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Bibliometric Analysis of Annals of Library and Information Studies (ALIS)

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Bibliometric Analysis of Annals of Library and Information Studies (ALIS)

Abstract

This study aims to represent bibliometric analysis of the journal Annals of Library and Information Studies (ALIS) during 2008 to 2018. Under this study period, total number of 377 articles contributed by 723 authors published within 11 volumes and 44 issues. On average 34.27 articles published every year and researchers all over the world received total number of 3,346 citations (8.88 on average) from different reputed journals. The contributors used 7,241 references (journals 63.43%; web resources 12.35%; books 12.32%; conferences 4.81% and so on) for their research work. The authors from India published maximum number of articles (62.86%), this is followed by Nigeria (15.65%), Sri Lanka (5.04%), Bangladesh (4.51%), Iran (2.92%) and so on. The most productive author was B. K. Sen, published 26 articles and institution was CSIR-NISTADS which published 52 articles (22.51%) in this study periods. We have also calculated measures of authorship with regard to Degree of Collaboration (DC), Collaborative Index (CI) and Collaborative Coefficient (CC).

Keywords: Bibliometrics; Annals of Library and Information Studies; Citation analysis; ALIS; Measures of authorship

Introduction

The term 'Bibliometrics' coined by Alan Pritchard in the late 1960s ([De Bellis, 2009](#)) and Eugene Garfield is considered as the father of 'Scientometrics' research. In 1961, He founded the Institute for Science Information (ISI), a fundamental research organization which created Science Citation Index (SCI) ([Roemer & Borchartt, 2015](#)) and invented the measures of journal impact factor. With the growth and development of knowledge in this modern era, the number of scholarly publication has been increased rapidly day by day. Researchers are engaged in the production of new knowledge and ideas through scholarly publications. They published their research report through scientific communication channels such as journals, conference proceedings, thesis and dissertations and so on. Researchers are always investigating new ideas based on the previous study on that research field. Thus, it is important to the researcher to give proper citation and reference to the previously published works in that subject field. Citation analysis measures the productivity of an author or institutions. In technical and scholarly writing, citations are included in references, bibliography, foot notes, sources etc ([Mondal & Raychoudhury, 2018](#)).

Annals of Library and Information Studies (ALIS) previously known as Annals of Library Science and Documentation, an open access reputed journal in the domain of library and information science, published from Council of Scientific and Industrial Research-National Institute of Science Communication and Information Resources (CSIR-NISCAIR), New Delhi in quarterly basis. This journal published in both print and online version, started from 1957 ([About NOAP](#)). The journal ALIS promoted its contents by indexing and abstracting in FRANCIS, Library and Information Science Abstracts (LISA), Library, Information Science & Technology Abstracts (LISTA), PASCAL, Scopus (2011 onwards) ([Wikipedia](#)).

Related Literature

Before analyzing citation pattern of Annals of Library and Information Studies journal, some literature have been studied for this purpose. A review of literature shows a clear picture to how authors will be chronologically arranged citation patterns of different journals. Some of these stated below...

[Tsay & Shu \(2011\)](#) analyzed citation pattern of Journal of Documentation during 1998 to 2008 and reported that journal articles were the most cited document in JoD, followed by books, book chapters, web resources, and seminar proceedings respectively.

[Abdi & et al. \(2018\)](#) in their seminal paper reported that, they analyzed 2,913 articles of Information Processing and Management journal during the year 1980-2015. Authors also reported that 67.15% published documents are articles and also identified top 10 authors, institutions and to 24 productive countries.

[Olatokun & Makinde \(2009\)](#) discussed citation pattern of dissertation submitted in Department of Animal Science, University of Ibadan during the period of 2000-2007 and project that peer reviewed journals were found most cited documents in dissertations. Poultry nutrition was the most prominent subject field identified by this study and forage production & management and monogastric nutrition was the lowest one.

[Deshmukh \(2011\)](#) conducted a study on Annals of Library and Information Studies and analyzed total 326 articles and received total number of 4141 citations during the period 1997 to 2010. Out of this, 4141 citations, 54.34% from journals, 17.47% from books, 12.25% from web resources, 6.79% from conference proceedings, 5.97% from institute publications, 1.49% from theses or dissertations, and so on. He also reported that journal half-life period was 9.

[Koley & Sen \(2003\)](#) analyzed the citation pattern of 26 articles published in Indian Journal of Physiology and Allied Science. These 26 articles were authored by 75 authors and out of total articles 77% of the researches were the result of team research.

An another paper, [Mamdapur & Govanakoppa, & Rajgoli \(2011\)](#) examined bibliometric analysis of Baltic Astronomy during 2000-2008 in respect of distribution of contributions, length of paper, authorship pattern and so on. Total no. of 8489 references appended and 1521 references appended only in the year 2004. They also reported that, Maximum authors contributed from USA; and India stood 21st in ranked.

[Bansal \(2013\)](#) in his research paper analyzed 391 articles from DESIDOC Journal of Library & Information Technology in two different time periods (2001-2006) and (2007-2012). He identified that maximum articles were of multiple authors (61.4%) and most of the authors from India (88%) and also identified Dr. B. M. Gupta published maximum articles (26) during this two study periods.

Objectives of the Study

This study has based on several set of objectives, which may state as below...

- To know the year-wise distribution and citations pattern of journal Annals of Library and Information Studies during 2008-2018.
- To identify most productive author and authorship pattern in ALIS journal.
- To prepare a list of highly cited journals in library science domain.
- To find out institution-wise and country-wise quantum of publications.

Methodology

The papers published in Annals of Library and Information Studies (ALIS) during the period 2008 to 2018 have been taken in this study. Total 377 articles contributed by 723 authors published in between volumes 55 to 65 have taken into consideration. The list of references are analyzed for identifying most cited journals in the library and information science subject field and *op.cit* and *Ibid* references have been

excluded to avoid the duplication of the same work ([Mondal & Raychoudhury, 2018](#)). Articles wise citation and author's h-index have been calculated from Google Scholar on April 10, 2019.

Data collection, Organization, Analysis and Interpretation

The whole work has been carried out in two phase i) Analysis of citation pattern of the journal publication. ii) Analysis of authorship pattern of the journal publication.

Year-wise distribution

Table-1 represents the year-wise data during the study period 2008 to 2018. It clearly demonstrated that, total 377 articles published within 11 volumes and 44 issues in ALIS journal during 2008-2018. On average 34.27 articles published every year and highest and lowest articles publication were recorded (43 articles, 11.41% and 27 articles, 7.16%) in the year 2010 and 2012 respectively. In these study period, researchers across the world received total number of 3,346 citations from different reputed journals.

. Table- 1: Year-wise distribution of paper and citations

Year	Vol. No.	Issue Wise articles				TP	%	Cumulative %	TC	CPP
		March	June	September	December					
2008	55	9	10	9	7	35	9.28	9.28	520	14.86
2009	56	7	8	9	10	34	9.02	18.30	704	20.71
2010	57	9	9	15	10	43	11.41	29.70	550	12.79
2011	58	10	10	9	7	36	9.55	39.25	473	13.14
2012	59	6	6	8	7	27	7.16	46.42	302	11.86
2013	60	9	9	9	10	37	9.81	56.23	233	8.63
2014	61	9	8	11	7	35	9.28	65.51	284	8.11
2015	62	6	7	9	16	38	10.08	75.59	130	3.42
2016	63	10	8	8	6	32	8.49	84.08	80	2.5
2017	64	10	6	6	10	32	8.49	92.57	54	1.69
2018	65	8	7	7	6	28	7.43	100.00	16	0.57

TP= Total Paper; TC= Total Citation; CPP= Citation Per Paper.

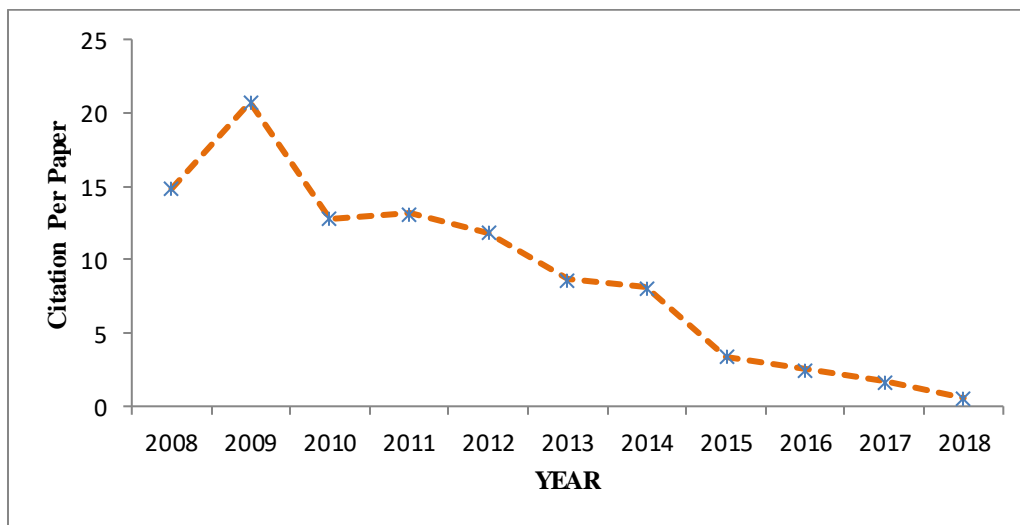


Figure- 1: Year-wise citation per paper

However, out of 3,346 citations, maximum citation has been recorded in the year 2009 and 2008 respectively. Figure- 1 illustrated that, in the year 2009, 34 articles received 704 citations. Thus, on

average 20.71 citations received per paper in the year 2009. In recent few years the citation receiving trend continuously decreased because of the journal citation half-life.

Year-wise authorship

Authorship pattern is examined the percentage of single or multiple authors in a research publication. It was shown in Table- 2 that total 723 authors contributed 377 papers. Thus, out of 723 authors, single authors were 127 (33.69%), two authors were 177 (46.95%), three authors were 58 (15.38%), four authors were 10 (2.65%) and more than four authors were identified 5 (1.33%). Figure-2 reveals the distribution of single and shared authors over year. The highest number of single authored (18) and shared authored (64) was recorded in 2015 and 2009 respectively.

Table- 2: Year-wise distribution of authors

Authorship	Year											Total	%
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018		
Single	12	6	17	14	11	12	12	18	8	9	8	127	33.69
Two	15	20	18	14	10	18	18	14	17	17	16	177	46.95
Three	7	8	6	7	6	5	3	4	4	6	2	58	15.38
Four	1		2				2	1	2		2	10	2.65
More than four				1		2		1	1			5	1.33
Total Author	67	70	79	69	49	75	65	67	67	61	54	723	
Total Article	35	34	43	36	27	37	35	38	32	32	28	377	

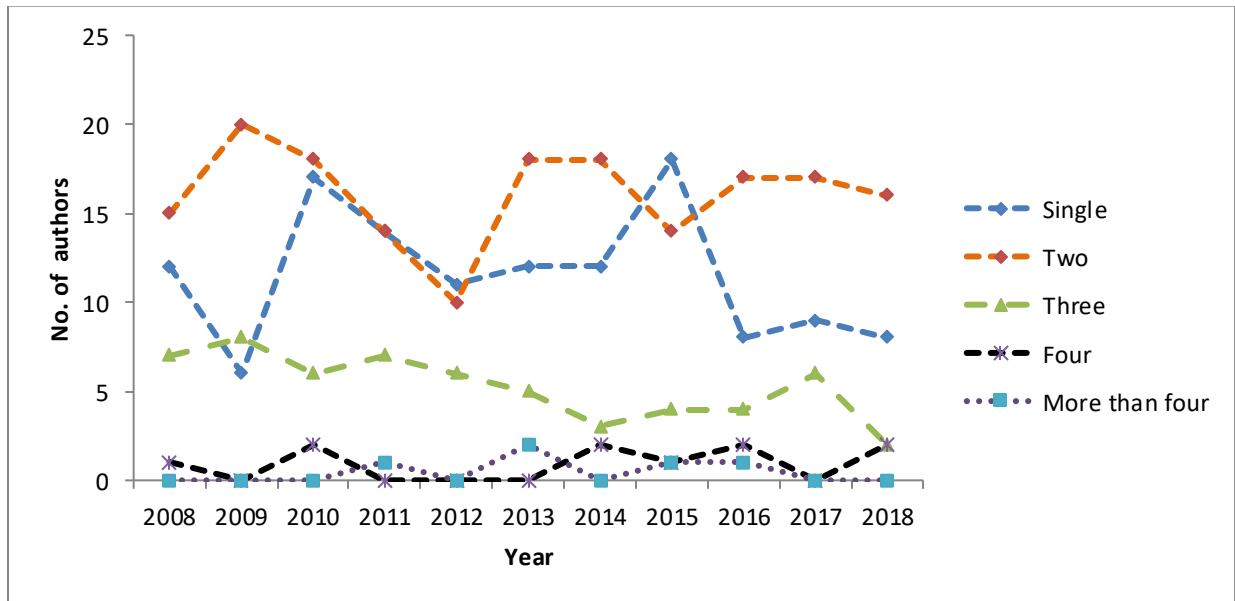


Figure- 2: Year-wise authorship pattern.

Measures of Authorship

The study of authorship is demonstrated how researcher collaborate with each other for the time of research (Mondal & Jana, 2018). In this study we find out Collaborative Index (CI), Degree of Collaboration (DC) and Coefficient of Collaboration (CC) for measuring authorship.

Collaborative Index (CI)

Collaborative Index (CI) calculates the mean authors in scientific publication (Savanur & Srikanth, 2010). Thus, it indicate average contributor per article. To calculate Collaborative Index (CI) in quantitative research, [Lawani \(1980\)](#) has given the formula as follows,

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

(A= total number of contributor in this journal, N= total number of papers, f_j = total number of papers having j number authors in this journal)

Table-3 shows the variation of Collaborative Index from 1.76 to 2.09. The lowest and highest collaboration in research was shown in the year 2015 and 2016 respectively.

Degree of Collaboration (DC)

DC measures collaboration rate between single and multi-authored in research. The formula of Degree of Collaboration (DC) given by [Subramanyam in 1983](#) as follows,

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

(Nm= Total number of multi-authored papers published in a year, Ns= total number of single-authored papers published in a year)

Table- 3 shows that DC value varies from 0.53 to 0.82 in the year 2015 and 2009 respectively . Thus, on average degree of collaboration was recorded 0.67.

Collaborative Coefficient (CC)

To calculate Collaborative Coefficient in research [Ajiferuke et. al. \(1988\)](#) proposed the following formula,

$$CC = 1 - \frac{\sum_j^k = 1(\frac{1}{j})f_j}{N}$$

(k= the greatest number of authors per paper, N= total number of papers, f_j = total number of papers having j number authors in this journal)

Year	CI	DC	CC
2008	1.9142	0.6571	0.369
2009	2.0588	0.8235	0.4509
2010	1.8372	0.6046	0.3372
2011	1.9166	0.6111	0.3464
2012	1.8148	0.5926	0.3333
2013	2.027	0.6757	0.3768
2014	1.8571	0.6571	0.3571
2015	1.7631	0.5263	0.2953
2016	2.0937	0.75	0.4209
2017	1.9062	0.7188	0.3906
2018	1.9286	0.7143	0.3871

(CI= Collaborative Index; DC= Degree of Collaboration; CC= Collaborative Coefficient)

It clearly indicates that, on average the value of CC is 0.37 and the highest and lowest value varies in between 0.30 to 0.45, which focused that the trends single-authored papers largest in 2015 and lowest single-authored paper shown in 2009.

Most publishing authors

During the study period 2008 to 2018, 723 authors were contributed in ALIS that shown in table-4. Table-4 presents the most productive author Sen, B. K. (26 articles; 127 citations), followed by Garg, K. C. (15 articles; 151 citations), Gupta, B. M. (12 articles; 180 citations), Dutta, Bidyarthi (9 articles, 31 citations) and so on. Table- 5 also indicate that top ten authors and their publication, received citation, citation per paper and h-index as found from the Google Scholar database. From table-4 it is clear that Sen, B. K., Garg, K. C. and Gupta, B. M. published maximum number of articles and they received highest citation. So, we can say that, they have been senior researcher in this subject field. Mukherjee, Bhaskar (6 articles; 59 citations) and Dutt, Bharvi (6 articles; 58 citations) published small count of paper but their average citation per paper were 9.83 and 9.67 respectively.

Authors	No. of Paper	TC	CPP	h-Index	Rank
Sen, B. K.	26	127	4.88	20	1
Garg, K. C.	15	151	10.07	23	2
Gupta, B. M	12	180	15	--	3
Dutta, Bidyarthi	9	31	3.44	6	4
Ray, Partha Pratim	7	7	1	2	5
Mukherjee, Bhaskar	6	59	9.83	14	6
Dutt, Bharvi	6	58	9.67	12	7
Kumar, Suresh	6	31	5.17	--	8
Nikin, Khaiser	5	48	9.6	7	9
Ram, Shir	5	33	6.6	8	10

TC= Total Citation; CPP= Citation Per Paper.

Top cited papers

This section presents top cited papers in ALIS journal during the selected period under study. The paper entitled “Farmers information needs in rural Manipur: an assessment” authored by Meitei, L. Shanta; Devi, Th. Purnima published in vol. 56 (1), 2009 received highest number of citation 84, followed by ‘Growth and impact of research output of University of Mysore, 1996-2006: A case study’ authored by Kumbar, Mallinath; Gupta, B.M.; Dhawan, S.M., published in vol 55(3), 2008 received 70 citations and others. We identified top ten cited articles and it is significant that, out of top ten cited articles, 5 articles published in 2009, 4 articles published in 2008 and one article published in 2010.

Most publishing institutions

This portion represents top most institute-wise articles published in ALIS journal in the period under study. Total number of 239 institutions published 377 research articles during 2008-2018. Table-5 shows that, most publishing institution was CSIR-NISTADS (52 articles; 22.51%). This is followed by CSIR-NISCAIR (41 articles; 17.75%), University of Mysore (22 articles; 9.52%, Banaras Hindu University (15 articles; 6.49%), Kuvempu University (15 articles; 6.49%), University of Dhaka (14 articles; 6.06%) and so on.

Geographic distributions of contributors

Table- 6 shows that the geographically distributed contributors in this journal and it is identified that the highest number of articles have been published from India (237 articles; 62.86%), followed by Nigeria (59 articles; 15.65%), Sri Lanka (19 articles; 5.04%), Bangladesh (17 articles; 4.51%), Iran (11 articles; 2.92%) and others.

Core cited journals

Core cited journal has been examined from the references given by the authors as considered as a chief source of citation analysis. Table- 7 shows that, Annals of Library and Information Studies was the most cited journal received 346 citations during the period under study. This is followed by Scientometrics received 340 citations, Journal of the American society for Information Science and Technology 166 citations, DESIDOC Journal of library and information technology received 106 citations and so on.

Table- 5: Top 13 publishing institutions

Institutions	No. of Paper	%
CSIR-NISTADS	52	22.51
CSIR-NISCAIR	41	17.75
University of Mysore	22	9.52
Banaras Hindu University	15	6.49
Kuvempu University	15	6.49
University of Dhaka	14	6.06
University of Delhi	11	4.76
University of Calcutta	11	4.76
Jawaharlal Hehru University	10	4.33
Vardhman Mahaveer Open University	10	4.33
University of Colombo	10	4.33
University of Kerala	10	4.33

Table- 6: Geographic distribution of contributors

Countries	No. of Articles	%	Countries	No. of Articles	%
India	237	62.86	Netherlands	2	0.53
Nigeria	59	15.65	United Arab Emirates	1	0.27
Sri Lanka	19	5.04	Sudan	1	0.27
Bangladesh	17	4.51	Tanzania	1	0.27
Iran	11	2.92	Brazil	1	0.27
USA	4	1.06	Fiji	1	0.27
Belgium	4	1.06	Russia	1	0.27
Kazakhstan	3	0.8	California	1	0.27
Uganda	3	0.8	Chaina	1	0.27
Hungary	3	0.8	Philadelphia	1	0.27
South Africa	2	0.53	Honolulu	1	0.27
Canada	2	0.53	Gaborone	1	0.27

Form of Cited references

Table-8 demonstrates what kind of documents studies for their research work. Total 7,241 documents used during 2008-2018, out of 7,241 citations, journal articles produced maximum number of citations 4,539 (63.43%); this is followed by web resources with 894 (12.35%) citations, books with 892 (12.32%) citations, conferences with 348 (4.81%) citations, and so on. In this study highlights that highest citations received by journal publication. So, we can say that journals are the most prominent sources of information among the researchers. Another significant fact is that, the author 'Ray, Partha Pratim' has been given maximum number of citation to the books in his research work.

Distribution of references

Figure- 3 projects the references that given by the authors in their research papers. Total number of 7,241 references has been analyzed in 377 research paper. Out of 377 papers, 97 (25.73%) papers have 0-10 references, 142 (37.67%) papers have 10-20 references, 69 (18.30%) papers have 20-30 references, 43 (11.41%) papers have 30-40 references, 14 (3.71%) papers have 40-50 references, 3 (0.80%) papers have 50-60 references, 9 (2.39%) papers have 60+ references. During the period under study, we identified 2 papers that have not any references and the paper authored by Gupta, Dinesh K. and Jain, Abhinandan K. has given maximum number of references (125).

Table- 7: Top 10 Core-cited journals

Journals	Citation	CC	Rank
Annals of Library and Information Studies	346	346	1
Scientometrics	340	686	2
Journal of the American society for Information Science and Technology	166	852	3
DESIDOC Journal of library and information technology	106	958	4
Journal of Documentation	94	1052	5
SRELS Journal of Information Management	92	1144	6
The Electronic Library	89	1233	7
Essays of an Information Scientist	83	1316	8
Malaysian Journal of Library & Information Science	78	1394	9
College and Research Libraries	68	1462	10

CC= Cumulative Citation.

Table- 8: Form of cited documents

Documents	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total	%
Books	86	65	110	91	57	133	73	141	52	60	24	892	12.32
Journals	394	469	542	416	242	535	556	368	340	370	361	4593	63.43
Web Resources	67	35	112	78	89	60	81	94	82	97	99	894	12.35
Conference	15	18	60	33	27	33	55	21	34	31	21	348	4.81
Workshop	4	1	4	4	9	2	5	1	8	9	1	48	0.66
Thesis/Dissertation	6	12	14	12	18	14	12	3	5	8	12	116	1.60
Reference Books	3	0	1	2	2	2	4	1	3	12	4	34	0.47
Report	4	29	18	22	9	13	5	7	17	6	16	146	2.02
Others	3	16	21	11	13	25	13	18	14	10	26	170	2.35

Findings

This study has discovered some useful facts about ALIS journal which has been discussed as below.

- The journal has published 377 articles during this study period and received maximum number of citation (704 citations) in 2009. The average citations per paper were 8.88.
- Total number of 723 authors contributed in ALIS. Out of 723 authors, 127 (17.57%) authors have single authorship and 596 (82.43%) authors have shared authorship. So, the trend of authorship towards shared authorship.
- Journals papers (63.43%) has selected as a chief source of information among the researchers, then web resources (12.35%), books (12.32%) and so on.
- Annals of Library and Information Studies (ALIS) selected as a core cited journals in this study, received 346 citations, followed by Scientometrics 340 citations and others.
- Most of the researchers were from India (62.86%), then Nigeria (15.65%), Sri Lanka (5.04%).

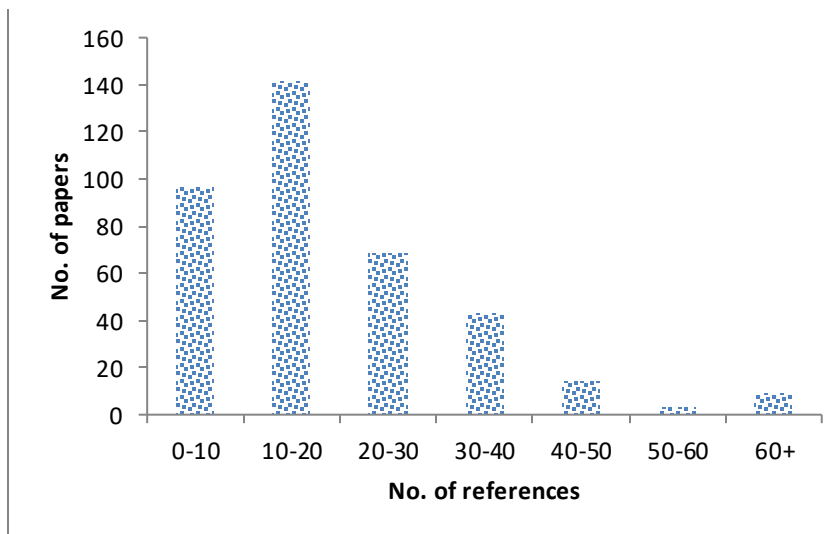


Figure- 3: References wise distribution of papers.

- In top most publishing authors, Sen, B. K. published 26 (6.9%) papers, Garg, K. C. published 15 (3.98%) papers, Gupta, B. M. published 12 (3.18%) papers, and we can say that these three authors are the senior researcher in relevant field.

Conclusion

This study is restricted to the research publication of Annals of Library and Information (ALIS) journal during the period 2008-2018. ALIS is the highly reputed journal in the library science domain, publishing a good number of research articles every year on a quarterly basis. This study indicates different aspects, i.e. citation pattern, authorship trend, geographic distributions of authors and so on.

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