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Spring 4-16-2020

The journey of DOAJ from 2002 to 2019: The developing supplier of scholarly literature

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SHARMA, NILAKSHI, "The journey of DOAJ from 2002 to 2019: The developing supplier of scholarly literature" (2020). *Library Philosophy and Practice (e-journal)*. 4159.

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The journey of DOAJ from 2002 to 2019: The developing supplier of scholarly literature

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Abstract

Open access to journals increase visibility and its utility among the users. Different innovative research findings and developmental trends of any field is directly reflected on scholarly journals of related area. Directory of Open Access Journal (DOAJ), the community-curated online directory was started with 188 journals among which 174 were journals in English Language in 2002-03. Present study was made to analyze each and every essential aspects of DOAJ from its beginning to 2019. Till 04-05-2019, the no. of open access journal in English language is increased to 6003 from 102 countries in 20 well known subjects. Metadata was collected from DOAJ database analyzed with Microsoft excel. The result of the study reveals that the first four contributing countries are developed countries like UK, US, Poland, Switzerland etc. and highest no. of DOAJ index journals are from medicine field. Since most of the DOAJ index journals are in medicine field and developed countries are emerged as highest contributing countries to DOAJ, an assumption can be made from the present study that developed countries are more advance in research in the field of medicine more than the developing countries like India.

Keywords: Open Access, DOAJ, Bibliometrics, Open Access Movement.

Introduction: Open access movement was started in 1990s with an aim to provide unrestricted platform to perform research and share information. Open access means free and open distribution of scholarly output of a research which bring more visibility and increase its utility. The journey of scholarly communication begins from oral to written, then printed to electronic medium. Journal is one of the major means of scholarly communication which reflects all the new trends and development of any field. Directory of Open Access Journals (DOAJ) is an index of scholarly journals of different fields with quality content which objective is to bridge the gap between digitally divided researchers from different ends increase visibility, accessibility, reputation, usage and impact of quality, peer-reviewed, open access scholarly research journals globally, regardless of discipline, geography or language. On 30 Aug, 2019, **13,695** journals containing **4,235,929** articles contributed by **130** countries were indexed in DOAJ. The open access (OA) practice is contributing to maximize the access to scholarly research information in a well orderly manner with related licenses. Libraries of modern age are finding ways to provide even newly published research literature through Open Access. The rising development of online open access journals in various disciplines is evident of various

online directories. The paper has covered all the related information of DOAJ index journals which provide full text access to its articles in English language only.

Objectives of the study: The paper focus to study different parameters of Open Access Journals indexed in DOAJ with the following objectives:

1. To observe the country wise contribution of journals to DOAJ and rank top 30 contributing countries.
2. To observe the subject wise distribution of DOAJ indexed journals.
3. To observe the publisher wise distribution of DOAJ indexed journals and makes a list of top contributing publishers.
4. Study of different factors of journals like year of starting online open access, year and month of adding to DOAJ, time taken between submission and publication of articles, Review process used by the journal, permission of unrestricted reuse in compliance with BOAI, copyright, publishing rights, availability of DOAJ Seal, file format used by the journal.
5. To find out the no. of journal provides download statistics, full-text crawl permission, Journal waiver policy, Article Processing Charges (APCs), and Machine-readable CC licensing information.

Previous works: Gaikwad and Khaparde (2019) studied different areas like distribution of journal according to periodicity, document type, format, publishing body etc. related to DOAJ indexed journals of LIS. Total no. of 80 journals is included in the study where 31 journals are quarterly and 27 journals are Bi-annual. 54 journals are published in both print and electronic format. As a publishing body, Universities are publishing 38 journals; Associations are publishing 9 journals, other government institutions publishing 4 journals, other organizations publishing 11 journals, Clubs are publishing 7 journals and research institutions publishing 11 journals.¹ Oza and Chaudhary (2018) examined geographical distribution of journals, language wise distribution, publisher wise distribution, journal ranking according to Journal Citation Report, plagiarism policy etc. of 55 Open access journals of Chemical science which are indexed in DOAJ. According to them, inclusion of OAJs in JCR is the need of the day as they get better visibility which in turn helps to improve the quality. Libraries have a great deal of responsibility of OA movement in promoting, adopting and influencing OA practice among users and authors.² Watkins (2015) argues that open access is not just about the sciences or about journal prices. It is about the fundamental right to information. Academic research can fail to reach global audiences through censorship but more often simply because of the expense of scholarly information. The price barriers of the traditional publishing system creates the situation where access to or participation in art scholarship is not open to all. It harms both the quality and appreciation of art scholarship. If we believe that art is not a luxury but a basic part of the human experience then neither should the scholarship that helps us grasp the deeper meanings of art be a luxury item. Open access is the key to create a globally integrated community of art scholars and reengaging the public in art discourse and librarians can help facilitate a scholarship that is accessible to all.³ According to Chadwell and Sutton(2014) all of the journals listed in the Directory Of OA Journals make their content immediately, and freely available online upon publication, but their formats and underlying technical infrastructure varies widely. Some titles look and behave like traditional journals in PDF, while others function as repositories, or databases, of individual

articles within a given discipline or range of disciplines. It is predicted that over the next twenty years, the repository model of publishing articles will become common in many disciplines, and enable library supported repositories to shift from a focus on manuscripts of articles published in journals, to publishing original content through the repository itself.⁴ Murdy (2014) state that in many educational institutions, open information is widely distributed by allowing students to access journals and databases for research. In fact, most of the major academic and nonacademic search engines crawl the open access journals and repositories for scholarly information. If library in academic and research institutions will continue to provide open information to users, these institutional repositories will begin to shape the future of how open access will develop in the next decade. Many authors, scholars, and analysts on the subject of open access predict that it will eventually become the future of publishing and information dissemination.⁵ Lihitkar and Lihitkar (2013) has observed that Library and Information Science Journals are having interdisciplinary scope. LIS journals which are indexed in DOAJ are useful for Medicine, Philosophy, Media, and Communication, Computer Science, Law, Business Management, Education, Geography and Visual Arts. Out of 100 LIS journals 26 open access journals having interdisciplinary scope.⁶

Methodology: For the study, a well devised methodology was applied. Directory of Open Access Journal (DOAJ) itself was the source data for the study. Metadata database of all the DOAJ indexed journals were accessed from its website (<http://www.doaj.org>) on 04-05-2019. Then the Journals which are providing its full text in English Language only, those 6003 journals are extracted from the whole database using Microsoft excel software .Then relevant data (title, country, publisher, subject, year, APC,DOAJ seal etc.) were filtered and analyzed with the help Microsoft excel using some mathematical formulae. Analyzed data are presented with different tables, graphs and figures.

Results:

Country wise contribution: There are total 102 countries contributing journals of full text English in different fields. United Kingdom is the most contributing country with 1480 journals followed by United States, Poland and Switzerland. There are total 18countries with only 1 journal each indexed in DOAJ.

Table 1: Country wise contribution of journals to DOAJ

Rank	Name of Country	No. of Journal	Percentage	Rank	Name of Country	No. of Journals	Percentage
1	United Kingdom	1480	24.6%	52	Portugal	14	0.23%
2	United States	625	10.4%	53	Sri Lanka	14	0.23%
3	Poland	392	6.53%	54	Ireland	13	0.21%
4	Switzerland	278	4.63%	55	New Zealand	12	0.19%

5	Iran, Islamic Republic of	268	4.47%	56	Bosnia and Herzegovina	10	0.16%
6	India	261	4.34%	57	Latvia	9	0.14%
7	Indonesia	254	4.23%	58	Nigeria	8	0.13%
8	Romania	224	3.73%	59	Estonia	7	0.11%
9	Netherlands	189	3.14%	60	Moldova, Republic of	6	0.09%
10	Germany	186	3.09%	61	Montenegro	6	0.09%
11	Italy	126	2.09%	62	Albania	5	0.08%
12	Turkey	104	1.73%	63	Azerbaijan	5	0.08%
13	Canada	98	1.63%	64	Chile	5	0.08%
14	China	98	1.63%	65	Ghana	5	0.08%
15	Australia	95	1.58%	66	Macedonia, the Former Yugoslav Republic of	5	0.08%
16	Brazil	83	1.38%	67	Oman	5	0.08%
17	South Africa	74	1.23%	68	Cyprus	4	0.06%
18	Serbia	71	1.18%	69	Jordan	4	0.06%
19	Korea, Republic of	70	1.16%	70	Mexico	4	0.06%
20	Spain	55	0.91%	71	Philippines	4	0.06%
21	Czech Republic	53	0.88%	72	Ethiopia	3	0.04%
22	Malaysia	51	0.84%	73	Kenya	3	0.04%
23	Pakistan	48	0.79%	74	Mongolia	3	0.04%
24	Bulgaria	42	0.69%	75	Morocco	3	0.04%
25	Croatia	39	0.64%	76	Qatar	3	0.04%
26	Egypt	36	0.59%	77	Algeria	2	0.03%
27	France	36	0.59%	78	Argentina	2	0.03%

28	Lithuania	32	0.53%	79	Kazakhstan	2	0.03%
29	Japan	28	0.46%	80	Kyrgyzstan	2	0.03%
30	Ukraine	28	0.46%	81	Libya	2	0.03%
31	Sweden	27	0.44%	82	Malta	2	0.03%
32	Slovakia	26	0.43%	83	Mauritius	2	0.03%
33	Hungary	25	0.41%	84	Tunisia	2	0.03%
34	Norway	25	0.41%	85	Armenia	1	0.01%
35	Austria	22	0.36%	86	Bahamas	1	0.01%
36	Iraq	22	0.36%	87	Barbados	1	0.01%
37	Russian Federation	22	0.36%	88	Georgia	1	0.01%
38	Taiwan, Province of China	22	0.36%	89	Guam	1	0.01%
39	Greece	21	0.34%	90	Iceland	1	0.01%
40	Thailand	21	0.34%	91	Israel	1	0.01%
41	Bangladesh	20	0.33%	92	Jamaica	1	0.01%
42	Belgium	20	0.33%	93	Kuwait	1	0.01%
43	Hong Kong	18	0.29%	94	Luxembourg	1	0.01%
44	Finland	17	0.28%	95	Malawi	1	0.01%
45	Slovenia	17	0.28%	96	Palestine, State of	1	0.01%
46	United Arab Emirates	16	0.26%	97	Puerto Rico	1	0.01%
47	Colombia	15	0.24%	98	South Sudan	1	0.01%
48	Nepal	15	0.24%	99	Turkmenistan	1	0.01%
49	Saudi Arabia	15	0.24%	100	Venezuela, Bolivarian Republic of	1	0.01%
50	Singapore	15	0.24%	101	Yemen	1	0.01%

51	Denmark	14	0.23%	102	Zimbabwe	1	0.01%
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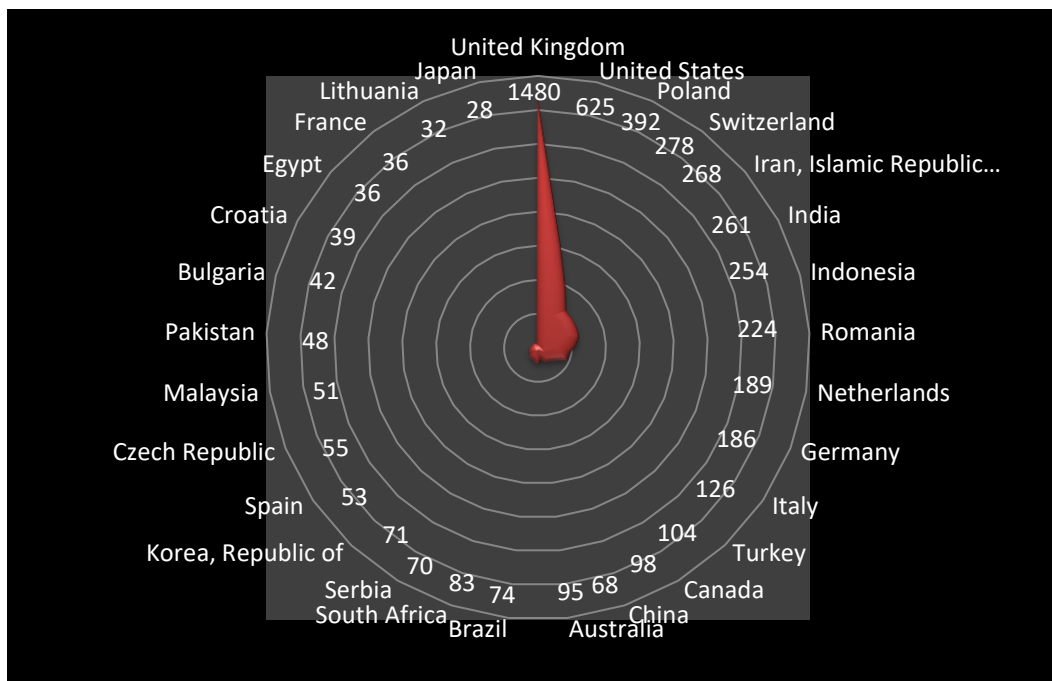


Figure 1: Top 30 contributing countries to DOAJ

Subject wise distribution of journals: Most of the DOAJ indexed journals are in medicine field. There are 2036 journals of medicine followed by Science, Technology, Social Science and Education. There are 9 journals without any subject name; these journals are categorized as others.

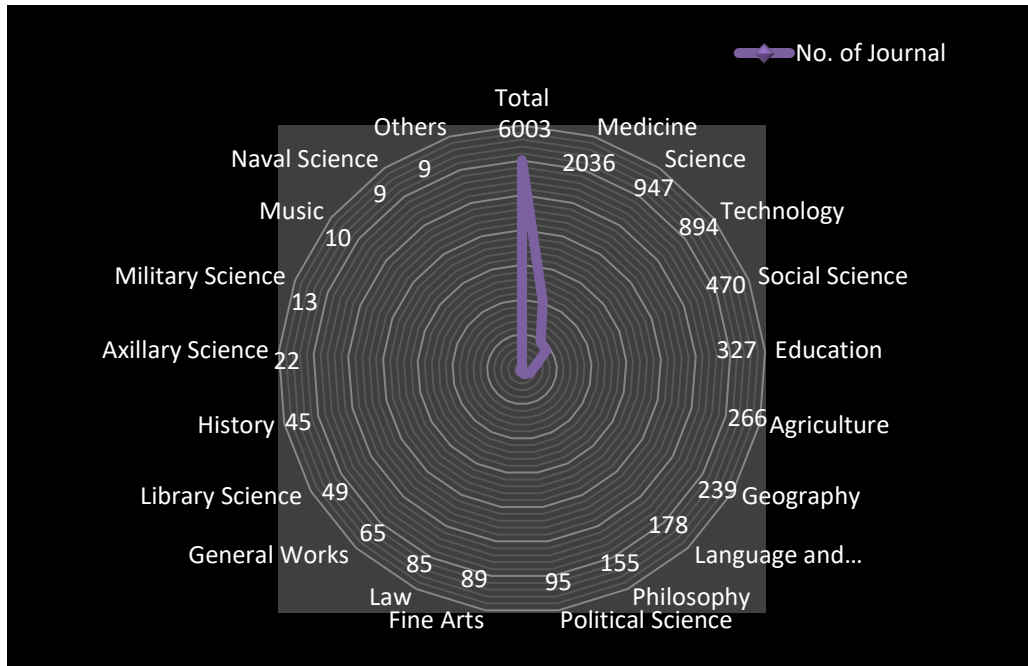


Figure 2: Subject wise distribution of journals

Publisher wise distribution of journals: There are 2213 no. of publishers from different countries are contributing journals to DOAJ. BMC is the most contributing publisher to DOAJ with 315 journals; Elsevier and Sciendo are two publishers contributing 297 journals each. There are total 198 publishers contributing 2 journals each and 1777 publishers contributing 1 journal each to DOAJ.

Table 2: Publisher wise distribution of journals

No. of Journal(J)	No. of Publisher(P)	Total no. of Journal(N) (J×P=N)	Percentage	Cumulative no	Cumulative Percentage
315	1	315	5.25%	315	5.25%
297	2	594	9.90%	909	15.14%
239	1	239	3.98%	1148	19.12%
190	1	190	3.17%	1338	22.28%
188	1	188	3.13%	1526	25.42%
187	1	187	3.12%	1713	28.53%
151	1	151	2.52%	1864	31.05%
140	1	140	2.33%	2004	33.38%
102	1	102	1.70%	2106	35.08%

91	1	91	1.53%	2197	36.59%
56	1	56	0.94%	2253	37.53%
54	1	54	0.90%	2307	38.43%
47	1	47	0.78%	2354	39.21%
43	2	86	1.43%	2440	40.64%
38	1	38	0.64%	2478	41.27%
35	1	35	0.59%	2513	41.86%
27	1	27	0.44%	2540	42.31%
24	1	24	0.40%	2564	42.71%
23	2	46	0.80%	2610	43.47%
21	3	63	1.04%	2673	44.52%
20	1	20	0.34%	2693	44.86%
19	1	19	0.32%	2712	45.17%
17	2	34	0.57%	2746	45.74%
16	3	48	0.80%	2794	46.54%
15	4	60	0.98%	2854	47.54%
14	3	42	0.68%	2896	48.24%
13	2	26	0.43%	2922	48.67%
12	3	36	0.60%	2958	49.27%
11	6	66	1.09%	3024	50.37%
10	3	30	0.50%	3054	50.87%
9	2	18	0.29%	3072	51.17%
8	4	32	0.53%	3104	51.70%
7	17	119	1.99%	3223	53.68%
6	11	66	1.10%	3289	54.78%
5	22	110	1.83%	3399	56.62%
4	44	176	2.93%	3575	59.55%
3	85	255	4.24%	3830	63.80%
2	198	396	6.60%	4226	70.39%

1	1777	1777	29.60%	6003	100%
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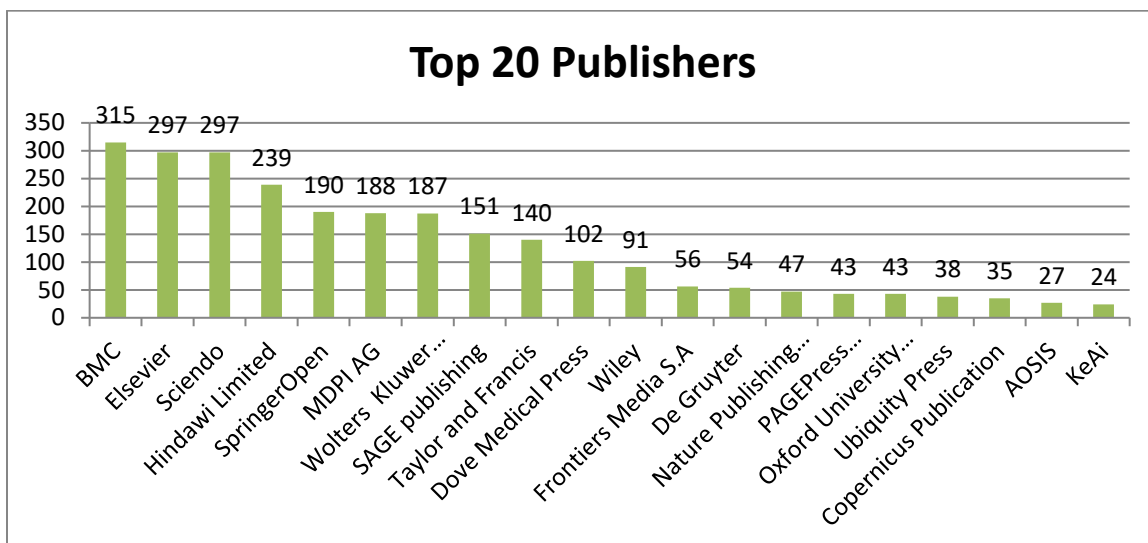


Figure 2: Top 20 contributing Publisher

First calendar year of journals: It is observed that after 90's the journals are becoming more available for open access. Till 1990, only 37 journals that were providing open access, till 2010 it increases to 1641 no. of journals and till now it became 4076 no. of journals.

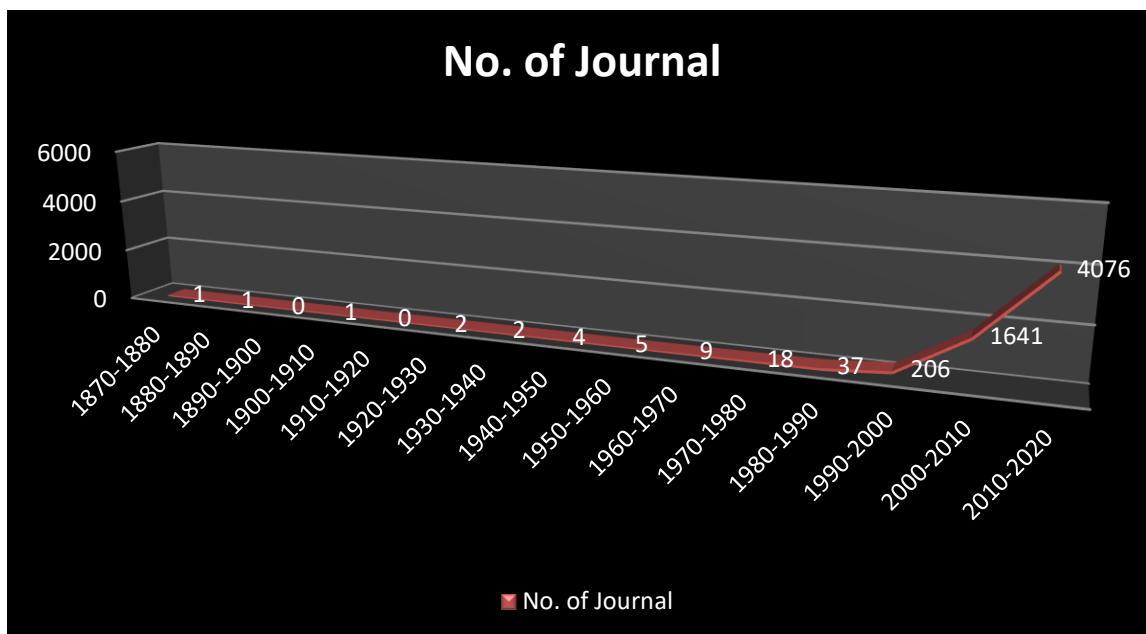


Figure 3: First calendar year journal provided online Open Access content

Journals added on yearly basis: DOAJ was started on 2003; in 2003 there was total 152 journals added on DOAJ. After that the no. of journals added on DOAJ was decreasing continuously for 4

years. In 2008, it was 158 and in 2010 it became 307. In 2013, 467 no. of journals were added to DOAJ. But in 2014 again it decreases to 246. Suddenly after 2015, it is observed that it touches 703 and till 2018 it became 988 no. of journals.

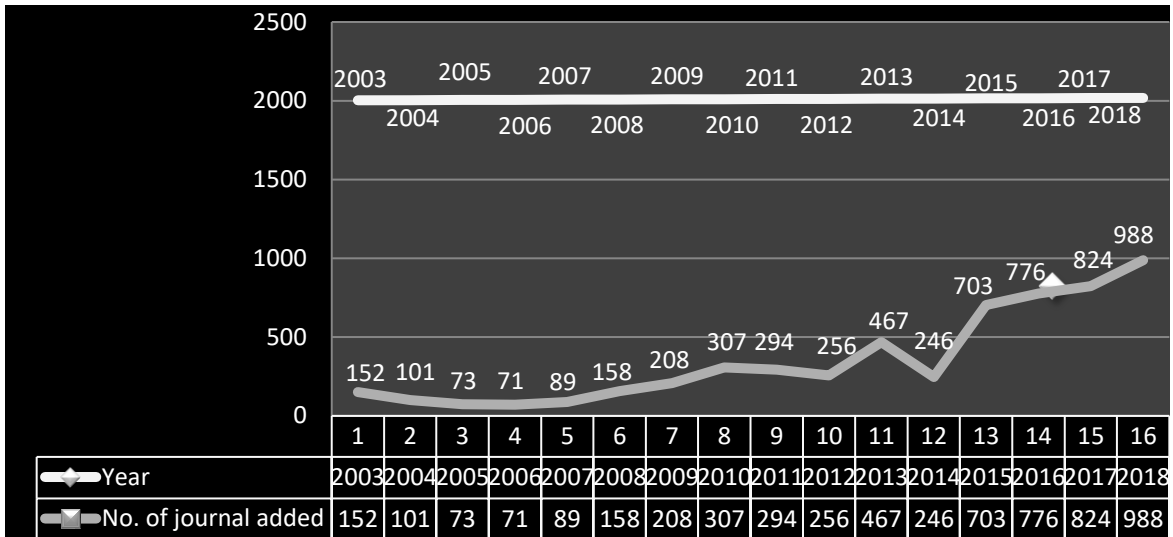


Figure 4: No. of journals added on yearly basis

Weeks between submission and publication: 1724 no. of DOAJ indexed journal takes 10-15 weeks between submission and publication of article, 1391 no. of journal takes 5-10 weeks between submission and publication of the article. Only 374 no. of journals takes 0-5 weeks for publication after submission. 99 no. of journals take 55-55 weeks for publication of article after submission. Data of 12 journals are not available.

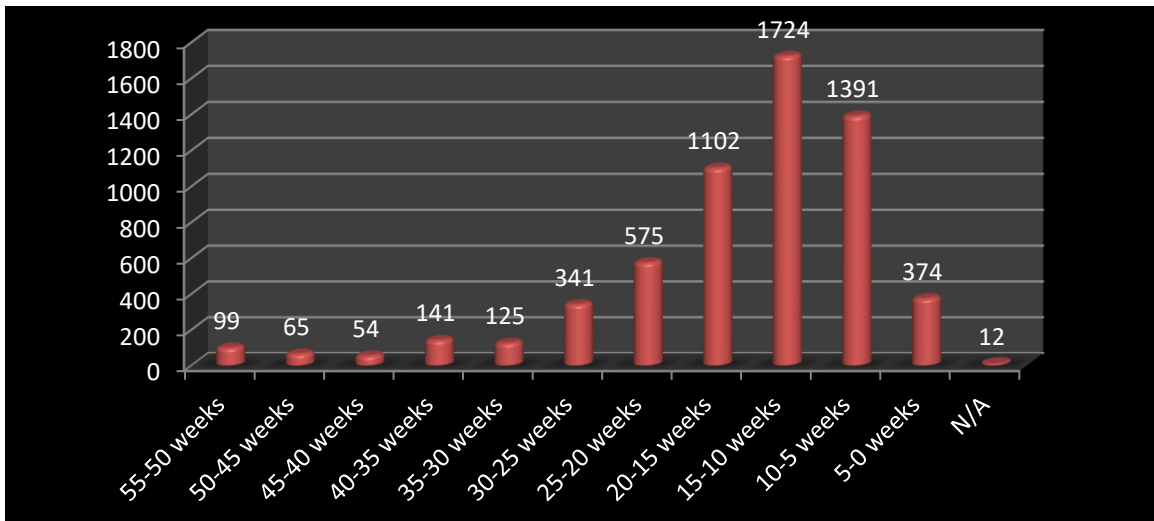


Figure 5: Average number of weeks between submission and publication

Review Process of Journals: 2410 no. of DOAJ indexed journal follow blind peer review process, 2317 no. of journals follow double blind peer review process, 1094 no. of journals follow peer review process, 122 no. of journals follow open peer review process and only 48 no.

of journals follow simply editorial review for publication of article. Record of 12 journals are not mentioned on the database.

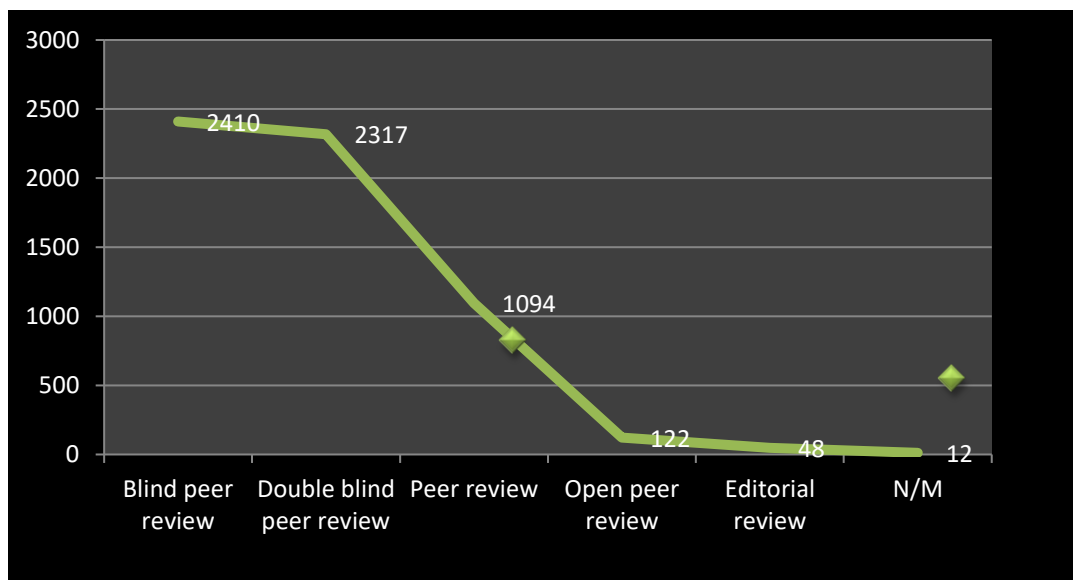


Figure 6: Review Process followed by journals

File format: PDF is the mostly used file format. 2693 no. of journals use only PDF, 1939 no. of journal PDF and HTML both, 405 no. of journals use PDF, HTML, XML file format. 342 no. of journal use PDF, HTML and ePUB file format, PDF, HTML, ePUB, XML is used by 315 no. of journals. Other than these, Pub Reader, doc, wikitext etc. are the file format use by DOAJ index journals.

Other attributes of DOAJ index journals: 5960 no. of journals provides unrestricted compliance with BOAI and rest 43 do not provide. 3229 no. of DOAJ indexed journals provide copyright to authors without restrictions and authors of 2762 no. of journals do not hold copyright. Data of rest 12 no. of journals are available. 2916 no. of journals provide publishing rights to author without restrictions and 3075 no. of journals do not provide. Rest 12 no. of journals is not mentioning it. 1273 no. journal have DOAJ seal on it and rest 4730 do not possess DOAJ seal on it. 2522 no. of journals provide download statistics and 3481 no. of journals do not provide. 4960 no. of journals have full text crawl permission and 1043 no. of journals do not have it. Only 2076 no. of journals have Journal waiver policy for developing country authors etc. 3924 no. of journals do not have it. 2630 no. of journals take article processing charges, 3358 do not take it. Information of 15 journals regarding APC is not available. 4003 no. of journals have machine-readable CC licensing information embedded in articles. 2000 no. of journals do not have.

Table 3: Other attributes of DOAJ index journals

Attributes	Percentage of journals			Total
	YES	NO	N/A	

Machine-readable CC licensing information embedded or displayed in articles	66.6%	33.3%	-	100%
Journal allow unrestricted reuse in compliance with BOAI	99.2%	0.71%	-	100%
Author holds copyright without restrictions	53.7%	46.01%	0.19%	100%
Author holds publishing rights without restrictions	48.5%	51.2%	0.19%	100%
Presence of DOAJ Seal	21.2%	78.7%	-	100%
Journal Article Processing Charges (APCs)	43.8%	55.9%	15	100%
Journal waiver policy	34.5%	65.41%	-	100%
Journal full-text crawl permission	82.6%	17.3%	-	100%
Journal provides download statistics	42.01%	57.9%	-	100%

Discussion: The result of the study reveals that developed countries like United Kingdom, United States, Poland, and Switzerland have contributed highest journals to the DOAJ and most of the journals are from medicine field. We can assume that field of medicine is very much advance in research as compared to other science and technological field and budding researchers of this field is very much benefited because of availability of more open access journals. A huge number of well-known publishers are contributing to DOAJ. It is observed that during 90's a very less number of journals were providing open access to it. But after that a lot of journals started providing open access which is a good sign for research and development. DOAJ as an open access initiative was started in 2003. In the very beginning a less no. of journals were added to it. But after so many ups and down, from 2015 no. of journals added to it started

increasing which is like blessing for the open access movement. Most of the DOAJ indexed journals take 10-15 weeks between submission and publication of the article. If this time period can be reduce, then authors may attracted towards publication of their scholarly article on DOAJ indexed journal which will be freely available to its readers. But since most of the journals follow blind peer review and double blind peer review process, it takes time to review articles, sending suggestions; making corrections etc. 99.29% of DOAJ index journal provide unrestricted compliance with Budapest Open Access Initiative (BOAI) which is an international effort to make scholarly articles of different fields freely available to readers. Most of the journals provide copyright and publishing right to authors without restrictions which is very essential to support and appreciate intellectual property. A less no of journals have DOAJ seal on it. This may be depends on publishers perspective. PDF is mostly used file format by DOAJ index journals followed by HTML, XML ePUB, Pub Reader, doc, wikitext etc. More than 50% journals do not provide download statistics which is essential for mapping of utility of the publications. Not accurately, but a little bit idea can be develop that if the journal article have more no. of downloads, than that article is using by more number of readers and have chance to get more citations. And same will be applicable for journals; if a journal have more no. of downloads that there may be a chance to achieve more no. of citations by that journal. Open access journals should provide full text crawl permissions, and most of the DOAJ index journals are supporting this. For acceleration of dissemination of knowledge by publishing high quality journal article, Journal waiver policy should be there which seems lacking in majority of DOAJ indexed journal. Article Processing Charges (APC) is received by journals from either author, institution etc. To appreciate and increase productivity, journals must have machine-readable CC licensing information embedded in articles.

Conclusion: DOAJ have brought a revolution of open access of scholarly journals. It was started in 2003 and have completed 17th years journey successfully. For the sake of knowledge disseminations, more journals of different fields from different publishers of different country should contribute to DOAJ. The present study has only covered journals which text is in English language only. There is scope for bringing out some depth researches by covering other languages, subjects, countries etc.

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