



## Mapping the Research Trends and Publication Output of Journal of Annals of Library and Information Studies during 2016-2020: A Bibliometric Analysis

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### Abstract

The main aim of this paper is to analyse the mapping of publication output and research trends of Journal titled "Annals of Library and Information Studies" during the period of 5 years; i.e., 2016-2020. The present paper conducted the bibliometric analysis of 139 papers published in the journal during 2016-2020 to study the various aspects of journal such as publication output, authorship pattern of articles, geographical distribution of articles, institute wise distribution of articles, reference pattern of articles, length of articles, etc. The study found that year 2016 and year 2017 has maximum number of papers published in the journal. The nature of contribution is collaborative in nature where 2 authored contribution (55.39%) is maximum. A total of 4279 references are cited in 139 papers of the journal. Most number of papers (103) are contributed by authors from India and highest number of papers (64.74%) are contributed by authors from Universities.

**Keywords:** Bibliometric Analysis, Publication Output, Annals of Library and Information Studies, Authorship Pattern, Reference pattern.

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### I. Introduction

The quality of research output by universities is utilised as a standard to evaluate the research institutions and universities nationally as well as internationally for their worldwide rankings. As we know that research nurtures innovation and innovation is the main cause behind the economic development of the society. It becomes authoritative responsibility of every higher educational institution to evaluate their research performance by applying various bibliometric methods. By adopting various bibliometric techniques, the different disciplines identify the emerging research areas and stimulates the growth of literature on different areas.

In 1969, Alan Pritchard introduced the term 'Bibliometrics' by replacing the earlier term 'Statistical Bibliography' in an article entitled 'Statistical Bibliography or Bibliometrics' published in Journal of Documentation in 1969. Pritchard defined Bibliometrics as "The application of mathematical and statistical methods to books and other media of communication".

Bibliometric methods are used for quantitative analysis to describe the patterns of publication within a given field or body of literature. This means it is used to measure the research productivity of authors, institutions, and countries.

### II. About Annals of Library and Information Studies

Annals of Library Science was launched by INSDOC in 1954 with Dr. S.R. Ranganathan as its first editor. In 1964, its title was expanded and known by the name of Annals of Library Science and Documentation and in 2001, its name was again changed and now it is known as Annals of Library and Information Studies. Annals of Library and Information Studies is a well renowned quarterly Journal in the field of Library and Information Science which is published by National Institute of Science Communication and Information Resources. This journal publishes original papers, articles, survey reports, reviews, short communications, and

letters belonging to different fields such as library, information science, information and communication technology, documentation service, bibliometrics, Scientometrics, and other related areas.

### III. Review Of Literature

**Qadri and Shukla (2020)** conducted a study on Annals of library and Information Studies for analysing the growth of Indian Library and Information Science Literature during the period of 1985-1990 and 2005-2010. The results of the study showed that there were more articles published in the year 2005-2010(190) than the year 1985-1990 (120). In both the time periods, the most popular topic in LIS literature for writing research articles remained the Bibliometrics. Single authorship pattern was dominant for contributing research papers by authors. The results of the study revealed that the highest cited journal in both the time period was Annals of Library and Information Studies receiving a total of 273 citations, followed by SRELS Journal of Information Management which received a total of 101 citations. Mainly, the LIS professionals contribute the maximum number of papers (251), followed by LIS teachers (193), and Scientists (59).

**Thanuskodi (2018)** discussed the research output trends of Journal "Library Herald" for a period of 5 years; i.e., from 2006-2010. The study analyses the publications for studying the various parameters such as publication pattern, year wise distribution, average number of references, subject wise distribution, etc. The results of the study showed that a total of 138 articles were published from 2006-2010 with an average of 28 articles per year. Library and Information Science and Information Literacy was the most prominent subject in which maximum number of articles (15.22%) were published in the journal. Collaborative pattern was prominent among the authors for contributing their publications in the journal. The results showed that out of total of 138 articles, only 72 articles (52.17%) were single- authored, while 66 articles (47.83%) were multi-authored. Highest number of papers were contributed by authors from Universities (27.54%), followed by research institutions (21.01%), and colleges (19.56%). Maximum number of citations were received by 407 publications (26.70%) published in year 2007 and 89.85% of contributions in the Journal were from India.

**Verma and Shukla (2018)** examined the publication output trends in Journal of Advances in Library and Information Science. The paper conducted the bibliometric analysis of Journal to study its various aspects such as authorship pattern, publication pattern, geographical distribution of articles, references received by different papers, etc. The result of the study revealed that a total of 251 articles were published during the period of 5 years with average of 13.21 article per issue. The analysis of the study also shows that during 2012-2016, highest number of articles (145) were published in two-author pattern, followed by single author pattern (60), and three- authored pattern (41). The study further revealed that researchers from India contributed maximum number of research papers (258) in the Journal. Reference distribution pattern shows that research papers from issue no. 4 recorded highest number of references (697), followed by issue no. 3 (640), and issue no. 1 (630).

**Ramasamy and Padma (2017)** conducted the scientometric analysis of research publications of Journal of Bioscience and Bioengineering during the period of 10 years; i.e., 2007-2016. The study showed that year 2009 has maximum number of articles (25.01%) while year 2007 has minimum number of articles (6.63%). The relative growth rate of publications of journal shows a decreasing trend during 10 years: i.e., from 1.00 in 2009 to 0.08 in 2016. The highest number of articles (52) contributed in the journal was by Kondo A and was recognised as most prominent author of the journal. Multiple authorship pattern was followed by most authors for contributing in the journal and degree of collaboration was found to be 98.02. The study also calculated h-index of authors and found the highest h-index is 14 for 46 articles which received a total of 582 citations contributed by Fukusaki, E., followed by Bamba, T. who has h-index of 12 for 40 articles and his articles received the total of 455 citations.

**Vellaichamy and Jeysanker (2015)** examined the research papers published in the Journal Webology during the period of 2004-2013 and found that a total of 158 articles were published out of which highest number of articles (18.35%) were contributed in the year 2008. 72.15% of total research publications were in the form of articles. In the Journal Webology, maximum number of research papers were published in the field of webometrics (26.58%), followed by social media (15.82%), electronic resources (13.92%), internet (12.03%). Degree of collaboration among the contributors varies between 0.182 to 0.693. Alireza Noruzi was identified to be most prominent author of Journal with contribution of 18 research papers.

**Govindaradjou and John (2014)** conducted the bibliometric analysis of Ecological journal during the period of 2003-2012. The primary data was accessed through Web of Science database and analysed in different parameters such as publication pattern, relative growth rate, doubling time, collaboration pattern, etc. The study found that a total of 3,359 papers were published during 2003-2012 with average of 279.92 papers per year. 92.86% of papers were published in the form of journal articles. Papers published during the period of 10 years shows a decreasing trend in relative growth rate from 0.72 in 2004 to 0.09 in 2012 while doubling time of publications show a gradual increase from 2003-2012. In Ecology journal, there was multi- authorship pattern and paper productivity was verified to be in conformity with Lotka's law.

**Singh(2014)** conducted a Scientometric analysis of the journal “Indian Journal of Pure and Applied Physics” during the period of 2006-2010. The study attempts to analyse the journal from various dimensions such as publication culture, year wise contribution, authorship pattern, institution wise contribution, citation factor, author productivity, number of references, etc. The study analyses 657 papers which were retrieved using Web of Science database. The study found that majority of contribution were in the form of articles (97.41%) and highest number of papers were published during 2007 (21.92%). Relating to author productivity, single author contributes only 43 papers and joint authors contribute 614 papers, out of which two-authored paper contribution is most (26.48%). Most of publications were contributed by Council of Scientific and Industrial Research, India (8.22%). The average citations come out to be 1.87 per paper. The highest number of papers (21) were contributed by Kumar, R. and becomes the most prolific author of Indian Journal of Pure and Applied Physics. The study also found that number of references has been increasing and average reference is 19 per paper.

#### **IV. Objectives of the study**

The objectives of the study were as follows:

1. To determine the year wise distribution of articles in the journal
2. To analyse the authorship pattern and degree of collaboration among contributors.
3. To find out the geographical distribution of the journal and institution wise distribution of publications.
4. To find out the reference pattern among publications of the journal.
5. To determine the length of the articles in the journal

#### **V. Scope of the study**

The scope of the current paper is limited to evaluate the research trends and publication output of Journal “Annals of Library and Information Studies”. The paper analyses the research publications which were published in the period of 5 years for studying the various aspects such as year wise distribution, geographical distribution, authorship pattern, degree of collaboration, reference distribution.

#### **VI. Methodology**

The author analyses the various publications which were reflected in the journal “Annals of Library and Information Studies” with the help of bibliometric methods. The data for the study was collected form the website of the journal (<http://nopr.niscair.res.in/handle/123456789/66>). The 139 articles which were published in different issues of journal during the coverage period of five years were taken out for the study. The data retrieved form the website was tabulated using MS-Excel and then analysed to find out the results.

#### **VII. Data analysis**

On the basis of the analysis of the data which is collected over a period of 5 years from the website of the journal, the following results have been obtained:

##### **7.1 Year-wise growth of publications**

Table 1 and figure 1 shows the year wise publication output of research papers published in the journal in the coverage period of 5 years. A total of 139 research papers are published in the journal from 2016-2020. Out of the total of 139 papers, maximum number of research papers are published in the year 2016 (23.02%) and year 2017(23.02%), followed by publications of year 2018 (20.14%), and year 2020(19.42%). The least number of papers are published in the year 2019 (14.38%).

Year	Vol. No.	Number of Issues	Issue No. 1	Issue No. 2	Issue No. 3	Issue No. 4	Total	% Out of total	Average article per issue
2016	63	4	10	8	8	6	32	23.02%	8
2017	64	4	10	6	6	10	32	23.02%	8
2018	65	4	8	7	7	6	28	20.14%	7
2019	66	4	6	4	5	5	20	14.38%	5
2020	67	4	6	5	8	8	27	19.42%	6.75
Total			40	30	34	35	139	100%	6.95



**Figure 1: Year wise publication output of articles**

From table 1 and figure 1, it becomes clear that the publication output of journal shows a zig-zag trend. In the first two years, the publication output shows an increasing trend, then in next two years, it shows a decreasing trend and in last year, it again shows an increasing trend. Thus, there is irregular growth in publication output of journal. The average article per issue comes out to be 6.95.

### 7.2 Authorship pattern of articles

Table 2 and figure 2 depicts the authorship pattern among different research papers published in different volumes of the journal during 2016-2020.

Year	Vol. No.	1-authored publications	2-authored publications	3-authored publications	4-authored publications	5-authored publications	Total
2016	63	8	18	3	2	1	32
2017	64	9	17	6	-	-	32
2018	65	8	16	2	2	-	28
2019	66	7	8	4	1	-	20
2020	67	6	18	3	-	-	27
Total		38 (27.33%)	77 (55.39%)	18 (12.94%)	5 (3.59%)	1 (0.71%)	139



**Figure 2: Authorship pattern of articles (Volume wise)**

From table 2 and figure 2, it becomes clearly evident that 2- authored pattern is most prominent in the published output of journal. Out of the total of 139 papers, 77 papers contribute to two-authored publication (55.39%), followed by one-authored publications (27.33%), three-authored publications (12.94%), and four-authored publications (3.59%). Only one paper is contributed by five-authored publication (0.71%).

### 7.3 Distribution of authors in issue wise articles

Table 3 and figure 3 shows the clear picture of different authors contribution in different issue of the journal during the covered period of study.

Issues of the Journal	1-authored	2-authored	3-authored	4-authored	5-authored	Total
Issue 1	11	18	7	3	1	40 (28.77%)
Issue 2	10	19	1	-	-	30(21.58%)
Issue 3	8	20	4	2	-	34(24.46%)
Issue 4	9	20	6	-	-	35 (25.17%)
<b>Total</b>	<b>38 (27.33%)</b>	<b>77(55.39%)</b>	<b>18(12.94%)</b>	<b>5 (3.59%)</b>	<b>1(0.71%)</b>	<b>139</b>

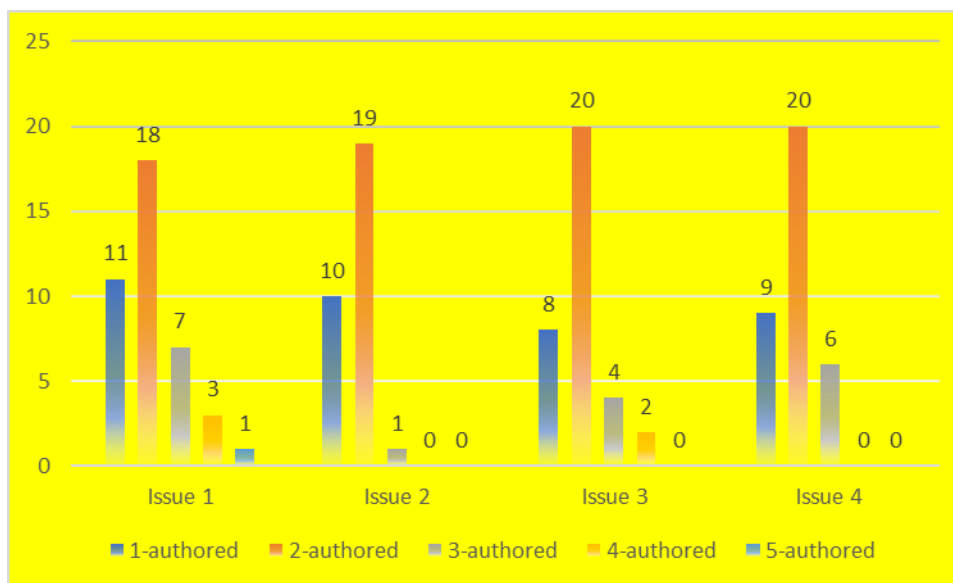


Figure 3: Authorship pattern of articles (Issue wise)

Table 3 and figure 3 clearly shows that out of total published papers during the study, issue no. 1 got the maximum number of articles; i.e.,40 (28.77%), followed by articles (25.17%) of issue no. 4, and articles (24.46%) of issue no. 3. Issue no.2 has got the least number of articles (21.58%) published in it. It is also found that 2- authored pattern is most preferred pattern by authors for contributing their research papers for publication in the journal.

### 7.4 Degree of collaboration

Subramanyam (1983) defined Degree of Collaboration as “the ratio of the number of collaborative research papers to the total number of research papers published in the discipline over a period of time.”It is clear that most of the publication output of “Annals of Library and Information Studies” is collaborative in nature. We can find the degree of collaboration among different authors by applying the formula of degree of collaboration given by Subramanyam in 1983. To calculate the strength of collaboration, the formula given by Subramanyam is:

$$C = \frac{N_m}{N_m + N_s}$$

Where,

C = Degree of Collaboration

$N_m$  = Number of multi-authored papers

$N_s$  = Number of single-authored papers

S.No.	Year	Total Single authored publications (Ns)	Total Multi authored publications (Nm)	N <sub>m</sub> + N <sub>s</sub>	Degree of Collaboration
1	2016	8	24	32	0.75
2	2017	9	23	32	0.72
3	2018	8	20	28	0.71
4	2019	7	13	20	0.65
5	2020	6	21	27	0.78
Total		38	101	139	0.73



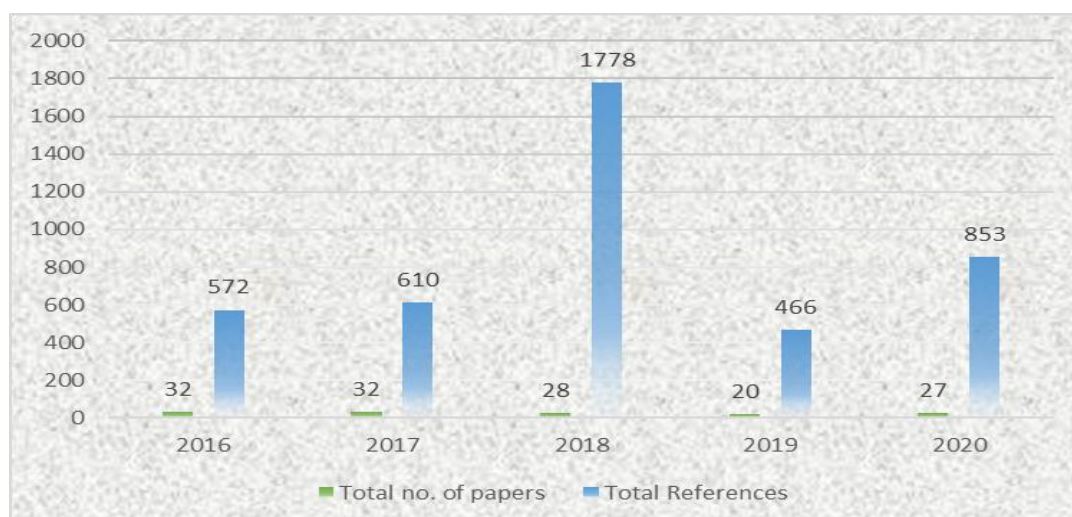
Figure 4: Degree of Collaboration

Table 4 and figure 4 gives a clear picture of degree of collaboration among the different authors of the journal. During the covered period of study, it ranges from 0.75 in 2016 to 0.78 in 2018 which shows the increasing trend of collaboration among contributors of the journal. The average degree of collaboration for a period of 5 years is found to be 0.73.

### 7.5 Reference pattern of publications

Table 5 and figure 5 provides the picture of reference distribution of different articles published in the journal during 2016-2020.

Year	Vol. No.	Total no. of papers	References in Issue 1	References in Issue 2	References in Issue 3	References in Issue 4	Total References
2016	63	32	154	143	154	121	572 (13.36%)
2017	64	32	221	132	99	158	610 (14.25%)
2018	65	28	997	426	245	110	1778 (41.55%)
2019	66	20	118	62	103	183	466 (10.89%)
2020	67	27	202	185	209	257	853 (19.93%)
Total		139	1692 (39.54%)	948 (22.15%)	810 (18.92%)	829 (19.37%)	4279



**Figure 5:Reference Distribution of publications**

It is evident from table 5 and figure 5 that a total of 4279 references are cited in 139 research papers published from 2016-2020. The maximum number of references are recorded in issue no. 1(1692), followed by issue no.2(948), issue no.4 (829), and issue no. 3(810). It is also found that highest number of references (1778) are also recorded in 32 articles published in volume 64 of the journal which is published in year 2017.

### 7.6 Geographical distribution of publications

Table 6 provides the geographical distributions of research papers published in the journal. It is found that authors from India contribute highest number of research papers (103) in the journal during the period of 5 years. Authors from Nigeria contribute 6 papers in the journal while Iran and Sri Lanka authors contribute 5 research papers each. Researchers from South Africa contribute 4 papers in the journal while authors from countries such as Japan, Poland, USA, Indonesia and China contribute 2 research papers each. Only 1 paper is contributed by authors of countries such as UAE, Kazakhstan, Sudan, Portugal, Brazil, and Tanzania.

S.No.	Name of the Country	Number of Publications	Rank
1	India	103	1
2	Nigeria	6	2
3	Iran	5	3
4	Sri Lanka	5	
5	South Africa	4	4
6	Japan	2	5
7	Poland	2	
8	USA	2	
9	Indonesia	2	
10	China	2	
11	UAE	1	6
12	Kazakhstan	1	
13	Sudan	1	
14	Portugal	1	
15	Brazil	1	
16	Tanzania	1	
Total		139	

### 7.7 Institution wise distribution of publications

Table 7 and figure 7 provides the picture of institution wise collaboration of authors for contributing their publications in the journal. It is discovered that highest number of contributions in the journal is from universities. During the period of 2016-2020, out of total of 139 published papers, 90 papers contributed by authors from universities, followed by 40 papers from authors of research institution, and 6 papers by authors of government departments. Only 3 papers are contributed by authors from colleges.

S.No.	Institution	Number of Publications	Percentage
1	Universities	90	64.74%

2	Research Institutes	40	28.77%
3	Government departments	6	4.31%
4	Colleges	3	2.15%
Total		139	

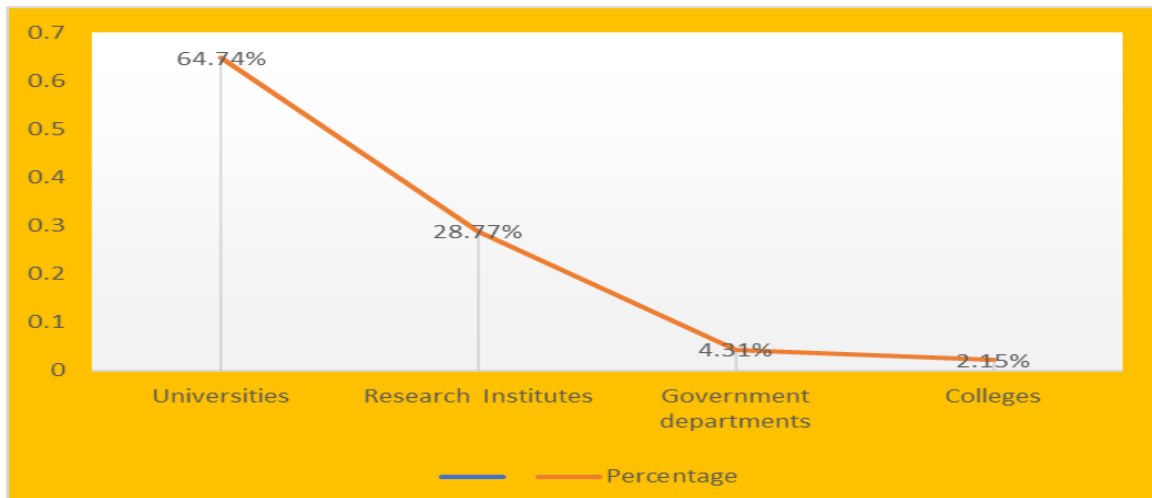


Figure 7: Institution wise distribution of Publications

### 7.8 Length of publications

Length of articles published in the journal ranges from one-to-many pages. In Table 8 and figure 8, we study the varying length of articles published in the journal from 2016-2020.

Year	Vol. No	Publications of 1-5 pages	Publications of 6-10 pages	Publications of 11-15 pages	Publications of More than 16 pages	Total
2016	63	5	19	7	1	32
2017	64	7	21	3	1	32
2018	65	7	15	5	1	28
2019	66	4	14	2	-	20
2020	67	4	16	6	1	27
<b>Total</b>		27 (19.42%)	85 (61.15%)	23 (16.54%)	4 (2.87%)	139

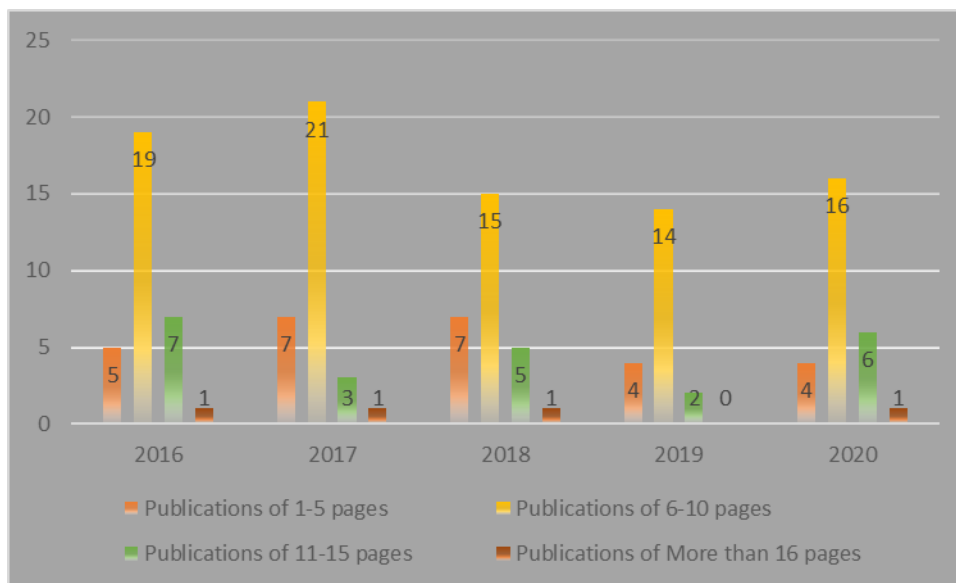


Figure 8: Length wise Distribution of Publications



The study found that maximum number of papers, i.e., 85 papers (61.15%) have length of 5-10 pages. 27 papers (19.42%) out of the total of 139 papers, has the length of 1-5 pages while 23 papers (16.54%) have length of 11-15 pages. Only 4 papers (2.87%) have length of more than 16 pages.

### **VIII. Conclusion**

Bibliometric methods are applied for mapping the publication trends and output of different fields. *Annals of Library and Information Studies* is a well renowned quarterly journal publishing articles, reviews, reports in different fields. In the last five years, there is irregular growth in publications of journal. During 2016-2020, a total of 139 papers are published with highest number of papers published in the year 2016 and 2017. Two authored pattern is mostly followed by authors for contributing their research papers in the journal. The study shows that there is increasing trend of collaboration among authors. Most of the research papers (103) are contributed by authors from India and about 64.74% of total papers are contributed by authors from Universities, followed by authors from colleges (28.77%). 61.15% of total papers have length of 6-10 pages and a total of 4279 references are cited in 139 papers published during the covered period of study. *Annals of Library and Information Studies* is the most preferred journals for communication by different information science, library science researchers and professionals.

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