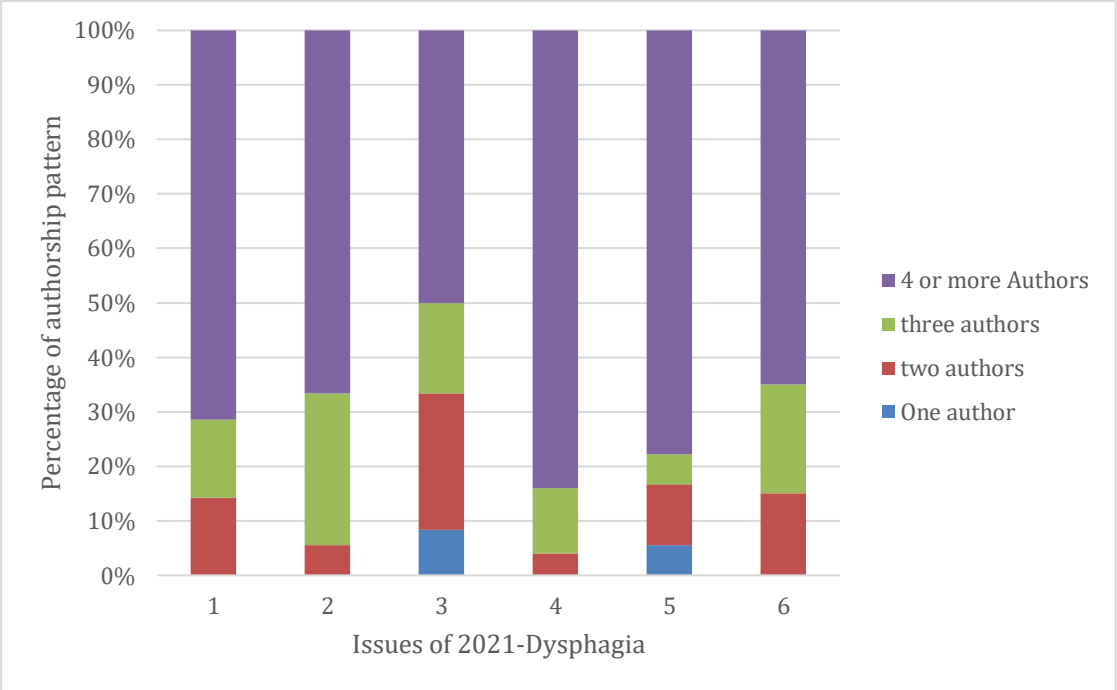


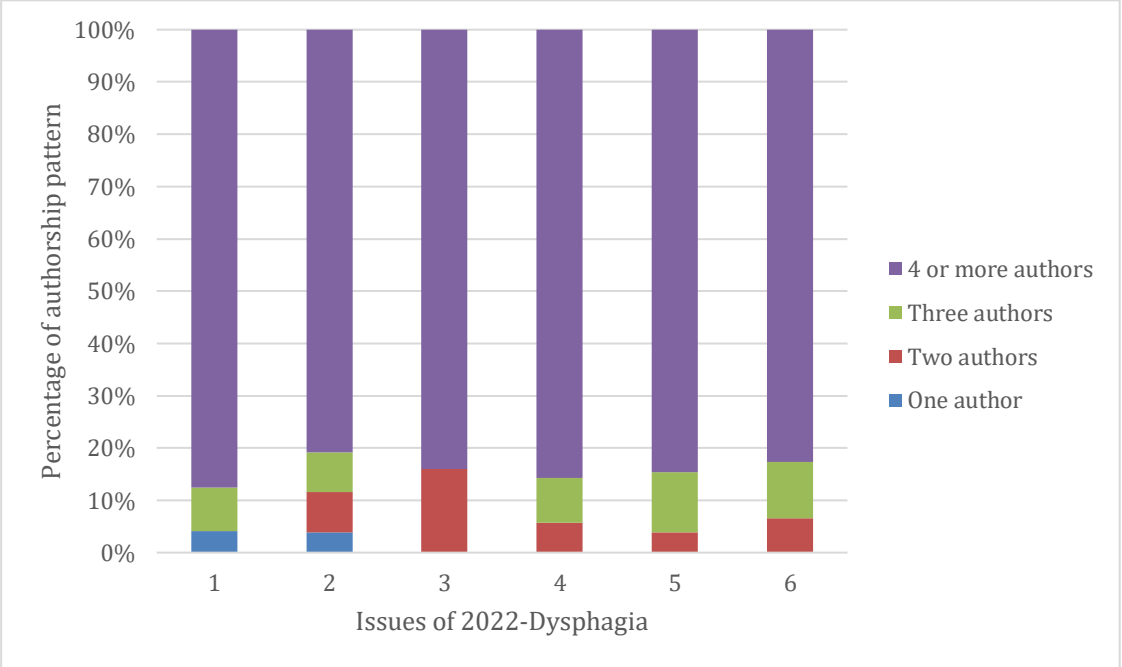
Table 10

Authorship pattern in 'Dysphagia' for year 2022

Year, Issue	Single author (N, %)	Two authors (N, %)	Three authors (N, %)	Four or more author (N, %)
2022, Feb-01	1 (4.16)	0(0)	2(8.33)	21(87.5)
2022, Apr-02	1 (3.8)	2(7.69)	2(7.69)	21(80.76)
2022, Jun-03	0 (0)	4 (16)	0(0)	21(84)
2022, Aug-04	0 (0)	2(5.71)	3 (8.57)	30(85.71)
2022, Oct-05	0 (0)	1(3.84)	3(11.53)	22(84.61)
2022, Dec-06	0 (0)	3 (6.52)	5(10.86)	38(82.60)
TOTAL	2 (1.09)	12(6.59)	15(8.24)	153(84.06)

Figure 4

Authorship pattern by issue-wise in 'Dysphagia' for year 2022



4.5 Author wise productivity

Among the authors, Michelle S. Troche ranked first in the number of total publications with 8 articles. Table 11 highlights the details and top three most productive authors of years 2021 and 2022.

Table 11

Top 5 authors in 'Dysphagia' for years 2021 and 2022

Rank	Authors	Articles published
I	Michelle S. Troche	8
II	Tomohisa Ohno	7
III	Cara Donohue	6
III	Ervin Sejdić	6
III	James L. Coyle	6
IV	Yassin Khalifa	5
IV	Takashi Shigematsu	5
IV	Emily K. Plowman	5
IV	Yoko Inamoto	5
IV	James C. Borders	5
V	Esther Guiu Hernandez	4
V	Melanie Peladeau-Pigeon	4
V	Phoebe Macrae	4
V	Subashan Perera	4
V	Eiichi Saitoh	4
V	Justin Roe	4
V	Maggie-Lee Huckabee	4
V	James A. Curtis	4
V	Katharina Winiker	4

4.6 Collaborative pattern

4.6.1 Author related collaboration.

The collaborative pattern of the articles was analyzed. The articles were classified according to single author or a group of authors. If it was single-authored paper, it was considered no collaboration. However, if it was multi-authors, it was considered as collaboration.

From Dysphagia journal as seen from tables 12 and table 13 and figures 5 and 6, it was observed that collaboration was present in 112 (97.39%) and 180 (99.44%) articles in 2021 and 2022, respectively.

In JSLHR, out of 14 articles considered for the study related to dysphagia, all of them had collaborations. All the four articles published in 2021 and 10 articles in 2022 had collaborations.

Table12

Collaborative pattern in 'Dysphagia' for year 2021

Year, Issue	Yes (N, %)	No (N, %)
2021, Feb-01	14 (100)	0(0)
2021, Apr-02	17(100)	0 (0)
2021, Jun-03	21 (91.30)	2 (8.69)
2021, Aug-04	25 (100)	0 (0)
2021, Oct-05	17 (94.44)	1 (5.55)
2021, Dec-06	18 (100)	0 (0)
TOTAL	112 (97.39)	3(2.52)

Figure 5

Collaborative pattern by issue-wise in 'Dysphagia' for year 2021

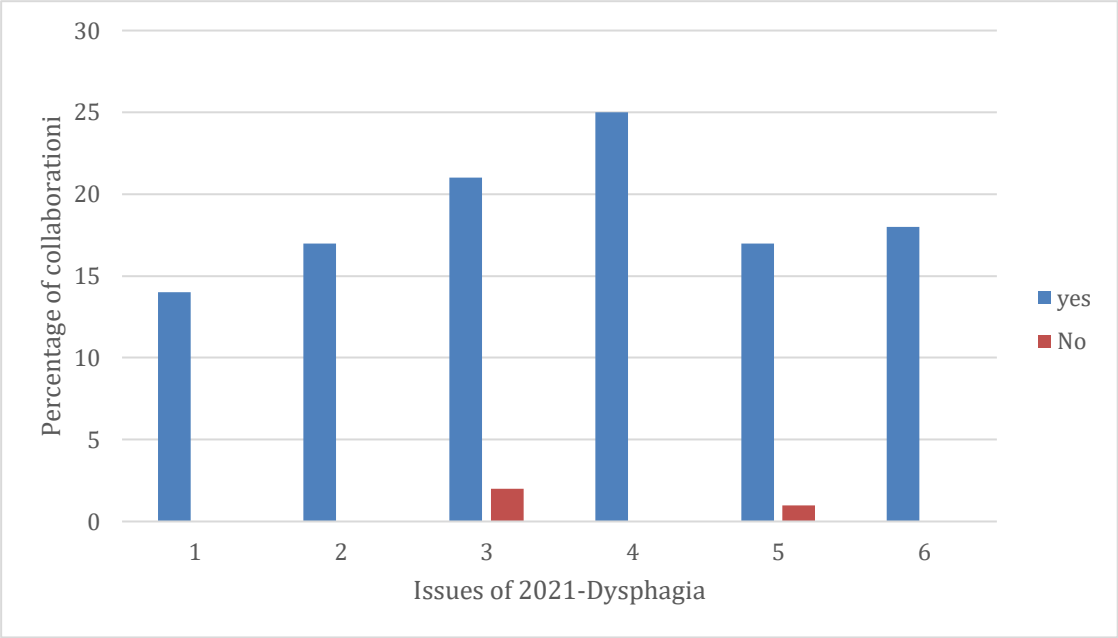


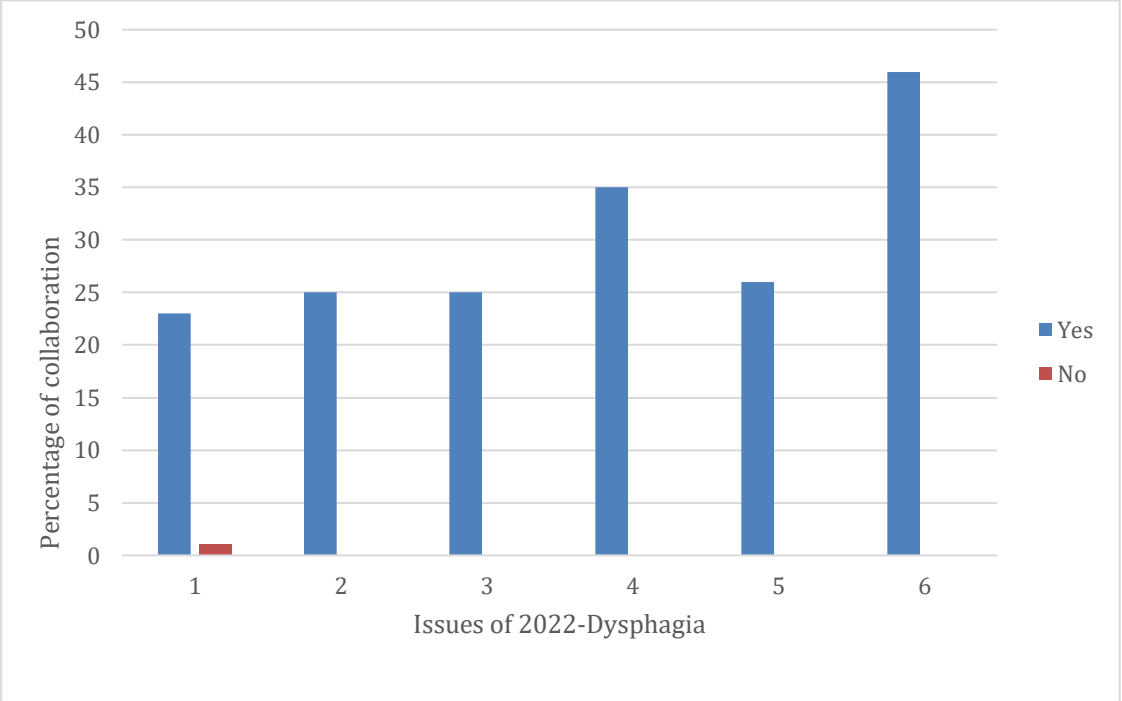
Table 13

Collaborative pattern in the 'Dysphagia' for year 2022

Year, Issue	Yes (N, %)	No (N, %)
2022, Feb-01	23 (95.83)	1(4.16)
2022, Apr-02	25 (100)	0 (0)
2022, Jun-03	25 (100)	0 (0)
2022, Aug-04	35 (100)	0 (0)
2022, Oct-05	26 (100)	0 (0)
2022, Dec-06	46 (100)	0 (0)
TOTAL	180 (99.44)	1(0.55)

Figure 6

Collaborative pattern issue-wise in 'Dysphagia' for year 2022



4.6.2 Levels of collaboration

Articles containing collaboration were classified into three level: local collaboration, national collaboration, and international collaboration and details are in tables 14, 15 and figures 7 and 8. In the journal Dysphagia, 112 articles (out of 115) in 2021 and 180 articles (out of 181) in 2022 articles were considered for the collaboration analysis since the rest were without collaboration. It was observed that local collaboration ranked first with 75 (69.5%) articles in 2021 and national collaboration ranked first with 84 (46.66%) articles in 2022. National collaboration ranked second with 27 (24.10%) articles in 2021 and local collaboration ranked second with 77 (42.77%) articles in 2022. International collaboration ranked third with 10 (9.25%) and 19 (10.55%) in 2021 and 2022 respectively.

Considering journal JSLHR only 4 articles related to dysphagia was found in 2021 with three of them collaboration present and one with local and two with national and one with international collaboration. In 2022 only 10 articles were published relating to dysphagia all of them with collaboration present out of which 5 were with national collaboration and 4 were with local collaboration and one with international collaboration.

Table 14

Levels of collaboration in 'Dysphagia' for year 2021

Year, Issue	Local collaboration (N, %)	National collaboration (N, %)	International collaboration (N, %)
2021, Feb-01	10 (71.42)	4 (28.57)	0 (0)
2021, Apr-02	15(88.23)	1 (5.88)	1 (5.88)
2021, Jun-03	16 (76.19)	4 (19.01)	1 (4.76)
2021, Aug-04	13 (52)	10 (40)	2(8)
2021, Oct-05	9 (52.94)	5 (29.41)	3 (17.64)
2021, Dec-06	12 (66.66)	3 (16.66)	3(16.66)
TOTAL	75 (69.56)	27 (24.10)	10 (9.25)

Figure 7

Percentage of levels of collaboration in 'Dysphagia' for year 2021

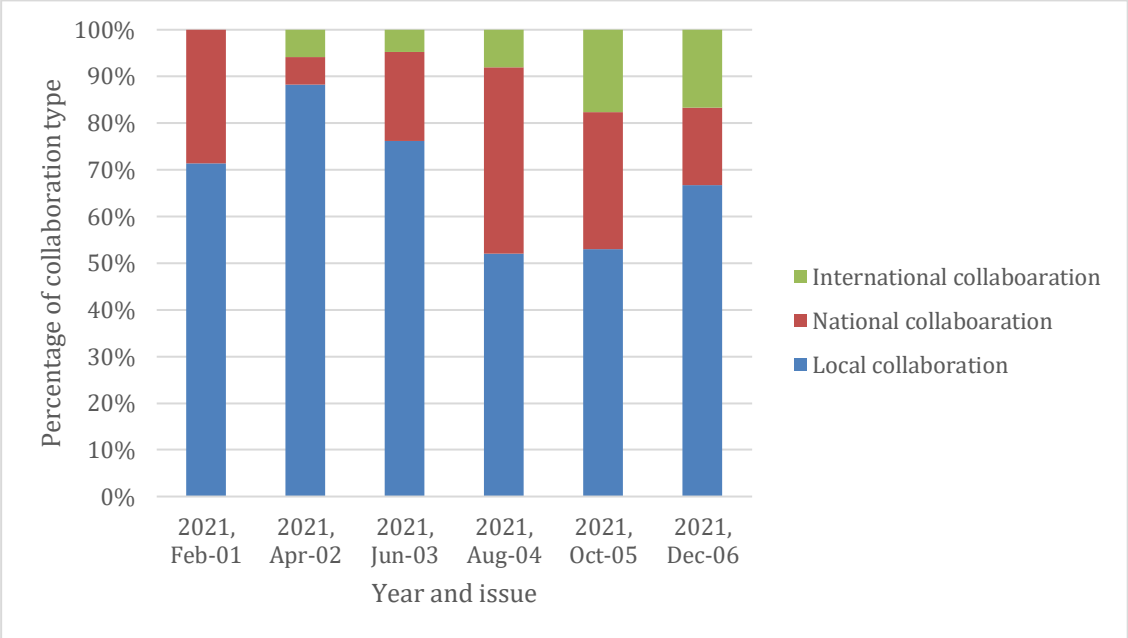


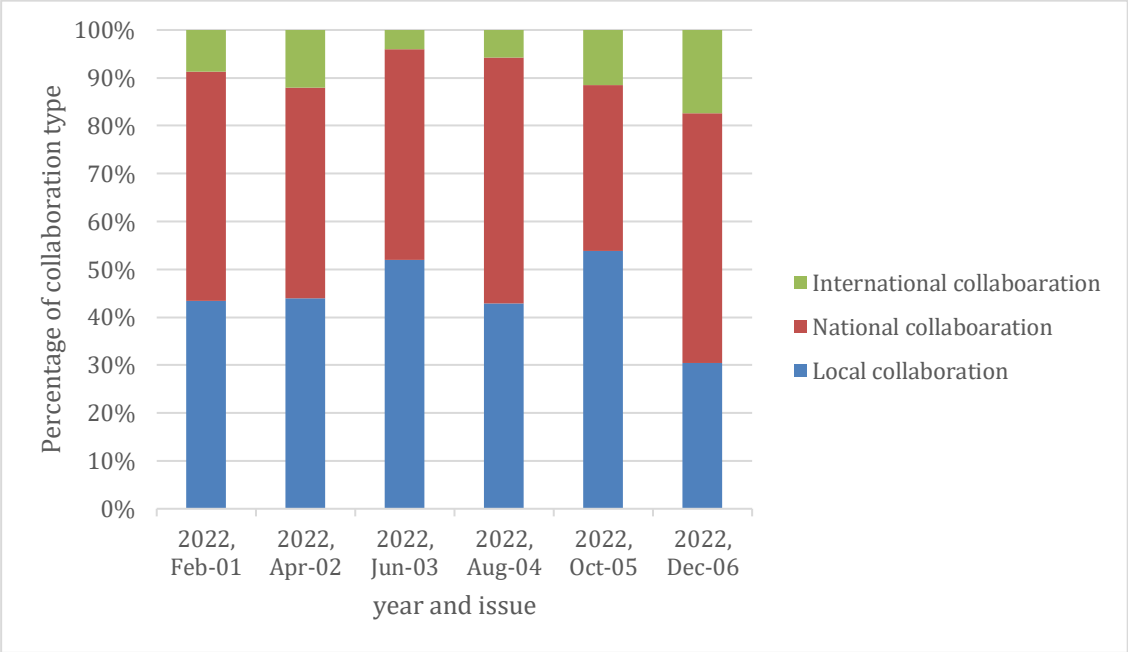
Table 15

Levels of collaboration in 'Dysphagia' for year 2022

Year, Issue	Local Collaboration (N, %)	National Collaboration (N, %)	International collaboration (N, %)
2022, Feb-01	10 (43.47)	11 (47.8)	2 (8.69)
2022, Apr-02	11 (44)	11(44)	3 (12)
2022, Jun-03	13 (52)	11 (44)	1 (4)
2022, Aug-04	15 (42.85)	18 (51.42)	2 (5.71)
2022, Oct-05	14 (53.84)	9 (34.61)	3 (11.53)
2022, Dec-06	14 (30.43)	24 (52.17)	8 (17.39)
TOTAL	77 (42.77)	84 (46.66)	19(10.55)

Figure 8

Percentage of level of collaboration in 'Dysphagia' for year 2022



4.6.3 Profession related collaboration: within profession vs across profession

Collaboration within same profession vs across different profession were analyzed in the present study. It was found that the collaboration across different professions were greater compared to collaboration with the same profession. 'Dysphagia' journal showed that in 2021, out of 112 articles with collaboration, 77 (68%) had collaboration across different professionals. The year 2022 also showed the similar trend. Out of 180 publications considered having collaboration, 141(78%) had collaboration across different professions, and 39 (21.66%) had collaboration within the same profession. Tables 16 and 17 and figures 9-10 show issue-wise within versus across professions collaboration for years 2021 and 2022.

In JSLHR, among the 4 articles considered in 2021, 3 had collaboration across different professions, and 1 had collaboration within the same profession. In 2022, of

the 10 publications analyzed, 8 had collaboration across different professions, and 2 were collaborations within the profession.

Table 16

Issue-wise within profession vs across professions collaboration in 'Dysphagia' for *year 2021*

Year, Issue	Across professions (N, %)	Within professions (N, %)
2021, Feb-01	11(78.57)	3(21.42)
2021, Apr-02	9(52.94)	8(47.058)
2021, Jun-03	14(66.66)	7(33.33)
2021, Aug-04	21(84)	4(16)
2021, Oct-05	10(58.82)	7(41.17)
2021, Dec-06	12(66.66)	6(33.33)
Total	77(68.75)	35(31.25)

Figure 9

Issue-wise percentage of within profession versus across professions collaboration in 'Dysphagia' for year 2021

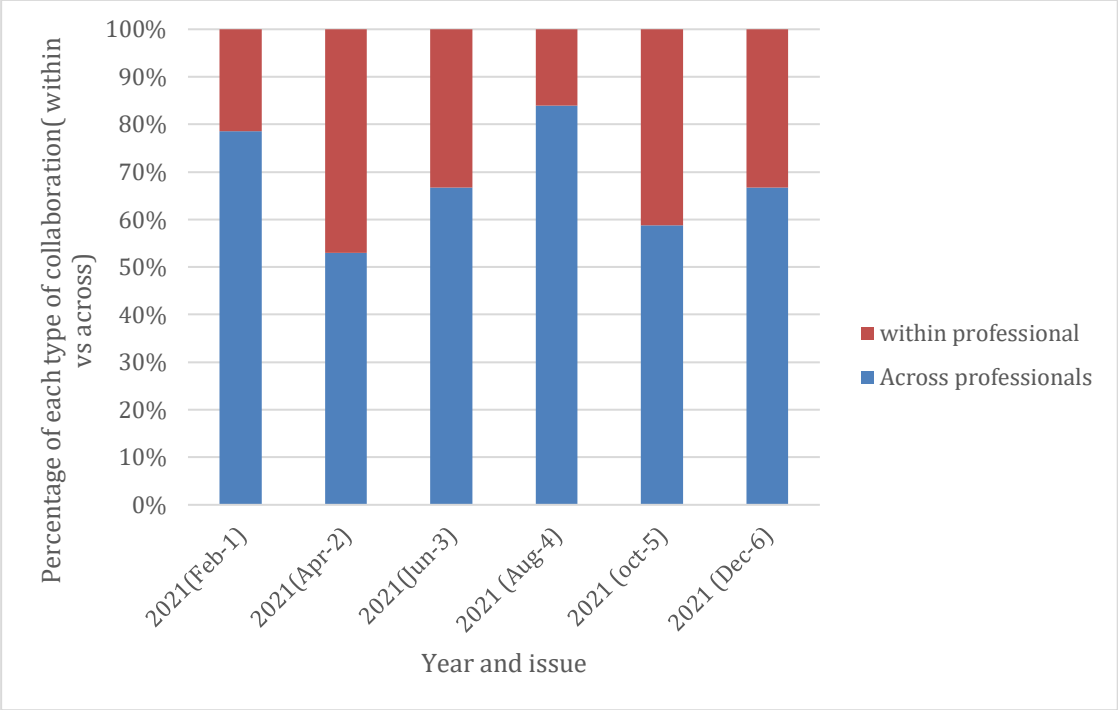


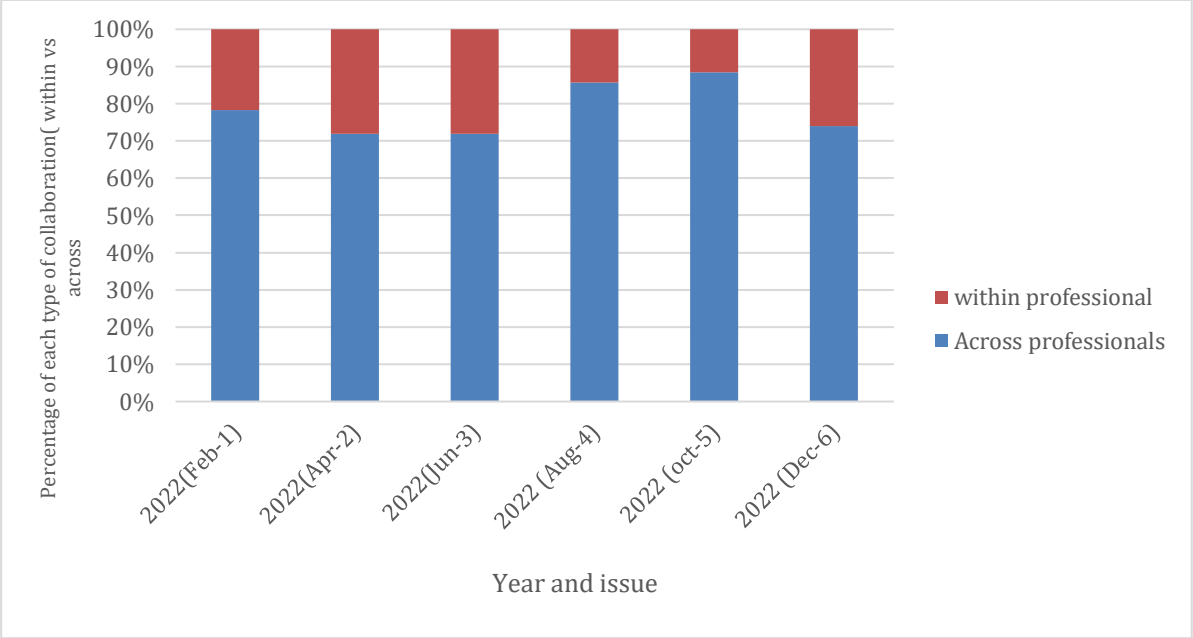
Table 17

Issue-wise within profession vs across professions collaboration in 'Dysphagia' for year 2022

Year, Issue	Across professionals (N, %)	Within professional (N, %)
2022, Feb-01	18(78.26)	5(21.73)
2022, Apr-02	18(72)	7(28)
2022, Jun-03	18(72)	7(28)
2022, Aug-04	30(85.71)	5(14.28)
2022, Oct-05	23(88.46)	3(11.53)
2022, Dec-06	34(73.91)	12(26.08)
Total	141(78.33)	39(21.66)

Figure 10

Issue-wise percentage of within profession versus across professions collaboration in 'Dysphagia' for year 2022



4.7 Country wise productivity

The country from which authors published their article were listed and ranked according to number of articles published in each year and issue. The top 5 countries in both years have been given in the tables 18 and table 19 for 2021 and 2022 respectively.

The 'Dysphagia' journal showed that USA ranked first considering each year separately and with 79 articles combining 2021 and 2022 years (31 articles in 2021 and 48 articles in 2022). Japan ranked second (13 articles), Korea ranked third (10 Articles), Australia ranked fourth (8 articles), Netherlands, Brazil, and UK ranked fifth (seven articles) and India ranked ninth (3 articles) in 2021.

In 2022, Japan and Australia were in second position with 16 articles after USA (48 articles). China and Italy came in third position (11 articles). The UK took fourth position (9 articles), whereas Korea got fifth position (8 articles) and India got sixth position (7 articles). There was a growth in the number of articles published from India.

Combining the publications of both 2021 and 2022, India was in ninth position with 10 articles in the ‘Dysphagia’ journal.

Table 18

Country-wise productivity in ‘Dysphagia’ for year 2021

Rank	Country	No: of articles
I	USA	31
II	Japan	13
III	Korea	10
IV	Brazil	7
IV	Netherland	7
IV	UK	7
V	Norway	6

Table 19

Country-wise productivity in ‘Dysphagia’ for year 2022

Rank	Country	No: of articles
I	USA	48
II	Japan	16
III	China	11
III	Italy	11
IV	UK	9
V	Korea	8

In JSLHR for the year 2021, of 4 articles related to dysphagia, USA contributed maximum numbers, 3 articles and other countries Canada, Portugal and UK contributed 1 article as it was an international collaboration between Canada, USA and UK. In the year 2022, out of 10 dysphagia related articles, USA contributed 7 articles and Canada contributed 2 articles. Taiwan and UK jointly contributed 1 article as an international collaboration.

4.8 Topic wise article distribution

In 2021, among the 115 articles considered in journal 'Dysphagia', assessment related articles were in majority with 58 (54.3%) articles. Articles in the category 'others' ranked second with 19 (16.52%) articles. Articles related to both combined assessment and management ranked third with 18 (15.65%) articles followed by management related at fourth with 16 (13.99%) articles. Surgery related articles ranked fifth with 4 (3.47%) articles.

In year 2022, among the 181 articles analyzed, assessment related publications ranked 1st with 91 (50.27%) articles. It was followed by dysphagia management related articles at 36 in number (19.88%). Publications categorized as other topic ranked 3rd with 24 (13.25%) articles. Combined assessment-management publications ranked 4th with 16 (8.83%) articles. Surgery related articles ranked 5th with 8 (4.41%) articles and finally, dysphagia medicine related publications ranked 4th with 6 (3.31%) articles as in tables 20, 21 and figures 11-12.

Table 20

Issue-wise distribution of article topics in percent in 'Dysphagia' for year 2021

Year, issue	Assessment (N, %)	Management (N, %)	Medicine (N, %)	Surgery (N, %)	Combined (N, %)	Others (N, %)
2021, Feb-1	6 (42.85	2 (14.28	0(0)	1 (7.14)	1 (7.14)	4 (28.57)
2021, Apr-2	8 (47.05)	4(23.2)	0(0)	0(0)	2(11.76)	3 (17.64)
2021, Jun-3	8(34.78)	4(17.39)	0(0)	1(4.34)	5(21.73)	5 (21.73)
2021, Aug-4	15(60)	1(4)	0(0)	0(0)	6(24)	3 (12.00)
2021, Oct-5	7(38.88)	4(22.22)	0(0)	0(0)	3(16.66)	4 (22.22)
2021, Dec-6	14(77.77)	1(5.55)	0(0)	2(11.11)	1(5.55)	0(0)
Total	58(50.43)	16(13.91)	0(0)	4(3.47)	18(15.65)	19 (16.52)

Figure 11

Issue-wise distribution of article topics in 'Dysphagia' for year 2021

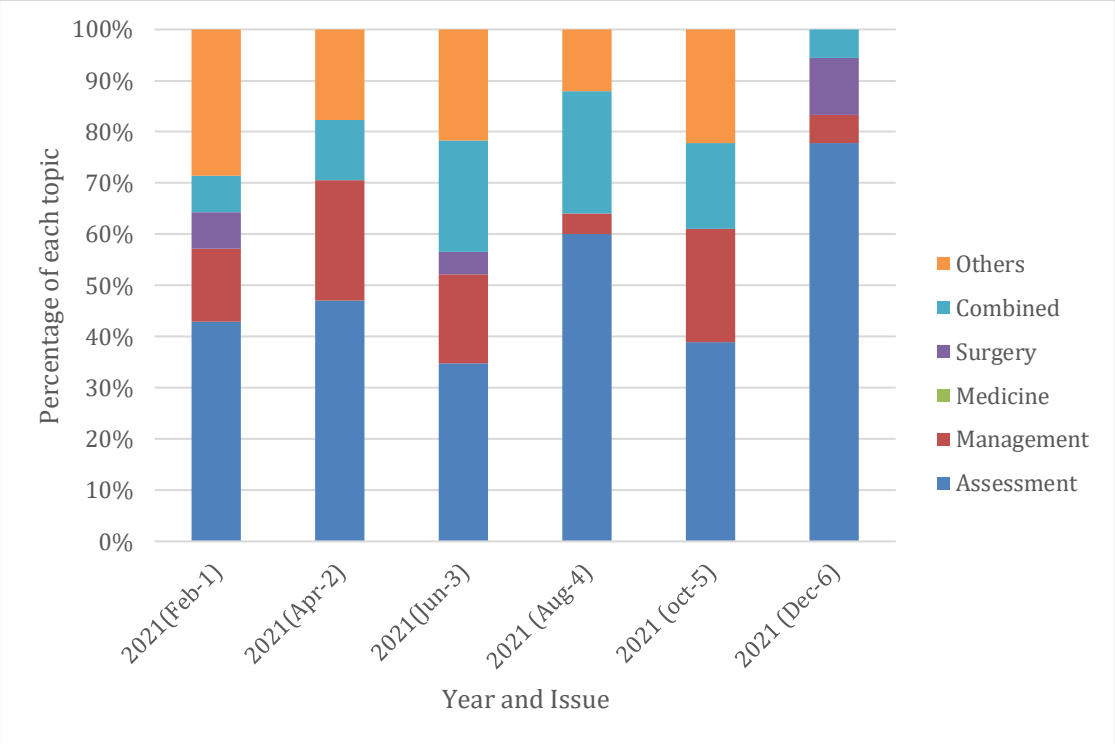


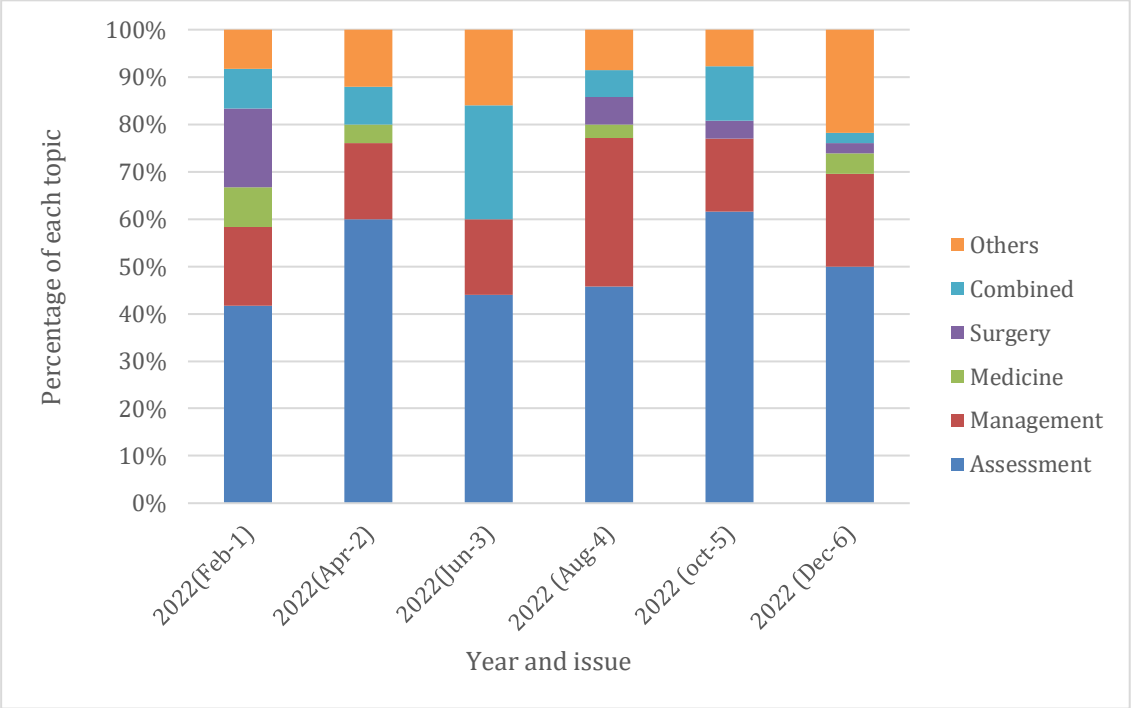
Table 21

Issue-wise distribution of article topics in percent in 'Dysphagia' for year 2022

Year, issue	Assessment (N, %)	Management (N, %)	Medicine (N, %)	Surgery (N, %)	Combined (N, %)	Others (N, %)
2022, Feb-1	10(41.66)	4(16.66)	2(8.33)	4(16.66)	2(8.33)	2(8.33)
2022, Apr-2	15(60)	4(16)	1(4)	0(0)	2(8)	3(12)
2022, Jun-3	11(44)	4(16)	0(0)	0(0)	6(24)	4(16)
2022, Aug-4	16(45.71)	11(31.42)	1(2.85)	2(5.71)	2(5.71)	3(8.57)
2022, Oct-5	16(61.53)	4(15.38)	0(0)	1(3.84)	3(11.53)	2(7.69)
2022, Dec-6	23(50)	9(19.56)	2(4.34)	1(2.17)	1(2.17)	10(21.73)
Total	91(50.27)	36(19.88)	6(3.31)	8(4.41)	16(8.83)	24(13.25)

Figure 12

Issue-wise distribution of article topics in 'Dysphagia' for year 2022



Considering the journal JSLHR, out of 4 articles related to dysphagia published in the year 2021, three were assessment-related, and one was management related. In 2022, out of ten articles published related to Dysphagia, seven were assessment related, two were assessment-management combined and one was in 'others' category.

4.9 Type of participants

In journal 'Dysphagia' in the year 2021, out of 115 articles considered, 110 articles (95.62%) included human participants, and 2 (1.73%) articles included non-human participants. There were no articles included both human and non-human participants. In 2022, articles containing human participants ranked first with 177 (97.79%). Articles belonging to the non-applicable category ranked second with 3 (1.65%), followed by with non-human participants to just one article (0.55%). In 2022, there were no articles which contained both the human and non-human participants.

Tables 22 and 23 and figures 13 and 14 depict the type of participants in 2021 and 2022 respectively.

In JSLHR in the year of 2021, out of 4 articles considered, all of them were with human participants only. Journal issues of 2022 also had similar trend.

Table 22

Type of participants in 'Dysphagia' for year 2021

Year, issue	**Human (N, %)**	**Non-Human (N, %)**	**Both (N, %)**	**Not applicable (N, %)**
2021, Feb-1	11(78.57)	1(7.14)	0(0)	2(14.28)
2021, Apr-2	16(94.11)	0(0)	0(0)	1(5.88)
2021, Jun-3	22(95.65)	1(4.34)	0(0)	0(0)
2021, Aug-4	25(100)	0(0)	0(0)	0(0)
2021, Oct-5	18(100)	0(0)	0(0)	0(0)
2021, Dec-6	18(100)	0(0)	0(0)	0(0)
Total	110(95.62)	2(1.73)	0(0)	3(2.60)

Figure 13

Issue-wise distribution of type of participants in 'Dysphagia' for year 2021

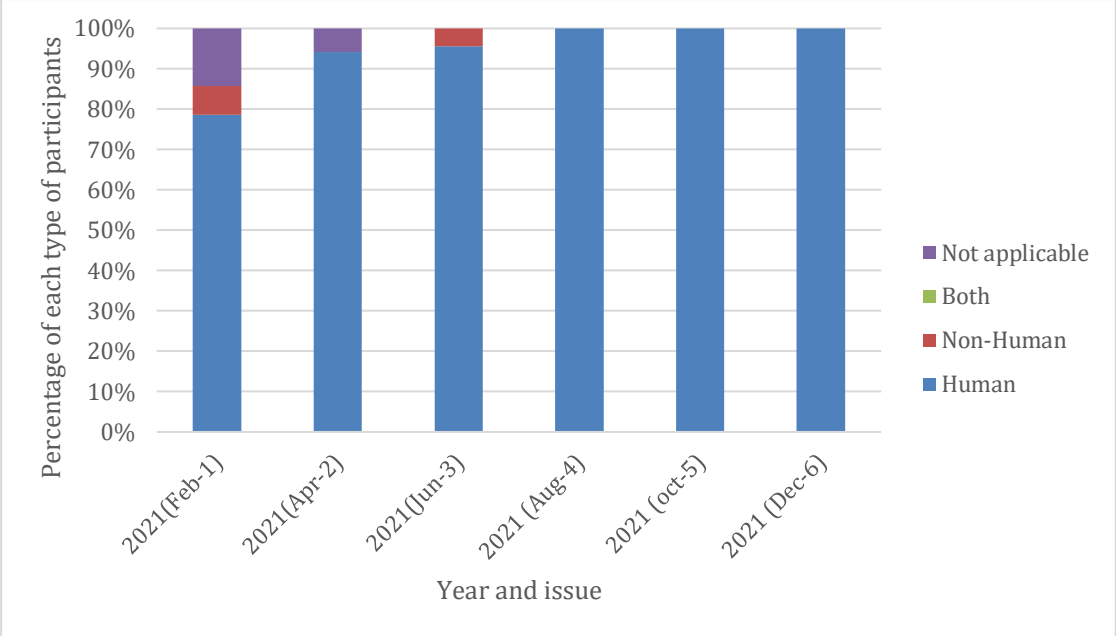


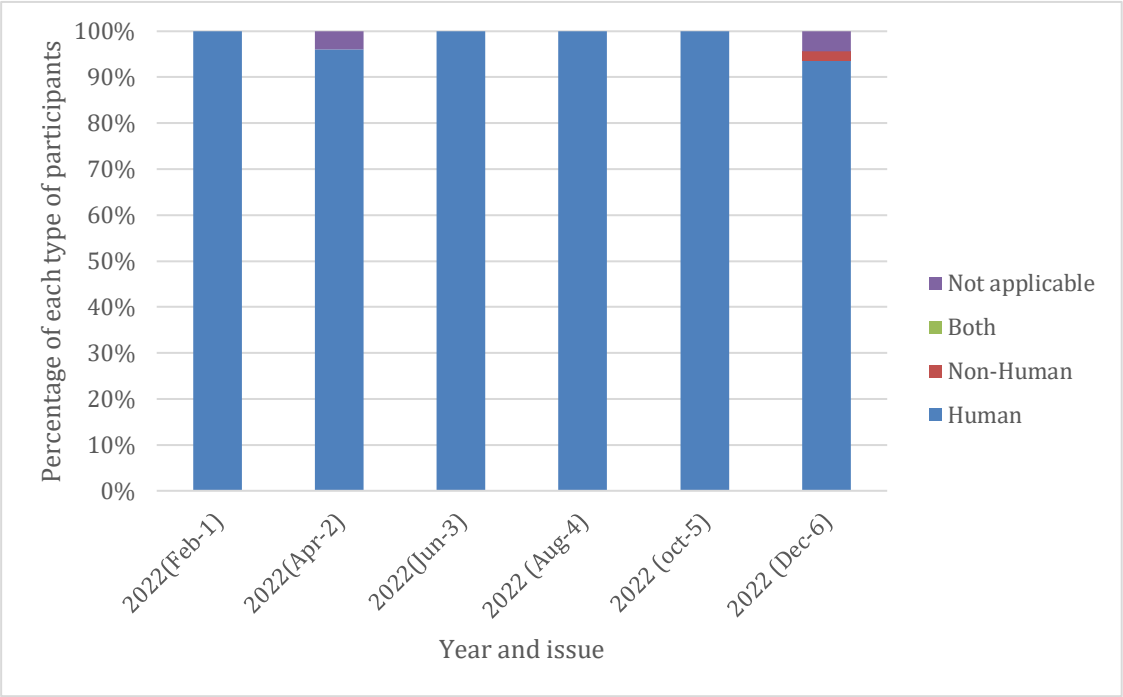
Table 23

Type of participants in 'Dysphagia' for year 2022

Year, issue	Human (N, %)	Non-Human (N, %)	Both (N, %)	Not applicable (N, %)
2022, Feb-1	24(100)	0(0)	0(0)	0(0)
2022, Apr-2	24(96)	0(0)	0(0)	1(4)
2022, Jun-3	25(100)	0(0)	0(0)	0(0)
2022, Aug-4	35(100)	0(0)	0(0)	0(0)
2022, Oct-5	26(100)	0(0)	0(0)	0(0)
2022, Dec-6	43(93.47)	1(2.17)	0(0)	2(4.34)
Total	177(97.79)	1(0.55)	0(0)	3(1.65)

Figure 14

Issue-wise distribution of type of participants in 'Dysphagia' for year 2022



4.10 Age group of participants

Here, the results were grouped as: pediatric only (P), adult only(A), geriatric only(G), pediatric and adults (P&A), adults and geriatric (A&G), pediatric and adults and geriatric (P&A&G), not applicable and not specified.

In journal 'Dysphagia' a total 296 articles were considered in the years of 2021 and 2022. A&G category ranked first with 65 (21.95%) articles followed by G group with 60 (20.27%) articles, and P group were very less in number, that is, 18(6.086%) articles. Articles with A group were 50(16.89%). Here it was observed that articles with all age group (pediatric, adult, geriatric) were very less number (Table 25).

In 2021, the majority of the publications in the journal 'Dysphagia' were with adult group of participants with 26(22.60%) articles and followed by articles with geriatric group with 21(18.26%) articles. Publications with both adult and geriatric age groups ranked third with 19(16.62%) articles. Publications with pediatric age groups

were comparatively less with 5(4.34%) articles. Publication with all age group ranked 5th with 3 (2.60%) articles. Here, articles with combined pediatric and adult group participants were Zero.

In 2022, from the journal 'Dysphagia', publications with A&G group of participants ranked 1st with (25.41%) articles (Table 26). Publications with G group ranked second with 39(21.54%), and A group ranked third with 24(13.25%) articles. The P group ranked fourth with 13 (7.18%) articles. The publications with P group had a slight increase of 8 articles (5 to 13 in number) from 2021 to 2022. Table 24, 25 and figures 15-16 depicts the age group of the participants in 2021 and 2022 by issue wise. 8 articles in the year 2022 were not accessible through AIISH library and information center. Hence, Information about these articles were not included.

In JSLHR, out 14 articles considered in 2021 and 2022, majority were done in G group with 4 number of articles, followed by A group of participants with 3 articles. Publication with A&G-group ranked third with 2 articles. Publications with P &A groups of participants was 1 article only. There was only one article that includes P group of participants. There was no publication which included all group of participants (P&A&G). There was 1 article in which the age range was not specified. The information of participants could not be extracted for 2 articles, because of the inaccessibility through AIISH library and information center.

Table-24

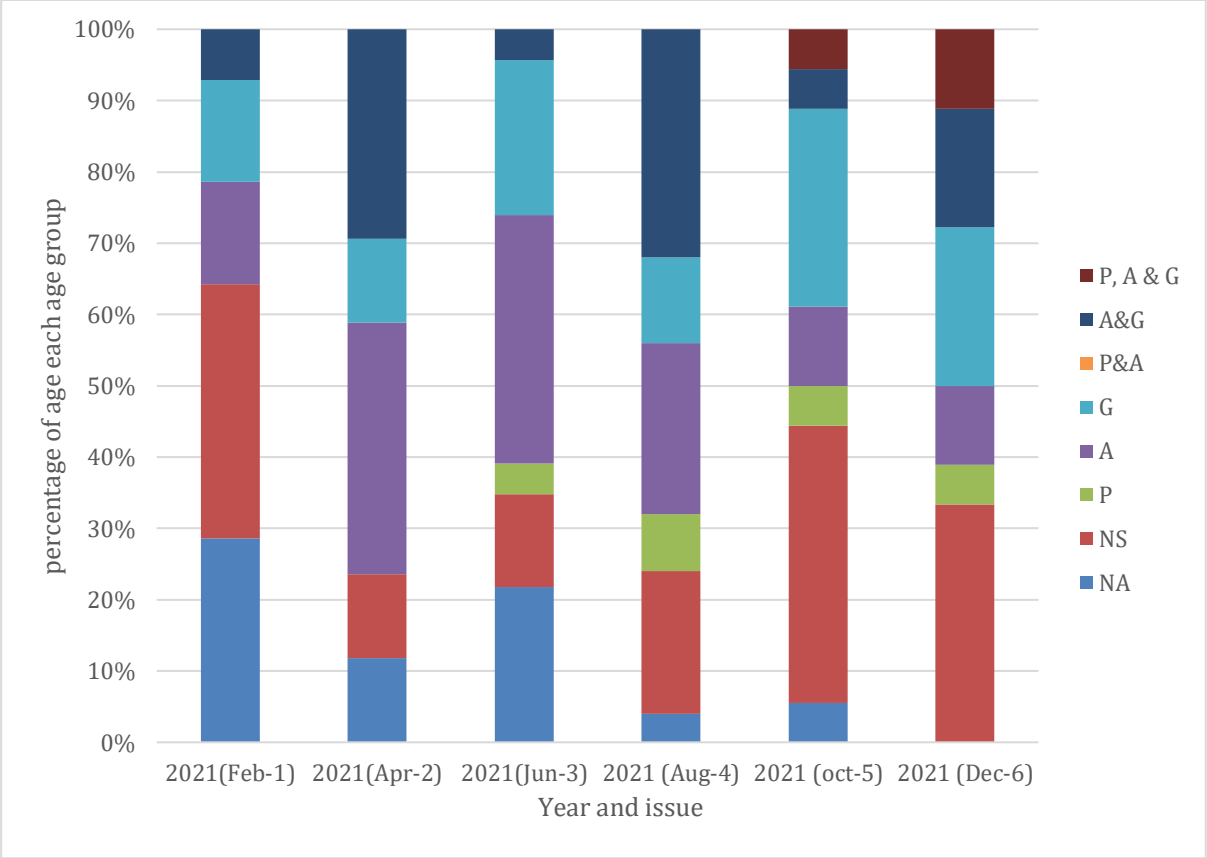
Issue-wise distribution of participants' Age group in 'Dysphagia' for year 2021

Year, Issue	NA (N, %)	NS (N, %)	P (N, %)	A (N, %)	G (N, %)	P&A (N, %)	A&G (N, %)	P, A & G(N, %)
2021, Feb-1	4(28.57)	5(35.71)	0(0)	2(14.28)	2(14.28)	0(0)	1(7.14)	0(0)
2021, Apr-2	2(11.76)	2(11.76)	0(0)	6(35.29)	2(11.76)	0(0)	5(29.14)	0(0)
2021, Jun-3	5(21.73)	3(13.04)	1(4.34)	8(34.78)	5(21.73)	0(0)	14.34%	0(0)
2021, Aug-4	1(4)	5(20)	2(8)	6(24)	3(12)	0(0)	8(32)	0(0)
2021, Oct-5	1(5.55)	7(38.88)	1(5.55)	2(11.11)	5(27.77)	0(0)	1(5.55)	1(5.55)
2021, Dec-6	0(0)	6(33.33)	1(5.55)	2(11.11)	4(22.22)	0(0)	3(16.66)	2(11.11)
Total	13(11.304)	28(24.34)	5(4.34)	26(22.60)	21(18.26)	0(0)	19(16.52)	3(2.60)

(Note. NA-not applicable, NS- not specified, P- pediatric only, A-adult only, G-geriatric only, P&A-pediatric and adults, A&G-adults and geriatric, P&A&G-pediatric and adults and geriatric.)

Figure 15

Issue-wise distribution of participants' Age group (in Percent) in 'Dysphagia' for year 2021



(Note. NA-not applicable, NS- not specified, P- pediatric only, A-adult only, G-geriatric only, P&A-pediatric and adults, A&G-adults and geriatric, P&A&G-pediatric and adults and geriatric.)

Table 25

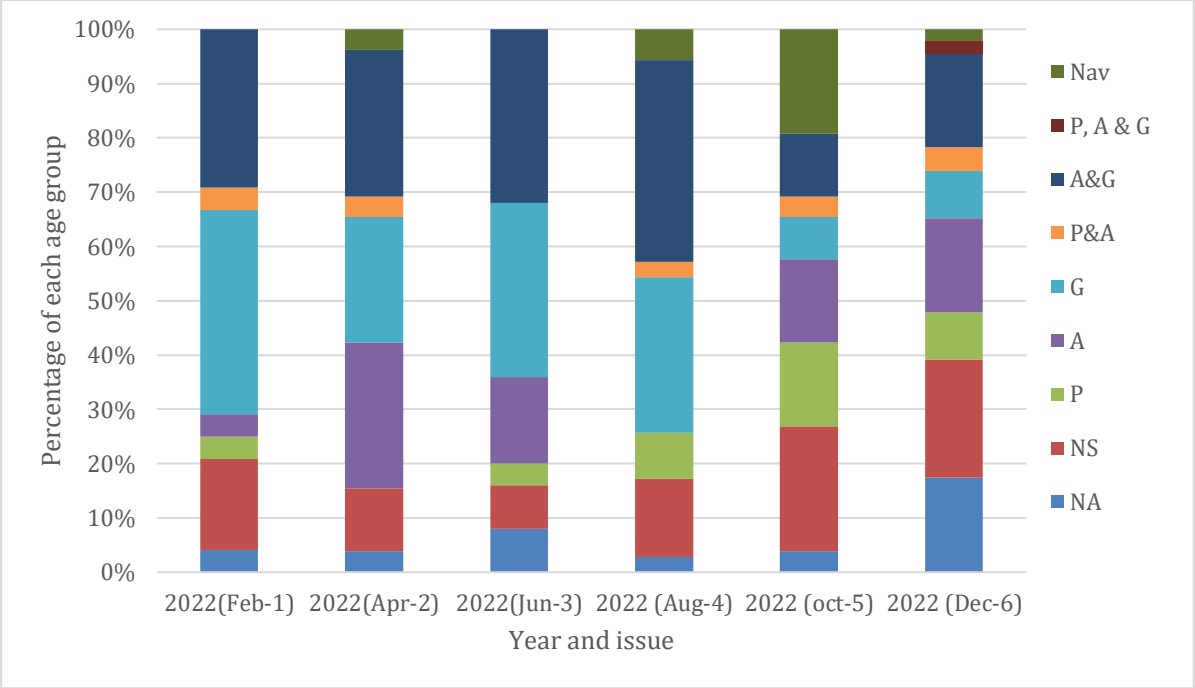
Issue-wise distribution of participants' Age group in 'Dysphagia' for year 2022

Year, Issue	NA (N, %)	NS (N, %)	P(N, %)	A(N, %)	G(N, %)	P&A (N, %)	A&G (N, %)	P, A & G (N, %)	Not available (N, %)
2022, Feb-1	1(4.16)	4(16.66)	1(4.16)	1(4.16)	9(37.5)	1(4.16)	7(29.16)	0(0)	0(0)
2022, Apr-2	1(4)	3(12)	0(0)	7(28)	6(24)	1(4)	7(28)	0(0)	0(0)
2022, Jun-3	2(8)	2(8)	1(4)	4(16)	8(32)	0(0)	8(32)	0(0)	0(0)
2022, Aug-4	1(2.85)	5(14.28)	3(8)	0(0)	10(28.57)	1(2.85)	13(37.14)	0(0)	2(5.714)
2022, Oct-5	1(3.84)	6(23.076)	4(15.38)	4(15.38)	2(7.69)	1(3.84)	3(11.56)	0(0)	5(19.36)
2022, Dec-6	8(17.39)	10(21.73)	4(8.96)	8(17.39)	4(8.69)	2(4.34)	8(17.39)	1(2.17)	1(2.17)
Total	14(7.73)	30(16.57)	13(7.18)	24(13.25)	39(21.54)	6(3.31)	46(25.41)	1(0.55)	8(4.41)

(Note. NA-not applicable, NS- not specified, P- pediatric only, A-adult only, G-geriatric only, P&A-pediatric and adults, A&G-adults and geriatric, P&A&G-pediatric and adults and geriatric.)

Figure 16

Issue-wise distribution of participants' Age group (Percent) in 'Dysphagia' for year 2022



(Note. NA-not applicable, NS- not specified, P- pediatric only, A-adult only, G-geriatric only, P&A-pediatric and adults, A&G-adults and geriatric, P&A&G-pediatric and adults and geriatric, NAv- Not available)

4.11 Number of citations of the articles

As on date, 08/08/2023, in journal 'Dysphagia', the maximum number of citations obtained for an article published in 2021 was eighty-seven (87) and fifty-five (55) in the year of 2022. Minimum number of citations was zero citations in both the years of publication. The table 26 and 27 depicts the top five most cited articles of 2021 and 2022, respectively.

In JSLHR, out of four articles related to dysphagia in the year of 2021, the maximum number of citations was 21 and two (2) was the minimum number of citations. Considering the year 2022, out of ten articles related to dysphagia, 27 was the

maximum number of citations obtained, and zero was the minimum number of citations.

Table 26

Top five cited articles in 'Dysphagia' for year 2021

Rank	Article	No: of citations
I	Miles, A., Connor, N. P., Desai, R. V., Jadcherla, S., Allen, J., Brodsky, M., ... & Langmore, S. E. (2021). Dysphagia care across the continuum: a multidisciplinary dysphagia research society taskforce report of service-delivery during the COVID-19 global pandemic. *Dysphagia*, *36*, 170-182.	87
II	Fritz, M. A., Howell, R. J., Brodsky, M. B., Suiter, D. M., Dhar, S. I., Rameau, A., ... & Kuhn, M. A. (2021). Moving forward with dysphagia care: implementing strategies during the COVID-19 pandemic and beyond. *Dysphagia*, *36*, 161-169.	62
III	Krekeler, B. N., Rowe, L. M., & Connor, N. P. (2021). Dose in exercise-based dysphagia therapies: A scoping review. *Dysphagia*, *36*, 1-32.	45
IV	Kunieda, K., Fujishima, I., Wakabayashi, H., Ohno, T., Shigematsu, T., Itoda, M., ... & Ogawa, S. (2021). Relationship between tongue pressure and pharyngeal function assessed using high-resolution manometry in older dysphagia patients with sarcopenia: a pilot study. *Dysphagia*, *36*, 33-40.	35

V	Fırat Ozer, F., Akın, S., Soysal, T., Gokcekuyu, B. M., & Erturk Zararsız, G. (2021). Relationship between dysphagia and sarcopenia with comprehensive geriatric evaluation. *Dysphagia, 36*, 140-146.	32
VI	Zhang, M., Li, C., Zhang, F., Han, X., Yang, Q., Lin, T., ... & Dou, Z. (2021). Prevalence of dysphagia in China: an epidemiological survey of 5943 participants. *Dysphagia, 36*, 339-350.	32

Table 27

Top five cited articles in 'Dysphagia' for year 2022

Rank	Article	No: of citations
I	Speyer, R., Cordier, R., Farneti, D., Nascimento, W., Pilz, W., Verin, E., ... & Woisard, V. (2022). White paper by the European society for Swallowing Disorders: Screening and non-instrumental assessment for dysphagia in adults. *Dysphagia*, *37*(2), 333-349.	55
II	Curtis, J. A., Borders, J. C., Perry, S. E., Dakin, A. E., Seikaly, Z. N., & Troche, M. S. (2021). Visual analysis of swallowing efficiency and safety (VASES): a standardized approach to rating pharyngeal residue, penetration, and aspiration during FEES. *Dysphagia*, 1-19.	27
III	Engh, M. C., & Speyer, R. (2022). Management of dysphagia in nursing homes: a national survey. *Dysphagia*, *37*(2), 266-276.	25
IV	Miles, A., McRae, J., Clunie, G., Gillivan-Murphy, P., Inamoto, Y., Kalf, H., ... & Brodsky, M. B. (2022). An international commentary on dysphagia and dysphonia during the COVID-19 pandemic. *Dysphagia*, *37*(6), 1349-1374.	22
V	Marchese, M. R., Ausili Cefaro, C., Mari, G., Proietti, I., Carfì, A., Tosato, M., ... & "Gemelli Against COVID-19 Post-Acute Care Team". (2022). Oropharyngeal dysphagia after hospitalization for COVID-19 disease: our screening results. *Dysphagia*, *37*(2), 447-453.	32

4.12 Funding Source

When funding details were analyzed, of total 296 articles considered in the 'Dysphagia' journal, 145 (48.98%) articles had funding. Of 145 articles, 58 were in 2021 and 87 were of 2022. The number of funded and non-funded articles by issue-wise in the years 2021 and 2022 are shown in tables 28 and 29.

In JSLHR, out of 14 dysphagia related articles of both years, 10 articles were funded and the information about 4 articles were not available due to the inaccessibility through AIISH Library and Information Centre. In year 2021, out of four articles, two were funded and two were not accessible. In the year 2022, out of 10, eight were funded and two were not accessible. List of funding agencies from both journals in the years 2021 and 2022 are given in 'APPENDIX I'

Table-28

Issue-wise distribution of articles based on funding in 'Dysphagia' for year 2021

Year, Issue	Yes (N, %)	No (N, %)
2021, Feb-1	4 (28.57)	10(71.42)
2021, Apr-2	7(41.17)	10(58.82)
2021, Jun-3	12(52.17)	11(47.82)
2021, Aug-4	14(56)	11(44)
2021, Oct-5	8(44.44)	10(55.55)
2021, Dec-6	13(72.22)	5(27.77)
Total	58(50.43)	57(49.56)

Figure 17

Issue-wise distribution of articles based on funding in percent in 'Dysphagia' for year 2021

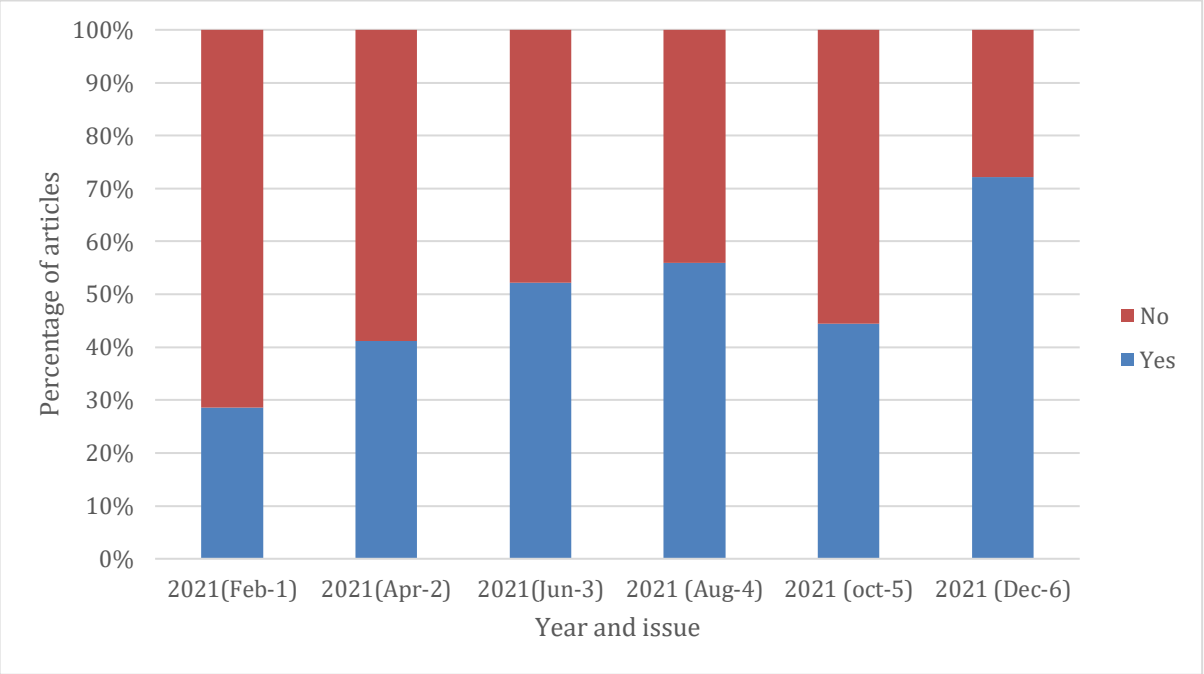


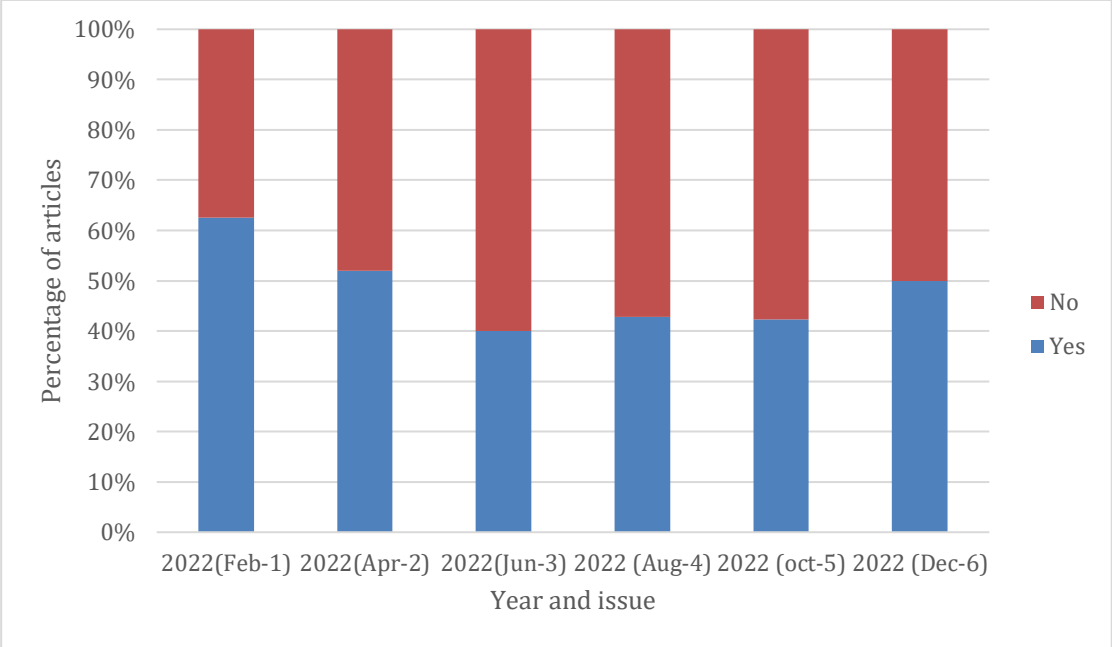
Table 29

Issue-wise distribution of articles based on funding in 'Dysphagia' for year 2022

Year, Issue	Yes (N, %)	No (N, %)
2022, Feb-1	15(62.5)	9(37.5)
2022, Apr-2	13(52)	12(48)
2022, Jun-3	10(40)	15(60)
2022, Aug-4	15(42.85)	20(57.14)
2022, Oct-5	11(42.30)	15(57.69)
2022, Dec-6	23(50)	23(50)
Total	87(48.06)	94(51.93)

Figure 18

Issue-wise distribution of articles based on funding in percent in 'Dysphagia' for year 2022



Out of the funding agencies, the funding agency- National Institutes of Health research of USA ranked first in 2021 and 2022 which funded for 7 and 12 articles, respectively. Here, the top 3 funding agencies of 2021 and 2022 were considered. Table 30 and table 31 and figures 17 and 18 depict the top 3 ranks of funding agencies in 2021 and 2022, respectively.

Table 30

Top 3 funding agencies in 'Dysphagia' for year 2021

Rank	Funding agencies	Articles funded
I	National Institutes of Health research of USA	7
II	Japan Society for the Promotion of Science (JSPS) KAKENHI	6
III	National Institute on Deafness and Other Communication Disorders	4
III	National Research Foundation of Korea (NRF)	4

Table 31

Top 3 funding agencies in 'Dysphagia' for year 2022

Rank	Funding agencies	Articles funded
I	National Institutes of Health research of USA	12
II	Japan Society for the Promotion of Science (JSPS) KAKENHI	4
II	Open Access funding enabled and organized by CAUL and its Member Institutions	4
III	Eunice Kennedy Shriver National Institute of Child Health & Human Development	3
III	National Research Foundation of Korea (NRF)	3
III	University of Oslo (incl Oslo University Hospital).	3
III	University degli Studi di Milano.	3
III	Gold Coast Health Allied Health Research	3

4.13 Collaborative index (CI), Degree of collaboration (DC), and Collaboration Co-efficient (CC)

In table 32, the Collaborative index (CI), Degree of collaboration (DC), and collaboration co-efficient (CC) details for 'Dysphagia' journal are given for years 2021 and 2022. From the table 32 and figure 19, the average number of authors (CI) ranged from 5.35 to 7.06 in 2021 and 5.58 to 6.46 in 2022. Highest collaboration index was observed in issue 5 and 4 in the years 2021 and 2022, respectively. Lowest collaboration index was observed in issue 6 of 2021and issue 1 of 2022. DC and CC (table 32 and figures 20 and 21 respectively) tend towards one, which implies the proportion of multi-authored papers was more compared to single-authored papers. In both years, the trend is similar as DC and CC is above 0.5.

Table 32

Collaboration parameters of articles in 'Dysphagia' for years 2021 and 2022

Year, Issue	CI	DC	CC
2021, Feb-01	5.79	1.00	0.77
2021, Apr-02	5.61	1.00	0.77
2021, Jun-03	5.63	0.92	0.67
2021, Aug-04	5.72	1.00	0.78
2021, Oct-05	7.06	0.94	0.74
2021, Dec-06	5.35	1.00	0.76
2022, Feb-01	5.58	0.96	0.78
2022, Apr-02	6.38	0.96	0.75
2022, Jun-03	6.00	1.00	0.78
2022, Aug-04	6.46	1.00	0.80
2022, Oct-05	5.85	1.00	0.79
2022, Dec-06	6.41	1.00	0.80

(*Note.* CI- Collaborative index, DC- Degree of collaboration, and CC- Collaboration co-efficient)

Figure 19

Issue-wise collaboration index (CI) in 'Dysphagia' for years 2021 and 2022

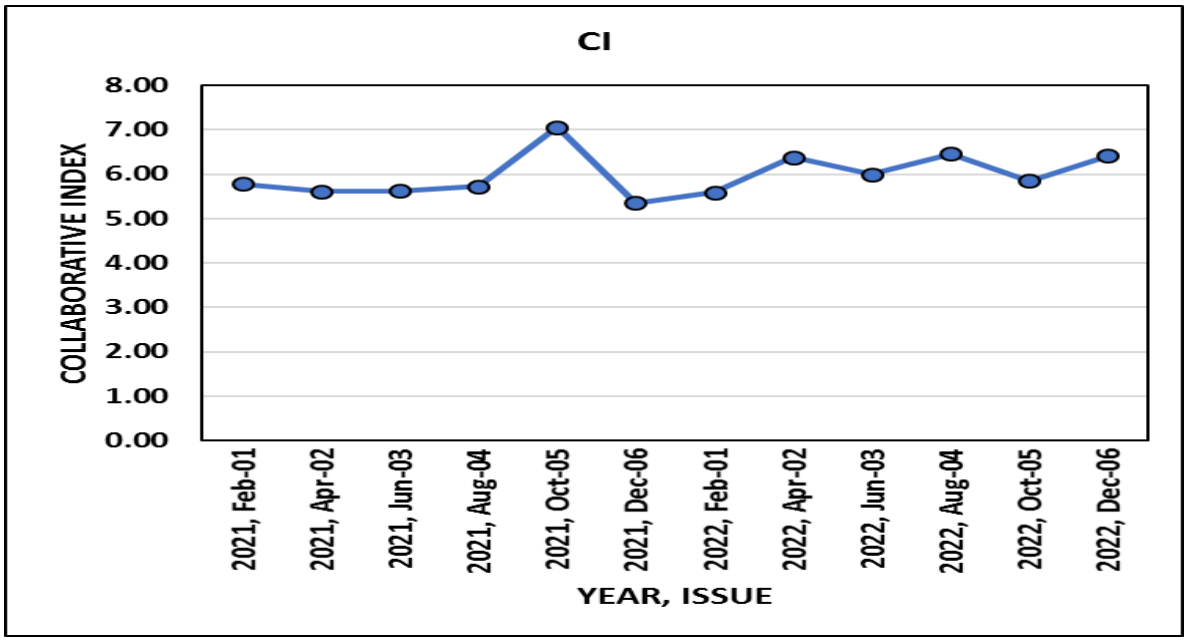


Figure 20

Issue-wise degree of collaboration in in 'Dysphagia' for years 2021 and 2022

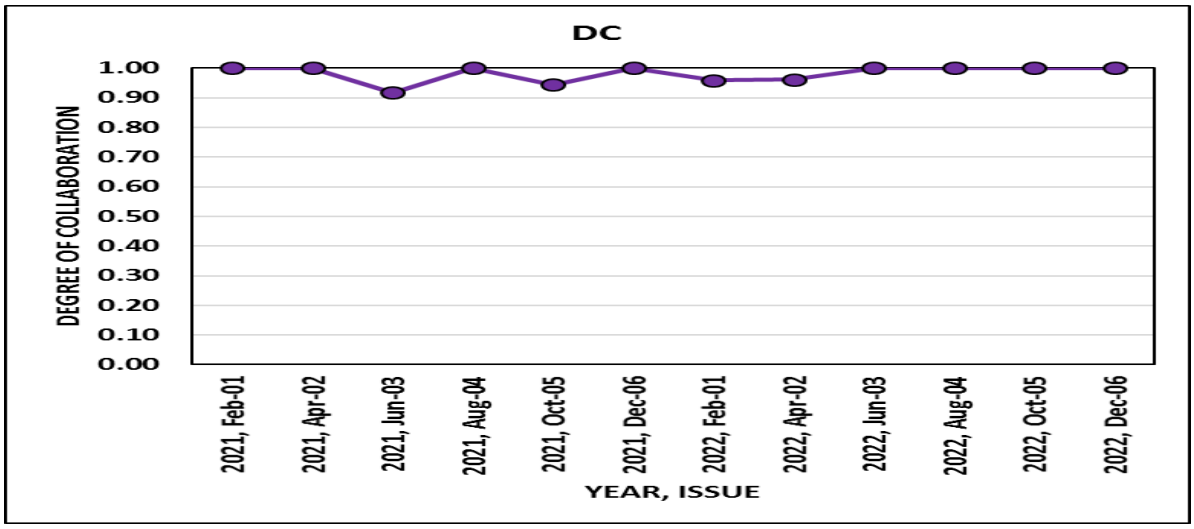
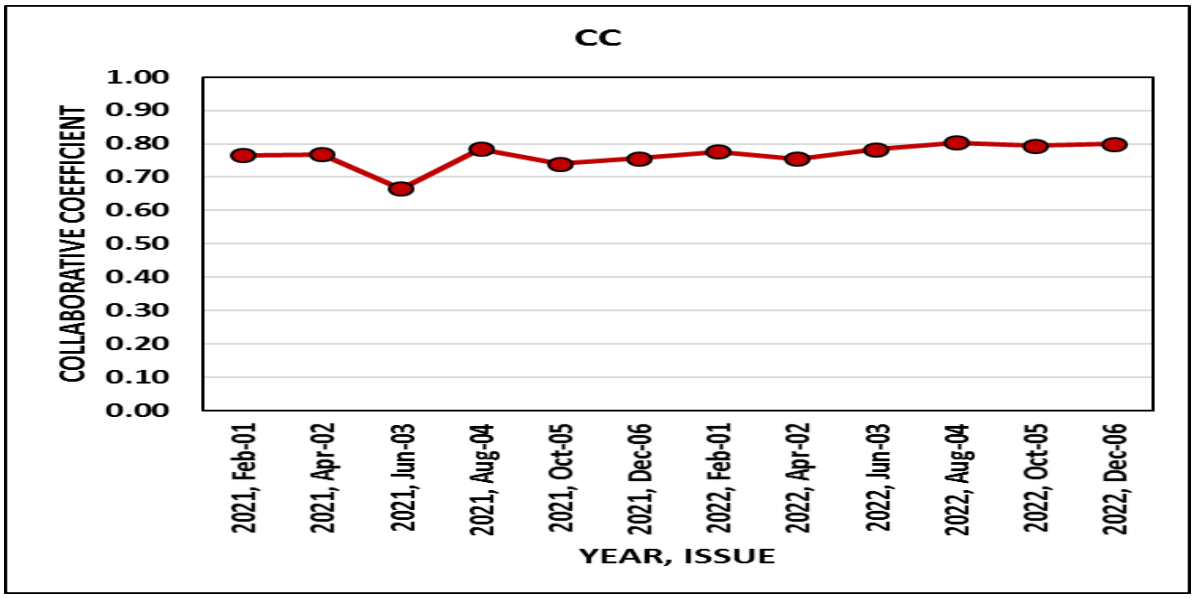


Figure 21

Issue-wise Collaboration coefficient in in 'Dysphagia' for years 2021 and 2022



CHAPTER V

DISCUSSION

The aim of the present study was to determine the scientometric parameters of articles on dysphagia published in the journals 'Dysphagia' and JSLHR (Journal of Speech, Language and Hearing research) for a period of two years, 2021 and 2022.

The results of the study showed that the number of publications/ articles increased from 2021 to 2022 in both journals. Both journals had the highest research output in scientific articles (document-wise) which was similar to previous scientometric studies done on topics related to speech and hearing (Haripriya, 2022; Architha, 2021; Batcha & Chaturbhuj, 2019; Nandeesha & Begum, 2017). It was also observed that the output of review articles increased from 13.44% (in 2021) to 14.28% (in 2022) in the journal 'Dysphagia'. Only one review article related to dysphagia was there in JSLHR in both the years. In the journal 'Dysphagia' the clinical conundrum ranked third in both years, which described a particular case or situation.

Analysis of authorship pattern revealed that multi-authored papers were more when compared to single authored in both years in both journals. Meeting the needs of both lead and co-authors and providing opportunities to contribute, multi-authored papers increase the impact of each paper, benefitting scientific progress (Larivière et al., 2015; Wuchty et al., 2007). In multi-authored papers, two or more authors contribute to single research paper. This result was similar to results reported in previous research in areas of "Aphasiology" (Haripriya, 2022) and "Journal of Voice" (Archita, 2021) but contradicted the results of studies in the field of Audiology and research pertaining to Asperger's syndrome, where the highest collaboration was either two-authored or three- authored papers (Lorenzo et al.,

2016; Nandeesha & Begum, 2017). The present study showed that 38 was the maximum number of authors in a single research paper, which was conducted in Turkey.

Analysis of author-wise productivity in the journal 'Dysphagia' revealed Michelle S. Troche ranked first (eight total publications). Tomohisa Ohno ranked second with (7 publications). 3 authors ranked third with 6 publications.

The collaborative pattern from journal 'Dysphagia' in 2021 and 2022 indicated that majority (98.67%) of the articles had collaborations. It was observed that authors preferred local and national collaboration over international collaborations. The economical, linguistic, and political diversities across countries could be the main reasons for limited international collaborations (Gazni, Sugimoto, & Didegah, 2012). Also as reported by Archita (2021) international collaborations were time-consuming and tedious owing to the administrative procedures, such as, obtaining permissions from the respective university/government and mutual agreement on several matters prior to initiating the research. As a result, most researchers may not prefer international collaborations. Collaborations are challenging in Indian scenario due a number of factors, such as, scarcity in competent researchers as most of the research going on in our country may not have sound methodologies. As far as scholarship was considered, it was an individualized endeavor, and academic frameworks for recognition, rewards, and promotions were still at individualistic levels. For the promotion and tenure process, single-authored publications were given more credit as compared to collaborative work. Intellectual property rights were the central issue that occurred at various categories of members in collaborative research (Bansal, et al., 2019). Also, differences in approaches among the collaborating partners could also be a reason for lack of collaborations.

Examples of collaboration between industry and institution leads to discrepancies pertaining to objectives, hypothesis, cultural differences, and issues with technology. In India, funds granted for research to universities as compared to small elite research institutions are minimum which leads to less focus on research and more on teaching and academics by the universities resulting in separation of education and research. Due to funding restrictions, most of the significant work of Indian research are at theoretical domains (Bansal, et al., 2019).

The country that collaborated with maximum number of other countries was USA. In both journals of two years, collaboration across different professions was greater in number compared to within profession. In the journal 'Dysphagia' in the year 2021, 68% had collaboration among multi-centric professionals and 2022 it was 78%. Similar trend was observed in JSLHR even though the number of articles was less. Compared to previous research, this parameter was new and considered only in the present study, which can be considered as an advantage.

Collaboration boots effective communication and partnerships and also offers equal opportunities to all the team members. It honors and respects each member's individual and organizational statures and objectives. Collaboration also increased the ethical conduct maintaining honesty, integrity, justice, transparency, and confidentiality (Bansal, et al., 2019). Dysphagia is a complex condition that debilitates affecting the quality of lives of afflicted individuals and hence required inter-professional team intervention for its holistically evaluation and intervention in short span of time (Nandamudi, et al., 2023).

Country-wise productivity revealed that USA was the country with maximum number of publications in 2021 and 2022 with 31 and 48 articles, respectively. USA was ranked first in the previous scientometric findings as well

(Gupta et al, 2018; Archita, 2021; Nazir, 2022). While Japan ranked 2nd in the current study (in both years), India ranked 8th in 2021 and 6th in 2022 in terms of number of publications. From 2021 to 2022, there was an increase in the number of articles published from India, from 3 articles to 7 articles in the journal 'Dysphagia'. In journal 'Dysphagia,' while combining both 2021 and 2022, India obtained 9th position with 10 articles. Even though the contribution of India to dysphagia research was comparatively less than the USA, it was satisfactory compared to contributions from other countries. This implies an immediate necessity to promote dysphagia research in India.

Analysis of topic-wise distribution revealed that articles related to dysphagia assessment ranked first, and management related publications ranked second. A similar trend was reported in scientometric study on "voice" (Archita, 2021). The studies on human subjects dominated over non-human subject studies in both journals and years chosen in the current study. Swallowing may be considered as sophisticated biological behavior in humans and its coordination with breathing is crucial to speaking. Therefore, dysphagia issues need to be redressed on priority in terms of assessment and management in human subjects which is directly linked to delivery of quality health services. This could be one of the reasons for more human subject studies chosen to be more valid than non-human subject studies.

Further, when age group analysis was done, it was noticed that the focus was more on the geriatric and adult groups whereas pediatric group were least focused. Similar results were shown in the study on 'voice' by Archita (2021). Children are considered a vulnerable subject population and hence research with them were with added challenges (Bloomfield, 2015). The higher prevalence of dysphagia in geriatric and adult populations may also another reason for the same. So, there is a

considerable gap in the field of dysphagia, and further research need to be conducted on pediatric population.

The highest cited article (87 citations) was titled "Dysphagia care across the continuum: a multidisciplinary dysphagia research society taskforce report of service-delivery during the COVID-19 global pandemic" authored by Miles, Connor, Desai, Jadcherla, Allen, Brodsky, & Langmore, (2021) in 36th issue of Journal "Dysphagia. The second most cited article in 2021 was also related to dysphagia care during the COVID-19 pandemic. Dysphagia care faced enormous challenges with difficult to control situations because of the COVID-19 pandemic situation throughout the world in the years 2020-2021 which might have increased the number of citations of such articles. In JSLHR, the maximum number of citations was 21 and 27 in the years 2021 and 2022, respectively.

The results showed that, out of 296 articles in the journal 'Dysphagia', 48.98% of articles had funding from different funding agencies. The National Institute of Health Research of the USA provided the highest number of funding in the years 2021 and 2022 accentuating the probable reason for the highest number of contributions from the USA. A higher contribution from Japan may be attributed to the fact that the Japan Society for the Promotion of Science (JSPS) (KAKENHI) was the second-ranked funding agency in 2021 and 2022. There is a lack of funding for dysphagia research specifically in India thus reducing the research article contributions from India. Hence, it necessitates governmental funding agencies contribute to dysphagia research and thereby to improve India's contribution to the field of "dysphagia" and its research literature.

The collaboration pattern was analyzed using scientometric tools such as Collaborative Index (CI), Degree of Collaboration (DC), and Collaboration Co-

efficient(CC). It can be inferred from the results that the collaborative index or mean authors per paper ranged from 5.35 to 7.06. As CI has no upper limit, it is difficult to interpret. Thus,the Degree of Collaboration was selected for the analysis. The DC was between 0.00 -1.00, and as the value approached ‘one’, it indicated multi-authored papers. In the year 2021 and 2022, four issues had DC value of 1 each.

Similarly, collaboration co-efficient approaching ‘one’ indicated high probability of multiple-authored papers. The CC values for the year ranged from 0.67-0.80. Five of the issues of 2021 and all the issues of 2022 had a CC of >0.70. These results indicate that majority of the articles in the journal ‘Dysphagia’ for the years 2021 and 2022 were multi-authored papers. The findings were similar to the results of scientometric studies done in areas of voice and aphasia (Architha, 2021 and Haripriya, 2022). The findings from Batcha & Chaturbhuj (2019), which claimed that single-authored articles were more prevalent in the discipline of phonology, are in direct contradiction to the findings from this study. This is most likely caused by a difference in the research areas they studied or the methods they used. Also, this may be because of extended period of study, that is, 2000-2017, 17 years were considered for scientometric analysis.

CHAPTER VI

SUMMARY AND CONCLUSIONS

The present study aimed to determine the trend of research in the field of dysphagia. The journal named 'Dysphagia' as it is the world's premier journal in the field of dysphagia and 'JSLHR' (Journal of Speech, Language and Hearing Research) as it is the world's premier journal in the field of speech, language, and hearing research, were selected for the analysis. The objectives of the study were to analyze the number of authors, authorship pattern, author-wise productivity, collaborative pattern, country-wise productivity, identifying the funding agencies, and year-wise distribution of articles or publications along with calculations of Collaboration Index (CI), Degree of Collaboration (DC) and Collaboration Co-efficient (CC) in the above-mentioned journals for two years (2021 and 2022).

The online version of the articles were obtained using the E-Journal facility provided by the Library and Information Centre of All India Institute of Speech and Hearing (AIISH), Mysore. Articles in the 'Dysphagia' journals were published as issues every two months throughout the year with a total of six issues each year. A total of twelve issues (2021 and 2022) were examined in this study. Articles in the Journal of Speech Language Hearing Research are published monthly throughout the year making a total of twelve issues every year. A total of twenty-four issues (2021 and 2022) were examined in this study.

Information was gathered by scrutinizing each article one by one, and details pertaining to articles were organized, tabulated, and categorized issue-wise. Microsoft Excel sheet was utilized for the complete segregation and tabulation of data. The data collected was analyzed based on the total number of articles, document-type distribution, authorship pattern, collaboration pattern, country-wise productivity, topic-

wise distribution, types of participants, age group of participants, the number of citations, and the funding agencies. Scientometric tools like the Collaboration Index (CI), Degree of Collaboration (DC) and Collaboration Co-efficient (CC) were analyzed from the data.

The results of the present study revealed several points of interest:

I. The total number of research articles related to dysphagia published in two years was three hundred and one articles in the journal 'Dysphagia' and fourteen in JSLHR in the years 2021 and 2022.

II. Scientific articles were predominantly published in the journal 'Dysphagia' and it was followed by review articles. Similarly, scientific articles were the highest in JSLHR, followed by review articles.

III. It was observed that multi-authored papers were high in number when compared to single-authored papers. In multi-authored papers, four or more authored papers were in maximum number.

IV. Among the authors, Michelle S. Troche ranked first with 8 published articles in the two years of the journal "Dysphagia".

V. The local collaboration was the highest followed by national and international, in journal "Dysphagia" in 2021. However, in 2022, national collaboration ranked first, local collaboration ranked second and international collaboration ranked third. In the journal 'JSLHR' out 14 articles considered, national collaboration was greater than local collaboration and international collaboration.

VI. Collaboration across professions was ranked first followed by collaboration within the same profession in both years and journals.

VII. The USA was the top nation that had highest total publications and with greater number of international collaboration in both years and the two journals.

VIII. The assessment related articles were the highest in both the journals, followed by treatment related articles.

IX. The human subject studies dominated over non-human studies in both journals in the two years of study.

X. The studies done on geriatric and adult populations dominated over the pediatric category in both journals and years.

XI. As of 8-8-2023 the highest number of citations received by an article in 2021 was 87 while the maximum number for 2022 was 55 in the journal Dysphagia. In JSLHR, the maximum number of citations in 2021 was 21, and it was 27 in 2022.

XII. The National Institute of Health Research of USA ranked first among the funding agencies by funding a maximum of 7 & 12 articles studies in 2021 and 2022 respectively in journal 'Dysphagia'.

In Summary, this study observed and reported the research trend in the field of Dysphagia using the journals named 'Dysphagia' and JSLHR. This study gives an overview of research trends and content related to dysphagia published in the selected journals.

Implications of the study

- This research can assist researchers in determining the significant research gaps in the field of dysphagia that will help to find the existing research problems for the future research. For example, future studies can be more focused on the pediatric population, which is the least focused population yet by the

researchers. The study also highlights the importance of increasing the treatment-related studies.

- This research can be a guide for the researchers to choose an appropriate funding agency.
- The present study also helps us to understand the status of Indian research in the specific area of dysphagia and helps to determine the steps needed to improve research in India in the field of dysphagia.
- As the study considered two different journals in two consecutive years, generalized results were possible comparing different parameters. Due to the fact that the journal considered in this study included a journal exclusively for dysphagia ('Dysphagia') and a journal common to speech, language, and hearing (JSLHR), generalization is assumed to be better than scientometric studies which focused on a single journal specializing in a single topic and a large number of publications from the journal 'Dysphagia' makes generalization easier.

Limitations

- As JSLHR had lesser number of articles related to dysphagia, generalization may be questioned even though a similar trend was seen in both journals.
- Some information about age group of participants and funding of a few (eight) articles from journal 'Dysphagia' (in the year-2022) and 2 articles from JSLHR were not considered since they were not accessible through AIISH Library and Information Center. However, considerable number of articles (296 articles) in journal 'Dysphagia', were chosen and shortcomings in results may be negligible.

Future directions

- A similar study can be conducted in different journals or specific topics.
- Studies may need to be conducted to determine such research trends over a greater number of years.
- The same study can be replicated after a few years to check whether there is any change in the trend and results can be compared.

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APPENDIX I

Funding agencies (2021)	No of articles funded
Dongseo University	2
National Center for Advancing Translational Sciences	1
National Institute on Deafness and Other Communication Disorders	4
Italian MS society research foundation	1
Medical College of Georgia	1
Eunice Kennedy Shriver National Institute of Child Health & Human Development	3
Department of Health via the National Institute	1
National Research Foundation of Korea (NRF)	4
National Science Foundation of China	2
Japan Society for the Promotion of Science (JSPS) KAKENHI	6
University of British Columbia's (UBC) Faculty of Medicine	1
Dr. Dawson's Health Education England	1
The Children's Hospital Foundation	1
Diane M. Bless Endowed Chair	1
Projekt DEAL	2
Paracelsus Medical University	1
Inha university research grant.	1

National Council of Scientific and Technological Development of Brazil	1
Fundación Luzón	1
National Institute of Neurological Disorders and Stroke	1
Amyotrophic Lateral Sclerosis Association Clinical Management	1
European Union's Horizon 2020 Research and Innovation program	1
Curtin University of Technology	1
National Council of Technological and Scientific Development	1
Dokkyo Medical University	1
University of Nevada	1
Virtutis Opis Foundation	1
Sichuan Province Science and Technology Support Program	1
National Institutes of Health research of USA	7
Coordenação de Aperfeiçoamento de Pessoal de Nível Superior.	1
Patient-Centered Outcomes Research Institute	1
Japanese Ministry of Education	1
University Cattolica del Sacro Cuore	1
ASHFoundation	1
Société française de carcinologie cervico-faciale	1
Health Research Council of New Zealand	1

Fondo Europeo de Desarrollo Regional (FEDER)	1
Science and Technology department of Sichuan Province	1
ATOS Medical Sweden	1
University degli Studi di Pavia	1
Instituto de Salud Carlos III	1
Michael J. Fox Foundation for Parkinson's Research and funding partners	1
National Institute for Health Research (NIHR)	1

Funding agencies (2022)	No of articles funded
National Center for Advancing Translational Sciences	1
National Institute on Deafness and Other Communication Disorders	2
Eunice Kennedy Shriver National Institute of Child Health & Human Development	3
National Research Foundation of Korea (NRF)	3
National Science Foundation of China	1
Japan Society for the Promotion of Science (JSPS) KAKENHI	4
Project DEAL	2
National Institute of Neurological Disorders and Stroke	2
National Institutes of Health research of USA	12
Coordenação de Aperfeiçoamento de Pessoal de Nível Superior.	1

University Cattolica del Sacro Cuore	1
Isfahan University of Medical Sciences.	1
Anesthesiology Research and Development Foundation, Taiwan	1
Instituto de Salud Carlos III	2
University of Oslo (incl Oslo University Hospital).	3
Cure PSP Foundation	1
an unrestricted research grant from Pentax Medical.	1
University degli Studi di Milano.	3
Library for the Research Institutes within the ETH	1
Department of Otorhinolaryngology	1
Yonsei University College of Medicine	2
National Natural Science Foundation of China	2
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Kent State University to PI Ali Barikroo.	1
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Commonwealth Scholarship and Fellowship Fund	1
National Center for Research Resources	1
National Institutes on Deafness	1
University of Utah Study Design and Biostatistics Center	1
Erika-and-Werner-Messmer Foundation, Radolfzell, Germany.	1

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National Institute of Diabetes and Digestive and Kidney Diseases Grant R01DK098222 (H. S. B., B. M. H., S. T.`)	1
Gold Coast Health Allied Health Research	3
Promobilia foundation	1
National Health and Medical Council Senior Research Fellowship	1
National Health and Medical Research Council, Australia	1
Australian Government Research Training Scholarship	2
Biomedical Research Institute, Pusan National University Hospital.	1
Monash Health Emergent Research Fellowship	1
the Third Affiliated Hospital, Sun Yat-sen University, Clinical Research Program	1
University Grants Committee, Hong Kong	1
Open Access funding enabled and organized by Project DEAL.	2
Prinses Beatrix Spierfonds,	1
Danish Association for Occupational Therapists	1
Danish Cancer Research Foundation	1
Rigshospitalet’s Research Fund	1
Danish Cancer Society	1
Nature Science Foundation of Beijing, China	1

Epworth Knowledge Services	1
SIRN Italian Society of Neuro Rehabilitation.	1
University of Florida Department	1
Ministry of Health, Malaysia.	1
University degli Studi di Roma La Sapienza within the CRUI-CARE Agreement	1
Open Access funding provided by Universität Zürich.	1
University of Helsinki	1
Princess Alexandra Research, the Metro South Hospital and Health Service.	1
Ministry of Higher Education of Malaysia	1
National Institute on Deafness and Other Communication Disorders (TMM) and T32GM007507 from the National Institute of General Medical Sciences (CAJ)	1
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University of Auckland postgraduate	1
National Science Council, Taiwan	1
American Society of Pediatric Otolaryngology	1
Higher Education Personnel Brazil (CAPES)	1

Scientific Research Project of Hunan Provincial Health Commission	1
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AMED (Japan Agency for Medical Research and Development)	1
uangzhou Key Field Research and Development Plan	1
Oklahoma State University	1
raig H. Neilsen Foundation Infrastructure	1
Public Health Agency (Northern Ireland), British Heart Foundation (BHF)	1
UK Medical Research Council.	1
Japan Ministry of Health, Labor and Welfare	2
National Institute of Health under Grant R01EB029596 and Grant R01EB028978.	1
Universidad de La Sabana	1
Open Access funding provided by the IReL Consortium.	1
National Heart, Lung, and Blood Institute	1
National Institute for Health Research (NIHR)	2