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A Bibliometric assessment of India's Library and information science Research publications during 2011-2020

Prachi Srivastava

Central University of Punjab Bathinda, prachiacademic@gmail.com

Sharad Kumar Sonker

Babasaheb Bhimrao Ambedkar University Lucknow, sksonker@yahoo.co.in

Rupinder Singh

Centre for Studies in Social Sciences, Calcutta, jessedhammu@gmail.com

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***A Bibliometric assessment of India's Library and information science Research
publications during 2011-2020***

By

Dr. Prachi Srivastava

Central University of Punjab
Ghudda Bathinda-151401
Email: jiyapony@gmail.com

Dr S K Sonker

Associate Professor
Department of Library and Information Science
Babasaheb Bhimrao Ambedkar Central University,
Lucknow-226025
Email: sksonker@yahoo.co.in

Mr. Rupinder Singh

Centre for Studies in Social Sciences, Calcutta
Kolkata, West Bengal- 700 094
Email: jessedhammu@gmail.com

Abstract:

The aim of this paper is to conduct a bibliometric study to investigate the research output of library and information science in India. The SCOPUS database was selected to collect data from 2011 to 2020. Collected data was analysed on various parameters such as authorship pattern, year wise contribution of articles, most cited articles, top journals, top authors, document types, etc. The study found that in year 2019 Indian author contributed 471 research papers which 21.8% and highest in 10 years. Again in 2019, double authored article was highest in number with total of 252 articles. In periods of 10 years, about 2159 Indian articles were published with international collaboration. The growth of LIS research has been observed to be increasing till 2019, but decrease in 2020 possibly due to the Covid pandemic.

Keyword: *LIS, Bibliometric, Authorship pattern, Cited articles, Degree of Collaboration*

Introduction:

In the 21st century, information is increasing day by day, and with emerging trends in digital media, the information is being created and exchanged more rapidly than ever before. We have seen a radical change during last few decades, in the way we communicate and exchange data and interact with it. Here, bibliometrics is a series of techniques for studying and measuring texts and information. This method of study offers valuable measures of research progress, patterns, research specialization on different areas, and scholars' publishing priorities. Bibliometrics can be applied to any topic, but it is particularly useful in problems involving written communication.

Since journals are widely used to disseminate new insights and novel ideas, this research examines faculty members' publishing efficiency. Individuals and organizations want to know the effect of their study had on the scholarly world, both nationally and internationally. It is also helps in identifying the emerging trends in the field.

Literature review:

M. M. S. Karki and K. C. Garg (1997) has explained the quantitative and qualitative output of alkaloid chemistry in India. The paper explores the most productive organization involved in the research of alkaloid chemistry. The source data has been taken from Chemical Abstract. The paper focuses on the number of publications published national and international level and after analysis finds out the contribution of India in the respective field.

Archana Shukla et.al. (2020) The study examines the four decades publication on Library and information science. The data had taken from Incites, a web based analytical tool, of Clarivate Analytics (Web of Science) The study had analyzed most prolific author, co authorship, pattern of authorship, citations pattern, journals with highest number of citation , major theme of top cited paper and degree of collaboration during the period 1980 to 2019. DESIDOC Journal of Library & Information Technology,

Pulwasha M Iftikhar (2019) has analyzed in his study the top 30 most cited articles in Gestational Diabetes Mellitus Literature during the period 1946-2010. The data has taken from Scopus and

Web of science. The study signifies the importance and impact of articles published on the respective subject and found the top cited articles and the least cited articles, country of origin, journal of publication and the affiliated institution of the author.

B. M. Gupta and Dhawan S M (2009) has focused on growth and development of India in the field of science and technology the data drawn from the scopus database for the period of 1996 to 2006. The study analyzed India's publication share and status in the world, compared publication growth rate between developed and developing countries, subject priorities, countries sharing research profiles in life science and health sciences, physical science and engineering, physical science and engineering. Most productive subject area, high productive science and technology institutions in India, research output of different states of India and most cited papers.

Hendrik Stork, Jonas J. Astrin (2014) evaluated in their paper about the trends in biodiversity research. They have taken the data from the web of science database and analyzed the articles number of publications. Journal , author, number of authors per year, citation, Most frequently used meaningful word in publication title, abstract and annual growth of number of publications, authors and journals. They also focus on the average number of pages per publication per year.

Objectives:

- To calculate the year wise research contribution of the authors in the field of the library and information science in India.
- To discover the authorship pattern in research publications.
- To find out the degree of collaboration among the single v/s multiple author output in LIS research.
- To know the highly cited titles.
- To determine which journals have been chosen for the publication of a large number of research papers.
- To find out the most prolific authors in the field of library and information science.
- To determine the document types in which research published.

- To find out the countries with which Indian author has collaborated.

Methodology

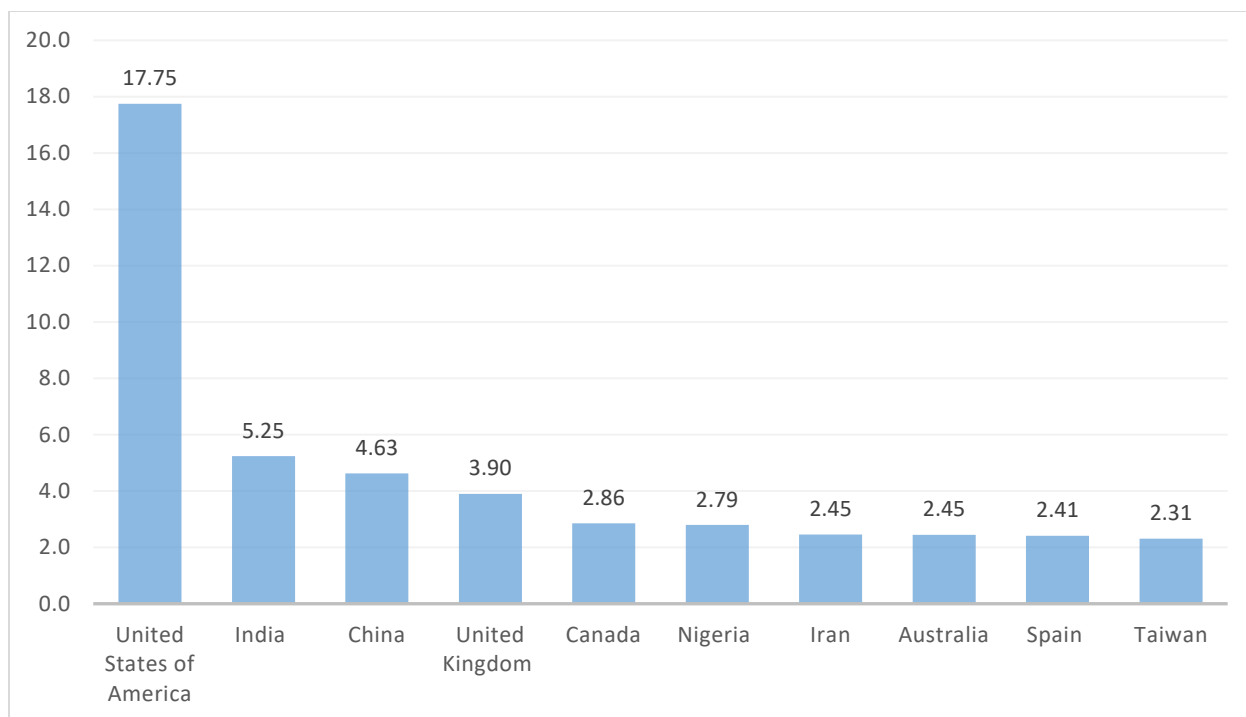
The data was downloaded from the SCOPUS database on the 28 January 2021 by using ‘Library and Information Science’ as a keyword to search and them limited to ‘India’ only. The period taken for the study was of about 10 years from 2011 to 2020. The data has been analysed using MS Excel.

Data Analysis and Interpretation

Top Ten Countries Published Literature in LIS Field

Sl. No	Country Name	No. of Articles	% of the share
1.	United States of America	7305	17.7
2.	India	2159	5.2
3.	China	1906	4.6
4.	United Kingdom	1605	3.8
5.	Canada	1177	2.8
6.	Nigeria	1150	2.7
7.	Iran	1010	2.4
8.	Australia	1008	2.4
9.	Spain	991	2.4
10.	Taiwan	952	2.3
	N=41156	19263	46.8

A Total of 41156 documents were published within ten years and the above table represents the top ten countries contributed more than 46 % of the total contributions. Where India ranked second in the top ten countries. The above tables gives a detailed view of the literature contributed by top ten countries in field of Library and Information Science research. India Despite being under-privileged in terms of funding and infrastructure for the libraries, still contribute more than other advanced countries, like United Kingdom, China, Canada, Australia, and Spain.



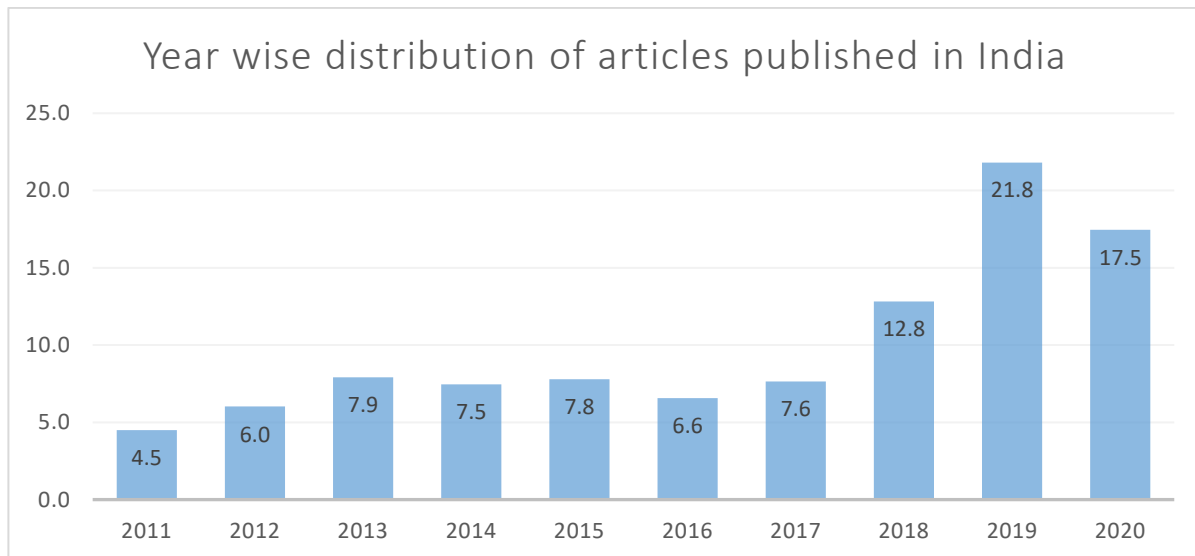
The above graph shows that the USA is the key player in publishing the Library and Information Science research worldwide, with whopping 17.7% total share. India is contributing 5.2% literature in the LIS profession, which makes us the second largest contributor after USA. Our neighboring China lies right behind us with a contribution of 4.6% literature share. United Kingdom published 3.9% of LIS literature and after that Canada scores 5th place with 2.9% of its contribution. Countries like Nigeria and Iran are also open and involved in LIS research, and publish 2.8% and 2.5% of total LIS literature, respectively. Australia and Spain, despite being more developed, make 2.4% submissions each, and out of these top ten most contributing countries, Taiwan holds the 10th rank, with 2.3% contributions.

Year Wise Distribution of Articles

Sl. No	Year	No of articles	% of articles
1.	2020	377	17.4
2.	2019	471	21.8
3.	2018	277	12.8
4.	2017	165	7.6
5.	2016	142	6.5

6.	2015	168	7.7
7.	2014	161	7.4
8.	2013	171	7.9
9.	2012	130	6.0
10.	2011	97	4.4
	Total	2159	100

Now, if we focus on Indian contribution in LIS research, the above table shows that there has been consistent growth in India's contribution in this field. In the last ten years, a total of 2159 articles have been published. The below given chart shows that the year 2018 and 2019 witnessed rapid growth in LIS research published in SCOPUS indexed journals. However, the publication rate has decreased in the year 2020.

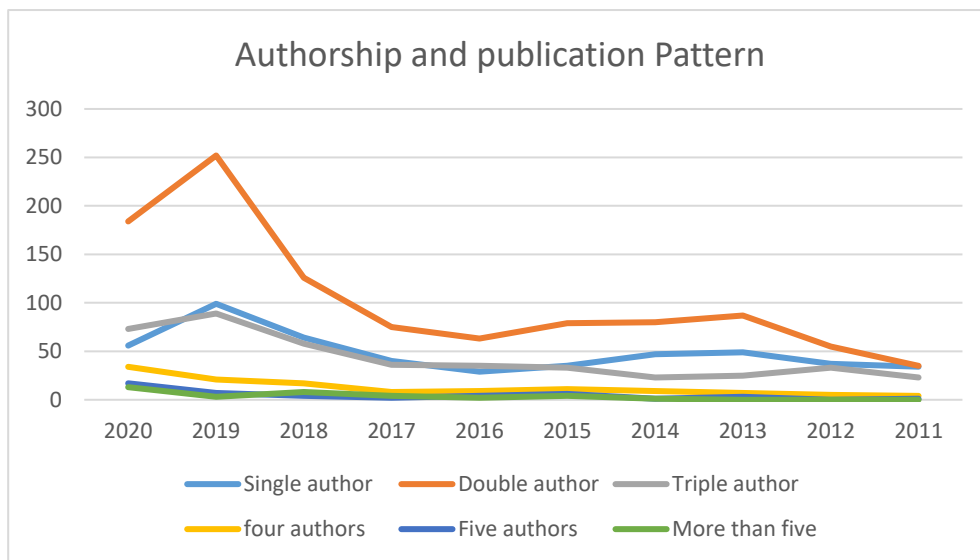


Pattern of Author in the publication of the articles

Sl. No	Year	Single Author	Double Author	Triple Author	Four Authors	Five Authors	More Than Five	Total
1.	2020	56	184	73	34	17	13	377

2.	2019	99	252	89	21	07	03	471
3.	2018	64	126	58	17	04	08	277
4.	2017	40	75	36	08	02	04	165
5.	2016	29	63	35	09	04	02	142
6.	2015	35	79	33	11	06	04	168
7.	2014	47	80	23	09	01	01	161
8.	2013	49	87	25	07	03	00	171
9.	2012	37	55	33	05	00	00	130
10.	2011	34	35	23	04	01	00	97
							Total	2159

If we look at the authorship pattern in publication, we can recognize the trend, most of the publications are double authored and the year 2019 witnessed the most publications in double author category, with 252 publications in that year, and about 184 double author papers in year 2020. The Trend shows consistent and almost similar patterns in single author and triple author article contributions throughout this time. The pattern shows that most of the publications are double authors which makes total of 1036 double author contributions, and then total 490 single author papers were published in the last ten years. 428 Triple author contributions were made which draws a close trend line with single author contributions.



Analysis of single v/s multiple authors output in LIS research

The degree of collaboration is defined as the ratio of collaborative publication and total number of publications. This formula is suggested by Dr K Subramanyam in the year 1983 to calculate the authorship collaborations among Single and multi-author.

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

Here, C refers the degree of Author Collaboration,

N_m refers to multiple authors in a research paper, and

N_s represent the single authorship.

Year	Single Author	Multiple Authors	Degree of Collaboration
2020	56	321	0.85
2019	99	372	0.79
2018	64	213	0.77
2017	40	125	0.76
2016	29	113	0.80
2015	35	133	0.79
2014	47	114	0.71
2013	49	122	0.71
2012	37	93	0.72
2011	34	63	0.65
Total	490	1669	0.77

The degree of collaboration is calculated, and the value is shown in the above table. That shows the degree of Collaborative research increased during the period in the year 2011 it was 0.65 and the year 2020 it was 0.85.

Highly Cited Title

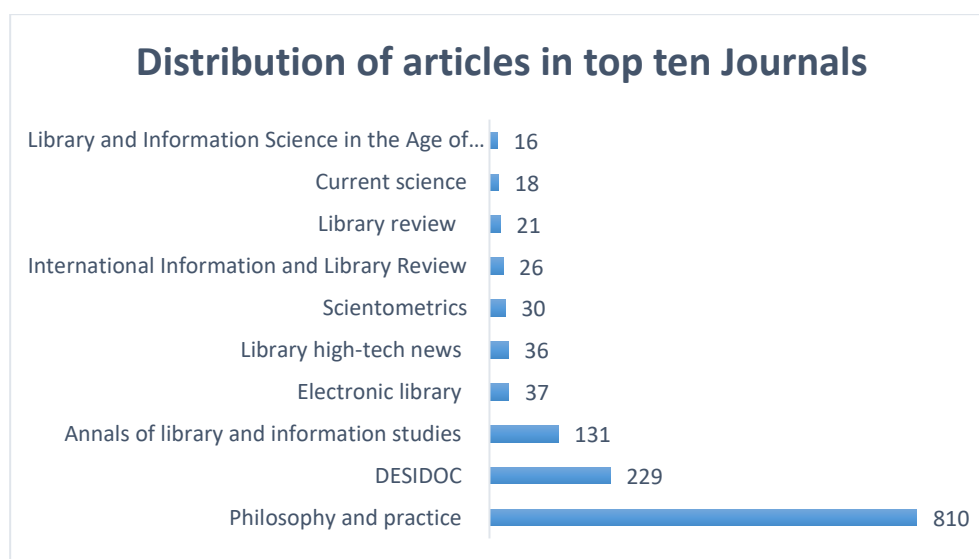
	Title of Article	Citations
1.	Mapping the intellectual structure of scientometrics: A co-word analysis of the journal scientometrics (2005–2010)	83
2.	Use of social networking sites by research scholars of the University of Delhi: A study	61
3.	Short and amusing: The relationship between title characteristics, downloads, and citations in psychology articles	43
4.	Responding to user's expectation in the library: Innovative Web 2.0 applications at JUIT Library: A case study	36
5.	Forty-five years of Journal of Business Research: A bibliometric analysis	36
6.	Mapping of nanoscience and nanotechnology research in India: A scientometric analysis, 1990-2009	33
7.	Role and users' approach to social networking sites (SNSs): A study of universities of North India	23
8.	Use of e-journals among research scholars at Central Science Library, University of Delhi	23
9.	Academic social networking sites: Comparative analysis of ResearchGate, Academia.edu, Mendeley and Zotero	21
10.	A bibliometric analysis of highly cited papers from India in Science Citation Index Expanded	20

The above table shows the most cited Indian papers in library and information science research, which consist of topics like sociometric and bibliometric analyses, and comparative studies.

Top Ten Journals Selected for Publication

Sl. No	Journals	No. of Articles
1.	Library Philosophy and practice	810
2.	DESIDOC Journal of Library & Information Technology	229
3.	Annals of Library and Information Studies	131
4.	Electronic Library	37
5.	Library High-Tech News	36
6.	Scientometrics	30
7.	International Information and Library Review	26
8.	Library Review	21
9	Current Science	18
10.	Library and Information Science in the Age of MOOCs	16

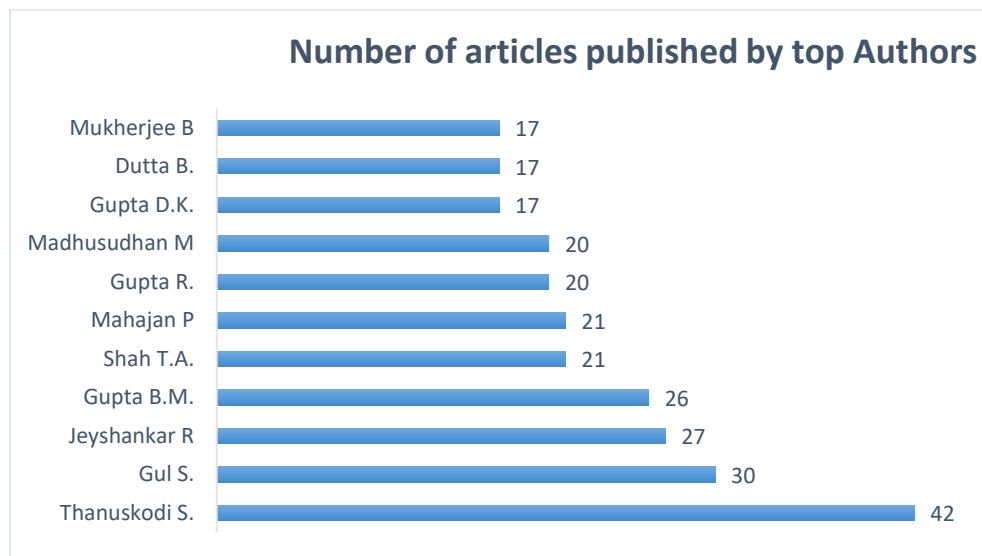
The above table and following bar chart depict the top ten journals selected for publishing. These journals are leading ones in the field of library and information science. Most of the contributors have published in Library Philosophy and Practice e-journal with total of 810 articles, and then DESIDOC Journal of Library & Information Technology is the second most popular in publishing the quality research work in LIS domain. An Annals of Library and Information Studies is the third leading journal in publishing library and information science research.



Prolific Authors in the Library and Information Science

Sl. No.	Author	Affiliation	No. of Articles
1.	Thanuskodi, S.	Alagappa University	42
2.	Gul, S.	University of Kashmir	30
3.	Jeyshankar, R	Alagappa University	27
4.	Gupta, B.M.	NISTADS	26
7.	Shah, T.A.	Central University of Kashmir	21
5.	Mahajan, P	Panjab University	21
6.	Madhusudhan,M	University of Delhi	20
8.	Gupta, D.K.	Central University of Haryana	17
9	Dutta, B.	Vidyasagar University	17

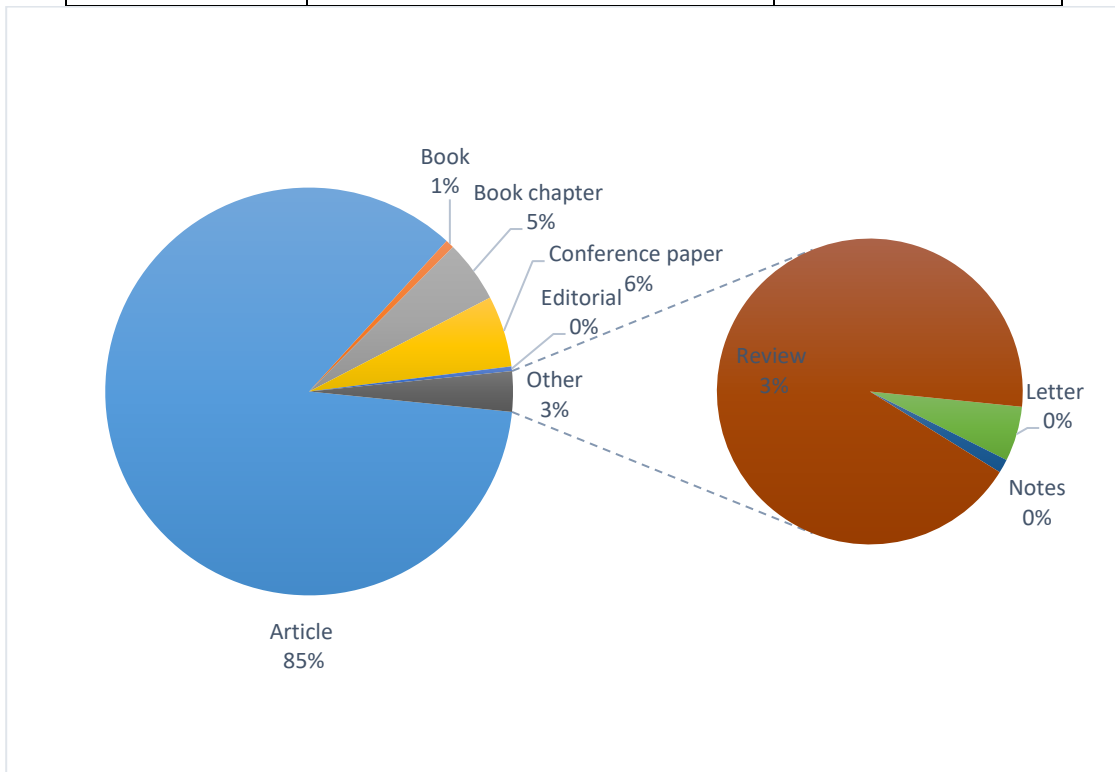
Here, the above table gives the detail of top authors and their contributions in the above-mentioned journals of library and information science research. The affiliation of the authors is represented in the table which shows the present working organization.



Types of Documents Used for the Contributions

Sl. No.	Types of Documents	No. of Publications
1.	Article	1839

2.	Book	15
3.	Book chapter	106
4.	Conference paper	122
5.	Editorial	08
6.	Letter	04
7.	Notes	01
8.	Review	64
	Total	2159

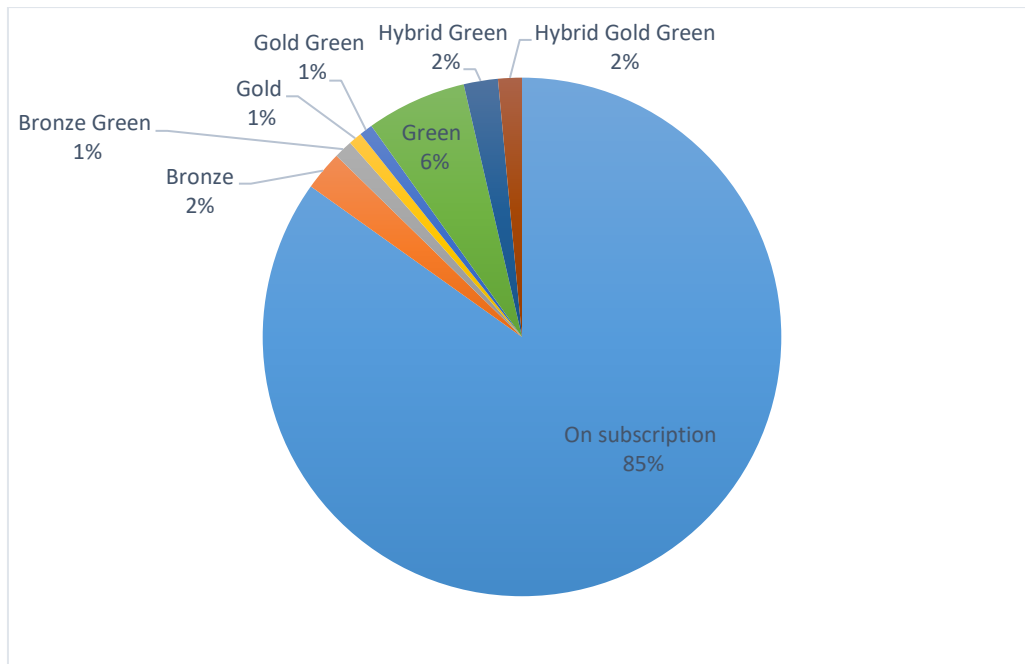


The above given chart and the descriptive table shows the statistics of publication in library and information science literature in India in different document types. It signifies that most of the literature is published in the form of articles, which is 85% of the total literature volume and total of 1839 articles were published in last ten years. The second most favored format is publishing in conference and seminar proceedings which make 6% of the total contribution. Then authors prefer to publish their research and findings in form of book chapters and review. Only 15 books were published in last ten years in library and information science research which only comes to 1% of the total published work in the field.

Access Type

Sl. No.	Types of Access	No. of Publications
1.	On subscription	1832
2.	Bronze	53
3.	Bronze Green	25
4.	Gold	18
5.	Gold Green	18
6.	Green	135
7.	Hybrid Green	46
8.	Hybrid Gold Green	32
	Total	2159

The above given table and chart below shows that the LIS literature was mostly published in the journals which are on subscription-based model. And 6% articles were published in Green Access model.

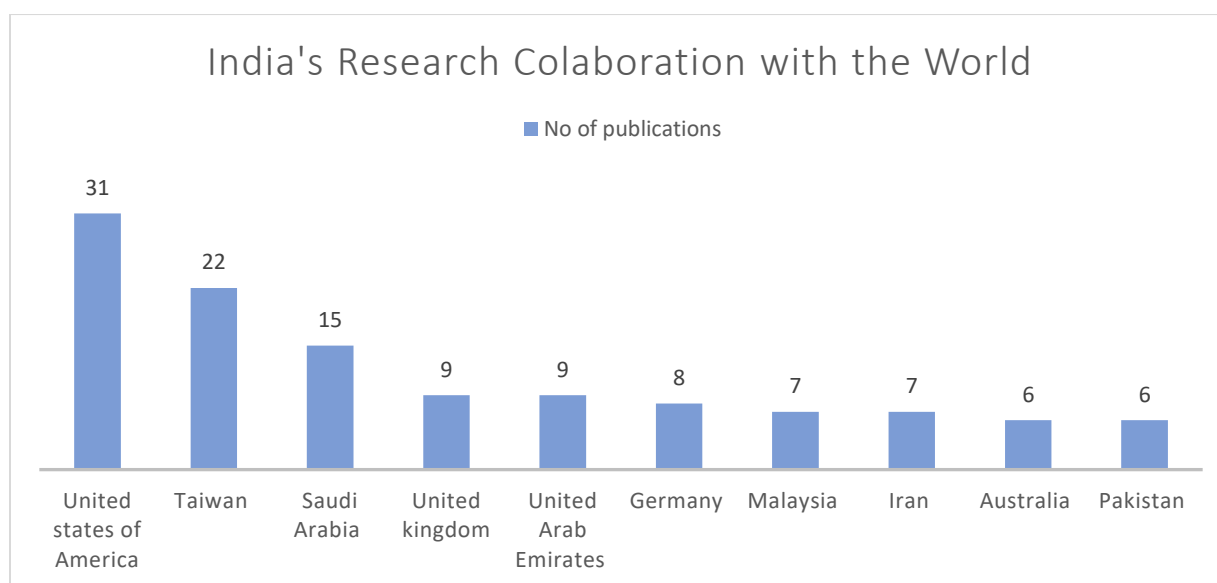


Top Ten Collaborated Countries

Sl. No.	Collaborated Country	No. of Publications
1.	United States of America	31

2.	Taiwan	22
3.	Saudi Arabia	15
4.	United Kingdom	09
5.	United Arab Emirates	09
6.	Germany	08
7.	Malaysia	07
8.	Iran	07
9.	Australia	06
10.	Pakistan	06
	Total	120

The above table represents the top ten countries with those Indian researches have collaborated in the publication of research articles. Indian authors have collaborated with authors of 70 countries for the publication of 2159 research output.



The above given graph accurately represents the collaboration pattern of Indian LIS researchers with researchers from top 10 countries. Out of 120 collaborative publications, most of the literature was published in collaboration with United States of America. Taiwan becomes the second country which has collaborated with Indian LIS researchers with 22 joint publications. Saudi Arabia is the third country with which Indian LIS researchers have collaborated and about

total of 15 articles were published. The authors from other countries, like United Kingdom, Germany, Iran, Australia, and Pakistan have also make joint contributions in library and information science research published by Indian Authors.

Conclusion

The study shows the contribution of Indian authors in the field of library and information science over the last 10 years and LIS research has shown growth during the period of 2011-2020. The study shows the continuation growth of LIS research but in the year 2020 the publication rate is decreased. The study shows authorship patterns whether it is single, double or multiple. Top ten highly cited Articles, top ten journal for publication, Prolific authors in the library and information science with number of articles published by top authors documents used for the contributions that most of the literature is published in the form of Articles and top collaborated countries.

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