Journal packing density of Library and Information Science journals published across Asia

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ABSTRACT

The purpose of the study is to compute the Journal Packing Density (JPD) i.e. the average research articles published in each volume or each issue of a research journal. Library and Information Science (LIS) journals published across Asia and indexed in Scopus during the period 2015 to 2019 were taken as samples. The study is based on secondary data retrieved from SCImago Journal and Country Ranking (SJCR), which includes the journals and country scientific indicators developed from the information contained in the Scopus database. In all, 14 LIS journals were identified from Asia. It was found that there are 51 sovereign nations in Asia, and 43 (84.31%) countries are actively undertaking research in LIS and only 8 (18.60%) countries are publishing LIS journals. India and Taiwan are the two leading countries in the region publishing 3 journals each. In all, 1558 articles were published by 14 LIS journals across Asia from 2015 through 2019 in 58 volumes with a JPD of 26.86 articles per journal per volume. Apart from these, research deficit in terms of journals and research articles has also been computed alongside a brief overview on how JPD of a journal can help in identifying the possibility of its predatory nature.

Keywords: Library and Information Science journals; Journal studies; Predatory journals; Journal Packing Density; Asiatic region.

INTRODUCTION

Standardization in the quality of a scientific publication is an unending process, whereby each new day scholarly journal publishers are adopting newer standardization not only in the presentation of the articles, but also in its editorial policy. Standardization in scientific journal is undoubtedly a pre-requisite for quality, which influences text comprehension and scientific visibility, so that research results published in the journals are held as authentic and reliable. Publishers have already adopted a range of standard practices which makes a journal more legitimate, genuine and trustworthy among authors who communicate their research results in such journals, and readers for whom the results are meant to and who ultimately make use of such findings for all practical purposes.

Some of the common standard practices adopted by good journal publishers include having the following: reputable and dedicated editorial board members; a panel of esteemed reviewers; indexation status in major abstracting and indexing (A&I) databases such as Scopus or Web of Science (WoS); a valid ISSN number; a genuine website with facility for researchers to submit manuscripts online; possibly of affordable or no Article Processing Charges (APC); peer review process; and having preservation policy (archive) in place. Such journals do not solicit manuscripts directly from authors or through e-mails, which is generally seen as a practice predominantly prevalent among journals that are possibly of predatory nature.

Publishing a standard or a certain number of articles in each issue or each volume of journal can be deemed as a standard practice in publishing. This practice can also turn out to be the game changer in curbing the menace of predatory publishing (Shen and Björk 2015, Pandita and Singh 2021). Shen and Björk (2015) found that predatory journals are publishing more than the desired number of articles in each issue and volume of a journal, which even runs more than 2000 articles a year. Needless to mention that most of the predatory journals seek APC from the authors, because publishing larger number of articles in a single issue or a single volume of journal means making more money. On the contrary, standard density practice will ensure and enhance the quality of journal, and the violation of the same can make a publisher stand in the dock.

Deficit is a measure of assessing the shortage of something than the actual requirement. It can be defined as 'the shortage between the actual requirement and the availability', and deficit occurs due to higher demand and lower supply. Similarly, research deficit reflects the difference between the research production and research consumption of any country, region or continent, and subject discipline. Accordingly, attempt has been made to find out the research deficit if any, at the country and continental level by taking the average research production figures at the global and regional level as the standard figures to measure the deficit. Still, more attempts have to be made to find the difference in existing research output and the actual production capacity, both in terms of journal publication, articles published and the results produced.

An exponential growth can be observed in the introduction of new journals, and for not being indexed in global databases such as Scopus or Web of Science (WoS), most of the newly introduced journals all across the world are seen with suspicion of being fake, sub-standard, dubious or of predatory nature (Pandita and Singh 2022), especially when the journal publishing market is now flooded with predatory and fake journals (Xia et al. 2015). These predatory journals have a sizable market share in publishing research results, and the journal publishers mostly target budding researchers and those who are not familiar with scholarly publishing through recognized mainstream journals. Even seasoned researchers at times find it difficult to understand the true nature of a journal.

Accordingly, in the present study, an attempt has been made to work out the Journal Packing Density (JPD) of journals published in Library and Information Sciences in Asia. Journal Packing Density has been defined as ''the average research articles published in each volume or each issue of a research journal" (Pandita and Singh 2017)**.** The relevance of this study to calculate the JPD of LIS journals published across Asia is more important for the fact that Asia has more or less become one of the largest market places of publishing predatory journals (Manca et al. 2017). With that being said, this study would like to identify journals published in the field of Library and Information Sciences across Asia and indexed in Scopus and address the following objectives:

(a) To work out the Journal Packing Density of Library and Information Science journals published in Asia and the deficit if any thereof when compared to the Journal Packing Density of LIS journals at the global level;
(b) To identify the countries which are actively publishing journals in Library and Information Sciences from the Asian region along with the number of journals published by each country; and
(c) To compute research deficit in terms of total number of countries in Asia and the countries thereof undertaking research in LIS and the countries publishing LIS journals.

LITERATURE REVIEW

Not much literature is available on the concept of JPD, which was first used by Basu (2010) to measure the research output of a country published in its local journals. The concept was later elaborated and further developed by Pandita and Singh (2017) while computing the JPD of 27 different subject disciplines at the global level. To develop a broader and comprehensive theoretical base around the concept of JPD, Singh and Pandita (2018) computed the JPD of Brazil, Russia, India, China and South Africa (BRICS) countries and also found the JPD of 27 major subject disciplines at the continental level (Pandita and Singh 2018; Singh and Pandita 2018). The average JPD of journals published across BRICS nations was found to be 132.77 articles per journal per volume. Among the subject disciplines, Physics was found to be having the highest JPD (of 209.52 articles per journal per volume) and China as a nation that had the highest JPD (of 213.39 articles per journal per volume). During the last two decades, China has done exceptionally well in scientific research; the Chinese research contribution at the global level witnessed an increase from 0.2 percent in 1981 to 13.7 percent in 2009 (Kumar and Asheulova 2011). In 1991, China was the world's 9th largest research country and around 2015 China became the world's 2nd largest research country, and analysis suggests that it is likely China edged the US from the number one spot to become the world's leading research country in terms of scientific impact (SCImago 2021). However experts had been saying that China was still lagging in quality (Liu et al. 2015).

The manifold increase in the research output at the global level is one of the foremost reasons which have inflated the JPD of journals. At the continental level, the JPD of journals published across Asia was found to be 111.81 articles per journal per volume (Pandita and Singh 2018). For example, Laakso et al. (2011) found that during 2000 to 2009 journals grew at the rate of 18 percent annually, while during the same period articles grew at 30 percent annually. A similar study found that journals in India during 2002 to 2010 grew at 3.29 percent annually, while research results grew at 5.44 percent (Singh and Pandita 2017). Any imbalance between the growth of journals and articles is bound to get reflected in the form of increase or decrease of JPD. A considerable difference was found in the JPD of journals indexed in Scopus and WoS to that of non-indexed journals. The average JPD of commercially indexed journals was found 111 articles per year, while the JPD of non-commercial indexed journals was found 26 articles per year (Bjork, Roos, and Lauri 2009).

Predatory journals are publishing a good chunk of articles and this market continues to grow at a much faster rate than the mainstream recognized journals. In a study by Elsevier (Reller 2016), it was observed that nearly 70 percent articles were rejected by Elsevier journals, despite publishing nearly 0.4 million articles across its 2500 journals. Articles mostly rejected by the mainstream journals seek alternate means of publishing and the

authors' unawareness of the existing predatory journal publishing market become prey of such journal publishers. It is being observed that predatory journals publish anything around 2000 articles per year and the market volume of predatory journals had already reached around 0.42 million articles per year with each author on average paying around US$ 178 as APC (Shen and Björk 2015). Most of the predatory journals are being found concentrated in Asia and Africa (Shen and Björk 2015). The credit for uncovering the murky business of publishing research results in predatory journals, having no credibility, authenticity and genuineness goes to Jeffery Beall, who was a scholarly communication librarian at the University of Colorado, US, and did the pioneering work in this direction, by compiling a comprehensive list of all such journals which were suspected of their true nature. Over the years researchers have grown aware as how to identify a dubious, sub-standard or a predatory journal mostly by checking various bibliographical parameters of a journal. Apart from Beall's List, a range of other sources available (besides global citation databases) to help authors identify where or where not to publish have been pointed out by Strong (2019), which include, among others, Cabells Scholarly Analytics, Directory of Open Access Journals (DOAJ), Eaton's Resource Guide, Emerging Sources Citation Index (ESCI), CoPE (Committee on Publication Ethics), Think.Check.Submit, and Think.Check.Attend. Given the fact, possibility can be explored whereby JPD can be used as a standard measure in identifying predatory research journals (Pandita and Singh 2021).

MATERIALS AND METHODS

To undertake the present study, data on LIS journals published in the Asiatic region were retrieved from SCImago Journal and Country Rank website, accessible at https://www.scimagojr.com/ (SCImago 2021). SCImago Journal and Country Rank uses Scopus data. Five-year data, from the period 2015 through 2019, were retrieved on February 04, 2021. Countries from Asia were identified using World Map (Worldometer 2021)/ A total of 14 LIS journals from these countries were traced from SCImago (Table 1). *Journal of Digital Information Management,* published in India has been discontinued post 2018, however the journal was considered for this study based on the research information published in the journal up to 2017. Accordingly, the actual number of volumes published by each journal and the number of articles published, as well as the journal metrics were gathered. Generally a journal completes one volume in one calendar year as such the five year data has been presumably treated for five volumes (for 10 journals in this study) or as the publication case may be.

Data analysis has been mainly performed around two main concepts, JPD and Research Deficit. However, the idea of JPD is being taken further forward to explore its possibility in assessing the predatory nature of journals, which generally have higher JPD than other recognized mainstream journals. The concept of research deficit has been explained earlier by taking into consideration the average global figures as the standard figures to measure deficit if any, be it in terms of average number of journals published or average number of articles published in each volume of a journal. Microsoft Excel spreadsheet was used to perform the computational analysis. The percentage drawn has been rounded off to the nearest 100 and has been computed up to two decimal places across all the tables presented in the results section.

RESULTS

Almost all the countries from Asia are undertaking research activities and publishing in the field of LIS, but for the present study only those articles and journals from Asia and indexed in Scopus have been considered, giving a total of 14 journals published from 8 Asian countries. It may not be out of context to mention that Asia is the world's largest continent both in terms of area and population and it is the home of 51 nation states (Worldometer 2021). As such, only 18.6 percent of Asian countries have their own national Scopus-indexed journals in the subject of "Library & Information Science", a number too small to even cater the research results publishing requirement of local LIS scholars. In all 256 journals are published in this subject across the world (SCImago 2021), which means Asia has a meager contributes of 5.65 percent in LIS publication at the global level. Of the 14 LIS Scopus-indexed journals, 3 each are published from India and Taiwan, 2 each from Iran and Japan and one each from Malaysia, Pakistan, South Korea and Turkey. Table 1 ranks the journals based on 2019 SJR indicator. When analyzed by h-index, *Journal of Information Science and Engineering* (Taiwan) has the highest h-index of 35 among the listed journals, followed by *Malaysian Journal of Library & Information Science* (Malaysia, h-index of 21) and *Webology* (Iran, h-index of 15). It is the sheer quality of a journal which gives it more visibility and acceptance among the audience, which as a consequence helps in inflating the h-index of both researchers and journal. LIS journal publishers from Asia should understand that there is no rocket science to improve the h-index of a journal, except by rising and maintaining the bar on quality publishing.

Table 1: LIS Journals from Asiatic Region Indexed in Scopus Database

Rank	Journal Title	Abbreviated title	Country	h-Index 2019	SJR 2019
1	Malaysian Journal of Library and Information Science	MJLIS	Malaysia	21	0.414
2	DESIDOC Journal of Library and Information Technology	DJLIT	India	10	0.281
3	Journal of Information Science Theory and Practice	JISTaP	South Korea	3	0.184
4	Pakistan Journal of Information Management and Libraries	PJIML	Pakistan	6	0.184
5	Journal of Information Science and Engineering	JISE	Taiwan	35	0.183
6	Annals of Library and Information Studies	ALIS	India	11	0.178
7	Webology	Webology	Iran	15	0.178
8	International Journal of Information Science and Management	IJISM	Iran	10	0.166
9	Journal of Educational Media and Library Sciences	JoEMLS	Taiwan	8	0.159
10	Journal of Digital Information Management (discontinued)	JDIM	India	13	0.146
11	Bilgi Dunyasi	BD	Turkey	3	0.135
12	Library and Information Science	LIS	Japan	5	0.101
13	IAFOR Journal of Literature and Librarianship	IJLL	Japan	-	-
14	Journal of Library and Information Studies	JLIS	Taiwan	-	-

During the data structuration it emerged that three LIS journals published were indexed in Scopus post 2017 (JISTaP, IJLL, JLIS), as such, it was decided to project the exact scenario of the LIS journal from Asia as was available on the date of data retrieval. Accordingly, data for these journals were considered from the date they were indexed in Scopus. In view of the fact, data reflected against *Journal of Information Science Theory and Practice* (South Korea) is from 2017 and data for *IAFOR Journal of Literature and Librarianship* (Japan) and

Journal of Library and Information Studies (Taiwan) are from 2019. Since the data analysis performed is in proportion to volumes published, it does not make much difference on the outcome of these three journals. Accordingly, *Journal of Digital Information Management* has been discontinued post 2017 as such, data of this particular journal has also been considered for the first three publication years only.

Table 2 lists the journals in alphabetical order. A total of 58 volumes were published by the 14 LIS journals during the period 2015-2019 at an average of 26.86 articles per journal per volume. In all 1558 articles were published in the 14 journals at an average of 311.60 articles per year. This signifies that average JPD of LIS journals published across Asia is 26.86 articles. It is pertinent to mention that the average JPD of LIS journals at the global level was recorded at 44.71 articles per journal per volume (Pandita and Singh 2021), which infers that the average JPD of LIS journals published across Asia is far below than the average JPD of LIS journals published at the global level.

Table 2: Journal Packing Density of LIS journals in Asiatic Region in Terms of Number of Articles

No	Journal Title	Country	Articles Published						No of vols pub (c)	JPD Per vol $JPD = \frac{H}{I}$
			2015 (%Share)	2016 (%Share)	2017 (%Share)	2018 (%Share)	2019 (%Share)	Total (%Share)		
	A	B	C	D	E	F	G	H	I	J
1	Annals of Library and Information Studies	India	38 (10.47)	32 (9.85)	32 (10.49)	28 (9.46)	17 (6.32)	147 (9.44)	5	29.40
2	Bilgi Dunyasi	Turkey	13 (3.58)	14 (4.31)	11 (3.61)	14 (4.73)	9 (3.35)	61 (3.92)	5	12.20
3	DESIDOC Journal of Library and Information Technology	India	54 (14.88)	51 (15.69)	60 (19.67)	61 (20.61)	54 (20.07)	280 (17.97)	5	56.00
4	IAFOR Journal of Literature and Librarianship	Japan	-	-	-	-	8 (2.97)	8 (0.51)	1	8.00
5	International Journal of Information Science and Management	Iran	20 (5.51)	8 (2.46)	21 (6.89)	24 (8.11)	16 (5.95)	89 (5.71)	5	17.80
6	Journal of Digital Information Management (discontinued)	India	64 (17.63)	49 (15.08)	35 (11.48)	-	-	148 (9.50)	3	49.33
7	Journal of Educational Media and Library Sciences	Taiwan	18 (4.96)	15 (4.62)	14 (4.59)	9 (3.04)	5 (1.86)	61 (3.92)	5	12.20
8	Journal of Information Science and Engineering	Taiwan	115 (31.68)	87 (26.77)	64 (20.98)	87 (29.39)	77 (28.62)	430 (27.60)	5	86.00
9	Journal of Information Science Theory and Practice	South Korea	-	-	20 (6.56)	20 (6.76)	16 (5.95)	56 (3.59)	3	18.67
10	Journal of Library and Information Studies	Taiwan	-	-	-	-	11 (4.09)	11 (0.71)	1	11.00
11	Library and Information Science	Japan	3 (0.83)	7 (2.15)	11 (3.61)	8 (2.70)	4 (1.49)	33 (2.12)	5	6.60
12	Malaysian Journal of Library & Information Science	Malaysia	20 (5.51)	20 (6.15)	20 (6.56)	20 (6.76)	20 (7.43)	100 (6.42)	5	20.00
13	Pakistan Journal of Information Management and Libraries	Pakistan	6 (1.65)	30 (9.23)	6 (1.97)	7 (2.36)	4 (1.49)	53 (3.40)	5	10.60
14	Webology	Iran	12 (3.31)	12 (3.69)	11 (3.61)	18 (6.08)	28 (10.41)	81 (5.20)	5	16.20
	Total (%share) (Avg art/year)* (Avg global JPD)**=		363	325	305	296	269	1558 (311.60)*	58	(26.86)**

At the journal individual level the JPD varies considerably from the average JPD figures. The JPD of the *Journal of Information Science and Engineering* (Taiwan) is 86 articles per volume, which is the highest among all the journals. This is followed by *DESIDOC Journal of Library and Information Technology (*India, JPD 56 articles) and *Journal of Digital*

Information Management (India, JPD 49 articles). *Annals of Library and Information Science* and *Malaysian Journal of Library & Information Science* published from India and Malaysia respectively have a JPD that is close to the average JPD of Asian LIS research journals. The remaining journals have a JPD that is lower than the average JPD of journals.

The disproportionate JPD of Asian LIS journals can be explained by several possible reasons. One, given the size of Asian continent in general and the size of its population in particular, which is home of around 60 percent of the world population, thereon having only 14 recognized LIS journals from the region is considered a very small number. This somewhere results in some journals to receive more than the expected number of manuscripts, hence are somewhat impelled to publish articles over and above the average figures, which include journals such as *DESIDOC Journal of Library and Information Technology, Journal of Digital Information Management* and *Journal of Information Science and Engineering*. Second, *Annals of Library and Information Science* and *Malaysian Journal of Library & Information Science* have a JPD close to average JPD figures because both journals have somewhat maintained a standard JPD practice, thereby publishing only a certain number of articles in an issue. The impact of maintaining standard JPD is also reflected by the fact that *Malaysian Journal of Library & Information Science* is the only journal from the group of journals under study having an impact factor of 1.250 (Clarivate 2021). The remaining nine LIS journals are somewhat publishing far below their actual attainable capacity. This again can be for a couple of reasons, one, either these journals do not enjoy good reputation among LIS global circles in general and in Asia in particular, or these journals have yet to attain popularity among the LIS researchers. The lesser popularity of some of the journals can be ascertained by the fact that journal listed at No 9 (JISTaP) has been indexed in 2017, while the journals listed at No 4 (IJLL) and 10 (JLIS) have been indexed in 2019. Journals having packing density above average at the regional level can take the average global JPD of LIS journals as a reference point, rather a standard packing density point which is 44.71 articles per journal per volume (Pandita and Singh 2021). Hence the threshold point of average JPD of LIS journals can be considered as 44.71 articles per journal per volume. Besides, each journal has its individual packing density policy, which of course is formulated keeping in view of the standard practices followed worldwide by the individual quality and reputation of journal publishers.

What is more important to note is that the average JPD of LIS journals published across Asia is far below than the average global JPD of LIS journals. Raising the JPD of Asian LIS journals at par with the average JPD of LIS journals at the global level will help a great deal in publishing a far greater number of articles in Asian LIS journals, which will affect an increase of around 73 percent articles. In other words it can also be inferred that LIS journals published across Asia are suffering from article publishing deficit of 73 percent when compared to average articles published in LIS journals across the world. *IAFOR Journal of Literature and Librarianship* and *Journal of Library and Information Studies* have been indexed in Scopus since 2019, and they need to attain complete visibility among the world LIS research community. *Journal of Information Science Theory and Practice* has been indexed since 2017, which too is a small period to attain popularity among LIS research community outside South Korea. *Pakistan Journal of Information Management and Libraries on the other hand* is very much inconsistent with its coverage in terms of number of articles published in each volume. There has been a steady decline in the number of articles published in this journal 2017 onwards.

JPD journals at the country level varies considerably to that of JPD of journals at the individual level (see Table 3). The number of volumes and the total number of articles

published in all the journals from a particular country helps to calculate the JPD of that particular country. Accordingly, India and Taiwan are publishing three journals each and given the number of volumes and number of articles published, the average JPD of Indian LIS journals is 44.23 articles per journal per volume,. Similarly the JPD of Taiwanese LIS journals is 45.64 articles per journal per volume. Japan has the lowest JPD of 6.83 articles per journal per volume. The JPD of LIS journals published from India and Taiwan is more than the average JPD per journal per volume at the regional level but is almost at par when taken the average JPD of LIS journals at the global level, while, the journals published from other Asian countries are being published far below than their actual attainable capacity, both while considering the average JPD of 26.86 articles per journal per volume at regional level and 44.71 articles as the standard JPD at the global level.

Table 3: Journal Packing Density of LIS Research Journals at Country Level

Rank	Country	No of Journals Published/indexed by Scopus	No. of vols published (2015-19) (5 Years)	No of articles published (2015-19)	Avg articles pub/ year = $\frac{D}{5}$	Avg articles pub / vol $JPD = \frac{D}{C}$
	A	B	C	D	E	F
1	India	3	13	575	115.00	44.23
2	Taiwan	3	11	502	100.40	45.64
3	Iran	2	10	170	34.00	17.00
4	Japan	2	6	41	8.20	6.83
5	Malaysia	1	5	100	20.00	20.00
6	South Korea	1	3	56	11.20	18.67
7	Pakistan	1	5	53	10.60	10.60
8	Turkey	1	5	61	12.20	12.20
	Total	14	58	1558	311.60	26.86

Research contribution of a country, institution or even for that matter of an individual cannot be limited to only research output in terms of articles published in journals. Providing good platform to researchers all across the world to publish their research in quality journals is another equally important aspect of research contribution. Similarly, individual researchers apart from being authors can also contribute in scholarly publishing roles as reviewers, editors, and editorial board members. Table 4 depicts 43 countries from Asia which actively undertake LIS research, but at the same time there are only 8 countries from the region which are publishing quality LIS journals. Therefore, 35 countries are contributing by publishing LIS research findings only. Requiring researchers to produce only journal articles or research results and not providing publishing platform for them can be counted as a sort of research deficit. Accordingly, data in Table 4 is an attempt to compute research deficit in LIS across Asian nations, both in terms of journals published and research output recorded.

Of the 51 countries across Asia, 43 are indulged in research activities of one or the other sort, whereby nearly 16 percent are not contributing in LIS research activities despite having the capacity to do so. It can also be inferred that Asia has harnessed its LIS research potential up to 84 percent of the countries only. This is followed by research deficit in terms of LIS journals across the region. Of the 43 countries in Asia only 8 countries are publishing in LIS Scopus-indexed journals, which also means that of all the countries across Asia, only 18.60 percent are publishing in journals in the field of LIS. Countries undertaking

research, but not publishing their own quality journals in a given field can be counted as research deficit in terms of journal publishing. On average 1.75 LIS journals are being published from 8 countries of Asia. If these average journal publishing figures are extended to all the countries in Asia, this means at least 75 journals in the field of LIS should have been published across Asia, hence reflecting a deficit of 81.66 percent in publishing LIS journals. It can also be inferred that on an average each "LIS research country" from Asia should publish at least two quality journals, duly indexed in global citation databases such as Scopus or Web of Science.

From 2015 to 2019, a total of 13647 articles were published in LIS journals all across the world by 43 countries from Asia at an average of 317.37 articles per country. Presuming 317.37 articles as a standard research output, then China, Hong Kong, India, Indonesia, Iran, Israel, Japan, Malaysia, Pakistan, Singapore, South Korea, Taiwan and Turkey are the countries from Asia which have contributed above average LIS research output, while the remaining 30 Asian countries recorded research deficit in terms of research output ranging from -316.37 percent in Uzbekistan to -36.37 percent in Saudi Arabia. China, India and Taiwan are the three leading LIS research countries from Asia, which are not only meeting their own individual LIS research requirements by producing the average research results, but are also somewhat producing and publishing surplus share of research output to address the requirement of both regional and global LIS community.

DISCUSSION

Although nearly 82 percent countries in Asia are one way or another involved with research activity in LIS discipline, but given the research output from Asia both in terms of number of LIS journals and articles published, the figures are not that encouraging, when compared to the global LIS research productivity. The LIS research countries from Asia should contribute in proportion to its population size, vis-à-vis around 60 percent of the world LIS research output. Contrary to the world's total LIS research output during 2019, only 29.17 percent came from Asia, and of the 258 LIS Scopus-indexed journals only 14 (5.42%) are published from Asia. These figures no way reflect that LIS research countries from Asia are contributing significantly to the world LIS literature. Potential LIS journals across Asia, but not indexed by Scopus or WoS should work on improving the quality parameters of the journals to match with the world standard. The journals would gain visibility and global readership, and provide a broader and wider publishing platform to LIS researchers all across the world. Having more LIS journals from Asia covered in both databases would also provide Asian LIS researchers with a visible, internationally recognised space where indexed articles are hosted. Asian countries not publishing their very own LIS journals should introduce new journals in this discipline without compromising with quality parameters and should have them indexed in national, regional or global A&I databases in due time.

Table 4 : LIS Research Deficit at the Country Level During 2015-2019 in Asiatic Region

No	Country	Research Journals Published at country level				Research articles published at country level			
		Journals published	% age of $B = \frac{B}{Total\ of\ B}$	Articles Published in Journals (A)	% age of $D = \frac{D}{Total\ of\ D}$	Articles published 2015-19 (%Share)	% age of $F = \frac{F}{total\ of\ F}$	Research Deficit if any = $F - Avg\ of\ F$	% age deficit of $E = \frac{E}{Avg\ of\ F}$
	A	B	C	D	E	F	G	E	F
1	Afghanistan	-		-		2	0.01	-315.37	-99.37
2	Bahrain			-		18	0.13	-299.37	-94.33
3	Bangladesh	-		-		72	0.53	-245.37	-77.31
4	Bhutan	-		-		1	0.01	-316.37	-99.68
5	Brunei Daruss			-		8	0.06	-309.37	-97.48
6	Cambodia	-		-		3	0.02	-314.37	-99.05
7	China	-		-		3887	28.48	3569.63	1124.75
8	Hong Kong	-		-		475	3.48	157.63	49.67
9	India	3	21.42	575	36.91	2243	16.44	1925.63	606.75
10	Indonesia	-		-		362	2.65	44.63	14.06
11	Iran	2	14.28	170	10.91	738	5.41	420.63	132.54
12	Iraq	-				12	0.09	-305.37	-96.22
13	Israel					577	4.23	259.63	81.81
14	Japan	2	14.28	41	2.63	702	5.14	384.63	121.19
15	Jordan	-		-		69	0.51	-248.37	-78.26
16	Kazakhstan	-		-		33	0.24	-284.37	-89.60
17	Kuwait	-		-		96	0.70	-221.37	-69.75
18	Kyrgyzstan	-		-		3	0.02	-314.37	-99.05
19	Laos	-		-		2	0.01	-315.37	-99.37
20	Lebanon	-		-		29	0.21	-288.37	-90.86
21	Macao	-		-		28	0.21	-289.37	-91.18
22	Malaysia	1	7.14	100	6.42	434	3.18	116.63	36.75
23	Mongolia	-		-		6	0.04	-311.37	-98.11
24	Myanmar	-		-		2	0.01	-315.37	-99.37
25	Nepal	-		-		4	0.03	-313.37	-98.74
26	North Korea	-		-		2	0.01	-315.37	-99.37
27	Oman	-		-		59	0.43	-258.37	-81.41
28	Pakistan	1	7.14	53	3.40	393	2.88	75.63	23.83
29	Palestine	-		-		11	0.08	-306.37	-96.53
30	Philippines	-		-		45	0.33	-272.37	-85.82
31	Qatar	-		-		96	0.70	-221.37	-69.75
32	Saudi Arabia	-		-		281	2.06	-36.37	-11.46
33	Singapore	-		-		510	3.74	192.63	60.70
34	South Korea	1	7.14	56	3.59	779	5.71	461.63	145.45
35	Sri Lanka	-		-		46	0.34	-271.37	-85.51
36	Syria	-		-		4	0.03	-313.37	-98.74
37	Taiwan	3	21.42	502	32.22	860	6.30	542.63	170.98
38	Thailand	-		-		111	0.81	-206.37	-65.03
39	Turkey	1	7.14	61	3.92	404	2.96	86.63	27.30
40	UAE	-		-		158	1.16	-159.37	-50.22
41	Uzbekistan	-		-		1	0.01	-316.37	-99.68
42	Vietnam	-		-		72	0.53	-245.37	-77.31
43	Yemen	-		-		9	0.07	-308.37	-97.16
	Total (Avg)*	14		1558		13647 (317.37)*			

It is interesting to note that during the period of study, 1558 articles were published in 8 LIS journals across Asia, while, during the same period a total of 13647 articles were published by Asian-based researchers in different LIS journals across the world. These figures show a considerable difference between the rate of LIS Scopus-indexed articles published by Asian researchers and the rate of articles published in Asian LIS Scopus-indexed journals. Hence, it can also be inferred that Asian LIS journals suffer a research deficit of 12089 articles, which means nearly 90 percent LIS research results produced from Asian countries seek publishing platform either from outside Asia. This deficit of publishing research findings outside Asia can be brought down by increasing the JPD of those LIS journals which are not publishing to their true packing density. The overall JPD of Asian LIS journals should be improved from the existing average 26.86 articles to around 45 articles, the average JPD of world LIS journals, per journal per volume (Pandita and Singh 2021). Apart from this, there is a far greater need to work on the quality of other existing LIS journals published across Asia, but do not have indexation status in Scopus or WoS, a proxy of quality. Still remain to be dealt with, there is also a need to produce more quality LIS journals across Asia, at least two titles in each individual country.

Journals having packing density less than the average LIS JPD for Asia should work on improving their visibility among global LIS researchers, so that more of them may contribute to these journals, thus increasing diversity and inclusion in research and publishing from researchers of all national origins. The presence of a journal in global A&I databases such as WoS or Scopus does not guarantee that the journal has become fully visible to the global audience. Here the need is to market the journal in order to improve its visibility among the audience, preferably using social media. This will also help to improve the reputation of lesser known journals among the researchers. The low JPD of newly indexed LIS journals from Asia is expected and this is something which these journals will definitely have to overcome in the near future.

A one-sided research affair is about producing research results and publishing them in available platforms outside the country. This one sided affair needs to be converted into multi-pronged affair, whereby a researcher can contribute in as many ways as possible including providing scholarly research publishing platforms to both local and international researchers. Countries which are not so active and vigorous in research activities should push their research community to be more productive and countries which are not contributing to global LIS research output should strive for best practices in scholarly publishing without delay.

Following standard journal publishing practices has become even more important in the recent times as the market of research journal publishing is flooded with predatory publishers (Xia et al. 2015). Needless to mention that predatory journals or publishers are more focused on making money from authors and researchers, taking advantage of the pay-to publish model in the name of APCs. These journal publishers promise fast publication turnaround and seem to accept the articles immediately upon its receipt and publish them within few days, with little or no peer review resulting in low quality of articles. Thereon, there is no limit to the number of articles published in each issue of a predatory journal. Given the fact that JPD is bound to act as a deterrent among predatory journal publishers to limit the number of articles published in each journal issue, hence it can prove to be a vital tool in putting a curb on predatory journal publishing.

CONCLUSIONS

This study suggest that JPD can act as a standard measure to maintain the quality of research journals in any given subject discipline. JPD can also be used by researchers to gauge the quality of a journal, especially by assessing whether or not the journal has sustained the packing density over a period of time. Still more, journal publishers can also indicate on their web pages the average JPD in the same way they inform the audience on the editorial board members, indexation status and journal impact factor while upholding the trustworthy and quality of their journals. Over the years, the concept of JPD is bound to gain popularity both among researchers and the publishers and may ultimately be regarded as one of the standards to judge the credibility, authenticity, reliability and quality of a journal. Apart from this, the concept of JPD shall be considered by researchers more for practical purposes in identifying predatory journals, which are known for publishing any number of articles in each issue and even hundreds in each volume. By looking at the JPD of a scholarly journal, researchers can decide on their own whether they should publish their research in a particular journal or not, as excessive JPD may be an evidence of journal being possibly, probably or potentially of a predatory nature.

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