Spring 4-2019

Bibliometric portrait of select Open Access Journals in the field of Library and Information Science: A Scopus based analysis

Nilaranjan Barik
KIIT University, Bhubaneswar-751024, India, nilaranjan.barik@kiit.ac.in

Puspanjali Jena
Utkal University, Bhubaneswar-750004, India, pjutkal1987@yahoo.co.in

Bibliometric portrait of select Open Access Journals in the field of Library and Information Science: A Scopus based analysis

Nilaranjan Barik
Asst. Librarian
KIIT Deemed to be University, Bhubaneswar-751024, India,
Email- nilaranjan.barik@kiit.ac.in

Prof. (Dr.) Puspanjali Jena
Professor & Head
P.G. Dept. of Library and Information Science,
Utkal University-751004, India, Email-pjutkal1987@yahoo.co.in

Abstract
The present study is a bibliometric analysis of select 10 open access journals in the field of Library and Information Science (LIS). The study intends to establish an idea about the yearly growth of publications, most contributing countries, most contributing institutions, types of documents published, most cited publications, prolific authors, citation impact, authorship pattern, and some other bibliometric aspect of these journals. The findings in the study reveal that there is steady growth of literature seen in LIS open access journals during the period of study. About 83 countries and 990 institutes/ universities across the globe have contributed to these journals. United States of America is the leader country among all contributing countries. The publications in LIS open access journals are dominated by single authorship pattern. Also, some other aspects of these journals which have been revealed in the present study will immensely benefit the library professionals, LIS researchers and faculty members for selection of LIS open access journals.

Keywords: Open access, bibliometric analysis, citation impact, authorship pattern, Collaboration Index, Degree of Collaboration, Collaborative Co-efficient, Scopus

Introduction

Scientific publishing is undergoing considerable changes due to massive growth of open access journals. The open access journals are widely expanding its domain because enormous benefits acquired from it. Budapest Open Access Initiative (2002) defines open access that, open access is the free availability of articles on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles and crawl them for indexing, pass them as data to software, or use them for any other lawful purposes, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Similarly, Association of Research Libraries (2004) defined open access as any dissemination model created with no expectation of direct monetary return and which makes works available online at no cost to the readers.

Now a day's most leading publishers like Elsevier, Taylor and Francis, Springer and others have introduced open access journals in a big way and their acceptance among authors for publishing articles has also increased enormously. It is seen that, at the end of 2018, Directory of Open Access Journals (DOAJ) has registered 12766 journals with 3833928 publications contributed by 128 countries.

The present study is a bibliometric analysis of some selected open access Library and Information Science journals indexed in Scopus database. The study analyzes the growth pattern of publications, most contributing countries, most cited papers, most active authors, types of documents, degree of collaboration etc. of covered open access journals in the field of Library and Information Science.

Literature Review

The Literature review is the significant part of a research, which gives an idea about the previous studies and insights towards the possibilities of the present study. Some preferred literature reviewed for the present study is presented as under. In the aforesaid direction Mukherjee (2009) viewed that open access journals in LIS are rapidly establishing themselves as a viable medium for scholarly communication. Linear growth is the best fitting curve of the open access journals. Rufai (2011) revealed that, LIS open access journals are exponentially growing as some of the commercial publishers have joined their hands as open access market players. Open access titles in LIS need to be restructured and low income nations have to be involved in the field of open access bazaar. Xia (2012) revealed in his study that open access journals have gained momentum supporting high-quality research and publication, and some open access journals have been ranked as high as the best traditional print journals. Scholars need to make more contributions to open access journal publications, and also librarians and information professionals to make continuous efforts for library publishing.

Jamdade (2013) in the study analyzed a total of 137 LIS journals based on their subject heading, country wise distribution and language pattern. The study revealed that USA is the leading country to publish most in open access LIS journals. Moreover, the study found that Computer Science and Library and Information Science were the two interlinked disciplines in which researches were frequently carried on. Grandbois and Beheshti (2014) reveal the development of open access practices amongst the library and information science authors and show that 60% of LIS authors use open access publications. Also the study show that there is linear growth of open access publications and the rate of access is quite lower in comparison to its publication rate. Gunasekaran and Arunachalam (2014) opine in their study that moving to open access platform has proven to be advantageous to developing country journals. Publishing in open access platform has helped a large number of Latin American and Indian journals to improve their Impact Factors (IF). Tzarnas and Tzarnas (2015) opine that open-access journals are growing over the years. Many traditional printed journals are also sponsoring open-access options (the hybrid model) for accepted articles. So, authors and researchers need to be aware to select the right journals for publication of their work. Mondal

(2016) in his study finds that India and Pakistan have added good number of e-journals to DOAJ in comparison to the rest of SAARC countries. Afghanistan and Maldives are still far away from the open access movement. In low income SAARC countries, it is important to create awareness among masses about the open access concept and their benefits. Hrynaszkiewicz (2016) reveals in his study that researchers are quite interested in open access publishing. Across the disciplines the growth of open access journals has increased in the field of Life Sciences followed by Social Sciences and Humanities. Ghane and Niazmand (2016) attempt to identify the status of open access (OA) journals published in Developing 8 (D-8) countries, i.e. Bangladesh, Egypt, Indonesia, Iran, Malaysia, Nigeria, Pakistan and Turkey. Study reveals that Egypt published the most journals (490) and Bangladesh the fewest (29). Egypt, Iran and Turkey accounted for approximately 73.5 per cent of all journals. Hodonu-wusu and Lazarus (2018) provide an overview of the Library and Information Science (LIS) research from 1980 to 2017 and reveal that USA, England and China are among the top 25 countries that are productive in LIS research.

Need of the study

A quality journal is the indicator of quality literature growth in any field of knowledge. It emerges as the main channel for transmitting knowledge. Due to the escalating cost of the journals and lack of adequate library budgets, the researchers, individuals as well as the library and information centers are unable to procure a good quantity of quality journals for their research and academic purposes. So, identification and selection of proper journals from open access publications could help them in a better way. The need of the present study thus, intends to guide;

- The librarians, to develop a quality collection of open access journals in their library and information centers; and
- Academicians and researchers to access plenty of literature for their academic and research purposes free of cost.

Objectives

The main objectives of the present study are;

- To establish an idea on year wise distribution of LIS publications,
- To identify the most contributing countries,
- To identify the most contributing institute/ universities,
- To identify the types of documents published by LIS open access journals,
- To identify the most cited papers,
- To know the prolific authors,
- To identify the yearly growth of citations, and ,
- To know the authorship pattern & degree of collaboration among authors.

Scope & Limitations of the Study

The scope of the present study is limited to the select 10 LIS open access journals in the field of Library and Information Science and indexed in Scopus database. The study limits to only 5208 publications which are published by the 10 LIS journals covered in the study and indexed in Scopus database. The 10 LIS journals covered in the study with their abbreviation are; i) College & Research Libraries (CRL), ii) D-Lib Magazine (D-LIB), iii) Information Research (IR), iv) Information Technologies and Libraries (ITL), v) Informing Science (IS), vi) Journal of Medical Library Association (JMLA), vii) LIBER Quarterly (LIBERQ), viii) Library and Information Science Research (LISR), ix) Libres (LIBRES), and x) School Library and Media Research (SLMR). The period of study of the source journals are limited to the year 2001 to 2015 only.

Methodology

The study has used Scopus database to select the covered 10 LIS open access journals using some basic criteria like i) *The journal must have published in an open access platform and registered in Directory of Open Access Journals (DOAJ)* ii) *The journal must have indexed by Scopus database before 31st of December, 2000 and must be publishing in an Active status.* iii) *The journal must have indexed uninterruptedly since 2001 to 2015.* The publications of selected covered journals have been searched individually and the required data were exported in an excel spreadsheet. The gathered data were analyzed using some statistical methods like average, mean, percentage and the final out comes were presented through tables for better understanding of the results.

Results & Discussions

Yearly Distribution of Publications

The yearly distribution of publications shows that in the year 2002, a highest number of 433(8.31%) publications were contributed followed by the year 2003 with 416(7.99%) publications, and 2006 with 405(7.78%) publications. The lowest numbers of publications were contributed in the year 2013 with 285(5.47%) publications. The annual growth rate of publications in the present study shows a steady growth of literature. The mean value of yearly percentage of publications is 6.67; however the annual cumulative growth rate of publications shows at 0.31 mean values.

Table1: Year wise distribution of publications

Sl No	Publication Year	Yearly Publications	(%) of Yearly Publications	Yearly Cumulative Publications	(%) of Yearly Cumulative Publications	Annual Growth Rate (AGR) of Cumulative Pubications
1	2001	387	7.43	387	15.75	0.00
2	2002	433	8.31	820	23.73	0.46
3	2003	416	7.99	1236	30.91	0.47
4	2004	374	7.18	1610	37.62	0.43
5	2005	349	6.70	1959	45.39	0.38
6	2006	405	7.78	2364	52.04	0.35
7	2007	346	6.64	2710	58.31	0.32
8	2008	327	6.28	3037	64.36	0.29
9	2009	315	6.05	3352	70.39	0.27
10	2010	314	6.03	3666	76.21	0.25
11	2011	303	5.82	3969	82.32	0.24
12	2012	318	6.11	4287	87.79	0.22
13	2013	285	5.47	4572	93.39	0.21
14	2014	292	5.61	4864	100.00	0.20
15	2015	344	6.61	5208		0.19
Total		5208	**(Mean) 6.67**			**(Mean) 0.31**

Distribution of publications by its country of origin

The country wise distribution of publications shows that 83 countries (excluding unidentified countries) across the world have published their research in covered LIS open access journals. Amongst these countries United States of America is the leader. United States of America (USA) has alone contributed more than 50% of the total of publications with 2822(54.19%) publications followed by United Kingdom (UK) with 372(7.14%) publications, Canada with 242(4.65%) publications, Australia with 176(3.38%) publications and so on. It is interesting to see that the first 10 countries in the top of the rank list have contributed a total of 4091(78.55%) publications whereas the rest 73 countries have contributed only 1117(21.45%) publications. Keeping an eye on continent wise distribution of publications, Europe is the leader continent with a participation of 34 countries. Asian countries like China, Singapore and Taiwan are much ahead of India. India stands in the 22nd rank with 18(0.35%) publications amongst 83countries. As a developing country, India should give more emphasis on their authors to make them aware to publish their research in open access journals. Figure-5 clearly depicts the country wise distribution of LIS open access publications.

Table 2: Distribution of Publications by Country

Sl. No.	Name of the Country	Name of the Continent	Total (n=5208)	Percentage (%)	Rank
1	United States	North America	2822	54.19	1
2	United Kingdom	Europe	372	7.14	2
3	Canada	North America	242	4.65	3
4	Australia	Australia	176	3.38	4
5	Germany	Europe	103	1.98	5
6	Spain	Europe	99	1.9	6
7	Netherlands	Europe	88	1.69	7
8	Finland	Europe	78	1.5	8

9	Sweden	Europe	56	1.08	9
10	Italy	Europe	55	1.06	10
11	New Zealand	Oceania	42	0.81	11
12	China	Asia	41	0.79	12
13	France	Europe	39	0.75	13
14	South Africa	Africa	37	0.71	14
15	Singapore	Asia	35	0.67	15
16	Greece	Europe	34	0.65	16
17	Austria	Europe	31	0.6	17
18	Denmark	Europe	31	0.6	17
19	Norway	Europe	31	0.6	17
20	South Korea	Asia	30	0.58	18
21	Israel	Asia	29	0.56	19
22	Belgium	Europe	28	0.54	20
23	Taiwan	Asia	20	0.38	21
24	India	Asia	18	0.35	22
25	Japan	Asia	18	0.35	22
26	Ireland	Europe	16	0.31	23
27	Portugal	Europe	16	0.31	23
28	Hong Kong	Asia	15	0.29	24
29	Brazil	South America	14	0.27	25
30	Iran	Asia	12	0.23	26
31	Poland	Europe	11	0.21	27
32	Switzerland	Europe	11	0.21	27
33	Malaysia	Asia	10	0.19	28
34	Czech Republic	Europe	9	0.17	29
35	Mexico	North America	9	0.17	29
36	Turkey	Europe	9	0.17	29
37	Slovenia	Europe	8	0.15	30
38	Hungary	Europe	7	0.13	31
39	Iceland	Europe	7	0.13	31
40	Lithuania	Europe	7	0.13	31
41	Nigeria	Africa	7	0.13	31
42	Chile	South America	6	0.12	32
43	Finland	Europe	6	0.12	32
44	Uganda	Africa	6	0.12	32
45	Pakistan	Asia	5	0.1	33
46	Kuwait	Asia	4	0.08	34
47	Slovakia	Europe	4	0.08	34
48	United Arab Emirates	Asia	4	0.08	34
49	Argentina	South America	3	0.06	35

50	Colombia	South America	3	0.06	35
51	Croatia	Europe	3	0.06	35
52	Cuba	North America	3	0.06	35
53	Estonia	Europe	3	0.06	35
54	Russian Federation	Europe	3	0.06	35
55	Serbia	Europe	3	0.06	35
56	Thailand	Asia	3	0.06	35
57	Botswana	Africa	2	0.04	36
58	Ecuador	South America	2	0.04	36
59	Latvia	Europe	2	0.04	36
60	Macedonia	Europe	2	0.04	36
61	Netherlands Antilles	Europe	2	0.04	36
62	Qatar	Asia	2	0.04	36
63	Trinidad and Tobago	South America	2	0.04	36
64	Zambia	Africa	2	0.04	36
65	Aruba	South America	1	0.02	37
66	Bahrain	Asia	1	0.02	37
67	Bangladesh	Asia	1	0.02	37
68	Bulgaria	Europe	1	0.02	37
69	Costa Rica	North America	1	0.02	37
70	Cyprus	Europe	1	0.02	37
71	Fiji	Oceania	1	0.02	37
72	Ghana	Africa	1	0.02	37
73	Honduras	North America	1	0.02	37
74	Iraq	Asia	1	0.02	37
75	Kazakhstan	Asia	1	0.02	37
76	Kenya	Africa	1	0.02	37
77	Panama	North America	1	0.02	37
78	Peru	South America	1	0.02	37
79	Saudi Arabia	Asia	1	0.02	37
80	Swaziland	Africa	1	0.02	37
81	Togo	Africa	1	0.02	37
82	Uruguay	South America	1	0.02	37
83	Venezuela	South America	1	0.02	37
Undefined Countries			391	7.51	

Distribution of Publications by Institute of Affiliation

Table-3 shows the affiliation wise distribution of publications and their ranking based on numbers of publications. Across the world, authors from 990 universities/ institutions have published their research in open access LIS journals during the period 2001 to 2015. Interestingly, amongst the top 100 prominent universities/ institutions 70 universities/

institutions are from USA. Amongst the rest 30 university/ institutions, 11 university/ institutions are from UK, 5 from Canada and Australia each, 3 from Spain and 1 each from Finland, Sweeden, Israel, Singapore, Italy, and New Zealand. The University of Illinois at Urbana-Champaign, USA is the top contributing institute with 112(2.15%) publications and rank-1, followed by The University of North Carolina, Chapel Hill, USA with 74(1.42%) publications and rank-2, Florida State University, USA with 68(1.31%) publications and rank-3 and so on.

Table 3: Distribution of Publications by Institute of Affiliation

Sl. No	*Institute of Affiliation*	*Name of the Country*	*Total*	*Percentage (%)*	*Rank*
1	University of Illinois at Urbana-Champaign	USA	112	2.15	1
2	The University of North Carolina at Chapel Hill	USA	74	1.42	2
3	Florida State University	USA	68	1.31	3
4	Simmons College	USA	63	1.21	4
5	University of Washington, Seattle	USA	59	1.13	5
6	National Library of Medicine	USA	58	1.11	6
7	Cornell University	USA	55	1.06	7
8	University of Illinois at Chicago	USA	55	1.06	7
9	Corporation for National Research Initiatives	USA	50	0.96	8
10	University of Pittsburgh	USA	49	0.94	9
11	Western University	Canada	49	0.94	9
12	Ohio State University	USA	47	0.9	10
13	University of Alberta	Canada	46	0.88	11
14	Tampereen Yliopisto	Finland	44	0.84	12
15	University of Maryland	USA	42	0.81	13
16	Indiana University	USA	39	0.75	14
17	Syracuse University	USA	39	0.75	14
18	Rutgers, The State University of New Jersey	USA	36	0.69	15
19	University of South Florida Tampa	USA	35	0.67	16
20	Hogskolan i Boras	Sweden	33	0.63	17
21	University of Kentucky	UK	33	0.63	17
22	VAMedical Center	USA	33	0.63	17
23	Charles Sturt University, Wagga Wagga	Australia	32	0.61	18
24	University of Toronto	Canada	32	0.61	18
25	University of Arizona	USA	30	0.58	19

26	University Michigan Ann Arbor	USA	29	0.56	20
27	University of Colorado at Boulder	USA	29	0.56	20
28	Old Dominion University	USA	27	0.52	21
29	Drexel University	USA	24	0.46	22
30	Texas A and M University	USA	24	0.46	22
31	University of Missouri-Columbia	USA	24	0.46	22
32	Indiana University-Purdue University Indianapolis	USA	22	0.42	23
33	McGill University	Canada	22	0.42	23
34	University of Sheffield	UK	22	0.42	23
35	University of Wisconsin Madison	USA	22	0.42	23
36	Bar-Ilan University	Israel	21	0.4	24
37	Johns Hopkins University	USA	21	0.4	24
38	Los Alamos National Laboratory	USA	21	0.4	24
39	Kent State University	USA	20	0.38	25
40	Nanyang Technological University	Singapore	20	0.38	25
41	National Library of Australia	Australia	20	0.38	25
42	University of Alabama	USA	20	0.38	25
43	University of Michigan	USA	20	0.38	25
44	Wayne State University	USA	20	0.38	25
45	University at Buffalo State University of New York	USA	19	0.36	26
46	University of California, Los Angeles	USA	19	0.36	26
47	University of Oklahoma	USA	19	0.36	26
48	Library of Congress	USA	18	0.35	27
49	Loughborough University	UK	18	0.35	27
50	New York University	USA	18	0.35	27
51	University of Alabama at Birmingham	USA	18	0.35	27
52	University of New Mexico	USA	18	0.35	27
53	University of Technology Sydney	Australia	18	0.35	27
54	University of Texas at Austin	USA	18	0.35	27
55	Istituto di Scienza e Tecnologie dell'Informazion	Italy	17	0.33	28
56	San Jose State University	USA	17	0.33	28
57	The British Library	UK	17	0.33	28

58	Universidad de Granada	Spain	17	0.33	28
59	University of Notre Dame	USA	17	0.33	28
60	Louisiana State University	USA	16	0.31	29
61	National Institutes of Health, Bethesda	USA	16	0.31	29
62	Pennsylvania State University	USA	16	0.31	29
63	University College London	UK	16	0.31	29
64	University at Albany State University of New York	USA	16	0.31	29
65	University of Massachusetts Medical School	USA	16	0.31	29
66	University of North Texas	USA	16	0.31	29
67	University of Utah	USA	16	0.31	29
68	University of Wisconsin Milwaukee	USA	16	0.31	29
69	Victoria University of Wellington	New Zealand	16	0.31	29
70	DePaul University	USA	15	0.29	30
71	Virginia Polytechnic Institute and State University	USA	15	0.29	30
72	The University of British Columbia	Canada	14	0.27	31
73	Universidad Carlos III de Madrid	Spain	14	0.27	31
74	University of Nevada, Las Vegas	USA	14	0.27	31
75	University of Southampton	UK	14	0.27	31
76	University of Tennessee, Knoxville	USA	14	0.27	31
77	University of Utah Health Sciences Center	USA	14	0.27	31
78	Weill Cornell Medical College	USA	14	0.27	31
79	King's College London	UK	13	0.25	32
80	North Carolina State University	USA	13	0.25	32
81	Online Computer Library Center	USA	13	0.25	32
82	Stanford University	USA	13	0.25	32
83	The University of Tennessee System	USA	13	0.25	32
84	UC Berkeley	USA	13	0.25	32
85	Universidad de Murcia	Spain	13	0.25	32
86	University of Strathclyde	UK	13	0.25	32
87	University of Virginia	USA	13	0.25	32
88	University of York	UK	13	0.25	32
89	Harvard University	USA	12	0.23	33

90	Manchester Metropolitan University	UK	12	0.23	33
91	North-western University	USA	12	0.23	33
92	The Open University	UK	12	0.23	33
93	Technische Universitat Wien	Australia	12	0.23	33
94	University of Florida Health Science Center	USA	12	0.23	33
95	University of Illinois	USA	11	0.21	34
96	University of Maryland, Baltimore	USA	11	0.21	34
97	University of Vermont	USA	11	0.21	34
98	Yale University	USA	10	0.19	35
99	OCLC Research	USA	10	0.19	35
100	Queensland University of Technology QUT	Australia	10	0.19	35
101	890 University/ Institutions with (1-9) publications	-	2746	52.72	-

Distribution of Publications by Types of Documents

Table-4 illustrates the distribution of 5208 publications by their types of documents. Whole 5208 publications were grouped under broad eight categories of documents like Article, Review Article, Editorial, Letter, Erratum, Conference Papers, Note, and Short Communications. It is seen that highest 61.37% of publications were published in the form of Articles, and rest 38.63% of publications were published in the form of Review Article, Editorial, Letter, Erratum, Conference papers, Note, and Short Communications. So, it is evident in the study that, "Article" is the most popular types of documents published by LIS researchers.

Table 4: Distribution of Publications by Types of Documents

SL No	*Source Journal (abbreviated)*	*Article*	*Review Article*	*Editorial*	*Letter*	*Erratum*	*Conference Paper*	*Note*	*Short Communication / Survey*	*Total No. of Publications*
1	CRL	365	123	41	13	7	3	1	1	554
2	D-LIB	647	127	113	80	0	130	208	12	1317
3	IR	507	41	51	4	0	63	8	1	675
4	ITL	214	92	93	0	0	15	1	2	417
5	IS	120	29	1	0	0	9	0	0	159
6	JMLA	525	89	62	41	21	125	48	7	918
7	LIBER	235	8	44	0	0	147	17	1	452
8	LISR	408	30	57	1	4	0	0	0	500
9	LIBRES	88	23	2	0	0	0	2	0	115
10	SLMR	87	13	0	0	0	0	1	0	101
Total		3196	575	464	139	32	492	286	24	5208
Percentage(%)		61.37	11.04	8.91	2.67	0.61	9.45	5.49	0.46	100.00

Highly cited papers

Table 5 reveals the top 10 highly cited publications published during the period 2001 to 2015. The publication title "Social bookmarking tools (I): A general review" authored by Hammond, T., Hannay, T., Lund, B., and Scott, J. in D-Lib Magazine has been identified as most cited paper with 279 citations. This shows a positive perception of researchers and authors towards open access literature. There is clear visibility of scholarly impact of such journals or literature. Similarly, paper title "Impact factor: A valid measure of journal quality?" authored by Saha, S., Saint, S. and Christakis, D. A. in Journal of the Medical Library Association has been identified as 2nd highest cited paper with 242 citations followed by paper title "Comparing the impact of Open Access (OA) vs. non-OA articles in the same journals" authored by Harnad, S. and Brody, T. in D-Lib Magazine is 3rd highest cited paper with 189 citations. Therefore, it is inferred that referred open access journals have received significant impact and influence upon the readers community may be due to their high degree of visibility.

Table 5: Highly cited papers

Sl No	***Title of the Paper***	***Author***	***Year***	***Source Journal***	***No. of Citation***	***Rank***
1	Social bookmarking tools (I): A general review	Hammond, T., Hannay, T., Lund, B., Scott, J.	2005	D-Lib Magazine	279	1
2	Impact factor: A valid measure of journal quality?	Saha, S., Saint, S., Christakis, D.A.	2003	Journal of the Medical Library Association	242	2
3	Comparing the impact of Open Access (OA) vs. non-OA articles in the same journals	Harnad, S., Brody, T.	2004	D-Lib Magazine	189	3
4	Folksonomies: Tidying up tags?	Guy, M., Tonkin, E.	2006	D-Lib Magazine	181	4
5	Avoiding versus seeking: The relationship of information seeking to avoidance, blunting, coping, dissonance, and related concepts	Case, D.O., Andrews, J.E., Johnson, J.D., Allard, S.L.	2005	Journal of the Medical Library Association	167	5
6	Metadata principles and practicalities	Duval, E., Hodgins, W., Sutton, S., Weibel, S.L.	2002	D-Lib Magazine	146	6
7	Understanding faculty to improve content recruitment for institutional repositories	Foster, N.F., Gibbons, S.	2005	D-Lib Magazine	139	7
8	How do primary care physicians seek answers to clinical questions? A literature review	Coumou, H.C.H., Meijman, F.J.	2006	Journal of the Medical Library Association	134	8

9	How to identify randomized controlled trials in MEDLINE: Ten years on	Glanville, J.M., Lefebvre, C., Miles, J.N.V., Camosso-Stefinovic, J.	2006	Journal of the Medical Library Association	127	9
10	DSpace: An open source dynamic digital repository	Smith, M., Bass, M., McClellan, G., Tansley, R., Barton, M., Branschofsky, M., Stuve, D., Walker, J.H.	2003	D-Lib Magazine	112	10

Prolific authors

There are 10077 numbers of individual authors who have contributed a total of 5208 papers in covered 10 LIS open access journals during the period of study. It is observed that among the top 20 most prolific LIS authors, 15 are from United States, 2 from Canada, 1 each from Australia, Malaysia & United Kingdom. Wilson, B. of Corporation for National Research Initiatives, Reston, United States has contributed maximum 74 papers and ranked top amongst all contributing authors. The other most prolific authors are Schwartz, C. of Simmons College, Boston, United States who has contributed 39 papers followed by Hernon, P. of Simmons College, Boston, United States with 38 and Lannom, L. of Corporation for National Research Initiatives, Reston, United States with 35. A detailed list of 20 most prolific authors is depicted in table 6.

Table 6: Prolific authors and their profile

SL No	***Author***	***Institute of Affiliation***	***Country***	***Papers***	***Rank***
1	Wilson, B.	Corporation for National Research Initiatives, Reston, United States	USA	74	1
2	Schwartz, C.	Simmons College, Boston, United States	USA	39	2
3	Hernon, P.	Simmons College, Boston, United States	USA	38	3
4	Lannom, L.	Corporation for National Research Initiatives, Reston, United States	USA	35	4
5	Tatnall, A.	Victoria University Melbourne, Melbourne, Australia	Australia	22	5
6	Plutchak, T.S.	University of Alabama, Lister Hill Library of the Health Sciences, Tuscaloosa, United States	USA	21	6
7	Wilson, V.	University of Saskatchewan, Centre for Evidence Based Library and Information Practice (C-EBLIP), Saskatoon, Canada	Canada	20	7

8	Giuse, N.B.	Vanderbilt University, Department of Medicine, Nashville, United States	USA	18	8
9	Keengwe, J.	University of North Dakota, College of Education and Human Development, Grand Forks, United States	USA	17	9
10	Morris, C.M.	Cornell University, Ithaca, United States	USA	16	10
11	Nelson, M.L.	Old Dominion University, Norfolk, United States	USA	16	10
12	Truitt, M.	University of Alberta, Bibliographic and Information Technology Services, Edmonton, Canada	Canada	15	11
13	Walter, S.	DePaul University, Chicago, United States	USA	15	11
14	Starr, S.	University of California, San Diego, Biomedical Library, San Diego, United States	USA	14	12
15	Van De Sompel, H.	Los Alamos National Laboratory, Los Alamos, United States	USA	13	13
16	Brettle, A.	University of Salford, School of Nursing, Midwifery and Social Work, Manchester, United Kingdom	UK	12	14
17	Epstein, B.A.	University of Pittsburgh, Health Sciences Library System, Pittsburgh, United States	USA	11	15
18	Lagoze, C.	University Michigan Ann Arbor, School of Information, Ann Arbor, United States	USA	11	15
19	Sen, B.K.	University of Malaya, Kuala Lumpur, Malaysia	Malaysia	11	15
20	Tennant, M.R.	University of Florida, Gainesville, United States	USA	11	15

Yearly Growth of Citations

The yearly growth of citations in covered LIS journals shows a fluctuate trend with mean value of 0.60 growth rate. The year 2002 shows a highest value of 16.71 citations in a single year. The mean growth rate of all fifteen years of citations has shown as 0.60. Except the years 2002, 2003, 2004, 2005, 2006 & 2007, other years have shown an unconstructive growth of citations. So, the overall growth rate of citations during the period 2001 to 2015 shows a weak growth rate of 0.60 mean.

Table 7: Yearly Growth of Citations

Sl No	Citation Year	Total Citations	Percentage %	Year Wise Growth of Citations	Cumulative Citations	Percentage %	Cumulative Year wise Growth of Citations
1	2001	3169	7.30	-	3169	7.30	-
2	2002	4317	9.94	16.71	7486	17.24	53.69
3	2003	4287	9.87	10.59	11773	27.11	54.87
4	2004	4275	9.84	7.77	16048	36.96	50.01
5	2005	5052	11.63	9.77	21100	48.59	46.10
6	2006	4939	11.37	7.67	26039	59.96	42.05
7	2007	3537	8.15	1.58	29576	68.11	37.58
8	2008	2530	5.83	-2.77	32106	73.94	33.56
9	2009	2569	5.92	-2.30	34675	79.85	30.45
10	2010	2253	5.19	-3.35	36928	85.04	27.83
11	2011	2273	5.23	-2.97	39201	90.27	25.69
12	2012	1730	3.98	-4.9	40931	94.26	23.76
13	2013	1302	3.00	-6.61	42233	97.26	22.04
14	2014	754	1.74	-9.74	42987	98.99	20.47
15	2015	437	1.01	-12.37	43424	100.00	18.88
Total		43424	6.67 (mean)	0.60 (mean)			34.78 (mean)

Authorship Pattern

The study reveals that single authorship contribution is dominant with highest 2791(53.59%) publications, followed by two authorship contribution with 1209(23.21%) publications, and three authorship contribution with 627(12.04%) publications. The data set shows that, there are no such established research groups in this area or the researchers are more interested to publish their research by single authorship. Further, the study throws light in the journal wise authorship pattern and finds that, JMLA is the only LIS open access journals having ≥2 mean authorship while other journals have ≥1 mean authorship. The average mean of authorship has found to be 1.93. This means the authorship pattern of LIS open access journals clearly indicates towards single authorship pattern.

Table 8: Authorship Pattern

Sl No	Source Journal (abbreviated)	Distribution of Authorship Pattern											Total Papers	Total Author ship	Mean of Author ship	% of Author ship
		One	Two	Three	Four	Five	Six	Seven	Eight	Nine	Ten	> Ten				
1	CRL	240	201	68	30	4	5	5	1	0	0	0	554	1059	1.91	10.51
2	D-LIB	773	230	152	68	37	27	9	8	9	0	4	1317	2579	1.96	25.59
3	IR	422	79	103	42	16	7	2	1	1	2	0	675	1230	1.82	12.21
4	ITL	270	86	39	13	6	1	2	0	0	0	0	417	661	1.59	6.56
5	IS	72	57	16	11	3	0	0	0	0	0	0	159	293	1.84	2.91
6	JMLA	352	210	145	95	55	26	13	10	5	3	4	918	2322	2.53	23.04
7	LIBER	347	77	16	6	5	0	0	1	0	0	0	452	606	1.34	6.01
8	LISR	192	216	56	24	7	1	0	1	1	1	1	500	967	1.93	9.60
9	LIBRES	68	29	13	3	2	0	0	0	0	0	0	115	187	1.63	1.86
10	SLMR	55	24	19	2	1	0	0	0	0	0	0	101	173	1.71	1.72
	Total	2791	1209	627	294	136	67	31	22	16	6	9	5208			
	Percentage (%)	53.59%	23.21%	12.04%	5.65%	2.61%	1.29%	0.60%	0.42%	0.31%	0.12%	0.17%	100.00	**10077**	**1.93**	100.00

Collaborative Index (CI), Degree of Collaboration (DC), and Collaborative Coefficient (CC) of Authors

Table 9 shows the Collaborative Index (CI), Degree of Collaboration (DC), and Collaborative Coefficient (CC) among authors in LIS open access journals covered in the study. These bibliometric techniques are widely used among the LIS authors to assess the intense of collaboration in a research. Collaborative Index (CI) measures the mean number of authors per joint authored publications, where as Degree of Collaboration (DC) measures the proportion of multi authored papers, and Collaboration Coefficient (CC) measures the numbers of authors per paper as well as the proportion of multi authored papers.

For analysis of Collaborative Index, the study has used the formula ***CI= (total publications)/ (total collaborative authors)***, and for Degree of Collaboration Subramanian's equation of $\boldsymbol{C= (N_m/ N_m+N_s)}$. It is observed in the study that, the CI mean value shows to be 0.73 which is so weak at its label, where as the DC value has ranged up and down from minimum 0.58 to maximum 0.87, which also shows a weak intensity of author's collaboration at 0.72. Correspondingly, the Collaboration Coefficient value which measures the extent and strength of collaboration among the authors shows at 0.29. The above measures indicate that, the publications in LIS open access journals are not favor of collaborative research.

Table 9: Collaborative Index (CI), Degree of Collaboration (DC), and Collaborative Coefficient (CC) of Authors

Sl No	Publication Year	Year wise Authorship Distribution											Total Publications	Total Authorship	CI	DC	CC
		1	2	3	4	5	6	7	8	9	10	More than 10					
1	2001	249	91	30	5	6	3	0	2	0	0	1	387	616	1.05	0.60	0.20
2	2002	298	56	47	19	6	3	1	1	1	0	1	433	710	1.05	0.58	0.19
3	2003	237	112	32	15	7	5	3	2	0	1	2	416	773	0.78	0.69	0.25
4	2004	193	105	42	16	9	4	2	1	1	1	0	374	703	0.73	0.73	0.29
5	2005	213	56	35	23	14	2	3	2	1	0	0	349	650	0.80	0.67	0.25
6	2006	225	87	47	20	9	6	4	2	2	2	1	405	794	0.71	0.72	0.28
7	2007	188	72	44	22	11	4	2	0	1	0	2	346	683	0.70	0.72	0.28
8	2008	174	89	31	19	7	3	0	1	3	0	0	327	609	0.75	0.71	0.28
9	2009	136	91	49	25	7	5	1	1	0	0	0	315	645	0.62	0.79	0.34
10	2010	156	89	39	17	5	5	0	0	2	0	1	314	605	0.70	0.74	0.30
11	2011	147	73	44	18	9	6	4	2	0	0	0	303	622	0.64	0.76	0.32
12	2012	168	58	53	21	10	0	3	3	2	0	0	318	640	0.67	0.74	0.30
13	2013	114	92	30	19	14	6	3	5	1	1	0	285	650	0.53	0.82	0.37
14	2014	95	91	48	31	13	9	3	0	0	1	1	292	708	0.48	0.87	0.42
15	2015	198	47	56	24	9	6	2	0	2	0	0	344	669	0.73	0.70	0.27
	Total	2791	1209	627	294	136	67	31	22	16	6	9	5208	10077	0.71	0.72	0.29
Percentage (%)		53.59%	23.21%	12.04%	5.65%	2.61%	1.29%	0.60%	0.42%	0.31%	0.12%	0.17%	100.00		**Mean (0.73)**	**Mean (0.72)**	**Mean (0.29)**

Key Findings

The key findings of the study are presented as under:

- During the period 2001 to 2015, a steady growth of publications has been found in LIS open access journals. The highest numbers of publications have come in the year 2002 with 43(8.31%) publications.

- The geographical distribution of publications is quite effective. About 83 countries and 990 university/ institutions across the globe are actively contributing to the LIS open access journals. United States alone shares maximum 54.19% of LIS publications during the period of study.
- Article is the most popular types of document published in LIS open access journals. Highest 61.37% of total publications are published in the form of Articles.
- Citation impact of articles are quite visible in such journals. About 15 papers were identified with more than 100 citations and out of 4907 papers, 2909 papers are cited papers which is almost 59% of total publications.
- The publication title "Social bookmarking tools (I): A general review" authored by Hammond, T., Hannay, T., Lund, B., and Scott, J. in D-Lib Magazine has been identified as most cited paper with 279 citations.
- Wilson, B. of Corporation for National Research Initiatives, Reston, United States has contributed maximum 74 papers and identified as most active author.
- Authorship pattern dominating to single authorship pattern. In some journals single authorship pattern is more prevalent, likewise in other journals multi authorship pattern is more prevalent. But, the overall authorship pattern of covered journals shows that single authorship is dominant with 2791(53.59%) publications.
- The CI mean value shows to be 0.73, the DC value shows a weak intensity of author's collaboration at 0.72, and the Collaboration Coefficient value shows at 0.29. The above measures indicate that, the publications in LIS open access journals are not favor of collaborative research.

Conclusion

As the study intended to show the visibility and growth of LIS open access publications, the selected journals have shown a better visibility of publications across the world. Authors from 83 countries and 990 institutions have published their research in LIS open access journals. Also a total of 581 core journals have been identified in the study which has been frequently referred by the LIS researchers. The outcomes of the study will definitely motivate the researchers towards publication of their research in open access journals. Also the study will help the decision makers, library information managers, and researchers to think about open access publications.

Conclusion

The present day research is fast embracing open access platforms because of greater visibility of publications with considerable impact and influence. As it has posed tough challenges for library professionals, academicians and researchers to select specific journals that promise quality and impact, some front line peer reviewed open access journals have proved their mettle to be chosen as the right channel of publications to follow suit. Contextually, the present study has rightly addressed the different bibliometric aspects of publications of 10 identified open access LIS journals that have gained immense popularity with high reputation. Authors from 83 countries and 990 institutions have published their research in

LIS open access journals during this period of study. The quantum of citations received by different articles published in these open access journals indicates the quality of publications brought out by these journals.

References

Association of Research Libraries (2004). *Retrieved from http://www. arl.org/storage/documents/publications/framing-issue-open-access-may04.pdf.*

Budapest Open Access Initiative. (2002). *Declaration after the Open Society Institute meeting in Budapest December 1-2 2001. Budapest: Open Society Institute. Retrieved from http://www.soros.org/openaccess/read.html.*

Ghane, M. R., & Niazmand, M. R. (2016). Current status of open access journals published in D8 countries and registered in the: Directory of open access journals (pre-2000 to 2014). *Electronic Library, 34*(5), 740-756.

Grandbois, J., & Beheshti, J. (2014). A bibliometric study of scholarly articles published by library and information science authors about open access. *Information Research, 19*(4)

Gunasekaran, S., & Arunachalam, S. (2014). The impact factors of open access and subscription journals across fields. *Current Science, 107*(3), 380-388.

Hrynaszkiewicz, I. (2016). Open access journals: A sustainable and scalable solution in social and political sciences? *European Political Science, 15*(2), 191-200.

Hodonu-Wusu, J. O., & Lazarus, G. N. (2018). Major trends in LIS research: A bibliometric analysis. Library Philosophy and Practice, 2018.

Jamdade, M. L. & Jamdade P. M. (2013). A Bibliometric Study of Directory of Open Access Journals: Special reference to Library and Information Science. *Asian Journal of Multidisciplinary studies, 1(10),* 48-62.

Mondal, D. (2016). Open access journals in SAARC countries with special reference to DOAJ: A study. *International Journal of Information Dissemination and Technology*, 6(2), 73-76.

Mukherjee, B. (2009). Do Open-Access Journals in Library and Information Science have any Scholarly Impact? A bibliometric study of selected Open Access Journals using Google Scholar. *Journal of the American Society for Information Science and Technology, 60 (3),* 581-594.

Rufai, R., Gul, S. & Shah, T.A. (2011). Open Access Journals in Library and Information Science: The Study so Far, *Trends in Information Management, 7(2),* 218-228.

Tzarnas, S., & Tzarnas, C. D. (2015). Publish or perish, and pay - the new paradigm of open-access journals. *Journal of Surgical Education, 72*(2), 283-285.

Xia, J. (2012). Positioning Open Access Journals in a LIS Journal Ranking. *College and Research Libraries,* 134-145.