# The Journal of Scientometric Research: A Statistical Outlook of the First Eleven Volumes of the Journal

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#### **ABSTRACT**

This study critically examines the publications that appeared in the inaugural eleven volumes of Journal of Scientometric Research (JSciRes). The journal publishes 324 research communications under ten categories along with 16 editorials and 60 book reviews. Analysis of research communications shows that diversity plays the pivotal role in the evolution of the journal. Diversity of not only contributing authors but also of citing authors and their institutional and geographical affiliations is guite high for the journal. Visualization of topics appeared in it and analysis of topical trends reveals that it covers almost the entire spectrum of scientometric and bibliometric research with a shift towards innovation and policy studies. As the field of scientometric study is changing very dynamically, it has been found that the journal has given preference to cover contemporary topics more aggressively to reach out to the community at large. Dedicated two Special issues on Latin America and Africa is a positive shift in this direction. Special thematic issues on contemporary topics and scholars publishing in them from North as well as South economies can address some of the imbalances and skewness observed. Moreover, engagement of prominent scholars as contributing authors or citers along with gradually increasing citation oeuvre of the journal ascertained scholarly authority of the journal. The journal, thus, has gradually been seen as an incubator of emerging ideas in its discipline despite having originated in Global South having poor geographies of research infrastructures.

**Keywords:** Bibliometrics, Single journal study, Publication analysis, Citation analysis, Content analysis, Research diversity, Journal of Scientometric Research.

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### INTRODUCTION

'Bibliometrics', the term though coined in 1969 by Pritchard, has been used well over a century to study various aspects of scholarly communications<sup>[1]</sup> and has now been a major area of inquiry across academia<sup>[2]</sup> by firmly establishing it as scientific specialties.<sup>[3]</sup> Bibliometric analysis of a single journal is a century old method with its root in 1927 when the prestigious Journal of American Chemical Society was analysed by Gross and Gross to identify a core list of journals on chemistry discipline.<sup>[4]</sup> Bibliometric study of a single journal is primarily intended to create a portrait of the journal that exhibits its productivity, maturity, quality and its ability in diffusing the knowledge in the fields it represents.<sup>[5]</sup> This kind of study thus can act as a comprehensive guide to the researchers to understand the research orientation of the journal and its influences in scholarly communication which in turn helps them to take informed decisions on the journal before

embracing it as preferred channel of communication or to retrieve information for research needs. [6] With the passage of time single journal bibliometric studies have been proliferated [7] and the advent of new technologies, such as bibliometric software and visualization tools enable researchers to provide superior analysis, mapping and visualization to the scholarly world. [8] Bibliometric analysis of a single journal is also an effective process to delineate the evolution trajectory of the journal and its current state of research which is very important to different stakeholders, such as general readers, editors, publishers interested in the journal besides researchers.

In the present study, the unit of analysis is 'Journal of Scientometric Research' (JSciRes), a journal that is itself dedicated to bibliometric, scientometric studies with an aim to contribute substantially to innovation and policy studies. Reach of journals originating from developing and underdeveloped countries is generally less as seen from their coverage in prominent international indexing and abstracting databases. However, JSciRes that published its first issue in the last quarter of 2012 has been very quick to have been included in prominent indexing and abstracting databases, such as Scopus, Emerging Source Citation Index of WoS, dblp, etc. and is being regarded as an important journal in its domain





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within a decade of its origin. Gaining attention of international scholarly communities by a journal from developing countries is not a commonplace as deep-seeded exclusion and discrimination through academic colonialism still prevails in the contemporary neoliberal scholarly world.[10] The rapid rise of this journal in terms of its impact on the research community has thus drawn our attention to examine it in detail from a quali-quantitative point of view. Moreover, no attempt has been made till date to analyse JSciRes both from qualitative for quantitative point of view though there is no dearth of such analysis of journals from the developed world that have garnered quick attention from scholars around the world. The present study is thus aimed to provide a comprehensive perspective at the development and evolution of the Journal from Volume 1 to Volume 11 published between 2012 and 2022, along with the kinds of research presented in it and their ability in diffusing and garnering attention from scholarly communities.

#### **About the Journal and Its Genesis**

The preparation and planning to publish this journal began around 2011 after a series of discussions initiated by the Editor-in-Chief1 with several members of the International Society for Scientometrics and Informetrics (ISSI) and other scientific societies, who were at the frontiers of scientometric research at that time.

They felt a vacuum of having a research journal particularly focusing on the Global South, and more particularly on the emerging economies. This new journal also intended to accommodate the changing new dimensions and scholarship, perspectives that challenge the established notions, and allow for critical introspection of S & T processes. The journal's website Jscires.org was created in September 2011 by the Pharmacognosy Network Worldwide (Phcog.Net), the Journal's publishers. The inaugural issue (i.e., volume 1, issue 1) was published in September 2012. Initially, the journal was published by the SciBiolMed.Org, which later merged with Phcog.Net. The journal was co-published by Wolters Kluwer's Health, and its Indian counterpart Medknow/Wolters Kluwer (India) for a few years. Later, the journal discontinued co-publishing with Wolters Kluwer. At the beginning, the journal received support from the Pharmacognosy Network Worldwide, InPharm Association, and was mentioned in the ISSI Newsletter at the time of its inception.

In the inaugural issue, the Editor-in-Chief outlined the vision and rational to launch the journal through an Editorial along with an introduction to the editorial board members, and a brief description of its affiliation and support system. The inaugural issue also revealed an important insight to the journal's journey ahead by publishing papers of eminent scholars like Loet Leydesdorff, Ronald N. Kostoff, Ronald Rousseau, Ulrike Felt, etc along with papers from promising scholars. It was the first and

only issue that was published in print. Most of the papers included in this issue were emanated from editorial board members.

ISciRes has been indexed with Scopus since 2018 from volume 7(3), while it has been indexed in Emerging Source Citation Index (ESCI) of WoS since 2017 from volume 6(3). Additionally, JSciRes is also indexed with Dimensions.ai, DBLP.org (DBLP Computer Science Bibliography), Google Scholfar, Scimagojr.com, Exaly. com, Resurchify.com, Fatcat.org, Scijournal.org, besides other websites as indicated in Table 1. The journal carries out revision in its Editorial Board in regular frequency, in every three years. As in September 2022, JSciRes Editorial Board (EB) consists of one Editor-in-Chief, seven Editors, four Associate Editors, four Assistant Editors, three Senior Associate Fellows, and one Associate Fellow. Additionally, there are several EB Members and Editorial Advisors. The journal is also listed with 'Web of Science Reviewer Recognition Service' (erstwhile Publons.com) for the reviewers' recognition. The journal has got its first 'Impact Factor' 0.8 for the year 2022 released recently by 'Journal Citation Report' (JCR). It has also got Citescore 2022 value of 1.7 given by Scopus.

# **METHODOLOGY**

As this journal was not fully indexed in Scopus or Web of Science, primary publication data of all the volumes published till 2022 was collected manually after scanning the journal's webpage. The bibliometric details along with the author's full name, affiliation details, author's keywords, and abstracts are tabulated in the spreadsheet. Since, the journal was indexed in Scopus from Volume 7 and Issue 3, the citation data from then onwards is readily available from Scopus. Prior to the first issue indexed in Scopus, JSciRes published 186 articles of which 100 articles were found through Scopus secondary search. The secondary search option in Scopus gives an opportunity to look into the citation data of non-index journals if the articles of non-index journals are cited by indexed journals of Scopus. Sometimes, all the cited articles of JSciRes in Scopus could not be visible through secondary search. The citation of these articles is collected through the following steps:

The articles of JSciRes that do not appear in Scopus secondary search are listed initially.

Each article of this list is searched in Google Scholar (GS) or Dimension to get the details of the citing articles.

The citing articles (found in GS or Dimension) are then searched in Scopus and if it is found in Scopus, its references are then visited. If the reference list of citing articles includes an article of JSciRes, the citation data of that particular article is available from the link.

Besides Scopus, 'SCImago Journal Rank' (SJR) data for 2022 was collected for analysis as it is based on Scopus data.

1 Personal discussion with the Editor-in-Chief

Book review and editorials are not included in detailed publications or citation analysis. The study however draws insights from book reviews and editorials. The initial dataset was prepared in November 2021 and it was periodically updated till May 2023. Help of subject experts and editorial board members were also taken to classify the articles under different subjects and facets. VOSviewer software and Bibliometrics R package were used to visualize and analyse the data.

# **RESULTS AND DISCUSSION**

JSciRes has published 400 documents up to the year 2022. The journal has categorised them in twelve types as mentioned in published items. Table 2 displays chronological distribution of different types of items published so far in the journal. From the volume of contributions in different types of articles, one may be tempted to infer that published items are fragmented in too many categories. However, the intent of including many sections in the journal can be traced in the inaugural editorial<sup>[11]</sup> where it is argued that publishing different type of research communications would help the journal to enhance cross-fertilisation of research

from different intellectual domains related to journal's area of research and to reach out diverse pool of researchers. For instance, the 'Research-in-Progress' category allows papers that have some degree of novelty and are promising but not reached a stage where they can be accepted as full research papers. Similarly, 'Webliography, section was introduced with an assumption that it would provide a comprehensive overview of electronic resources on a particular theme keeping in view of high usage of e-resources in contemporary academia. Inclusion of this section in the journal was plausibly inspired from the experiences of 'Scientometrics' journal which introduced 'Call for bibliographies' in 1981 to enhance scientometric research across the globe.[12] However, reality falls short of expectation as contributions in some sections are very limited in spite of their promises. Experiences show that initial formative years of any new journal are very important but challenging. [12] The challenges become more for a journal when its journey commenced from Global South where geographies of research infrastructure to create academic prowess need miles to go to reach at Global North's level. From the data given in Table 2, it can be seen that 'Research article' is the dominant form of

Table 1: Profiles of JSciRes on different platforms.

| SI. No. | Website        | URL  |
|---------|----------------|--|
| 1       | CrossRef       | https://search.crossref.org/?q=2320-0057   |
| 2       | Dimensions.ai  | https://app.dimensions.ai/discover/publication?and_facet_source_title=jour.1148608 |
| 3       | Exaly.com      | https://exaly.com/journal/92423/journal-of-scientometric-research/                 |
| 4       | Fatcat.wiki    | https://fatcat.wiki/container/ykzdmw7l2fcp7nslcehxx6zfjy                           |
| 5       | Google Scholar | https://scholar.google.co.in/citations?user=c3d1afEAAAAJ                           |
| 6       | Resurchify.com | https://www.resurchify.com/impact/details/21100983214                              |
| 7       | Scijournal.org | https://www.scijournal.org/impact-factor-of-j-of-scientometric-research.shtml      |
| 8       | Scimagojr.com  | https://www.scimagojr.com/journalsearch.php?q=21100983214&tip=sid                  |

Table 2: Types of items published in JSciRes.

| Type<br>Year              | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Total |
|---------------------------|------|------|------|------|------|------|------|------|------|------|------|-------|
| Research article          | 8    | 26   | 14   | 20   | 18   | 16   | 18   | 21   | 29   | 51   | 44   | 265   |
| Research in progress      | -    | -    | -    | 1    | -    | 1    | 1    | -    | 2    | 2    | -    | 7     |
| Research note             | 1    | -    | 1    |      | 2    | 5    | 4    | 4    | 3    | 1    | -    | 21    |
| Review article            | -    | -    | -    | 1    | -    | -    | -    | -    | -    | 1    | 2    | 4     |
| Webliography              | 1    | -    | -    | -    | -    |      | -    | -    | 1    | -    |      | 2     |
| Perspective paper         | -    | 1    | 2    | -    | 1    | 1    | -    | -    | 4    | 2    |      | 11    |
| Scientific correspondence | -    | 2    | -    | -    | -    | -    | -    | -    | -    | -    |      | 2     |
| Commentary                | -    | -    | 1    | -    | 2    | -    | 2    | -    | 1    | -    | 2    | 8     |
| Conference report         | -    | -    | -    | -    | -    | -    | 1    | -    | -    | -    |      | 1     |
| Indialics issue           | -    | -    | -    | -    | -    | -    | -    | -    | 3    | -    |      | 3     |
| Editorial                 | 4    | 3    | 1    | 1    | 2    | -    | -    | 1    | 2    | 2    |      | 16    |
| Book Review               | -    | -    | -    | 6    | 10   | 10   | 13   | 7    | 7    | 3    | 4    | 60    |
| Total                     | 14   | 32   | 19   | 29   | 35   | 33   | 39   | 33   | 52   | 62   | 52   | 400   |

communication followed by 'Book Reviews'. The first book review appeared in volume 4, issue 1 in 2014 and thereafter it has become a regular section. It is apparent from the data that the journal has given no less importance to book reviews though the role and values of book reviews in scholarly literature are often debated and they are often deemed as second-class citizens of academic literature. [13] It seems that the journal has given more weightage to the contrary arguments supported by the study of Spink *et al.* [14] that viewed book review as one of the webs of critical practices of scholarship. However, the pool of book reviewers is found to be very limited and more domain experts along with young scholars need to be involved to make it one of the highly sought sections of the journal.

It is observed that there is a substantial increase in the total number of publications in recent years along with corresponding increase in research communications counted after excluding 'Editorial materials' and 'Book reviews' from the total set of publications. It is found that the journal published 324 research communications which will henceforth be referred to as articles/papers. Among the types of articles published in JSciRes, review articles are found to be very few, though it is one of the important forms of research communications that usually attracts more citations and can potentially enhance the citation impact of the journal and hence its visibility.

# **Authorship statistics**

Authorship statistics is one of the pivotal bibliometric measures that mirror contemporary research communication patterns. Table 3 displays the authorship patterns of the articles of JSciRes. In this set of 324 articles, single authorship accounted for 80 articles (~24.69%) and the remaining 244 articles (~75.31%) are the result of collaborative efforts. The highest number of papers (i.e., 103 papers, ~31.79%) emanated from the joint efforts of two authors followed by three authorship papers. The papers with three authors (83 papers, ~25.62%) and four authors (40 Papers, ~ 12.34%) stand at second and fourth position respectively when they are arranged in descending order. The remaining 18 papers (~ 5.55%) are team efforts of five or more authors. The highest number of authors (i.e., twenty-eight authors) is recorded for the paper titled "Evaluation of the dynamics of large scale COVID-19 related literature through bibliometric analysis" published in 2022. Analysis of authorships reveals a total of 820 occurrences of authors (with repetitions) in this set of articles. Thus, on an average a paper is produced by a team of 2.53 authors. These results are similar to the findings of Das<sup>15</sup> that analysed 'Journal of Informatics' (JOI), one of the highly prestigious journals on the same discipline.

Further, the total set of papers are divided in two sets (one set includes papers from 2012-2017, other set from 2018-20212 to understand longitudinal change in authorship. The result of the analysis shown in Figure 1 clearly depicts that there is a

substantial increase in three or more authorship papers with the passage of time. Evidence from prior research suggests that increased number of co-authors in papers can potentially enhance the quality of the papers as interaction of increasing number of co-authors facilitates sharing of knowledge, ideas and experiences.<sup>[16]</sup>

Growth of papers with an increasing number of multi-authors thus gives an assertion that the journal has gradually been able to generate a kind of positive vibes about its impact and therefore becomes a coveted publication venue to the researchers in the field it represents. Acceptability of a journal can also be gauzed through 'Relative distinctness of contributing authors (i.e., RDAu)' parameter of the journal that mirrors distributivity of contributing authors.<sup>[17]</sup> Lower value of RDAu of a journal points to higher confinement of contributing authors. This situation arises when a set of prolific authors embrace a journal as the preferred publication venue. In the whole article dataset of JSciRes, 650 unique authors have a total of 820 occurrences. The RDAu of value of the journal thus stands at ~0.793 which is relatively much higher compared to that of JOI reported in the previous studies.[15,17] This contrasting result may be explained in light of disparities in geographies of infrastructures and their role in producing social power<sup>[18]</sup> along with existing hierarchy of knowledge generation and creation leading to academic-colonialism.[10] A closure look into the two previous studies on JOI reveals that the journal originated from a world-renowned publication house (i.e., Elsevier) with the active support of a network of scholars widely regarded as vanguard of scientometric study and social studies of science. Association of those eminent scholars with pioneering research institutes of the developed world in that area have aided the journal to convince a large pool of prolific scholars to select it as one of the preferred publication outlets. Analysis put forward by these two previous studies on JOI showed that institutional affiliations, geographic diversity along with prolificacy of contributing authors were heavily skewed towards certain groups of individuals, institutions and countries. This may have resulted in the exclusion of a diverse pool of researchers, especially from developing Global South and have resulted in a certain form of academic colonialism, howsoever unintentional. On the other hand, JSciRes was started by a lesser-known publisher from a developing nation (i.e., India) of Global South where there are few institutional wings dedicated to scientometrics and allied fields research. Thus, by all probability, the degree of prolificacy of authors in this field from the Global South is less. Moreover, data from previous studies<sup>[8,18,19]</sup> indicates that prolific authors of developed nation working in research frontiers usually intended to place their article in established journals of big publishing nations as that would benefit them of having 'free lunch' in terms of citations. [20] However, it is apparent from detailed inspection of publications and the editorial board that the journal has been able to form an active Editorial board of eminent scholars from different continents and pursue them to contribute articles in the initial years of the journal. Special issues on developing countries that included papers of regional academic satraps plausibly have helped the journal in augmenting its geographical reach. Additionally, special issues on emerging topics where majority of contributions came from authors belong

to different disciplinary schools could be another important reason of enhancing authors diversity. Besides that, adoption of diamond open access model and the contributions of well-known scholars in early issues of the journal are more likely to be well diffused which may plausibly draw the attention of researchers

Table 3: Authorship patterns in JSciRes.

| Year<br>Authors | 1A       | 2A       | 3A       | 4A       | 5A      | 6A+     | Total       |
|-----------------|----------|----------|----------|----------|---------|---------|-------------|
| 2012            | 2        | 6        | 2        | -        | -       | -       | 10 (3.09%)  |
| 2013            | 11       | 8        | 9        | 1        | -       | -       | 29 (8.95%)  |
| 2014            | 3        | 6        | 6        | 3        | -       | -       | 18 (5.55%)  |
| 2015            | 3        | 12       | 5        | 2        | -       | -       | 22 (6.79%)  |
| 2016            | 9        | 8        | 5        | 1        | -       | -       | 23 (7.1%)   |
| 2017            | 8        | 8        | 4        | 1        | 2       |         | 23 (7.1%)   |
| 2018            | 10       | 9        | 2        | 3        | 1       | 1       | 26 (8.02%)  |
| 2019            | 8        | 4        | 4        | 7        | 2       | -       | 25 (7.72%)  |
| 2020            | 10       | 14       | 8        | 8        | 1       | 3       | 44 (13.58%) |
| 2021            | 13       | 14       | 19       | 5        | 4       | 1       | 56 (17.28%) |
| 2022            | 3        | 14       | 19       | 9        | 2       | 1       | 48 (14.81%) |
| Total           | 80       | 103      | 83       | 40       | 12      | 6       | 324         |
|                 | (24.69%) | (31.79%) | (25.62%) | (12.34%) | (3.70%) | (1.85%) |             |

 $<sup>^{*}1</sup>A$  refers to single author; 2A refers to two authors and so on. 6A+ refers to 6 or more authors.

Table 4: Major contributing authors.

| Rank | Author               | Article<br>(FC) | Articles (FrC) | Relation to Journal           | Country        |
|------|----------------------|-----------------|----------------|-------------------------------|----------------|
| 1    | B.M. Gupta.          | 11              | 4.081          | Editorial Board Member (EBM). | India          |
| 2    | Ritu Gupta.          | 8               | 2.58           | Coauthor with EBM.            | India          |
| 2    | S.M. Dhawan.         | 8               | 2.915          | Coauthor with EBM.            | India          |
| 3    | Anup Kumar Das.      | 6               | 2.833          | Editors                       | India          |
| 3    | Sujit Bhattacharya.  | 6               | 2.749          | Chief Editor                  | India          |
| 3    | Vivek Kumar Singh.   | 6               | 1.749          | Editors                       | India          |
| 3    | Snehanshu Saha.      | 6               | 1.479          | Invited Special Issue Editor. | India          |
| 4    | Pranav N. Desai.     | 5               | 2.083          | Editorial Board Member.       | India          |
| 4    | Grant Lewison.       | 5               | 1.694          | Editorial Board Member.       | United Kingdom |
| 4    | Ronald N. Kostoff.   | 5               | 5              | Editorial Advisors            | United States  |
| 4    | Faramarz Soheili.    | 5               | 1.366          | -                             | Iran           |
| 5    | Karanam Bhanumurthy. | 4               | 1.33           | -                             | India          |
| 5    | B.S. Kademani.       | 4               | 1.332          | -                             | India          |
| 5    | Engin Arik.          | 4               | 3.5            | -                             | Turkey         |
| 5    | Sudeepa Roy Dey.     | 4               | 0.949          | Coauthor with EBM.            | India          |
| 5    | Bidyarthi Dutta.     | 4               | 3              | Associate Editor.             | India          |
| 5    | Jacqueline Leta.     | 4               | 2.333          | Editors                       | Brazil         |
| 5    | Ronald Rousseau.     | 4               | 2.5            | Editorial Advisors.           | Belgium        |

and encourage them to submit their manuscripts in the journal. As a consequence, the distributive nature of contributing authors is much higher in JSciRes than JOI as reflected by RDAu.

# Productive authors, institutions and countries

Support of active institutions, researchers and their contributions in articles of a journal are the cornerstones for the success of any journal. Examination of contributing authors divulges that only 18 (2.77%) authors have contributed in 4 or more articles and a total of 32 (4.92%) authors contributed in 3 or more articles out of 650 unique authors. Table 4 displayed the ranked list (based on full count) of 18 authors who contributed in 4 or more articles. It is evident from the Table 4 that about eighty percent of the listed authors are either editorial members or co-authors of papers

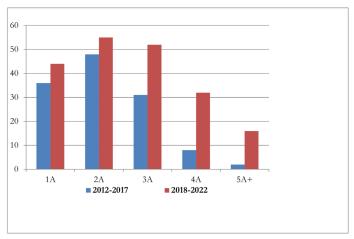


Figure 1: Authorship nature in two period.

with editorial members. Among the listed authors, B.M. Gupta is found to be the most prolific author contributing in 11 articles followed by Ritu Gupta and S.M. Dhawan each contributed in 8 articles. It is important to note that B.M. Gupta is the co-author of all papers authored by Ritu Gupta and S.M. Dhawan. In fact, the trio has produced six papers together. Among the next prolific authors, Anup Kumar Das, Sujit Bhattacharya and Vivek Kumar Singh who are all part of the central editorial team with Sujit Bhattacharya as Editor-in-Chief and Snehanshu Saha edited a special issue of the journal. A broadly similar type of patronisation by the editorial members of a journal in its initial years of publication was also observed by Tiew et al.[21] while they analysed Malaysian Journal of Library and Information Science, an information science journal originating in Global South and indexed in both WoS and Scopus. However, when we look into the institutional affiliation of 32 authors who contributed in 3 or more articles, it is very encouraging to find that there are about eight productive authors in the journal, who are apparently not linked either to the editorial system or to the country of origin of the journal. Worryingly, all of these prolific foreign authors are from the Global South. Global knowledge production is largely dominated by the advanced economies of the Global North having superior and sophisticated research setup. [22] Absence of prolific authors of Global North working in research frontiers except the editorial board members, from the list of highly productive authors of journal may affect the journal's visibility in long run.

Turning towards active participation of institutions, it is observed that 9 institutions (60%) out of top 15 contributing institutes (as

Table 5: Top productive institutes.

| Rank | Name of the Institute-Country  No of Do  (%) FC Fr  |    | cuments | No. of<br>Authors |
|------|---|----|---------|-------------------|
| 1    | CSIR-National Institute of Science, Technology and Development Studies (CSIR-NISTADS), India. | 27 | 15.32   | 13                |
| 2    | Jawaharlal Nehru University (JNU), India.   | 18 | 15.08   | 22                |
| 3    | Banaras Hindu University (BHU), India.  | 8  | 5.17    | 8                 |
| 4    | PES University/PESIT Bangalore, India.  | 8  | 4.86    | 11                |
| 5    | National Physical Laboratory (NPL), India.  | 8  | 2.92    | 1                 |
| 6    | Sri Venkateshwara University (SVU), India.  | 7  | 2.25    | 1                 |
| 7    | Universidade Federal do Rio de Janeiro (UFRJ), Brazil.  | 6  | 4.43    | 10                |
| 8    | Symbiosis International University (SIU), India.  | 6  | 4.25    | 11                |
| 9    | Georgia Institute of Technology (GIT), United States.   | 5  | 5       | 1                 |
| 10   | Bhabha Atomic Research Center (BARC), India.  | 5  | 4.67    | 6                 |
| 11   | University of Antwerp (UA), Belgium.  | 5  | 4.5     | 2                 |
| 12   | University of São Paulo (USP), São Paulo, Brazil.   | 5  | 3.58    | 4                 |
| 13   | Vidyasagar University (VU), India.  | 5  | 3.5     | 2                 |
| 14   | Payame Noor University (PNU), Iran.   | 5  | 3.266   | 8                 |
| 15   | King's College London (KCL), United Kingdom.  | 5  | 2.69    | 3                 |

shown in Table 5) are from the journal's country of origin (i.e., India) and the remaining 6 institutions are of foreign origin.

Examination of affiliation of contributing authors of these institutions reveals that only two native institutions (i.e., BARC

and SIU) and two foreign institutions (i.e., USP and PNU) have apparently no relation with the editorial boards. The top most productive institute is CSIR-NISTADS (now rechristened as CSIR-NISCPR) followed by JNU with a total of 13 and 22 affiliated

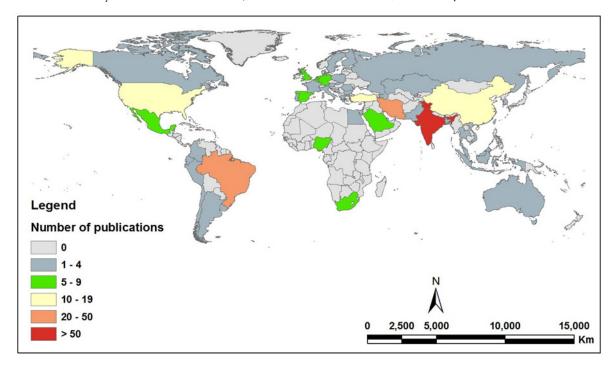


Figure 2: Worldwide view of the research output of countries in JsciRes.

# Table 6: Top contributing countries.

| Country        | No of Docume<br>(%)<br>FC FrC | nts             | No. of Authors | Cross Country<br>Collaborated<br>Papers (%) | No. of<br>Collaborated<br>Countries | Continent     |
|----------------|-------------------------------|-----------------|----------------|---|-------------------------------------|---------------|
| India          | 147 (45.37)                   | 142.672 (44.03) | 264            | 11 (6.3)                                    | 7                                   | Asia          |
| Iran           | 26 (8.02)                     | 25.75 (7.95)    | 65             | 1 (3.85)                                    | 1                                   | Asia          |
| Brazil         | 21<br>(6.48)                  | 17.373 (5.36)   | 36             | 6 (28.57)                                   | 11                                  | South America |
| United States  | 16 (4.94)                     | 12.781 (3.94)   | 15             | 4 (25)                                      | 8                                   | North America |
| Turkey         | 11 (3.40)                     | 9.833 (3.03)    | 15             | 2(18.18)                                    | 3                                   | Asia          |
| China          | 10<br>(3.09)                  | 8.33 (2.57)     | 20             | 3 (30)                                      | 3                                   | Asia          |
| United Kingdom | 9 (2.78)                      | 5.393 (1.66)    | 11             | 5 (55.55)                                   | 14                                  | Europe        |
| Saudi Arabia   | 8 (2.47)                      | 6.665 (2.06)    | 15             | 4 (50)                                      | 7                                   | Asia          |
| Netherlands    | 8 (2479)                      | 5.50 (1.70)     | 16             | 5 (62.5)                                    | 5                                   | Europe        |
| Belgium        | 7 (2.16)                      | 6.00 (1.85)     | 3              | 2 (28.57)                                   | 1                                   | Europe        |
| Mexico         | 7 (2.16)                      | 5.61 (1.73)     | 12             | 1 (14.29)                                   | 1                                   | North America |
| Spain          | 7 (2.16)                      | 5.083 (1.57)    | 9              | 3 (42.86)                                   | 3                                   | Europe        |
| South Africa   | 7 (2.16)                      | 5.00 (1.54)     | 8              | 4 (57.14)                                   | 3                                   | Africa        |
| Germany        | 7 (2.16)                      | 4.333 (1.34)    | 9              | 4 (57.14)                                   | 4                                   | Europe        |
| Nigeria        | 5 (1.54)                      | 4.50 (1.39)     | 3              | 1 (20)                                      | 1                                   | Africa        |

authors respectively. It is worthwhile to mention that a number of editorial members including the Editor in Chief of the journal are from these two institutes. It is also evident that the number of authors affiliated to some of these productive institutions, such as NPL, SVU, GIT, VU and UA is not very encouraging as contributions of multiple distinct authors usually broaden the horizon of source manuscripts of a journal.

Geographical affiliations of contributing authors are often analysed to understand the diversity of contributing authors as it reflects the reach and acceptability of the journal among researchers across the globe. Worldwide view of individual country's productivity mapped in Figure 2 depicts that there are 51 countries across the world engaged with JSciRes through their research activities.

Examination of region wise contributions across the globe reveals that Asia is the most productive region that produced 212 articles (65.43%) emanated from 17 countries. It is followed by Europe (71 articles from 19 countries, 21.91%), South America (28 articles from 7 countries, 8.64%), North America (25 articles from 3 countries, 7.72%), Africa (12 articles from 3 countries, 3.7%), Oceania (3 articles from 2 countries, 0.93%). The ranked list of

**Table 7: Citation statistics.** 

| Number of citations received | Number of articles | Percentage of Total cited article |
|------------------------------|--------------------|-----------------------------------|
| Single                       | 67                 | 31.46%                            |
| Two to Three                 | 77                 | 36.15%                            |
| Four to Five                 | 28                 | 13.15%                            |
| Six to Ten                   | 23                 | 10.80%                            |
| Eleven or More               | 18                 | 8.45%                             |
| Total                        | 213                | 100%                              |

top 15 productive countries exhibited in Table 6 demonstrates that India, being the origin country of the journal, contributes in most of the articles (147, 45.37%) of the journal followed by Iran (26, 8.02%), Brazil (21, 6.48%) United States (14, 4.94%), and Turkey (11, 3.40%). It is very encouraging that among the top 15 productive countries, six are from resource rich Global North with a good number of authors.

The data given in Tables 4, 5 and 6 thus together point out that skewness of contributing entities of the journal is negligible. This indicates that the journal has been able to garner active support from a sizable pool of researchers cutting across the nations despite recording poor numbers of contributions from prolific established authors or leading active institutes of resource rich Global North. It can therefore be said that the notion of diversity plays an important role in the evolution of journals as diversity inhibits academic colonialism and provides an enabling environment for intellectual development, a much-needed element for the progression of science.

# **Citation Statistics**

The number of citations received by an article is often equated with the quality of the paper. Citation counts thus act as a 'proxy' measure for assessing the quality of a publication. Here, it is seen that out of 324 articles published in JSciRes, 213 articles ( $\sim$ 65.74%) received at least one citation with a total of 953 citations. The mean value of citation counts thus stands at  $\sim$  2.94 (n=324) and h-index value 12 as per Scopus data. Since accumulative citation is a time dependent factor, it is important to note that out of all uncited articles, 48 articles (i.e.,43.24% of all uncited articles) have been published in the last year (i.e., 2022). The statistics of citation distributions given in Table 7 shows that the majority of articles received two to three citations, followed by groups of articles that received four or more citations.

Table 8: Top citing journals.

| Rank             | Citing Journal title- Publisher                                    | Times<br>Citing | CiteScore value | SJR value,<br>Quartile | JIF   |
|------------------|--|-----------------|-----------------|------------------------|-------|
| 1 <sup>st</sup>  | Library Philosophy and Practice.                                   | 95              | 0.4             | 0.233, Q3              | NA    |
| 2 <sup>nd</sup>  | Scientometrics.  | 88              | 6.0             | 1.019, Q1              | 3.238 |
| $3^{\rm rd}$     | Journal of Scientometric Research.                                 | 58              | 1.7             | 0.281, Q2              | 0.8   |
| 4 <sup>th</sup>  | Sustainability (Switzerland).                                      | 28              | 5.8             | 0.66, Q1               | 3.9   |
| 5 <sup>th</sup>  | Annals of Library and Information Studies.                         | 28              | 1.5             | 0.221, Q2              | 0.6   |
| 6 <sup>th</sup>  | Journal of Informetrics.   | 15              | 6.9             | 1.269, Q1              | 3.7   |
| $7^{\text{th}}$  | Library Hi Tech.   | 15              | 4.9             | 0.507, Q2,             | 1.623 |
| 8 <sup>th</sup>  | Journal of the Association for Information Science and Technology. | 12              | 6.8             | 1.015, Q1              | 3.275 |
| 9 <sup>th</sup>  | Heliyon, Cell Press.   | 10              | NA              | 0.61, Q1               | 4     |
| 10 <sup>th</sup> | DESIDOC Journal of Library and Information Technology.             | 10              | 2.0             | 0.281, Q2              | 0.9   |

Table 9: Domains and positions of citing journals in SJR.

| Rank.            | Areas of Citing Journals   | No. of<br>Journals | SJR top<br>quartiles<br>- No. of<br>Journals<br>(%) |
|------------------|--|--------------------|---|
| 1 <sup>st</sup>  | Business, Management and Accounting.   | 54                 | *Q1-26<br>(48.15%)<br>*Q2-16<br>(29.63%)            |
| 2 <sup>nd</sup>  | Social Science (Including Library and Information Science).                          | 54                 | Q1-19<br>(35.19%)<br>Q2-21<br>(38.89%)              |
| 3 <sup>rd</sup>  | Computer Science.  | 52                 | Q1-23<br>(44.23%)<br>Q2-21<br>(40.38)               |
| $4^{ m th}$      | Medicine+Nursing.  | 51                 | Q1-24<br>(47.06%)<br>Q2-13<br>(25.49%)              |
| 5 <sup>th</sup>  | Agricultural and Biological Sciences.  | 30                 | Q1-13<br>(43.33%)<br>Q2-12<br>(40%)                 |
| 6 <sup>th</sup>  | Arts and Humanities  | 18                 | Q1-7<br>(38.89%)<br>Q2- 5<br>(27.78%)               |
| $7^{ m th}$      | Environmental Science+Energy.  | 19                 | Q1-10<br>(52.63%)<br>Q2- 6<br>(31.58%)              |
| 8 <sup>th</sup>  | Biochemistry, Genetics<br>and Molecular Biology<br>+ Immunology and<br>microbiology. | 17                 | Q1-9<br>(52.94%)<br>Q2-3<br>(17.65%)                |
| 9 <sup>th</sup>  | Economics, Econometrics and Finance.   | 12                 | Q1-7<br>(58.33%)<br>Q2-4<br>(33.33%)                |
| 10 <sup>th</sup> | Multidisciplinary.   | 9                  | Q1-5<br>(55.56%)<br>Q2-3<br>(33.33%)                |

<sup>\*</sup>O1-1st Quartile; O2-2nd Quartile.

In scholarly communication importance of a journal is often determined by the prestige of the source publications that cited documents of the journal in question. It is observed that articles of JSciRes are cited in 30 Books/Book chapters, 65 conference

papers and 858 Journal articles. These citing journal articles were published in 359 source journals out of which 156 journals (43.45%) are placed in top quartile (i.e., first quartile, Q1), and 112 Journals (31.2%) in 2<sup>nd</sup> quartile (Q2) in their respective subject categories as per 2022 SJR ranking. SJR provides another important metrics termed as Impact Index (II) calculated as Cites/Docs (2 year) equivalent to 'Impact Factor' given by JCR. According to it, 221 citing journals (61.56%) have II value above 2 and 283 journals (78.83%) have above one. Further, the analysis of top ten frequently citing journals exhibited in Table 8 demonstrates that except one journal all are well ranked journals indicated by multiple indicators and 50% of them have very high impact factor recorded in 2023 edition of JCR, published by Clarivate Analytics. Citations from highly prestigious sources thus clearly reflect the importance of topics included in JSciRes for the research community.

Multi-domain utility is another way of judging a journal's worth and diversity as it indicates the journal's ability to emerge as a melting point of cross-domain research ideas. It is observed that source journals belong to twenty-four disciplinary areas including multi-disciplinary journals (as per SJR research area categorisation of journals) cited JSciRes. Table 9 displays top ten areas of source journals and their positions in two top SJR quartiles. Since, the top quartile journals of any domain usually publishes those papers that are thought to be in the frontier of research domains, getting cited by high number of these group of journals from multiple domains indicates that the journal become fertile ground for producing high quality cross-domain research. Moreover, the presence of high number of source journals in a spectrum of subject categories signals that the domain of bibliometric and scientometric research evolves as a fusion subject that requires multi-disciplinary research and simultaneously, it can find its application almost in every domain.

Moving towards highly cited papers of JSciRes, it is found that the highest cited paper has harvested 109 citations so far. It is a single authored paper of very recent origin (i.e., in 2019) describes how Bibliometrix R, a software tool of relatively recent origin for scientometric analysis, can be roped to analyse a research domain. The 2<sup>nd</sup> highest cited paper was published in the first issue of the journal (i.e., in 2012) by two authors and one of the co-authors of this paper is a 'Sociometric star' in social studies of the science and received 'Derek de Solla Price Memorial Medal', the most revered prize in fields of quantitative studies of science. Table 10 illustrates the top tenth cited papers of JSciRes.

Examination of authors' geographical affiliation in top cited articles given in Table 10 reveals that two third of these highly cited articles along with top three cited articles are not originated from journal's native country. It is also very encouraging to observe that two third of these highly cited articles are originated from resource poor Global South. The more interesting point is that out of 18 papers appeared in this list, 5 (27.78%) of them are

published within last three years and nine (50%) of them were published within last five years. Since, the cumulative count of citations received by an article increases with its age, the large number of citations amassed by articles of recent origin indicates their quality at large. The descending ordered list of authors (shown in Table 11) who mostly cited articles of JSciRes reveals that among the top ten citing authors, three of them are 'Derek de Solla Price Memorial Medal' awardee and seven of them are from outside of journal's country of origin and half of the top citing authors are from resource-rich Global North. Therefore, it can be

ascertained that the journal is able to engage prominent scholars irrespective of their geographical affiliations.

The top citing author is K.C. Garg followed by H.K. Tripathi. It is important to mention that K.C. Garg and H.K. Tripathi publish a review paper where 20 papers of JSciRes was cited. A closer inspection of citing and cited documents of the dataset also shows that a significant chunk of the journal's citation oeuvre arises due to article recitations mostly by prolific authors of Global North whereas most of prolific authors of Global South

Table 10: Top cited articles.

| Rank             | Author (Year)                                     | Title  | Times Cited | Document Type        |
|------------------|---|--|-------------|----------------------|
| 1 <sup>st</sup>  | Hamid Derviş (2019).                              | Bibliometric analysis using Bibliometrix an R Package.   | 109         | Research note        |
| 2 <sup>nd</sup>  | Loet Leydesdorff and<br>Ulrike Felt (2012).       | Edited volumes, monographs and book chapters in the Book Citation Index (BKCI) and Science Citation Index (SCI, Sosci, A&HCI). | 42          | Research Article     |
| 3 <sup>rd</sup>  | Jacqueline Leta (2012).                           | Brazilian growth in the mainstream science: the role of human resources and national journals.                                 | 33          | Research Article     |
| 3 <sup>rd</sup>  | A. K. Das and S. Mishra (2014).                   | Genesis of Altmetrics or article-level metrics for measuring efficacy of scholarly communications: current perspectives.       | 33          | Perspective Paper    |
| $4^{\text{th}}$  | Asad Abdi et al. (2018).                          | Bibliometric Analysis of IP&M journal (1980-2015).   | 22          | Research in progress |
| 5 <sup>th</sup>  | Mursheda Begum and Grant Lewison (2017).          | Web of Science research funding information: methodology for its use in analysis and evaluation.                               | 19          | Research Article     |
| 6 <sup>th</sup>  | P. Waila <i>et al.</i> (2016).                    | A scientometric analysis of research in recommender systems.   | 15          | Research Article     |
| $7^{\text{th}}$  | Engin Arik (2015).                                | A bibliometric analysis of linguistics in Web of Science.  | 14          | Research Article     |
| 8 <sup>th</sup>  | Aryati Bakri <i>et al.</i> (2017).                | Publication productivity pattern of Malaysian researchers in Scopus from 1995 to 2015.   | 13          | Research Article     |
| 9 <sup>th</sup>  | R. Rousseau and F. Y. Ye (2012).                  | Basic independence axioms for the publication-citation system.   | 12          | Research Article     |
| 9 <sup>th</sup>  | E. Mêgnigbêto (2013).                             | Triple Helix of university-industry government relationships in West Africa.   | 12          | Research Article     |
| 9 <sup>th</sup>  | Andrey Mikhaylov <i>et al.</i> (2020).            | Knowledge hubs of Russia: bibliometric mapping of research activity  | 12          | Research Article     |
| $10^{\text{th}}$ | C. Velmurugan and N. Radhakrishnan (2016).        | Malaysian journal of library and information science: a scientometric profile  | 11          | Research Article     |
| $10^{\rm th}$    | Deepjyoti Kalita (2016).                          | The scientometrics of Nature.  | 11          | Research Article     |
| $10^{\text{th}}$ | Avinash Kumar <i>et al.</i> (2020).               | Mapping scientific collaboration: a bibliometric study of rice crop research in India.   | 11          | Research Article     |
| $10^{\text{th}}$ | Sujit Bhattacharya (2019).                        | Some salient aspects of machine learning research: a bibliometric analysis   | 11          | Research Article     |
| $10^{\text{th}}$ | Juan Pablo Garcia<br>Vazquez <i>et al.</i> (2021) | Scientometric analysis of the application of artificial intelligence in agriculture  | 11          | Research Article     |
| $10^{\rm th}$    | Mohammed Ali<br>Mohsen <i>et al.</i> (2017).      | A bibliometric analysis of linguistics publications in the web of science  | 8           | Research Article     |

that cited JSciRes multiple times often referred different articles of journal. Hence, it could conceivably be hypothesised that the journal being open access is one of the highly coveted source publications for research information retrieval for researchers from resource-poor Global South.

The geographic affiliation of citing authors mapped in Figure 3 based on the number of citing articles showed that researchers from 86 countries have actively used the journal.

Further, the top 20 citing countries presented in Table 12 shows that the highest number of citations comes from India, followed by the China, Spain and so on.

It is quite expected that researchers from India will be associated more with the journals as it is the origin country of the journal, However, about 50% presence of resource rich large research publishing nations of Global North in the top citing countries list and engagement of wide number of researchers from these

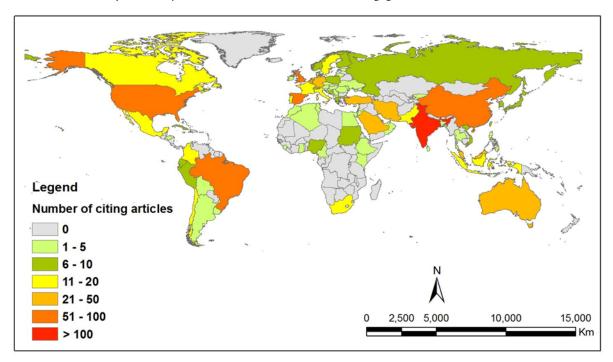


Figure 3: Worldwide distributions of citing authors of JSciRes.

Table 11: Top citing authors.

| Rank               | Author               | Institution   | Citing articles | Articles cited |
|--------------------|----------------------|---|-----------------|----------------|
| 1 <sup>st</sup>    | K.C. Garg            | CSIR-NISTADS, New Delhi, India.   | 22              | 21             |
| $2^{ m nd}$        | H.K. Tripathi        | ICAR Library, Pusa Campus, New Delhi, India.                            | 20              | 20             |
| 3 <sup>rd</sup>    | Mike Thelwall*       | University of Wolverhampton, United Kingdom.                            | 17              | 5              |
| 4 <sup>th</sup>    | Lutz Bornmann*       | Administrative Headquarters of the Max Planck Society, Munich, Germany. | 16              | 11             |
| 5 <sup>th</sup>    | Grant Lewison        | King's College London, United Kingdom.                                  | 15              | 4              |
| 6 <sup>th</sup>    | Ronald Rousseau*     | KU Leuven, Leuven, and University of Antwerp (UA), Belgium.             | 13              | 5              |
| $7^{\text{th}}$    | V. K. Singh          | Banaras Hindu University, Varanasi, India.                              | 11              | 7              |
| 8 <sup>th</sup>    | G. Salazar-Sepulveda | Universidad Católica de la Santísima<br>Concepción, Concepción, Chile.  | 11              | 1              |
| 9 <sup>th</sup>    | A. Vega-Muñoz        | Universidad Autónoma de Chile, Santiago,<br>Chile.                      | 11              | 1              |
| $10^{\mathrm{th}}$ | R. Sullivan          | King's College London, United Kingdom.                                  | 10              | 3              |

<sup>\*</sup>Derek de Solla Price Memorial Medal awardee.

Table 12: Top citing country.

| Rank               | Country       | Number of Citing articles | Number of Cited articles | Unique authors | Authors<br>(Occurrences) |
|--------------------|---------------|---------------------------|--------------------------|----------------|--------------------------|
| 1 <sup>st</sup>    | India         | 301                       | 121                      | 441            | 741                      |
| 2 <sup>nd</sup>    | China         | 77                        | 40                       | 211            | 238                      |
| $3^{\mathrm{rd}}$  | Spain         | 66                        | 33                       | 134            | 185                      |
| 4 <sup>th</sup>    | UK            | 58                        | 26                       | 61             | 127                      |
| 5 <sup>th</sup>    | Brazil        | 57                        | 22                       | 149            | 180                      |
| 6 <sup>th</sup>    | United States | 55                        | 37                       | 87             | 102                      |
| $7^{\text{th}}$    | Germany       | 37                        | 27                       | 48             | 76                       |
| 8 <sup>th</sup>    | Iran          | 35                        | 24                       | 87             | 125                      |
| 9 <sup>th</sup>    | Malaysia      | 35                        | 21                       | 92             | 115                      |
| $10^{\mathrm{th}}$ | Saudi Arabia  | 32                        | 23                       | 34             | 65                       |
| $11^{\mathrm{th}}$ | Belgium       | 29                        | 10                       | 21             | 50                       |
| 12 <sup>th</sup>   | Turkey        | 24                        | 20                       | 37             | 51                       |
| 13 <sup>th</sup>   | Australia     | 23                        | 14                       | 32             | 37                       |
| $14^{ m th}$       | Netherlands   | 22                        | 17                       | 34             | 44                       |
| 15 <sup>th</sup>   | Italy         | 19                        | 12                       | 33             | 39                       |
| 16 <sup>th</sup>   | Chile         | 17                        | 7                        | 26             | 58                       |
| $17^{\mathrm{th}}$ | South Africa  | 17                        | 10                       | 23             | 28                       |
| 18 <sup>th</sup>   | Indonesia     | 16                        | 10                       | 54             | 54                       |
| 19 <sup>th</sup>   | Portugal      | 16                        | 11                       | 29             | 43                       |
| 20 <sup>th</sup>   | Mexico        | 15                        | 12                       | 24             | 29                       |

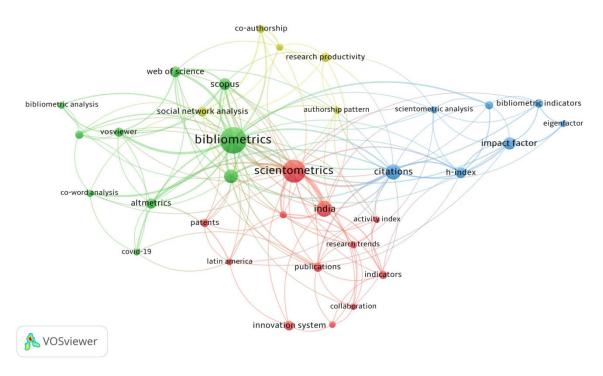


Figure 4: Network visualization map of authors' keywords.

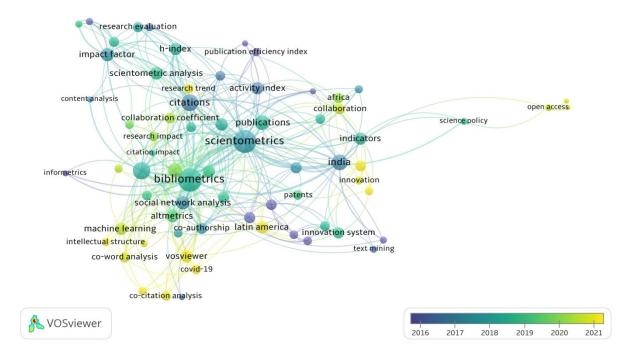


Figure 5: Overlay visualization map of authors' keywords.

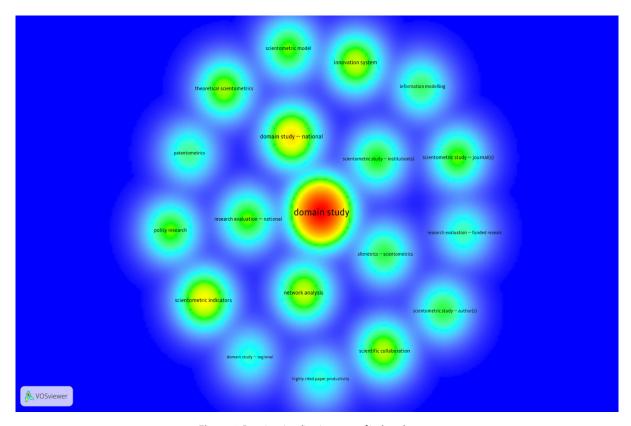


Figure 6: Density visualization map of indexed terms.

countries clearly affirm that the journal is well accepted among global research community and may be one of the authoritative destinations for research information retrieval. Among the various reasons that may have helped the journal to augment its reach, publication of special issues on highly selective thematic topics where indigenous leading regional actors contributed, may be one of the significant reasons.

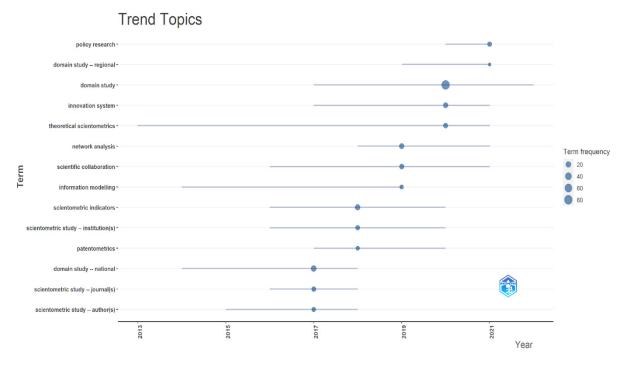


Figure 7: Trend analysis of topics based on indexed terms.

Further, the unique occurrence of authors in the citing and published articles set are analysed to understand the relative diffusion of ideas included in the journal and hence it's active visibility. Research has shown that a journal in spite of its high average citations have poor dispersion because of the presence of citation optimising factors.<sup>[23]</sup> 'Active Visibility Index'(AVI) measure which excludes those citations plausibly generated by using citation optimizing factors<sup>[17]</sup> is therefore applied here to understand actual reach and visibility of the journal. It is observed that there are 2195 unique authors with 3037 times total occurrences in the articles set that cited JSciRes during the period. The relative dispersion of citing authors (RDCAu) thus stands at 0.723. The unique occurrence of authors in the unified set of citing and published articles stands at 2643. Thus, the AVI value of the journal stands at 2.66. It is often observed that journals of specific subdomains usually get sparse receptions (i.e., low diffusion) though many of them attract rapid citations. Contrary to this expectation, the exhibition of reasonable fair values of RDCAu, AVI along with its average citations indicate that the journal has not only left a good impact but also done well in diffusing the ideas contained in its articles.

Together these results thus depict that the journal is able to engage a diverse pool of researchers with it from across the globe. Plausibly, the diamond open access feature of the journal played an important role in this direction and helped to evolve it not only as one of the highly coveted source publications for research information retrieval but also a highly sought venue for publication.

# **Subject Analysis based on Author Keywords and Indexed Keywords**

Keyword analysis is one of the common techniques that is used to detect the research hotspot and to understand the research trends in a given research domain as keywords highlight the contents of research articles and instrumental in increasing their visibility by assisting the search engines and indexers to figure out the relevant papers.<sup>[24]</sup> Here, VOSviewer software is used for analysis of keywords as it is often used in such kinds of analysis. [25] Figure 4 displays the network cluster visualization map of co-occurring author keywords. The minimum number of occurrences for a keyword is set at 5. The visualization map is based on total link strength after normalization of terms using association strength function used in the software. It is seen that 34 keywords have met a threshold of 5 occurrences out of a total of 1107 keywords recognised by the software and it divides the research landscape of JSciRes into four clusters when the minimum cluster size is fixed at five. In Figure 4, each keyword is represented as a circle and the size of circle reflects frequency of its occurrence. The connections between keywords are represented by curved lines and stronger a connection, thicker is the line.

Cluster 1 (Red, 11 keywords): It includes those keywords that broadly characterize the innovation system and collaboration. These keywords are innovation systems, science, patents, activity index, indicators, collaboration, international collaboration and research trends. The other terms included in this clusters are India, Latin America, scientometrics, and publications. As the journal's focal area of study is scientometrics and large numbers of publications are emanated from and related to India, the frequency of occurrences of these words is high. Similarly,

publication of significant number of papers including the special issue on innovation systems related to Latin America makes it one of the hotspots of research in the journal.

Cluster 2 (Green, 10 keywords): It covers those terms that are closely related to bibliometric analysis/ Altmetrics along with tools and processes associated with such study. These keywords are altmetrics, bibliometrics, citation analysis, co-word analysis, Scopus, Web of Science, VOSviewer. Also, a significant number of bibliometric studies on Machine learning and COVID-19 have made these two topics hotspot of the journal.

Cluster 3 (Blue, 7 keywords): It assembles those keywords that primarily associate with the research evaluation system especially on research indicators. Thus, keywords such as citations, bibliometric indicators, Impact factors, Eigenfactor, *h*-Index, research evaluation, scientometric analysis are being frequently used by authors.

Cluster 4 (yellow, 5 keywords): It comprises of keywords that largely emulates authorship and collaborative nature of research and their impact on citations. Therefore, keywords, such as authorship pattern, co-authorship, research collaboration, social network analysis and research productivity frequently appeared in this cluster.

However, the network visualization map is quite inadequate to delineate changing nature of thrust areas of a journal with time. The overlay visualization map is in a better place to detect the main areas of research and their developments over time. To generate overlay visualization map, frequency of occurrence of a keyword is set at 3 so that important topics appeared in recent times in this young journal should not get overlooked. Figure 5 presents overlay visualization map of author keywords. The colour range spans from lavender blue to yellow via green to indicate mean time of appearance of keywords. It is observed that the latest hotspot topics of the journal are open access, innovation, science policy, patents, Latin America, Africa, COVID-19, machine learning, artificial intelligence, research trend, intellectual structure, etc. Publication of dedicated special issues on machine learning and science, technology and innovation in Africa, Latin America in recent times may plausibly cause appearance of these topics as the latest trends. Similarly, COVID-19 pandemic has caused research community to conduct research on the topic from different aspects. As research papers on these special issues often used co-word analysis, co-citation analysis methods and tools like VOSviewer to understand research trend and research impact, frequency of these keywords in recent times become more. The keywords like publication productivity, publication efficiency index, Eigen factor, text mining, informetrics etc. are of distant origin as the field of scientometric studies has evolved much over the years where preliminary bibliometric study are found to be less important.

Further, the research papers were broadly classified using subject headings to understand the thrust areas of the journal. A total of 36 subject headings are used to classify this set of 324 papers. The density visualization map displayed at Figure 6 is generated through VOSviewer after setting the threshold limit at 5. The node size in the visualization map indicates the extent of contribution of a subject; larger the size higher the occurrences. Though, it is observed that Domain study (80) and Domain study-national (22) are the two dominant areas in which most of the papers are appeared in JSciRes, papers from cross-disciplinary areas of scientometric and innovation studies, such as Scientometric indicators (19), Network analysis (19), Innovation system (15), Scientific collaboration (14), Scientometric model (11), Policy research (11), Theoretical scientometrics (10), Patentometrics (7), Information modelling (8), have also made inroads in the JSciRes.

Further, topical trend analysis is conducted by using Bibliometrix-R<sup>[26]</sup> to understand changing nature of thrust areas of a journal with time. The minimum keyword frequency and the number of words per year are set at 5 and 3 respectively to generate the graph. Figure 7 outlines the trends of major research areas in JSciRes journal.

It is quite interesting to observe that with the passage of time, the emerging thrust areas of the journal changes. Research topics, such as policy research, innovation system, domain study, network analysis, scientific collaboration, scientometric indicators, theoretical scientometrics are gradually getting more preference whereas traditional scientometric study on author(s), journal(s), and institution(s) are steadily being discouraged. Overall, one may casually conclude from these visual keyword maps that the journal is able to attract entire gamut of scientometric and innovation studies papers with an emphasis on emerging areas of its discipline.

# CONCLUSION

The present study thus has attempted to provide a comprehensive picture at the development and evolution of JSciRes journal by utilizing bibliometric techniques and visualizing software. It is evident from the analyses given above that the journal within a decade of its origin has attracted considerable interests of the global research community in spite of its origination in Global South having less developed research infrastructure. Findings suggest that diamond open access, diversity in editorial board members along with contribution of opinion leaders in its early phase has helped the journal in generating trusts and interests among the researchers from across the globe. Also, publication of leading-edge research in special issues on important thematic areas with an emphasis on Global South have paved the way for engaging a diverse pool of researchers with the journal. Moreover, emphasis on emerging research areas along with core disciplinary areas in its discipline have made the journal not only as the preferred source for information retrieval but also one of the most coveted publication outlets for communicating research results. Thus, JSciRes has steadily become a place for incubating major emerging ideas and has been seen as one of the leading journals in its discipline.

As bibliometric studies are dynamic in nature and limited to data derived from the concerned databases (here, Scopus), periodical analyses are needed to understand the influence of the journal. In spite of this limitation, it is hoped that in-depth analysis of JSciRes provided in the present study will help its readers, contributors, researchers in its discipline and other stakeholders of the journal to make informed decisions on the journal.

#### **ACKNOWLEDGEMENT**

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# **CONFLICT OF INTEREST**

The authors declare no conflict of interest.

### **ABBREVIATIONS**

AKD and RG are associated with the Editorial Board of the Journal

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