A SCIENTOMETRIC REVIEW OF ARTICLES PUBLISHED IN THE JOURNAL APHASIOLOGY IN THE YEAR 2021

MS. HARIPRIYA T

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ALL INDIA INSTITUTE OF SPEECH AND HEARING
MANASAGANGOTHRI, MYSURU—570 006

AUGUST 2022

CERTIFICATE

This is to certify that this dissertation entitled "**A scientometric review of articles published in the journal aphasiology in the year 2021**" is a bonafide work submitted in part fulfilment for the degree of Master of Science (Speech-Language Pathology) of the student Registration Number: 20SLP020. 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 an award of any other Diploma or Degree.

Dr. M. Pushpavathi
Director
All India Institute of Speech and Hearing
Manasagangothri, Mysuru -570006

Mysuru,
August 2022

CERTIFICATE

This is to certify that this dissertation entitled "**A scientometric review of articles published in the journal aphasiology in the year 2021**" has been prepared under my supervision and guidance. It is also being certified that this dissertation has not been submitted earlier to any other University for the award of any other Diploma or Degree.

Guide

Dr. S.P. Goswami

Professor, Speech Pathology &

Head -Speech-Language Pathology

All India Institute of Speech and Hearing

Manasagangothri, Mysuru -570006

Mysuru,
August 2022

DECLARATION

This is to certify that this dissertation entitled — "**A scientometric review of articles published in the journal aphasiology in the year 2021**" is the result of my own study under the guidance of Dr.S.P. Goswami, Professor, Speech Pathology, and Head of Speech-Language Pathology, All India Institute of Speech and Hearing, Manasagangothri, Mysuru-570006 and has not been submitted earlier to any other University for an award of any other Diploma or Degree.

Mysuru, **Register No. 20SLP020**

August 2022

Dedicated to Acha, Amma,

and

Kannan!

♥

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"***Everything in the universe is within you. Ask all from yourself."***

- Mawlana Jalal-al-Din Rumi

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

The need to assess an article's quality has become increasingly relevant in this century, as the amount of research output in each field has increased exponentially. One method for quantitatively evaluating the quality of research articles published in any discipline is to use Scientometrics. "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).

Tague-Sutcliffe (1992) defines 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, and hence overlaps bibliometrics.

Fortunato et al. (2018) define Scientometrics as 'the science of science' is a group of measurement techniques used to look into how underlying patterns emerge in and connect different scientific domains (Nalimov and Mulchenko, 1969). The ability of scientometrics to classify disciplinary boundaries is one of its key strengths (Fortunato et al., 2018).

Batcha and Chaturbhuj, (2019) studied at scholarly communication 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 co-efficient, 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.

Ramkumar et al. (2016) investigated at the collaboration trend in three Speech, Language, and Hearing Sciences journals. Journal of Speech, Language, and Hearing Research (JSLRH), published by the American Speech 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) were the authors' top three choices in the field of Speech, Language, and Hearing. It was examined between 2009 and 2013. They used scientometric techniques such as the degree of collaboration, the collaboration index, the collaborative coefficient, and the Modified collaborative coefficient.

The authors also introduced three new parameters for analysis: local collaborative index, domestic collaborative index, and international collaborative index. Authorship patterns were analysed by Journal, subject, and authorship pattern. The authors stated that between 2009 and 2013, the number of papers published in journals grew linearly. The collaborative index was high, indicating that the majority of the publications were collaborative. In their subject-by-subject examination, it was found that Language had a higher number of publications than Speech and Hearing. Local collaborations were also shown to be more common than domestic and international collaborations.

Gupta et al. (2017) studied 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 concludes that the needs of the collective autism community are extensive and varied and may include: (i) Early detection of autism symptoms and signs is necessary for early intervention and to fully realize the potential for reducing disability. (ii) Understanding the biological bases that help to explain the symptoms of autism helps lay the groundwork for future research.; (iii) Identifying environmental and genetic risk factors; (iv) Development of a variety of safe and efficient interventions and treatments applicable to all ages; (v) Ensuring that high-quality, evidence-based services and supports are available and accessible to everyone who needs them; it means that persons with autism may have changing requirements and disabilities as they age and that further research is necessary to comprehend and focus the needs. Therefore, it is essential to build the infrastructure of the autism research field in order to coordinate, accelerate, and boost the efficiency of this research; and to improve autism surveillance efforts to enable a more accurate assessment of Autism spectrum disorder (ASD) prevalence in populations in India.

1.1 Need of the study

It is essential to have a broad picture of what is going on in a particular field of study. It also aids researchers in identifying study gaps or areas where more research is needed. In order to understand, whether a particular strategy is more commonly utilized and has a lot of evidence-based practice. This research will aid in determining the direction in which our Indian research is headed. It will also aid in the comprehension of the authors' collaborative practices. This research will also reveal who the researchers are, such as if they are surgeons, doctors, speech-language pathologists, audiologists, or others.

It is challenging to take on research projects that need the author to walk about, meet people, collect data, and analyse it under the current pandemic condition. Take up scientometric analysis, systematic reviews, or research that involves one-on-one contacts as an alternative. An apt alternative would be to take up scientometric analysis, systematic reviews, or research where one-to-one interactions are avoided. The study findings will aid researchers in identifying research gaps and selecting areas of relevance and interest in the field of Aphasia and disorders. Future researchers, students, or authors can select topics based on research gaps when little work has been done, and no research has been conducted.

However, there are no studies in the field of Aphasia so this present study would help us to understand the current trends in the area.

1.2 Aim of the Study

The study aims to quantify articles' quality based on different parameters (such as the number of publications, distribution of publications, funding, and citations). It also aims to determine the country-wise and author-wise productivity of articles.

1.3 Objectives

1) To quantify the topic-wise distribution of articles in the Journal Aphasiology in the year 2021.
2) To examine the nature of the authorship pattern of the articles in the Journal Aphasiology in the year 2021.
3) To identify the collaboration patterns in the Journal Aphasiology in the year 2021.

4) To recognize the Country-wise distribution of articles in the Journal Aphasiology in the year 2021
5) To identify the funding agencies in the Journal Aphasiology in the year 2021.

CHAPTER II

REVIEW OF LITERATURE

The review of literature focuses on the research carried out in scientometry in the field of Speech-Language and Hearing. It focuses on the studies done in the area of phonology, dementia, Autism, Audiology, virtual reality, etc.

Gazni et al (2012) examined publications published in the Web of Science (WoS) database to map collaboration trends across countries and fields in the year 2000 to 2009. A total of 1, 39, 17,488 documents were obtained by the researchers. Essential Science Indicators (ESI) were used to organize the documents into 22 fields, while journals were divided into five fields (Life sciences, Social sciences, Physical sciences, Medicine, and Multidisciplinary).

According to their findings, publications increased from 69 percent to 78 percent. The average number of authors per manuscript increased from 3.3 to 4.1. The majority of the publications have 1-3 authored documents in them (57 percent). Co-authorship was high in the life sciences, whereas it was low in the social sciences. The institutional collaboration grew from 39% to 48%. The percentage of authors that collaborated inside the same institute was roughly 56 percent. Collaboration between institutions was favoured in the field of space science. International collaboration increased from 14% to 18%. Multinational collaboration was preferred in the fields of physics and mathematics.

The United States contributed 30% of the world's publications, with international collaboration accounting for 20%. The United States, the United Kingdom, Germany, France, Italy, and Canada are the centres of an international collaborative network. They also reported that nations with higher incomes had more multi-national cooperative

publications. The highest percentage of international publications was obtained from the multidisciplinary field.

2.1 Scientometric study in Speech, Language, and Hearing

The collaboration and networking of research grant projects in the domain of Speech, Language, and Hearing Sciences were investigated by S. Ramkumar and Narayanasamy (2017). The authors looked at the research grant programmes reported in the Annual Report of the All India Institute of Speech and Hearing, Mysore, from 2001-02 to 2015-16. 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). A total of 211 research projects were included in the data set.

The number of projects increased by a factor of 3.39 from Span I to Span II. With 38 and 4, respectively, the largest and lowest ARF projects were in 2011-12 and 2001-02. To determine the productivity in each domain, the authors divided the data into domains. Speech took first place in Span I with 18 projects, and Language took first place in Span II with 47 projects. 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 that collaboration is becoming more common. Local collaborations were the most common, with 137 projects, and overseas collaborations were the least common, with nine projects. In the last 14 years, there has been an upsurge in both domestic and international collaboration. The majority of international partners were American universities, with Manipal College of Allied Health Sciences, Manipal, contributing the

most to 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 came to the conclusion that the increase in faculty members was responsible for the increase in research project productivity. The type of professional networking pattern identified enhances the transfer of knowledge from elders to juniors. They also advised that certain policies be introduced in order to boost international collaboration.

2.2 Scientometric study in Autism

Lorenzo et al. (2016) studied 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.

They stated that the research output on this subject has been steadily increasing. The number of articles increased from 1990 to 2001 and from 2003 to 2014. In 2002, however, there was a drop in scientific production. According to the authors, papers on this topic were published in 574 existing journals, with the Journal of Autism and Developmental Disorders accounting for 17.14 percent of the total. The articles published in the Journal have an average page length of ten pages. 65 percent of the data obtained was due to publications produced by two, three, four, or five authors. It was also observed that 126 publications had ten or more authors. The number of citations for the publications ranged from 0 to 1083. The number of citations has gradually increased

from 1990. Till, 2016 it has been reported that Baron Cohen was the most productive author, with 143 papers to his credit. Three papers garnered 708 to 1083 citations. Asperger's theme subject was primarily published under the area of Psychology and Behavioural Sciences With 2730 papers. According to the authors, the United States was the most productive country in this subject, followed by England. They came to the conclusion that the majority of studies in this sector are based on psychological research rather than education and pedagogical intervention.

The small sample size used, prevented the study to give great importance to the methodological aspects of the intervention. Looking on to the strength of the study, it achieved a clear understanding of the growing trend in the previous eight years in the scientific production of Asperger's syndrome and also emphasizes the social science fields' underdeveloped bibliometric indicators.

2.3 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. De Wet 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 also stated 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, Otorhinolaryngology and Audiology and Speech-Language Pathology are the top two research topics in Audiology. They also noted that the National Institute of Deafness and Other Communication Disorders (NIDCD) ranked 1 in terms of sponsoring 23 publications.

This kind of research helps in appreciating the contributions made to the field of audiology research by specific authors, universities, languages, and topic areas. Additionally, it shows the direction which audiology research would go in the near future.

2.4 Scientometric studies in Dementia

Asghar et al. (2017) investigated recent research on Assistive Technologies (AT) for Dementia patients. They looked at articles published between 2000 and 2014. They 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. In terms of country-wise productivity, the United States ranked first 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. They used several parameters to assess the quality of publications, including the average number of citations (C), the P-Index, which provides a balance between quality and quantity of publications, with quantity determined by citations (C) and quality determined by the ratio of C/P, where P is the total number of publications, and the H-index, an author-metric that indicates productivity and number of citations per article.

With a P-Index of 44.73 and a C value of 13.34, the United States had the highest P-Index. Germany had the best C value of 16.43 and a high P Index value of 30.09, despite having fewer publications because their articles were published in high-impact journals.

Future assistive technologies should prioritise simplified user interfaces, the incorporation of large fonts, basic functions, and the promotion of regional languages. Interesting recommendations like the inclusion of 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 utilise questionnaires to collect similar data. Comparing qualitative and quantitative data would be interesting in order to better accurately assess the usability of AT. A framework for AT acceptance for individuals with disabilities globally might be developed by doing comparable studies in other South Asian and Western countries and analyzing the findings.

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. Between 1998 and 2017, data from

the 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 the 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 identification of significant articles and the formation of emerging trends reveal new insights into the field of research, allowing for better communication of major discoveries and data exploration.

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.

2.5 Scientometric studies in Dysgraphia

Gupta et al. (2018) investigated at 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 organisations 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 organisations and published in 13 journals, included 1 paper from each of the other journals and 6 paper that were published in Cortex.

2.6 Scientometric studies in Phonology

In the subject of phonology, Batcha and Chaturbhuj (2019) investigated collaboration and authorship patterns. They chose an 18-year period, from 2000 to 2017,

and used data from the Web of Science to compile their findings (WoS). They discovered 5015 records in all. They analysed the data using scientometric variables such as the Collaboration index, degree of collaboration, Collaborative coefficients, Modified collaborative coefficients, Relative growth rate, and Doubling time.

They 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. 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.

2.7 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 found that the number of articles published in this field increased from 1949 to 2016; the total number of publications found in the second period was 225. They also reported that the number of publications published shoot up steadily over each decade. They also stated that articles about the singing voice were published in 162 journals. It was also discovered that the Journal of Voice had the most articles published in both time periods. They also stated that until 2010, the professional singer was the most explored topic, with an emphasis on opera singers. The emphasis changed from organic structure to functional features of the singing voice, with a focus on male vocalists.

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 summarised in this article. The article employs both bibliometric and scientometric approaches to review the body of previous work in 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.

2.8 Scientometric study in eye tracking

In a study done by Aryadoust and Ang (2021) they did a detailed scientometric study of 341 research papers and their 14,866 references in the time period 1994 and 2018, using data from 27 journals in the language sciences that were included in the Scopus and/or Social Science Citation Index. The authors included several countries, academic institutions, and universities that have produced a significant amount of articles on eye-tracking studies in language. Also identified a mix of intertwined research trends that have affected the form and progression of eye tracking research. A document co-citation analysis, in particular, showed a number of important research clusters, as well as their key subjects, links, and bursts (sudden citation surges).

On the basis of a data-driven explanation of the scientific revolution, they then looked at how the patterns that had been noticed had influenced the development of new trends. As the first scientometric analysis of eye tracking research in language studies, this work has a number of implications for further studies.

2.9 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: 1) ADHD therapy; risks factors; and evidence synthesis 2) Neurophysiology, Neuropsychology and Neuroimaging; 3) Genetics 4) 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 1990–1997 time frame, 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. A search in PubMed revealed an increase for (depression AND children) from 541 to 6577 hits from 1990 to 2021, and for (asthma AND children) from 587 to 3606 hits during the same time frame.

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.

The 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 there are no studies on communication disorders such as Aphasia, Dysarthria, Laryngectomy, Alternative and Augmentative Communication, Stuttering, etc. More research is needed in the field of communication disorders. However, there are no documented reports in this area in the field of Aphasiology.

CHAPTER III

METHOD

The current study is a scientometric review aimed to quantify articles' quality based on different parameters (such as the number of publications, growth rate, and distribution of publications). Additionally, an attempt is also made to determine the country-wise and author-wise productivity of a select journal. The method followed for the study is elaborated below.

3.1 Procedure

The study was carried out in three phases; these include

1) Identification of the Journal and selection of time period for review.
2) Retrieval of the documents published in the Journal during the time period of interest.
3) Data collection i.e., collecting all the documents published during the year 2021 and analyzing them for scientometric properties.

3.1.1 Identification of the Journal and selection of time period for review

Aphasiology was the Journal chosen for this investigation's review. All aspects of language impairment, disability, and associated problems caused by brain damage are addressed by aphasiology. It provides a forum for the discussion of all aspects of Aphasia and associated subjects from all disciplinary perspectives, as well as the dissemination of up-to-date research and expertise. Aphasiology publishes articles on the clinical, psychological, linguistic, social, and neurological aspects of Aphasia and includes readers from the fields of neurology, neuropsychology, neurolinguistics, and speech and

language pathology. Studies using a variety of empirical techniques, such as experimental, clinical, and single case studies, surveys, and physical investigations are published in addition to regular articles that include significant reviews, clinical fora, case studies, and book reviews. The Journal publishes one volume (of publications) annually, comprising 12 issues with each issue containing 5-8 research articles. All documents published in the Journal are in the English language. As of 2022, the Journal ***Aphasiology*** has published a total of 36 volumes. In the current study, articles and research documents published in the year 2021, (Volume 35) were considered for scientometric review (Aphasiology Aims & Scope, n.d.-a).

3.1.2 Retrieval of the documents published in the Journal during the time period of interest.

The databases under the E-Journal service provided by the Library and Information Center of the All India Institute of Speech and Hearing (AIISH), Mysore, were used to obtain and review journal articles.

3.1.3 Data Collection

All articles and documents published in the year 2021, Volume 35, were individually reviewed. The articles were organized and tabulated issue wise. The articles were then systematically segregated and categorized based on the parameters using Microsoft Excel sheet.

Inclusion criteria -

The inclusion criteria about this study were as follows:

(1) Articles in the Journal Aphasiology.

(2) The publication time span from 1st January 2021 to 31st December 2021.

(3) Data collection was only limited to the E-Journal facility provided by the Library and Information Centre of All India Institute of Speech and Hearing (AIISH), Mysore.

3.2 Analysis

The articles were analyzed and segregated based on the following parameters;

(a) The number of articles: The total number of articles (comprising review articles, research articles, reports, and editorials) in each issue of the Journal,

(b) Document/Article type: Scientific articles (SA), Reviews [(RW), which contains systematic reviews, literature reviews, and book reviews], and reports were considered under this,

(c) Topic-wise distribution of articles about Adult language disorders, particularly Aphasia, such as articles containing assessment, Speech Language pathologist management (articles containing outcomes of different therapy techniques, use of a therapy technique on different disorders, and direct/indirect therapy outcomes), combined (assessment and management) and others (Models, simulated studies.)

(d) The type of participants: Persons with Aphasia (PWA), Primary Progressive Aphasia (PPA), Other disorders, Speech-Language pathologists s, allied health professionals or not applicable (review articles),

(e) Age group of the participants [Not specified (articles with human participants whose age is not mentioned), Adults (18-55 years), and Geriatrics (>55 years)],

(f) The names and number of authors (authorship pattern and author-wise productivity)

(g) 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),

(h) The country of the authors (Country-wise productivity),

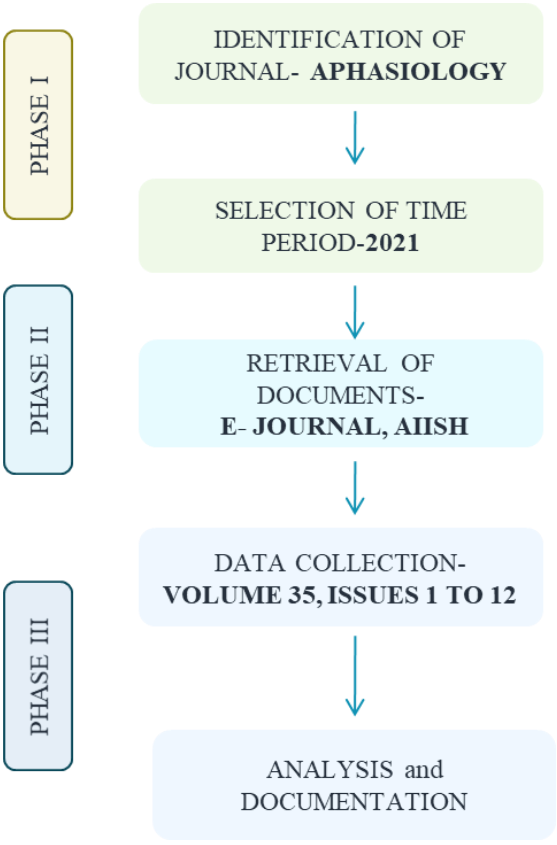
(i) The number of citations of the article (it was determined using the web search engine called Google Scholar),

(j) Funding source for the research article (List of funding agencies and top three agencies were ranked based on the number of articles funded), and (l) Research trends in Aphasia (issue-wise analysis on the number of articles was done for each year).

The above parameters were analysed through scientometric tools.

Figure 3.1

Flowchart depicting the procedure



3.3 Scientometric tools

3.3.1 *Collaboration Index (CI)*

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

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

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

3.3.2 *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 is,

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

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

3.3.3 *Collaborative Co-efficient (CC)*

The collaboration co-efficient 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 is,

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

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

3.4 Statistical analysis

The data pertaining to the articles were tabulated and analysed using SPSS software (version 20). Variables such as Topic-wise distribution of articles, the number of authors, the country from which the authors are, 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 current study aims to quantify article quality based on different parameters (such as the number of publications, growth rate, and distribution of publications) in the year 2021 Journal Aphasiology. The Journal publishes its issues every month. The results of twelve issues of the year 2021 are discussed here.

4.1 The number of articles

The total number of articles published in the Journal of Aphasiology in 2021 was eighty (80). The highest number of articles were published in the fourth issue, that is, in April 2021. The total number of documents in Issue 4 was 10 (12%). An average of six research publications were published per issue. The details of articles published in every issue of the year 2021 are also depicted in Table 4.1 and Figure 4.1.

Table 4.1

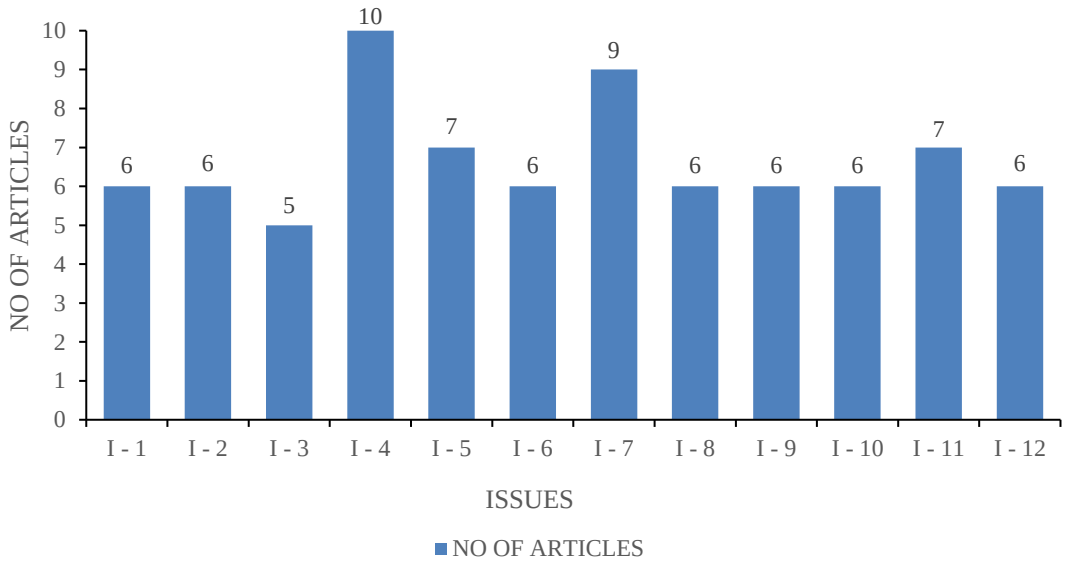
Issue-wise distribution of the number of articles in 2021

ISSUES	NO OF THE ARTICLES (N, %)
I - 1	6 (7.50%)
I - 2	6 (7.50%)
I - 3	5 (6.25%)
I - 4	10 (12.5%)
I - 5	7 (8.75%)
I - 6	6 (7.50%)
I - 7	9 (11.25%)
I - 8	6 (7.50%)
I - 9	6 (7.50%)
I - 10	6 (7.50%)
I - 11	7 (8.75%)
I -12	6 (7.50%)
TOTAL	**80**

Note. I-1 to I-12 indicates Issues from 1 to 12.

Figure 4.1

Total number of articles issue wise



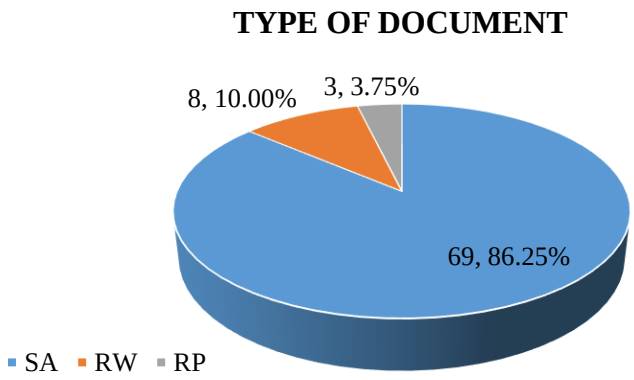
Note. I-1 to I-12 indicates Issues from 1 to 12.

4.2 Document/ Article type-wise distribution

In the year 2021, out of 80 articles, 69(86.25%) were Scientific articles, 8(10.00%) were Review articles, and 3 (3.75%) were Reports. Scientific articles ranked first in the total number of articles. Figure 4.2 represents the type of document distribution in 2021

Figure 4.2

Type of document distribution in 2021



Note. SA-Scientific articles, RW-Review articles, and RP- Reports

In all the 12 issues individually, scientific articles were the highest in number (86.25%). Review articles were published in five out of twelve issues, and Reports were only published in three out of twelve issues of the Journal in the year 2021.

Issue 2 had the highest percentage of Scientific articles (100%), Issue 1(33.33%) and 7(33.33%) had the highest percentage of Review articles, and Issue 9 (16.67%) had the highest number of Reports in the year 2021. Table 4.2 and figure 4.3 represent the document type distribution among different issues.

Table 4.2

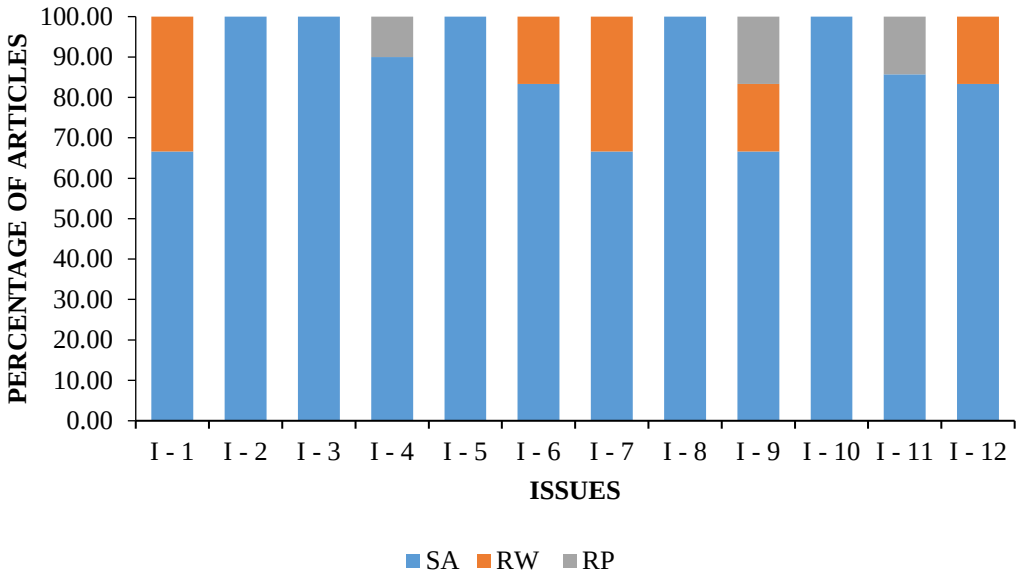
Issue-wise document type distribution in 2021

ISSUE	SA	RW	RP
I - 1	4(66.66%)	2(33.33%)	0(0.00%)
I - 2	6(100.00%)	0(0.00%)	0(0.00%)
I - 3	5(100.00%)	0(0.00%)	0(0.00%)
I - 4	9(90.00%)	0(0.00%)	1(10.00%)
I - 5	7(100.00%)	0(0.00%)	0(0.00%)
I - 6	5(83.33%)	1(16.67%)	0(0.00%)
I - 7	6(66.67%	3(33.33%)	0(0.00%)
I - 8	6(100.00%)	0(0.00%)	0(0.00%)
I - 9	4(66.67%)	1(16.67%)	1(16.67%)
I - 10	6(100.00%)	0(0.00%)	0(0.00%)
I - 11	69(85.71%)	0(0.00%)	1(14.29%)
I - 12	5(85.33%)	1(16.67%)	0(0.00%)
TOTAL	69(86.25%)	8(10.00%)	3(3.75%)

Note. I-1 to I-12 indicates Issues from 1 to 12 and SA-Scientific articles, RW-Review articles, and RP- Reports

Figure 4.3

Issue-wise document type distribution in 2021



Note. I-1 to I-12 indicates Issues from 1 to 12 and SA-Scientific articles, RW-Review articles, and RP- Reports

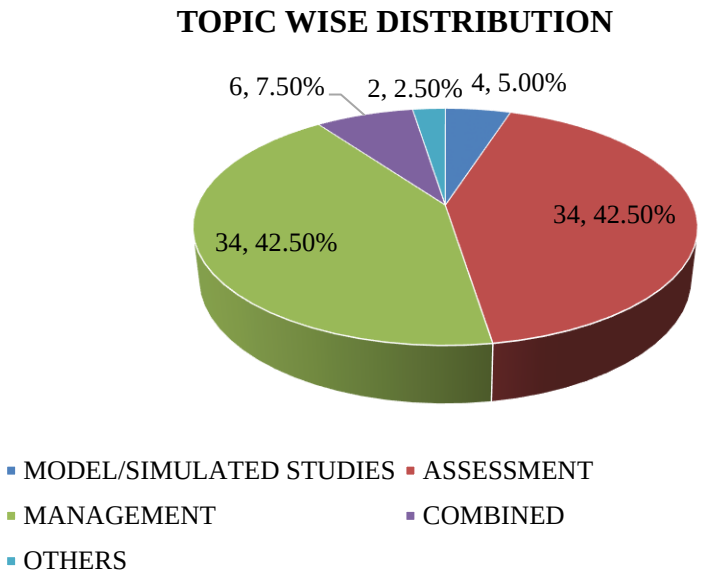
4.3 Topic-wise distribution of articles

The total number of articles published in the Journal Aphasiology in the year 2021 were classified based on different topics such as Assessment, Management, Model/Simulated studies, Combined (including both assessment and management), and Others.

Among the total 80 articles, articles that dealt with aphasia management and assessment were the highest, with 34 (43.04%) each. The second highest was combined studies with six (7.59%) articles and then Model/Simulated studies with four (5.06%) articles, and the last others with two (2.53%) articles. Figure 4.4 and depict the topic-wise distribution of articles in 2021.

Figure 4.4

Topic-wise distribution in 2021



In the first issue of the Journal, 100.00% of the studies were based on the management of persons with Aphasia. In the 3rd issue, 100.00% were based on assessment. Combined studies were the highest in issue 7 (44.44%), and Model/Simulated studies were highest in the fourth (30.00%) issue. Articles that were classified under others were only present in Issue 8 (16.67%) and Issue 11(14.29%) with one article each. Figure 4.5 and table 4.3 represent the issue-wise classification of topic-wise distribution.

Table 4.3

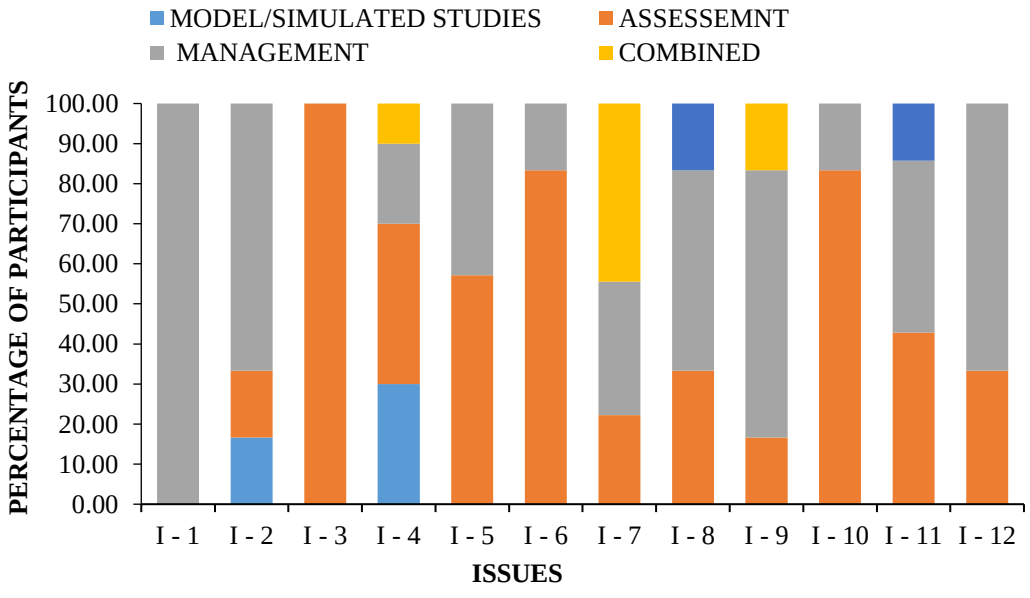
Issue-wise topic distribution in 2021

ISSUE	MODEL/ SIMULATED STUDIES	ASSESSMENT	MANAGEMENT	COMBINED	OTHERS
I - 1	0(0.00%)	0(0.00%)	6(100.00%)	0(0.00%)	0(0.00%)
I - 2	1(16.67%)	1(16.67%)	4(66.67%)	0(0.00%)	0(0.00%)
I - 3	0(0.00%)	5(100.00%)	0(0.00%)	0(0.00%)	0(0.00%)
I - 4	3(30.00%)	4(40.00%)	2(20.00%)	1(10.00%)	0(0.00%)
I - 5	0(0.00%)	4(57.14%)	3(42.86%)	0(0.00%)	0(0.00%)
I - 6	0(0.00%)	5(83.33%)	1(16.67%)	0(0.00%)	0(0.00%)
I - 7	0(0.00%)	2(22.22%)	3(33.33%)	4(44.44%)	0(0.00%)
I - 8	0(0.00%)	2(33.33%)	3(50.00%)	0(0.00%)	1(16.67%)
I - 9	0(0.00%)	1(16.67%)	4(66.67%)	1(16.67%)	0(0.00%)
I - 10	0(0.00%)	5(83.33%)	1(16.67%)	0(0.00%)	0(0.00%)
I - 11	0(0.00%)	3(42.86%)	3(42.86%)	0(0.00%)	1(14.29%)
I - 12	0(0.00%)	2(33.33%)	4(66.67%)	0(0.00%)	0(0.00%)
TOTAL	4(5.06%)	34(41.77%)	34(43.04%)	6(7.59%)	2(2.53%)

Note. I-1 to I-12 indicates Issues from 1 to 12.

Figure 4.5

Issue-wise topic distribution in 2021



Note. I-1 to I-12 indicates Issues from 1 to 12.

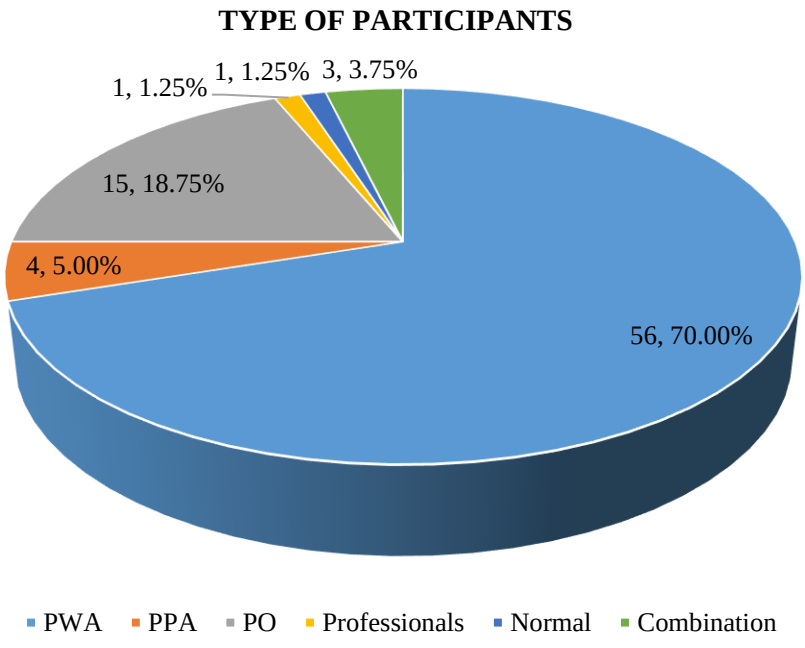
4.4 Type of participants

The total number of articles was classified under different groups such as Person with Aphasia (PWA), Primary Progressive Aphasia (PPA), other disorders (PO) such as Dysarthria, Apraxia, and Combination of disorders, Professionals, and Normals.

Out of 80 articles, 56 (70.00%) had participants as Persons with Aphasia, which also ranked first on the list. It was followed by other disorders, which were taken in 15 (18.75%) articles. Articles with Primary Progressive Aphasia were four (5.00%), and combinations of disorders were three (3.75%). The last were Professionals and Normals, with 1(1.25%) article each. Figure 4.6 depicts the type of participants.

Figure 4.6

Participant type distribution in 2021



Issue 1 of the Journal had 100% articles with participants as Persons with Aphasia. 90% of the articles had participants with other disorders in issue 4. All 12 issues had majorly studies done on Persons with Aphasia followed by other disorders. Figure 4.7 and Table 4.4 represent the issue-wise type of participants distribution.

Table 4.4

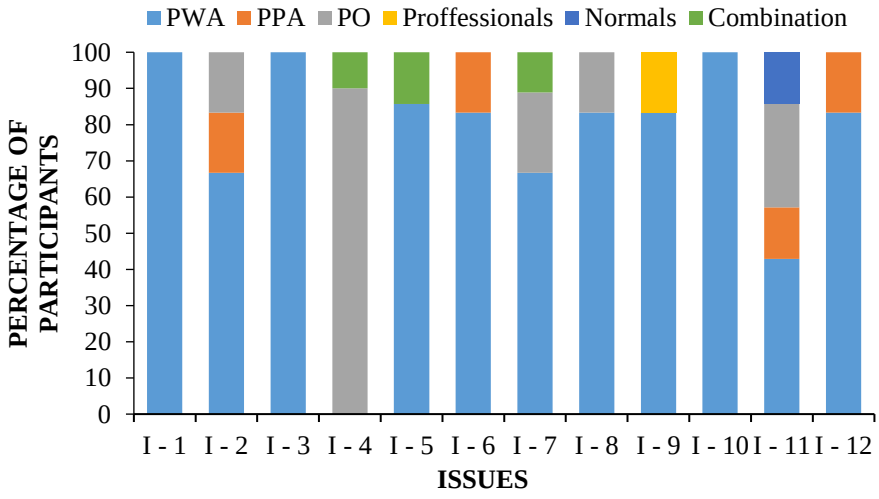
Issue-wise participant type distribution in 2021

ISSU-E	PWA	PPA	PO	Professional-s	Normal	Combination-n
I - 1	6,(100.00%)	0,(0.00%)	0,(0.00%)	0,(0.00%)	0,(0.00%)	0(0.00%)
I - 2	4,(66.67%)	1,(16.67%)	1,(16.67%)	0,(0.00%)	0,(0.00%)	0(0.00%)
I - 3	5,(100.00%)	0,(0.00%)	0,(0.00%)	0,(0.00%)	0,(0.00%)	0(0.00%)
I - 4	0,(0.00%)	0,(0.00%)	9,(90.00%)	0,(0.00%)	0,(0.00%)	1,(10.00%)
I - 5	6,(85.71%)	0,(0.00%)	0,(0.00%)	0,(0.00%)	0,(0.00%)	1,(14.29%)
I - 6	5,(83.33%)	1,(16.67%)	0,(0.00%)	0,(0.00%)	0,(0.00%)	0(0.00%)
I - 7	6,(66.67%)	0,(0.00%)	2,(22.22%)	0,(0.00%)	0,(0.00%)	1,(11.11%)
I - 8	5,(83.33%)	0,(0.00%)	1,(16.67%)	0,(0.00%)	0,(0.00%)	0(0.00%)
I - 9	5,(83.33%)	0,(0.00%)	0,(0.00%)	1,(16.67%)	0,(0.00%)	0(0.00%)
I - 10	6,(100.00%)	0,(0.00%)	0,(0.00%)	0,(0.00%)	0,(0.00%)	0(0.00%)
I - 11	3,(42.85%)	1,(14.29%)	2,(28.57%)	0, (0.00%)	1,(14.28%)	0(0.00%)
I - 12	5,(83.33%)	1,(16.67%)	0,(0.00%)	0,(0.00%)	0,(0.00%)	0(0.00%)
TOTA-L	56,(70.00%)	4,(5.00%)	15,(18.75%)	1,(1.25%)	1,(1.25%)	3,(3.75%)

Note. I-1 to I-12 indicates Issues from 1 to 12.PWA- Persons with Aphasia, PPA-Primary progressive Aphasia, and PO- Persons with Other disorders.

Figure 4.7

Issue-wise participant type distribution in 2021



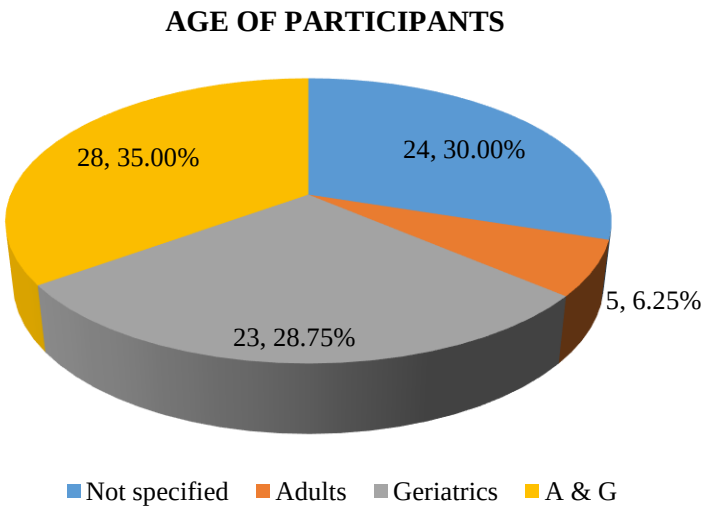
Note. I-1 to I-12 indicates Issues from 1 to 12. PWA- Persons with Aphasia, PPA-Primary Progressive Aphasia, and PO- Persons with Other disorders.

4.5 Age group of participants

The age of the participants was divided into different groups such as Not specified, Adults (18 to 55 years), Geriatric (above 55 years), and both Adults and Geriatrics. Out of 80 articles published in the Journal for the year 2021, 28 (35.00%) of them had participants in the age group Adults and Geriatric. In 24 (30.00%) articles, the age group of participants was not specified. 23(28.75%) had participants in the age group Geriatrics. Only five (6.25%) articles were done on just adults' population. Figure 4.8 depicts the distribution of articles based on age.

Figure 4.8

Age of participants in 2021



Note. A & G- Adult and Geriatrics

Table 4.5

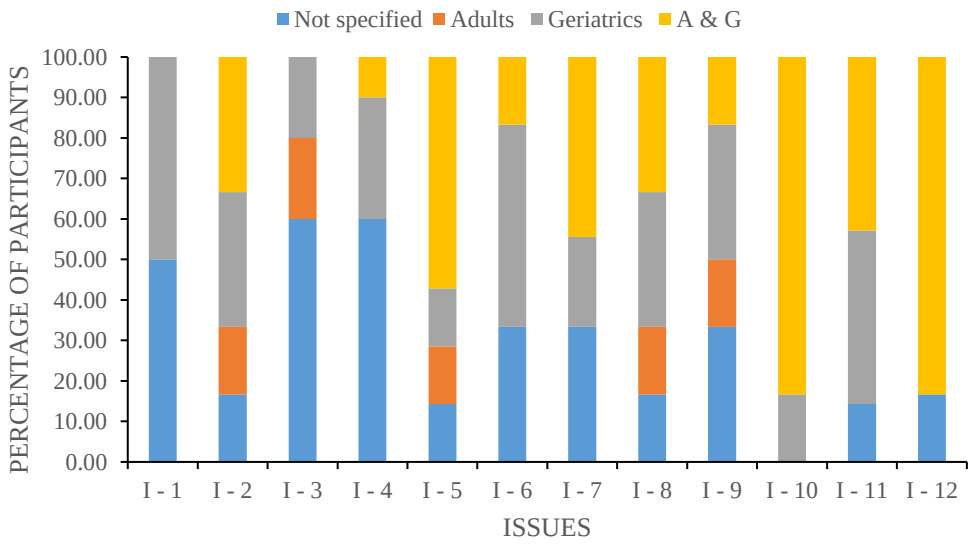
Issue-wise age of participants in 2021

ISSUES	Not specified	Adults (12-55 yrs)	Geriatrics (>55yrs)	A&G
I-1	3(50.00%)	0(0.00%)	3(50.00%)	0(0.00%)
I-2	1(16.67%)	1(16.67%)	2(33.33%)	2(33.33%)
I-3	3(60.00%)	1(20.00%)	1(20.00%)	0(0.00%)
I-4	6(60.00%)	0(0.00%)	3(30.00%)	1(10.00%)
I-5	1(14.29%)	1(14.29%)	1(14.29%)	4(57.14%)
I-6	2(33.33%)	0(0.00%)	3(50.00%)	1(16.67%)
I-7	3(33.33%)	0(0.00%)	2(22.22%)	4(44.44%)
I-8	1(16.67%)	1(16.67%)	2(33.33%)	2(33.33%)
I-9	2(33.33%)	1(16.67%)	2(33.33%)	1(16.67%)
I-10	0(0.00%)	0(0.00%)	1(16.67%)	5(83.33%)
I-11	1(14.29%)	0(0.00%)	3(42.86%)	3(42.86%)
I-12	1(16.67%)	0(0.00%)	0(0.00%)	5(83.33%)
TOTAL	24(30.00%)	5(6.25%)	23(28.75%)	28(35.00%)

Note. A & G- Adult and Geriatrics. I-1 to I-12 indicates Issues from 1 to 12.

Figure 4.9

Issue-wise age of participants in 2021



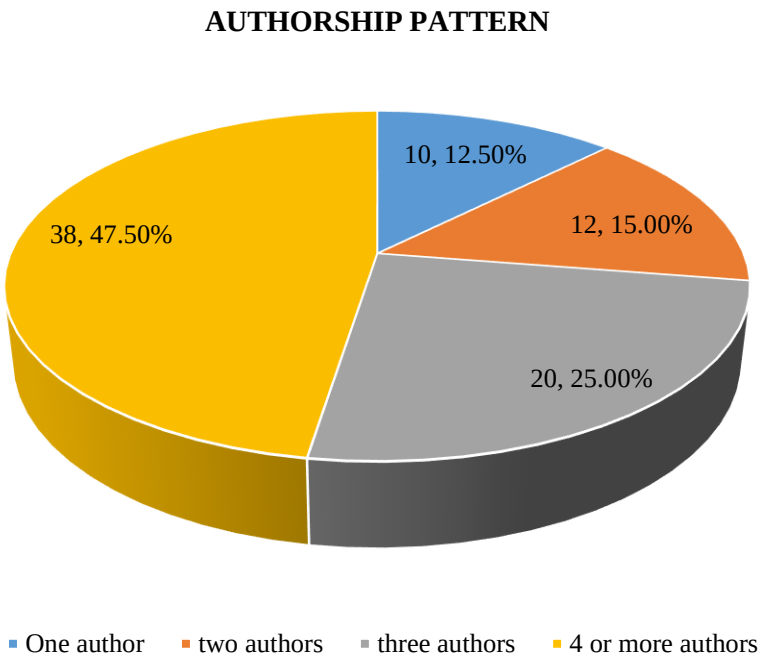
Note. A & G- Adult and Geriatrics. I-1 to I-12 indicates Issues from 1 to 12

4.6 Authorship pattern

The total number of articles was classified based on the number of authors, such as one author, two authors, three authors, and four or more authors. Among them, four or more authors ranked first in the list with 38(47.50%) articles. The second most one is three authored articles with 20 (25.00%), followed by two authored articles with 12(15.00%) and single-authored articles with 10(12.5%) in the year 2021. Figure 4.10 represent the authorship pattern.

Figure 4.10

Authorship pattern in 2021



Single authored articles were found highest in issue 4 and issue 7 issue with three articles each. Two authored articles were obtained highest in the 8th issue with three articles and three authored with five in the 12th issue, followed by four or more authored articles with five each in the 5th, 6th and 11th issue of the Journal. Table 4.3 and figure 4.11 represents the issue-wise authorship pattern.

Table 4.6

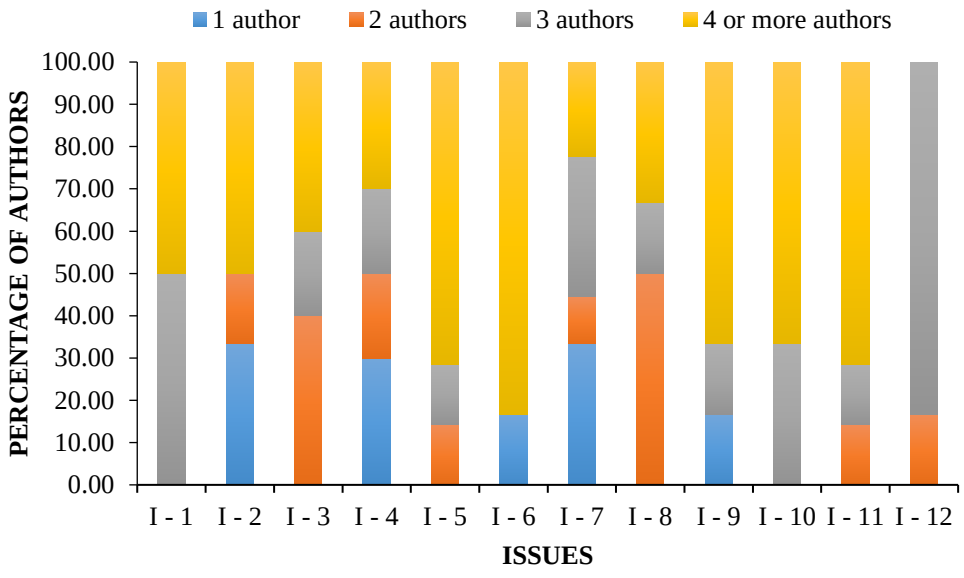
Issue-wise authorship patterns in 2021

ISSUE	One author	Two authors	Three authors	Four or more authors
I - 1	0(0.00%)	0(0.00%)	3(50.00%)	3(50.00%)
I - 2	2(33.33%)	1(16.67%)	0(0.00%)	3(50.00%)
I - 3	0(0.00%)	2(40.00%)	1(20.00%)	2(40.00%)
I – 4	3(30.00%)	2(20.00%)	2(20.00%)	3(30.00%)
I – 5	0(0.00%)	1(14.29%)	1(14.29%)	5(71.43%)
I –6	1(16.67%)	0(0.00%)	0(0.00%)	5(83.33%)
I - 7	3(33.33%)	1(11.11%)	3(33.33%)	2(22.22%)
I - 8	0(0.00%)	3(50.00%)	1(16.67%)	2(33.33%)
I - 9	1(16.67%)	0(0.00%)	1(16.67%)	4(66.67%)
I - 10	0(0.00%)	0(0.00%)	2(33.33%)	4(66.67%)
I - 11	0(0.00%)	1(14.29%)	1(14.29%)	5(71.43%)
I - 12	0(0.00%)	1(16.67%)	5(83.33%)	0(0.00%)
TOTAL	10(12.50%)	12(15.00%)	20(25.00%)	38(47.50%)

Note. I-1 to I-12 indicates Issues from 1 to 12

Figure 4.11

Issue-wise authorship patterns in 2021



Note. I-1 to I-12 indicates Issues from 1 to 12

4.7 Author-wise productivity

In the year 2021, the author with the highest number of articles was Jane Marshall (2021) with three articles. Among the three articles, two had international collaboration, and one had national collaboration. The second most number of articles by an author was two. Moreover, the third most one was three.

4.8 Collaboration pattern

The articles were divided into a local, national, and international collaboration. Out of the 80 articles published in the year 2021, there was a collaboration in 70(87.50%) of them, and only 10 (12,50%) were no collaboration. Table 4.7 and figure 4.12 represent the distribution of publications with and without collaboration in the year 2021

Table 4.7

Issue-wise distribution of publications with and without collaboration in 2021

ISSUE	Yes	No
I - 1	6(100.00%)	0(0.00%)
I - 2	4(66.67%)	2(33.33%)
I - 3	5(100.00%)	0(0.00%)
I - 4	7(70.00%)	3(30.00%)
I - 5	7(100.00%)	0(0.00%)
I - 6	5(83.33%)	1(16.67%)
I - 7	6(66.67%)	3(33.33%)
I - 8	6(100.00%)	0(0.00%)
I - 9	5(83.33%)	1(16.67%)
I - 10	6(100.00%)	0(0.00%)
I - 11	7(100.00%)	0(0.00%)
I – 12	6(100.00%)	0(0.00%)
TOTAL	70(87.50%)	10(12.50%)

Note. I-1 to I-12 indicates Issues from 1 to 12

Figure 4.12

Number of publications with or without collaboration in the year 2021

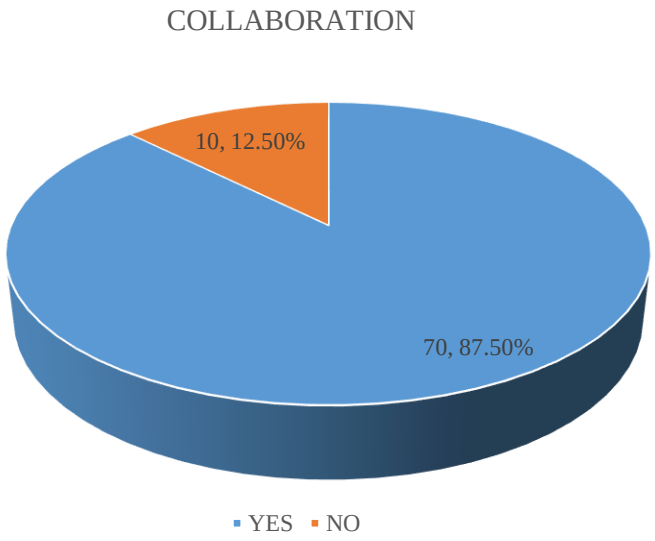
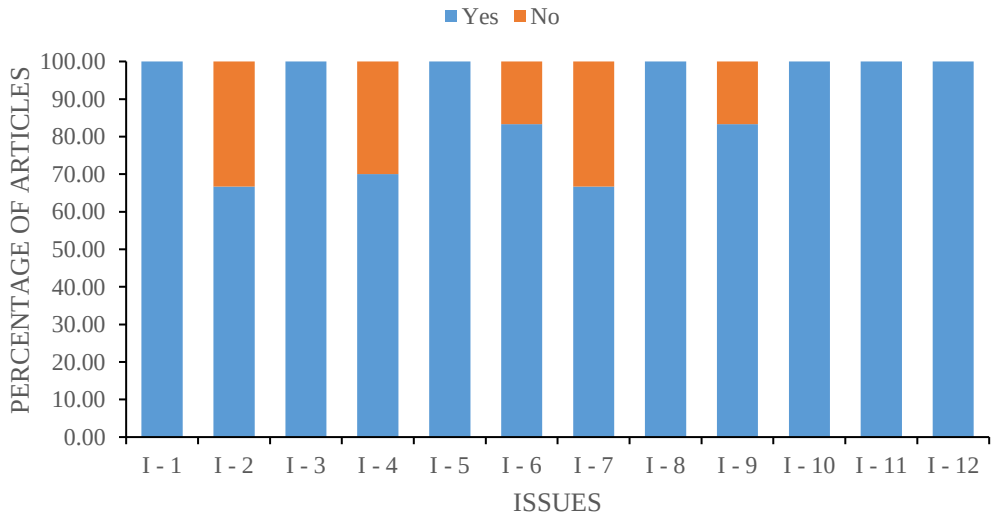


Figure 13

Issue-wise distribution of publications with and without collaboration in 2021

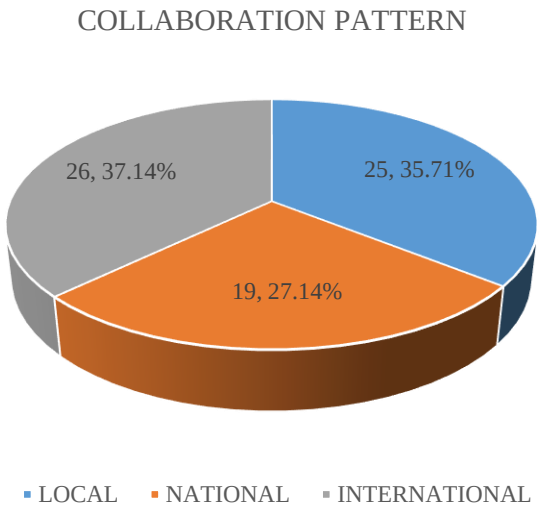


Note. I-1 to I-12 indicates Issues from 1 to 12

As the articles with collaboration was further divided into local, national and international.26 (37.14%) of the articles had International collaboration, 25(35.71%) of the article had Local collaboration and 19(27.14%) had National collaboration. Figure 4.14 depicts the collaboration pattern.

Figure 4.14

Type of collaboration in the year 2021



Among the 12 issues, issues 1, 3, 5, 8, 10, 11, and 12 had 100% collaborations, and issues 2, 4, 6, 7, and 9 had articles with single authors, which is no collaboration. Table 4.8 and figure 4.15 depict the issue-wise collaboration pattern.

Table 4.8

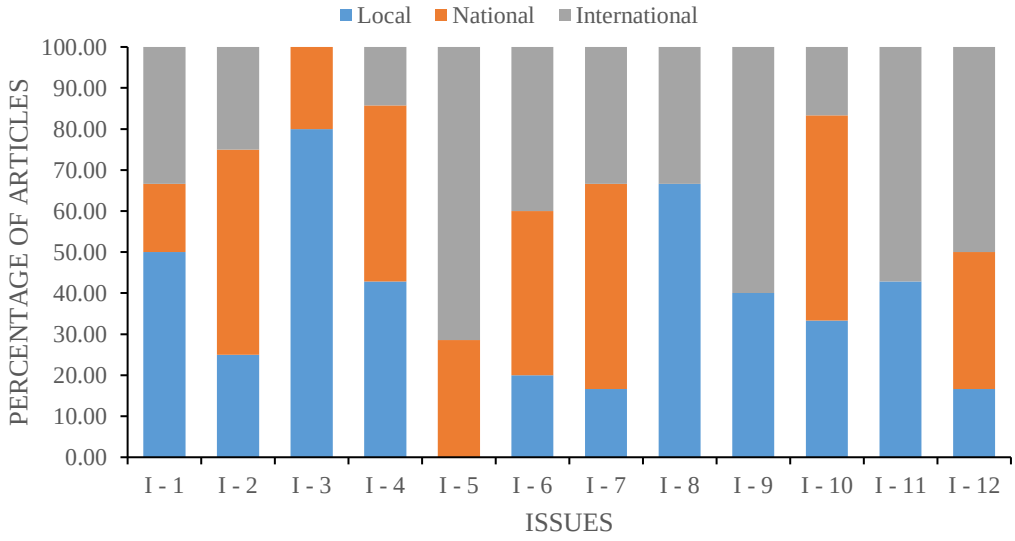
Issue-wise type of collaborations in 2021

ISSUE	Local	National	International
I - 1	3(50.00%)	1(16.67%)	2(33.33%)
I - 2	1(25.00%)	2(50.00%)	1(25.00%)
I - 3	4(80.00%)	1(20.00%)	0(0.00%)
I - 4	3(42.86%)	3(42.86%)	1(14.29%)
I - 5	0(0.00%)	2(28.57%)	5(71.43%)
I - 6	1(20.00%)	2(40.00%)	2(40.00%)
I - 7	1(16.67%)	3(50.00%)	2(33.33%)
I - 8	4(66.67%)	0(0.00%)	2(33.33%)
I - 9	2(40.00%)	0(0.00%)	3(60.00%)
I - 10	2(33.33%)	3(50.00%)	1(16.67%)
I - 11	3(42.86%)	0(0.00%)	4(57.14%)
I - 12	1(16.67%)	2(33.33%)	3(50.00%)
TOTAL	**25(35.71%)**	**19(27.14%)**	**26(37.14%)**

Note. I-1 to I-12 indicates Issues from 1 to 12

Figure 4.15

Issue-wise type of collaborations in 2021



Note. I-1 to I-12 indicates Issues from 1 to 12

4.9 Collaborative index (CI), degree of collaboration (DC), and Collaboration co-efficient (CC)

The collaborative index, degree of collaboration, and Collaboration co-efficient for the year 2021 in the Journal Aphasiology are mentioned in the table. The value of the Collaboration Index ranges from 2.60 to 5.00. The highest Collaboration Index was observed in issues 10 and 12. In addition, the lowest collaboration index was found in issue 4.

Degree of Collaboration and Collaboration Coefficient tend toward one, which implies the proportion of multi-authored papers was more when compared to single-authored papers. In 2021, the degree of collaboration was well above 0.5 in all issues, which shows the high multi-authored articles. Except in issues number 4 and 7, all other values of the Collaboration Index were equal to or above 0.5, which again points out the high number of multi-authored articles.

Table 5.9 collaboration parameters for 2021 and collaborative index, degree of collaboration, and collaboration co-efficient are represented in figures 4.16, figure 4.17, and figure 4.18, respectively.

Table 4.9

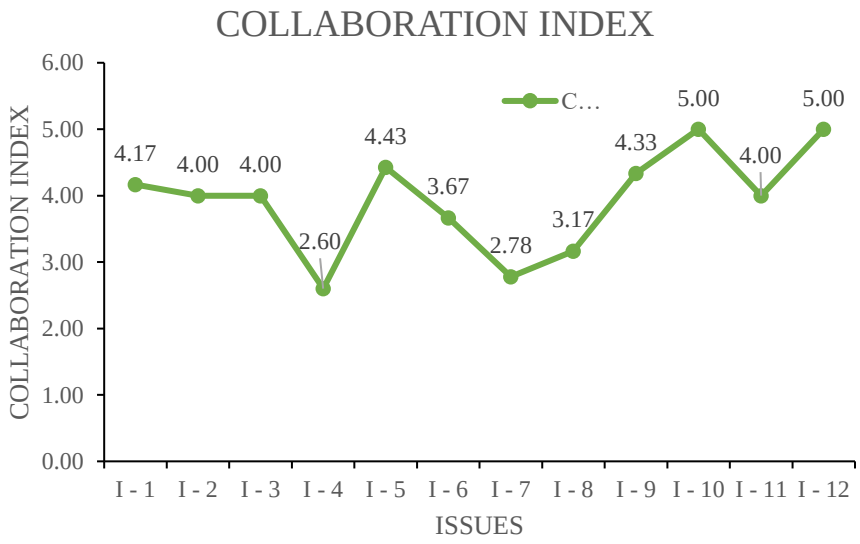
Collaboration parameters of articles in 2021

ISSUE	CI	DC	CC
I - 1	4.17	1.00	0.73
I - 2	4.00	0.67	0.50
I - 3	4.00	1.00	0.67
I - 4	2.60	0.70	0.46
I - 5	4.43	1.00	0.74
I - 6	3.67	0.83	0.63
I - 7	2.78	0.67	0.46
I - 8	3.17	1.00	0.63
I - 9	4.33	0.83	0.65
I - 10	5.00	1.00	0.78
I - 11	4.00	1.00	0.72
I - 12	5.00	1.00	0.76

Note. I-1 to I-12 indicates Issues from 1 to 12. CI- Collaboration Index, DC- Degree of Collaboration, and CC- Collaboration Co-efficient

Figure 4.16

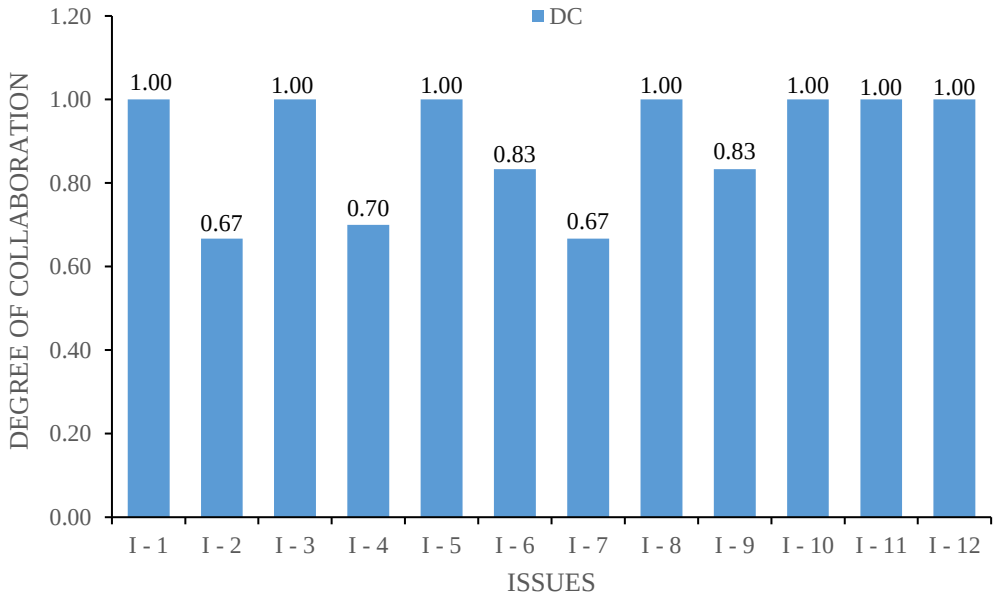
Issue -wise collaboration Index in 2021



Note. I-1 to I-12 indicates Issues from 1 to 12. CI- Collaboration Index.

Figure 4.17

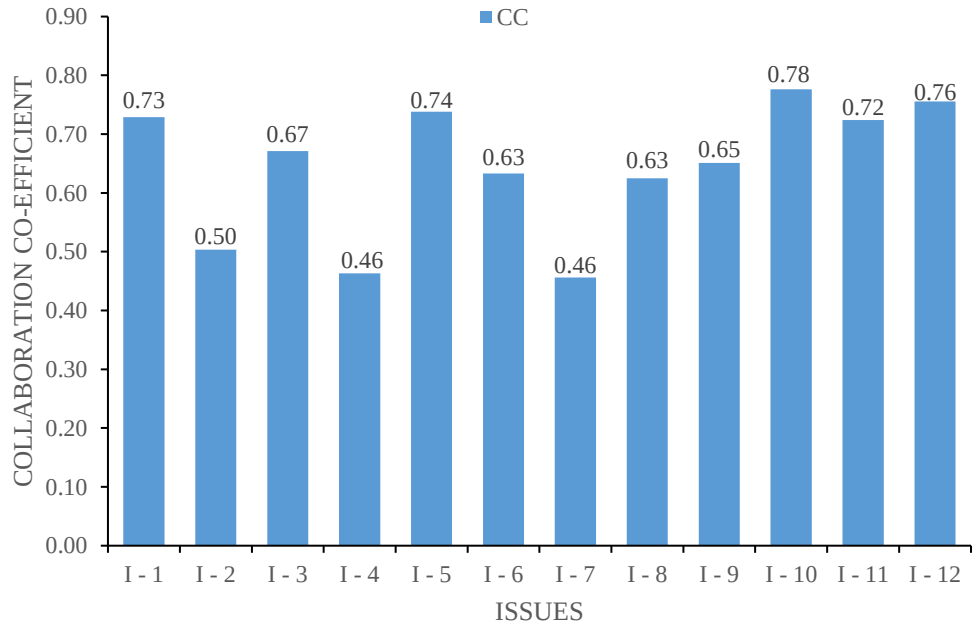
Issue-wise degree of collaboration in 2021



Note. I-1 to I-12 indicates Issues from 1 to 12. DC- Degree of Collaboration.

Figure 4.18

Issue-wise Collaboration co-efficient in 2021



Note. I-1 to I-12 indicates Issues from 1 to 12. CC- Collaboration Co-efficient.

4.10 Country-wise productivity

In 2021, the highest number of articles were published in the United States of America, with 27 out of 80 articles. The second most articles are from Australia and England with 15. Moreover, the third country was Russia, with 7 of the articles.

However, only 2 articles were published in 2021 from India. Overall, the number of articles published from Asian countries was less. Table 4.10 depicts the top five countries in 2021.

Table 4.10

Country-wise productivity in 2021

Rank	Country	No. of articles
I	USA	24
II	Australia	15
II	England	15
III	Russia	7
IV	The Netherlands	6
V	Canada	4

4.11 Number of citations of the article

As of 13-07-2022, the maximum number of citations obtained for an article was in Issue 7 with 31 citations, and the minimum number of citations 0 were present in Issues 7, 9,11, and 12. Table 4.11 depict the top 5 cited articles.

Table 4.11

Top five cited articles of 2019

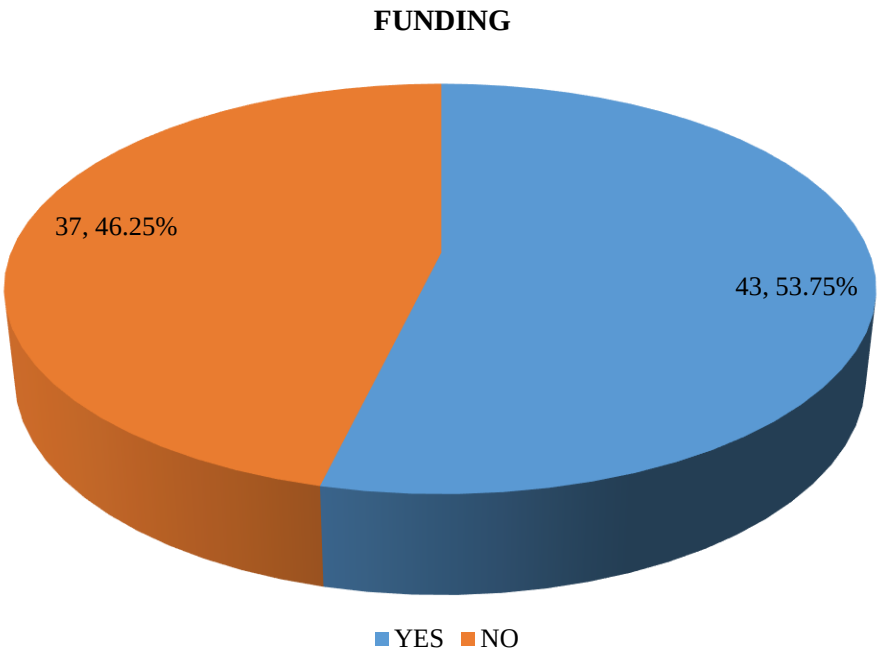
Rank	Article	No. of citations
I	Prevalence of Aphasia and dysarthria among inpatient stroke survivors: describing the population, therapy provision and outcomes on discharge. *Aphasiology*, *35*(7), 950-960 https://doi.org/10.1080/02687038.2020.1759772	31
II	Duffy, J. R., Utianski, R. L., & Josephs, K. A. (2021). Primary progressive apraxia of speech: From recognition to diagnosis and care. *Aphasiology*, *35*(4), 560-591. https://doi.org/10.1080/02687038.2020.1787732	24
III	Repetto, C., Paolillo, M. P., Tuena, C., Bellinzona, F., & Riva, G. (2021). Innovative technology-based interventions in aphasia rehabilitation: a systematic review. *Aphasiology*, *35*(12), 1623-1646. https://doi.org/10.1080/02687038.2020.1819957	20
IV	Berthier, M. L. (2021). Ten key reasons for continuing research on pharmacotherapy for post-stroke Aphasia. *Aphasiology*, *35*(6), 824-858. https://doi.org/10.1080/02687038.2020.1769987	17
V	Griffin-Musick, J. R., Off, C. A., Milman, L., Kincheloe, H., & Kozlowski, A. (2021). The impact of a university-based Intensive Comprehensive Aphasia Program (ICAP) on psychosocial well-being in stroke survivors with Aphasia. *Aphasiology*, *35*(10), 1363-1389. https://doi.org/10.1080/02687038.2020.1814949	14

4.12 Funding Source

Out of 80 articles published, 43(53.75%) of them had funding whereas 37(47.25%) of them did not receive any funding in the year 2021 for the Journal Aphasiology. Figure 4.19 represents the number of publications with or without funding. The highest number of article that is seven were funded by National Institute on Deafness and Other Communication Disorders (NIDCD).

Figure 4.19

No of publications with and without funding



The highest funding was found in Issue 4 and 11 with five articles funded followed by Issues 2, 5, and 9 with four articles each funded. Table 4.12 and figure 4.20 represents the issue wise funding.

Table 4.12

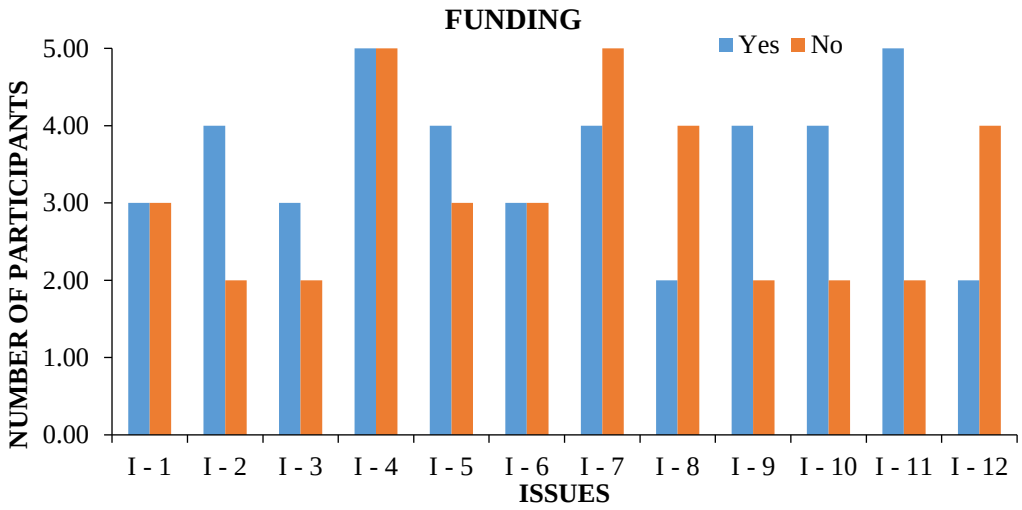
Issue-wise funding

ISSUE	Yes	No
I - 1	3(50.00%)	3(50.00%)
I - 2	4(66.67%)	2(33.33%)
I - 3	3(60.00%)	2(40.00%)
I - 4	5(50.00%)	5(50.00%)
I - 5	4(57.14%)	3(42.86%)
I - 6	3(50.00%)	3(50.00%)
I - 7	4(44.44%)	5(55.56%)
I - 8	2(33.33%)	4(66.67%)
I - 9	4(66.67%)	2(33.33%)
I - 10	4(66.67%)	2(33.33%)
I - 11	5(71.43%)	2(28.57%)
I - 12	2(33.33%)	4(66.67%)
TOTAL	43(53.75%)	37(46.25%)

Note. I-1 to I-12 indicates Issues from 1 to 12.

Figure 4.20

Issue-wise funding



Note. I-1 to I-12 indicates Issues from 1 to 12.

The above results explain in detail about the number of articles, document-wise distribution, author related parameters, collaboration parameters, country-wise productivity, citations and funding.

CHAPTER V

DISCUSSION

The present study aimed to analyse the scientometric parameters of articles published in the Journal Aphasiology in 2021. All aspects of language impairment, disability, and associated problems caused by brain damage are addressed by aphasiology. It provides a forum for discussing all aspects of Aphasia and associated subjects from all disciplinary perspectives, as well as disseminating up-to-date research and expertise (Aphasiology Aims & Scope, n.d.). It was found from the documented research that the findings of this study are one of the first to investigate the scientometric properties in the Journal of aphasiology.

The study results showed that the number of articles published in each volume issue was not uniform. The Journal had the highest publication of scientific articles(document-wise) followed by review articles and reports. Scientific papers were the most often published type of research documents in phonology and audiology (Batcha & Chaturbhuj, 2019; Nandeesha & Begum, 2017), which was consistent with the findings of the present study.

In the current study, topic-wise productivity was analysed based on the topic-wise classification developed for the articles in the area of Aphasiology. Themes and sub-themes were found in a prior study that looked at how people with mild dementia used assistive technology based on qualitative information acquired from semi-structured interviews (Asghar et. al, 2017). In another study conducted to determine subject field wise collaborations in general sciences, the authors adopted a different approach. Each article presents in the dataset considered was classified under 22 different

fields using Essential Science Indicators (Gazni et al. 2011). Topic-wise classification can also be carried out using keyword search and cluster analysis techniques (Pestana et. al, 2017; Pestana and Sobral, 2019). The topic wise classification used in the current study revealed articles under the categories of assessment, management, Models/simulated studies a combination of assessment and management of Aphasia. Based on the topic-wise distribution, it was found that article s in the area of assessment and management were the highest, which was followed by combined articles. This emphasizes the importance of assessment and management studies in Aphasia research going on in the field. Also, even though the collaboration index were good, there were very less research in other domains. So, there is a need for more multi-disciplinary interaction in the field of Aphasia.

The topic-wise distribution analysis found that the studies carried out on Persons with Aphasia were the highest followed by other disorders such as Apraxia. This can be justified by the fact that the Journal primarily aims to focus on research output in Aphasia. And the researchers were more interested in the same area.

In 2021, an analysis of the authorship pattern showed that multi-authored publications were more prevalent than single-authored papers. Articles with multiple authors might be more because of reduced availability of materials/infrastructure required for research, distribution of work when doing the research, and author collaboration from different fields and settings will enhance the quality of the research. In multi-authored papers, four or more authors contributing to a single research paper were more in the year 2021. This is in contrast to the findings of earlier works, which indicated that the highest levels of collaboration in audiology and Asperger's syndrome

research were two- or three-authored papers (Lorenzo et al., 2016; Nandeesha & Begum, 2017).

The collaboration pattern was analysed using scientometric tools such as Collaborative Index (CI), Degree of Collaboration (DC), and Collaboration Co-efficient (CC). One can infer from the results that the collaborative index or mean authors per paper ranged from 2.60 to 5.00. As CI has no upper limit, it is difficult to interpret. Thus, the Degree of Collaboration was selected for the analysis. The values of DC lie between 0 .00 to 1.00, and as the value approaches one, it indicates multi-authored papers. In the year 2021, five issues had DC value of 1.

Similarly, collaboration co-efficient approaches 1 indicate the high probability of multiple-authored papers. The CC values for the year range from 0.46 to 0.78. Three of the twelve issues had a CC value greater than 0.70. The above results indicate that majority of the papers in the Journal Aphasiology for the year 2021 were multi-authored papers. 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, the more extended period they chose, that is, 17 years. (2000-2017).

It was found that Jane Marshall had the highest number of articles with three in number. Followed by authors with two articles. As we have taken a time period of one year that is 2021, its difficult to comment on the author productivity.

Out of the 80 articles, 70 of them had collaboration and there was collaboration in all the twelve issues of the volume. Only 10 of the articles were published single

authored. Also, it was found that international collaboration was the highest among all the collaboration. A scientist's network advantage for future research can be considerably increased through international collaboration, which can "plug" them into a much larger global science network (He, et al.2009). Although many of these concepts and methods are tacit, distance alone need not prevent from learning from research partners because tacitness is a property of knowledge flow rather than knowledge stock (M Balconi, 2002). But our observations are contradicting to the study by Gazni et al., (2012) Here, authors preferred local and national collaboration over international collaboration and explained that it might be due to the difference in income, language, culture, and policies. However, 10 years apart, one can see that the barriers are reducing and there is more international collaboration.

The analysis of country wise productivity showed that United States of America was the highest producing country. It is tie-in with scientometric studies done in the field of Asperger's syndrome, Audiology, Dementia and Dysgraphia and Phonology (Lorenzo et al., 2016; Nandeesha & Begum, 2017, Asghar et al., 2017, Gupta et al., 2018, Batcha & Chaturbhuj; 2019) where United States Of America ranked first with the highest productivity. Country-wise productivity also follows a similar trend as observed in different fields like Big Data, Phonology, and Audiology as reported by previous studies (Singh et al., 2015; Batcha & Chaturbhuj, 2019; Nandeesha & Begum, 2017) where the United States of America ranked first with the highest productivity. Most likely because the United States is a developed nation with excellent scientific infrastructure and more autonomy to carry out the research. Also, development in scientific knowledge strengthens their presence across the globe. However, the articles published from India were very less. This might be due to a smaller number of hardcore researchers in the field as well as less infrastructure.

Google Scholar, a web search engine, was used to check the number of citations for 80 articles (About Google Scholar, n.d.), as it contains many articles that have not yet been added to the Web of Science or Scopus database, such as "in the press" papers that have been posted online but have not yet been given an issue number (How Reliable Is Google Scholar? - Research HUB, n.d.).The highest cited article titled Prevalence of Aphasia and dysarthria among inpatient stroke survivors: describing the population, therapy provision and outcomes on discharge (Mitchell et al., 2020)belongs to the management topic. It highlights the interest of researchers in the assessment and management in the inpatient setups of stroke survivors. Most of the articles which cited the above article were related to Quality-of-Life assessment and inpatient stroke unit studies.

43% of the articles were given financial help by different funding agencies. The highest number of the articles were funded by the National Institute on Deafness and Other Communication Disorders (NIDCD). The NIDCD is the top funding source for biological, behavioural, and research training in hearing, balance, taste, smell, voice, speech, and language in the US. This result is supporting the previous study done in Audiology by Nandeesha and Begum (2017).

The current study gives a brief overview of the research trend and shows the status of India globally in research in the field of Aphasia for the year 2021. However, a more detailed study for a longer duration has to be done to generalize the findings in Aphasia.

CHAPTER VI

SUMMARY AND CONCLUSIONS

The current study aims to understand the trend of research in the field of Aphasia. Aphasiology journal was selected as its one of the best journal publishing articles in the area of Aphasia. Research trend in the year 2021 was analysed using scientometric tools. The objective of the study was to study the number of authors, distribution of articles/publications, authorship pattern, author-wise productivity, collaborative pattern, country-wise productivity, and identify the funding agencies, in the Journal Aphasiology for the year 2021.

The data was collected from Aphasiology journal. The details of each article were gathered from the Journal in the year 2021. The database for picking papers was the All India Institute of Speech and Hearing (AIISH), Mysore Library and Information Centre's E-Journal service. Articles of the Journal publishes every month and has twelve issues. Thus, a total of 12 issues were analysed for the study.

All the data was collected by going over each article one by one and details concerning to the study were organized, tabulated and categorized issue-wise. Microsoft excel sheet was used for the same. The data collected was analysed based on the total number of articles, document-type distribution, authorship pattern, author-wise productivity, collaboration pattern, country-wise productivity, topic-wise distribution, type of participants, age group of participants, the number of citations, and the funding agencies. Scientometric tools like Collaboration Index Degree of Collaboration and Collaboration Co-efficient were analysed from the data.

The results of the study revealed the following:

I. The total research articles published in the year 2021 were eighty articles.

II. Scientific articles (86.50%) were the highest type of document-type published, and it was followed by review articles (10.00%) and then by reports (3.75%).

III. It was found that multi-authored papers (87.50%) were high when compared to single-authored papers (12.50%). Four or more authored papers (37.50%) are the highest in multi-authored articles.

IV. Collaboration index ranges from 2.60 to 5.00 and Degree of collaboration and collaboration coefficient ranges mostly from 0.6 to 1.00 which implies that the proportion of multiauthored publications were higher than that of single-authored papers.

V. Jane Marshall was the author with highest number of article published in the year 2021.

VI. International collaboration was the highest followed by local and then national collaboration.

VII. United States of America was the country with most number of articles published i.e., 27.

VIII. The highest number of articles were published under Aphasia assessment and management (42.50%) followed by combination of assessment and management articles.

IX. The most number of research were carried out on persons with Aphasia (70.00%).

X. The highest number of research were done in Adults and Geriatric population (35.00%).

XI. As of 13-07-22, the highest number of citations received for an article in 2021 was thirty one (31).

XII. The National Institutes of Health's National Institute on Deafness and Other Communication Disorders ranked first among the funding agencies by funding in the year 2021.

In summary, this study observed and reported the research trend in the field of Aphasia by analyzing the articles in the Journal Aphasiology. Articles from the Journal were subjected to a comprehensive bibliometric analysis. This study gives an overview of the research trend and content published in the select Journal, Aphasiology.

Implications of the study

a) This research can assist researchers in determining the area of a research gap for future studies

b) This research can be a guide to the researcher to choose an appropriate funding agency, based on the type of research.

Limitations

a) As only one year was taken for the study, trend of that particular year was only identified. So, other scientometric parameters like Doubling Time (DT), Relative Growth Rate, and Growth Rate could not be carried out.

b) As only one Journal was considered for this study, the trend observed in Aphasia research cannot be generalized.

Future directions

a) A similar scientometric review can be carried in other areas of communication disorders such as Dysphagia, Apraxia, or fluency disorders.

b) Also, studies can be done on a longer time period such as 10 or 20 years in the same or combination of journals which yields better research output.

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