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A Citation Analysis of *Pakistan Library & Information Science Journal* from 2004 and 2020

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Abstract

Aim: The citation analysis is one of the quality indicators of research publications. An attempt has been made in this study, to examine the impact of citations on the documents published in the *Pakistan Library & Information Science Journal (PLISJ)* from 2004 to 2020.

Research Methodology: A retrospective research method was applied on the bibliographic detail of documents published in *PLISJ* and indexed in Library, Information Science & Technology Abstracts (LISTA) - EBSCO Host. The publication data of *PLISJ* consisted of 17 years from 2004 to 2020 was available on the website of EBSCO (<http://web.b.ebscohost.com/>). A total of 68 issues were published in this period but the record of 66 issues was available on the EBSCO website, the data of two missing issues was retained from the hard copies of the journal. The selected dataset was entered in the spreadsheet of the Micro-Soft Excel Sheet for analysis. The record of citations was taken from Google Scholar. Standard Error of Means (SEM) of total publications and citations was calculated by SPSS-22. The articles published in the English Language have been included for analysis. The editorials, book reviews, news items and Urdu Language documents have been excluded. The number of citations gained by each record has been retrieved from Google Scholar from 25th to 30th November 2020.

Results: A total of 361 (SEM 21.24±1.32) articles have been identified with an average annual growth rate of 4.04. These documents received the ratio of the citations with SEM 37.94±4.90 and almost half of the documents (49.30%) have been cited. Ten papers quantified the status of *h*-Index. A strong correlation (0.958349) is found between the authorship pattern and number of citations, as multi-authors papers received more citations as compared to a single author. Dr. Rubina Bhattia and Dr. Khalid Mahmood emerged as the leading authors with 39, 21 papers, respectively. The highest citation impact has been received the document contributed by Dr. Mirza Muhammad Naseer and Dr. Khalid Mahmood. The maximum *h*-index scale (n=7) is gained by Dr. Khalid Mahmood. A bulk of documents was written on the subject category of “*Biographical studies*” whereas the highest citation impact has gone to the documents on “Reference Services”.

Conclusion: The growing inclination of papers in *PLISJ* has been observed in the study. As the papers are getting older, the number of citations is also increasing. The authorship pattern has explicitly enhanced from single to multiple authors. Faculty should encourage scholars to submit quality research in national journals.

Keywords

Pakistan Library & Information Science Journal, Bibliometric, Pakistan, Research productivity, Citation impact

Introduction

Conducting solid and systematic research is an inventive engagement to enhance global knowledge, improve the quality of life by providing the solution to everyday problems and contrives new applications as well as code of practices (Haq & Faridi, 2021).The journals provide an appropriate channel for

disseminating scholarly communication and research findings to the rest of the world. The journals also provide up-to-date knowledge, current information and prevailing practices of the profession. The published material has not only broadened the existing size of knowledge collection but provided the foundation for new theories (Rattan, 2014). The Library and Information Science (LIS) journals offered a suitable medium to library researchers for sharing their innovative ideas and advanced practices (Khan & Samdani, 1997). The continuous research process plays a potential role in the advancement of libraries and the LIS profession (Sabzwari, 2016. p. 2-3). A recent study examined the research behavior of LIS professionals in Pakistan. The respondents showed a positive attitude towards research but the majority of them are unable to carry out research due to a shortage of time, insufficient support from authorities, and lack of research skills as well (Sheikh, Malik & Mahmood, 2020).

The progress and standing of the profession has been assessed by the research output and the impact of the research that is measured by citation-count. Garfield (1955) emphasized the need for quality parameters to evaluate the characteristics of published materials and introduced the science of citation-indexing. Through this method, it has been observed that how many times the other researchers and peers cite a particular paper in their research as reference. The citing of one's work by another is the indication of fair exchange/share of knowledge. To practice his theory, Garfield started the Institute of Scientific Information (ISI) in 1960 and ISI launched the Web of Science (WoS) database in 1997. Now 24,776 journals are indexed in WoS and this commercially available database provides accessibility to scholarly literature specifically organized metadata with citation count (Masic, 2017).

Pakistan is the fifth largest country in the world, struggling hard to get excellent in every field of knowledge, having a literacy ratio of 60% and hardly 10% has reached in higher education level. There has been tremendous growth in the number of degree-awarding institutions as well the research publications during the last two decades (Haq & Faridi, 2021). From the Pakistani perspective, Library and Information Science (LIS) education and research was started long before the creation of Pakistan. Eventually, an American-based librarian, Asa Don Dickenson (1876-1960), a student of Melvil Dewey (1851-1931), was hired to organize the university library and he taught the modern methods of librarianship to the local librarians in 1915 at the University of the Punjab Lahore, where he started the first ever LIS program of Asia and laid the foundation-stone of research writing in LIS by writing a textbook named "Punjab Library Premier" (Anwar 1990).

The subject of LIS grows gradually after the creation of Pakistan and now 11 universities are offering LIS higher education in Pakistan (Malik & Ameen, 2017), and following six LIS journals are being published from Pakistan, first three are recognized by the Higher Education Commission (HEC) of Pakistan.

1. Pakistan Library & Information Science Journal
2. Pakistan Journal of Information Management and Libraries
3. International Journal of Librarianship and Information Science
4. International Journal of Information Management Sciences
5. Journal of Information Management and Library Studies
6. Pakistan Library Association Journal

Pakistan Library & Information Science Journal (PLISJ) is one of the leading journal that started its publication in 1966 under the flag of the Library Promotion Bureau as *Pakistan Library Bulletin (PLB)*. It was renamed as *PLISJ* in 2004. Presently, Dr. Ghaniul Akram Sabzwari and Dr. Nasim Fatima are the Chief Editor and Deputy Chief Editor of *PLISJ* respectively. At the start, journal published articles in three languages, Urdu, English and Bangla. There were no Bangla language articles after 1971. The journal is indexed in *EBSCO host library, Information Science & Technology Abstract; Library Literature & Information Science Index and Readers Guide to Periodicals Literature* (Haq & Al Fouzan, 2019).

Bibliometric studies have been very popular all over the world but a small number of studies have been carried in Pakistan. The majority of the studies are related to the quantitative evaluation of publications. Few bibliometric studies included the qualitative aspects of publications as mentioned in the review of the

literature section. The citation impact of a single LIS journal published in Pakistan has not been studied. The study attempt to fill this gap and this paper is aimed to evaluate the citation impact of the documents published in *PLISJ* from 2004 to 2020.

Research Questions

The study was conducted to find the answers to the following research questions.

1. How many documents are published in *PLISJ* from 2004 to 2020, and what is the average annual growth rate, total citations, citations impact, total authors and an average number of authors by year?
2. Which authorship pattern is being followed and is there any correlation between the authorship pattern and the number of receiving citations?
3. Who are the most productive authors and what is the ratio of citations, h-index and i10-index documents?
4. Which subject category has been most researched in terms of the number of documents and citations?
5. What are the characteristics and citation impact of 10 highly cited papers of *PLISJ*?

Literature Review

The LIS professionals of Pakistan have been conducting bibliometric studies on the national level as well as on a single journal. Some of the relevant studies have been reviewed to establish a connection with the present research. Mahmood (1996) analyzed the 97 articles related to the Pakistan LIS perspective published in international journals from 1947 to 1995, 69 papers were produced by Pakistan LIS professionals while other 28 documents contributed by international authors and the word “Pakistan” had been included in their papers. *International Information and Library Review* was found a favorite option with 16 papers followed by *Libri* (n=7). More than half (n=54; 56%) of articles were published in UK and USA based journals. All articles were distributed into 16 subject categories and most of the articles were written on the subject of *Library and Information Science Education and Research* (n=18), followed by *Special libraries and information services* (n=17). In response to this paper, Anwar and Saeed (1999) enhanced the horizon of LIS research produced by Pakistan. They added the locally published LIS literature and reviewed 251 documents produced by 64 authors. The data was extracted from the LISA-PLUS database published from 1967-1995. More than half (57%) of the documents were published in *Pakistan Library Bulletin*, presently known as *PLISJ*. Dr. Anis Khurshid found a most productive researcher with 22 documents and *LIS Education and Manpower* emerged as a preferred area of research. The dominance of single authorship (92.4%) was found prominent.

Khurshid (2013) evaluated the qualitative aspects of 516 articles produced by Pakistani LIS authors and published in international journals from 1957 to 2011. Almost 43% of papers were produced by a single author pattern while 57% were the result of a collaborative effort. Eleven non-resident Pakistani authors shared 244 (47.28%) papers and 71% of papers were contributed by LIS faculty. *Library education and library automation/software* were found in preferred areas of research. The highest number of papers (n=50) were published in *Library Review* followed by *Library Philosophy and Practice* (n=38). In the analysis of the author’s productivity, Dr. Khalid Mahmood took the topmost rank with 68 papers followed by Majid Shaheen (n=55) and Sajjad ur Rehman (n=51). Out of total papers, 145 (28.10%) papers were published in Impact factor journals.

Anwar and Jan (2017) assessed the citation impact of 601 articles produced by Pakistan LIS professionals and these articles received 3,851 citations with an average of 6.4 citations per article. The articles written by Shaheen Majid had received the highest number of citations followed by Khalid Mahmood. The ratio of self-citation was counted 452 (11.74%) and Shaheen Majid was found top-cited author, his articles gained 10.08 citations per article.

Siddique et al., (2020) presented an analysis of the LIS research output of Pakistan from 1957 to 2018. The investigators used multiple sources and finally selected the eligible data of 1305 papers. The slow growth of publications was observed from 1957 to 2003 and ascending expansion was started since 2004. The highest number of papers (n=90) were published in 2016 and more than half of the papers (n=708; 54.25%) were contributed by the authors affiliated to three universities, University of the Punjab (n=381), University of Karachi (n=175), and Islamia University of Bahawalpur (n=152). About one-third of the papers (n=411; 31.49%) were published in *PLISJ*. The preferred areas of the research consisted of *Academic Libraries* (n=222), *Library, Information Science Research* (n=162) and *Digital Libraries* (n=10). This study also highlighted the ten-most cited papers and the data of citations were extracted from the Web of Science and the Scopus database. In the ten-most cited papers, Majid Shaheen and Khalid Mahmood contributed in the five papers each and Dr. Khalid Mahmood appeared to be the most productive author with 133 publications followed by Dr. Kanwal Ameen and Dr. Rubina Bhatti with 92 and 88 papers, respectively.

Shadab (2009) attempted to present a bibliometric analysis of the 557 articles published in 102 issues of 38 volumes of *PLISJ* from 1968 to 2007. These articles were contributed by 280 authors, male authors consisted of 227 (81%) while the share of female authors counted 53 (19%). A total of 5,880 references had been used in 557 articles, the ratio of author self-citations and journal self-citations were found 179 and 390, respectively. "*Academic Libraries*" was found a preferred area of research and Dr. Nasim Fatima found a most productive author. The study suggested to publish articles in *PLISJ* on contemporary LIS trends and improves the peer-review quality of papers before publication.

Naseer and Mahmood (2009) scrutinized the 236 papers published in *PLISJ* from 1998 to 2007. A promising increase of papers has been observed from 10 papers in 1998 to 37 in 2007. More than two-third (n=169; 72%) of the papers were published during the last five years (2003-2007) of the study. The solo authorship was found on a high scale (89%) and the bulk of papers were contributed to the subject of the *Library profession and education* (n=93; 39%). The geographical location of slightly less than one-fourth (n=54; 23%) of the total authors was not found and 24 (10%) papers were contributed by international authors belonged to six countries. The evaluation of research types showed that 61% of the articles comprised of descriptive type, followed by historical and empirical types with 18% and 12%, respectively.

Warraich and Ahmad (2011) assessed the 111 papers published *Pakistan Journal of Library and Information Science* from 1995 to 2010. The majority of articles (n=99; 89%) papers were contributed by single-author pattern and collaborative research was found in 12 papers only. More than half of the documents (n=59; 53%) were comprised of research papers while 44 documents were categorized as essays on various aspects of librarianship. The authors affiliated with the University of the Punjab, Lahore contributed almost half of the papers (n=54; 48.65%) and Dr. Khalid Mahmood and Dr. Kanwal Ameen emerged the most prolific authors with 10 papers each.

Haq, Faridi and Tanveer (2020) evaluated the 96 documents of *Pakistan Journal of Information Management and Libraries* published from 2010 to 2019 and indexed in the Scopus database. These documents received 217 citations with an average of 2.26 citations per document. The authorship pattern revealed that the slight difference was found with 37 and 38 documents in single and two-author patterns, respectively. But the single authored documents received 0.88 citation per document while the documents written by two-author pattern gained 3.97 citation per document. The most-cited paper entitled, "Pakistan journal of library and information science: a bibliometric analysis" written by Warraich & Ahmad (2011) received 29 and 74 citations in the Scopus and Google Scholar database, respectively.

Ahmad and Warriach (2013) reviewed the research output of LIS professionals of the Punjab Province, Pakistan from 2007 to 2012. A total of 170 publications identified contributed by 39 authors and 41% were contributed by female authors. A research collaboration found on a high scale, about 70% of the documents were the results of joint authorship. Slightly more than two-third (n=116; 67%) of the papers were published in international journals. The majority of the documents produced by the authors belonged to University of the Punjab and the subject of "Library education" emerged as a preferred area of research.

Haq and AlFouzan (2019) examined the 369 documents published in *PLISJ* from 2008 to 2017. The proportion of English and Urdu documents has consisted of two-third and one-third respectively. Fifty-eight percent of documents were written by a single author, the ratio of a single author has been higher in Urdu documents as compared to English language documents. Almost two-thirds (65%) of the documents were contributed by the authors affiliated to three cities of Pakistan, Karachi (n=138) Lahore (n=63), and Bahawalpur (n=37). Dr. Rubina Bhatti contributed the highest number of documents (n=31) and the subject area of “Biographical studies” found top preference with 61 (16.53%) documents.

Tanveer, et al., (2020) investigated the publication growth and citation impact of the *Saudi Medical Journal (SMJ)* for a period of 40 years from 1979 to 2018. A total of 7,483 documents were found in the Scopus database and these documents received 37,988 citations with an average of 5.07 citations per document. Review papers received more citations as compared to other types and the majority of documents (n=2,828; 38%) gained the range between 1 to 4 citations. The ratio of citable and non-cited documents comprised of 70% and 30%, respectively. The 10 most-cited papers received 1306 citations with an average of 130.6 citations per paper.

Numbers of bibliometric studies have been carried out in health sciences journals at Pakistan, Memon (2019) presented the study in the *Journal of Pakistan Medical Association (JPMA)* from 1965 to 2018 based on the Scopus database. Earlier, Ibrahim and Jan (2015) conducted a five-year study on the same journal comprised the period from 2009-2013. Ullah et al., (2016) analyzed the articles published in the *Journal of College of Physicians and Surgeons Pakistan (JCPSP)* from 2010 to 2014. Baladi et al., examined the bibliometric pattern of articles published in the *Pakistan Journal of Pharmaceutical Sciences*, and *Pakistan Journal of Pediatrics*, (Baladi, et al. 2018; Baladi, et al. 2017). Ullah, Butt and Haroon (2008) examined the 10-years publication data of the *Journal of Ayub Medical College*. Some social sciences journals were also studied as Jan and Anwar (2017) worked on the *Pakistan Development Review*, Elahi (2015) assessed the *Journal of Law and Society* and Wahid and Idress (2020) evaluated the *Pakistan Journal of Psychology*. Few bio-bibliometrics studies on LIS researchers e.g., Dr. Anis Khurshid, Dr. Syed Jalaluddin Haider, Dr. Khalid Mahmood, Dr. Kanwal Ameen and Dr. Mumtaz Ali Anwar were also found (Mahmood & Rehman, 2009; Kousar & Mahmood, 2010; Qayyum & Naseer 2013; Haq & Pervaiz, 2019; Naveed, 2018).

Research Methodology

A retrospective research method has been applied on the bibliographic detail of documents published in *PLISJ* and indexed in Library, Information Science & Technology Abstracts (LISTA) of EBSCO Host. The publication data of *PLISJ* published in 17 years from 2004 to 2020 have been available on the website of EBSCO (<http://web.b.ebscohost.com/>). *PLISJ* has been indexed in Library, Information Science & Technology Abstracts (LISTA) of EBSCO host database since 2004. The frequency of *PLISJ* is quarterly and 68 issues have been published till the end of 2020. Out of a total of 68 issues published in 17 years, two issues were missing, No.2 of 2018 and No.3 of 2016, in the LISTA database. The detail of items published in these two issues was collected manually. Usually, LISTA indexed the English language items and a total of 977 items were found there, further 18 items were added which was collected manually from two missing issues. After deleting the seven duplicate records, 361 eligible records met the inclusion criteria (Figure-1). The following formula has been used to get the annual growth rate.

$$\text{Annual growth Rate} = 100 \left(\frac{\text{most recent value} - \text{past value}}{\text{past value}} \right)$$

Inclusion and Exclusion Criteria: Only citable documents were included in the study for data analysis. All other items consisted of editorials, book reviews, and news items were excluded. Out of a total of 995, 368 documents found for study, further duplication has been checked and seven duplicate records were deleted. Micro-Soft Excel Sheet has been prepared with the columns of year/vol, name of authors, total authors, the title of documents, subject category and citations. All these indicators of 361 records have been entered. Google Scholar was used to getting evidence of citations. Standard Error of Means (SEM) of publications and citations was calculated by SPSS.

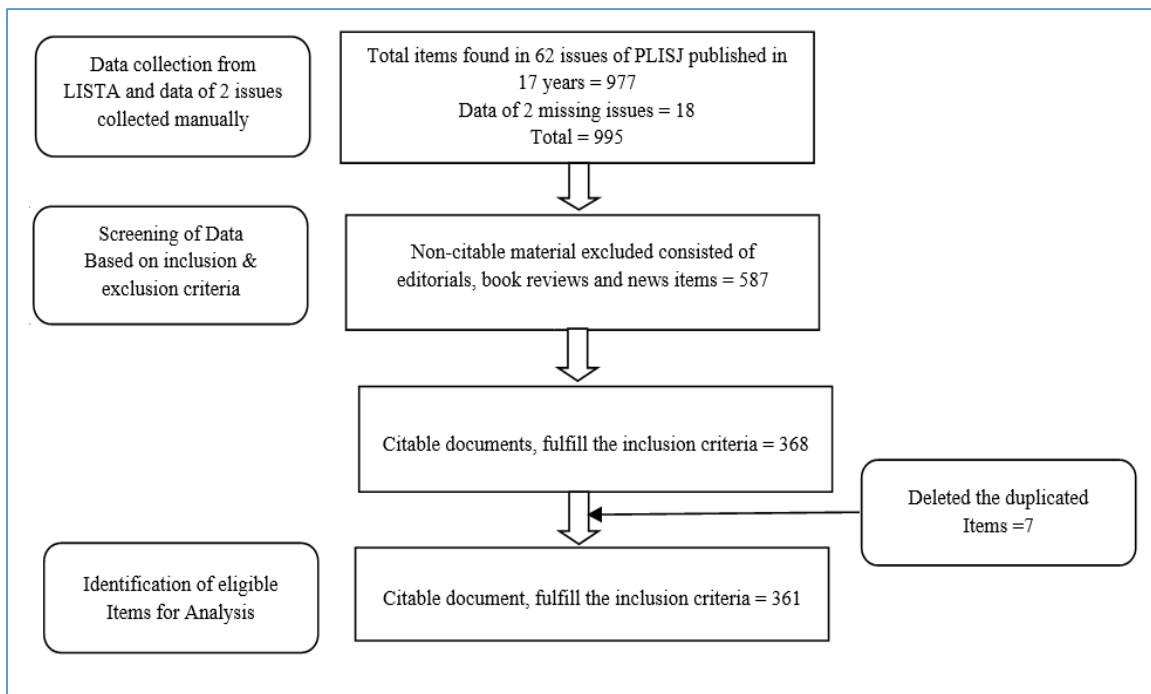
Limitations: Only articles published in the English Language have been included for analysis. The editorials, book reviews, news items and material published in the Urdu Language have been excluded. The number of citations gained by each record has been retrieved from Google Scholar from 25th to 30th November 2020.

Data analysis

Distribution of documents by years

A total of 995 items have been extracted, after excluding the editorials, book reviews, and news items, 368 met inclusion criteria, further 7 records were removed being duplicate. A total of 361 documents with the Standard Error of Mean (SEM) 21.24 ± 1.32 were selected for citation analysis. These documents were published in 17 years from 2004 to 2020 and the highest number of documents (n=30) were found in the year 2019 and the least numbers (n=15) were published each year in 2005, 2007 and 2008. One hundred and fifty-two (42%) documents were published in first nine years from 2004 to 2012 and 209 (58%) were documents published in the last eight years, overall a growing trend of publications was observed. Only 10 papers qualified the h-index scale and 11 reached on i10-index. The average annual growth rate has been recorded at 4.04, the highest annual growth rate (42.11) has been recorded during the year 2014 and the lowest annual growth rate (-17.24) has been observed in 2018 (Table-1).

Figure-1; Screening and extraction of eligible data



All 361 documents received 644 citations with a ratio of SEM 37.94 ± 4.70 . The impact of citations revealed that there are 1.78 citations found against the per document ratio. The maximum number of citations (n=48) received by the documents published in the year 2008 with an average of 4.80 citations per document followed by 15 documents published in the year 2007 (3.20 citations per document). The 42% of documents published in the first nine years received 410 (63.50%) citations while 58% documents published from 2013 to 2020 gained 235 (36.50%) citations. The number of citations has been amplified with the passage of time, the older documents received the higher number of citations as compared to the latest documents.

A total of 678 authors including multiple counts, with SEM 39.88±3.89, have contributed 361 documents during the targeted period. The highest ratio of author per document was found in the year 2019 when 30 documents were contributed by 75 authors with an average of 2.50 authors per document and the lowest average, 1.17 authors per document were observed in the year 2004. The average author per document ratio was 1.40 during the first nine years whereas the research collaboration has been increased to 2.20 authors per document from 2013 to 2020.

The assessment of citable and non-citable documents found that almost half of the documents (n=178; 49.30%) have been cited while 183 (50.70%) documents have not received any citation till the freezing date of data collection.

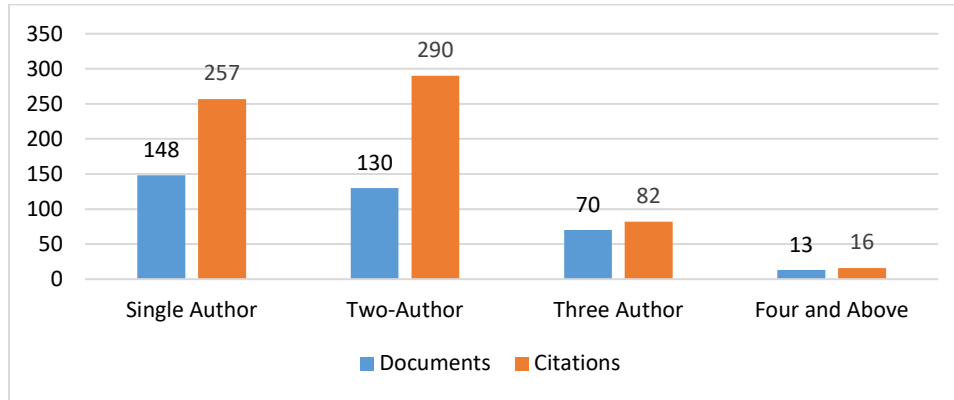
Table-1; Distribution of total documents (TD), annual growth rate (AGR), total citations (TC), citation impact (CI), total contributing authors (TA) and number of authors per documents by years

Year	TD	AGR	TC	CI	TA	Author/Doc
2004	18		28	1.56	21	1.17
2005	15	-16.67	21	1.40	18	1.20
2006	17	13.33	53	3.12	20	1.18
2007	15	-11.76	48	3.20	18	1.20
2008	15	0.00	72	4.80	19	1.27
2009	16	6.67	51	3.19	24	1.50
2010	20	25.00	47	2.35	29	1.45
2011	19	-5.00	37	1.95	34	1.79
2012	17	-10.53	53	3.12	31	1.82
2013	19	11.76	35	1.84	38	2.00
2014	27	42.11	69	2.56	65	2.41
2015	27	0.00	38	1.41	56	2.07
2016	25	-7.41	41	1.64	54	2.16
2017	29	16.00	16	0.55	66	2.28
2018	24	-17.24	12	0.50	45	1.88
2019	30	25.00	21	0.70	75	2.50
2020	28	-6.67	3	0.11	65	2.32
Total	361	4.04*	645	1.79	678	1.88
Mean	21.24		37.94		39.88	
SD	5.44		19.36		19.84	
SEM	1.32		4.70		3.89	
* Average Annual Growth Rate						

Authorship pattern and citation impact

The authorship pattern versus the number of receiving citations analysis has been presented in Figure-2. One hundred and forty-eight (41%) papers have been written by a single author pattern gained 257 (39.83%) citations. The multi-author papers counted 203 (59%), received 388 (60.15%) citations. The examination of the correlation between the number of authors in the paper and the number of receiving citations proved that a strong correlation with the ratio 0.958349 has been found; means as the number of authors would increase the number of citations will also be magnified.

Figure-2; Authorship pattern versus number of receiving citations



Productive authors

A total of 678 names of contributors were found including multiple counts but as a unique name, 264 authors were identified. More than half of the authors (n=155; 58.71%) contributed only one paper, while 42 (15.90%) authors contributed two papers each and 17 (6.43%) authors contributed three papers each. There are 49 (18.56%) authors who contributed more than three papers each. The detail of 24 productive authors with their metric has been shown in Table-2. Dr. Rubina Bhatti, Chairperson, Department of Library and Information Science, Islamia University of Bahawalpur, Pakistan emerged as the most productive author with 39 papers, on average she contributed two papers annually. Dr. Khalid Mahmood, Dean Faculty of Management Sciences, Chairman Department of Information Management, University of the Punjab, Pakistan stands on the second rank with 21 publications, followed by Dr. Muhammad Shahid Soroya, Pro-Vice-Chancellor, Minhaj University, Pakistan with 15 publications. Dr. Mirza Muhammad Naseer of Imam Abdulrahman Bin Faisal University, Saudi Arabia ranked 13th with nine papers but his papers gained the highest citation impact, with an average of 5.56 citations per paper, followed by Dr. Khalid Mahmood (5.38). The credit for getting maximum h-index papers (n=7) gone to Dr. Khalid Mahmood, followed by Dr. Rubina Bhatti (n=5). The scrutiny of i10-index documents, out of 39 papers produced by Dr. Rubina Bhatti, three papers received more than ten citations followed Dr. Khalid Mahmood, Department of Information Management, University of the Punjab and Dr. Asad Khan, Department of Library and Information Science, University of Peshawar with two i10-indexed papers.

Table-2; Name of the most productive contributors with their affiliated institutions, total papers (TP), total citations (TC), citation impact (CI), h-index and i10-index in *PLISJ*

S. No.	Name of Contributor/Affiliation	TP	TC	CI	h-Index	i10-Index
1.	Rubina Bhatti, Islamia University of Bahawalpur	39	98	2.51	5	3
2.	Khalid Mahmood, University of the Punjab	21	113	5.38	7	2
3.	Muhammad Shahid Soroya, Minhaj University	15	23	1.53	3	0
4.	Sajjad Ahmad, University of Peshawar	12	20	1.67	2	1
5.	Haroon Idress, University of Sargodha	11	23	2.09	2	0
6.	Salman Bin Naeem, Islamia University of Bahawalpur	11	6	0.55	2	0
7.	Shakeel Ahmad Khan, University of Sargodha	11	14	1.27	2	0
8.	Kanwal Ameen, University of the Punjab/Home Economic University	10	34	3.40	3	1
9.	Muhammad Rafiq, University of the Punjab	10	19	1.90	2	0
10.	Muhammad Tufail Khan, Government College University	10	23	2.30	2	0
11.	Shahzad Ahmad, Edward College, Peshawar	10	7	0.70	1	0

12.	Ghaniul Akram Sabzwari, University of Karachi/ Chief Editor- <i>PLISJ</i>	9	0	0.00	0	0
13.	Mirza Muhammad Naseer, Institute of Space Technology/ IA University, Saudi Arabia	9	50	5.56	3	1
14.	Mumtaz Ali Anwar, University of the Punjab	9	8	0.89	2	0
15.	Muhammad Naushad Ghazanfar, Bahauddin Zakariya University	8	7	1.33	2	0
16.	Munira Nasreen Ansari, University of Karachi	8	21	0.88	3	0
17.	Pervaiz Ahmad, Allama Iqbal Open University	8	14	2.63	2	1
18.	Shafiqur Rehman, University of the Punjab/IA University Saudi Arabia	8	24	1.75	3	0
19.	Shamshad Ahmed, University of Sargodha	8	9	3.00	2	0
20.	Syed Jalaluddin Haider, University of Karachi	8	18	1.13	2	0
21.	Asad Khan, University of Peshawar	7	34	2.25	2	2
22.	Fauz Dar Khan, University of Peshawar	7	5	4.86	1	0
23.	Muhammad Tariq, COMSATS University	7	7	0.71	2	0
24.	Muhammad Waseem Zia, University of Karachi	7	0	1.00	0	0

Distribution of documents by subject categories

All the 361 documents are segregated into the 71 subjects/sub-categories of LIS and the top 25 subjects are shown in Table-3. The majority of papers have been written on “Biographical Studies” type, special coverage has been given to Muhammad Adil Usmani, Dr. Syed Jalaluddin Haider, A Rahim Khan, Dr. Anis Khurshid, Molana Arifuddin, and the number of papers were written by Dr. Ghaniul Akram Sabzwari on notable librarians belong to the first LIS generation of Pakistan. The subject of “Information Seeking Behavior” and “Social Media” comes on second and third rank with 18 and 17 papers respectively. As far as the number of citations is concerned, the 13 papers on “Bibliometric” received 56 citations but the highest citation impact, 4.87 cites/paper has been gained by the subject “Reference Services”. The analysis of subject dispersion helps to understand the prevailing trends of research in terms of quantitative and qualitative grounds. There is a need to write more papers on less researched areas, like school libraries, classification, artificial intelligence, mobile libraries, book publishing, and teacher-librarian collaboration.

Table-3; Top-25 subjects / sub-categories of LIS in term of Total Publication (TP), Total Citations (TC) and Citation Impact (CI)

S.No.	Subject Coverage / Sub-categories of LIS	TP	TC	CI
1.	Biographical Studies	26	2	0.08
2.	Information Seeking Behavior	18	32	1.78
3.	Social Media	17	48	2.82
4.	Library Education	16	46	2.88
5.	Medical Libraries	15	46	3.07
6.	University Libraries	15	20	1.33
7.	Users Satisfaction	14	44	3.14
8.	Bibliometric	13	56	4.31
9.	Information Storage and Retrieval	12	3	0.25
10.	Digital Libraries	11	12	1.09
11.	Information Literacy	11	33	3.00
12.	Resource Sharing	10	17	1.70
13.	Library Services	9	6	0.67
14.	Reference Services	9	44	4.89
15.	Academic Libraries	7	11	1.57
16.	Information Technology -Libraries	7	21	3.00
17.	Library and Information Science Research	7	7	1.00

18.	Library Association	7	9	1.29
19.	National Library	7	11	1.57
20.	Public Libraries	7	11	1.57
21.	Reading Habit	7	9	1.29
22.	Librarianship	6	6	1.00
23.	Library and Information Science Research	6	2	0.33
24.	Library Marketing	6	13	2.17
25.	Special Libraries	6	10	1.67

Most-cited documents

The highly-cited papers (n=11) are based on the citations count metric as reflected in Google Scholar presented in Table-4. These papers received 165 citations with an average of 15 citations per paper. The paper “*LIS research in Pakistan: an analysis of Pakistan Library and Information Science Journal 1998-2007*” has been most-cited with 35 citations. This paper was first published in the e-journal *Library Philosophy and Practice (LPP)* and immediately reprinted in *PLISJ* because the study was related to *PLISJ*. The LPP article has been available full-text in the open accessed format so it is easy to review and cite. Six papers are written by a single-author pattern while five papers follow the two-author pattern. These most-cited papers were published during the first ten years of the study from 2004 to 2013, two papers each published in 2006, 2008 and 2011. Most of the papers are written by LIS faculty and their students only one paper is found against practicing practitioners, Sher Nowrooz Khan of Islamic International University Islamabad. Among the contributing authors of this category, three papers were contributed by Dr. Rubina Bhatti and two each from Dr. Khalid Mahmood and Dr. Asad Khan. These most influential papers of *PLISJ* cover multiple aspects as LIS education, Users’ Satisfaction, Bibliometric, Information Literacy, Reference services, Use of Social Media, Classification and Use of Electronic resources.

Table-4, Bibliographic description of highly-cited papers with total number of receiving citations (TC)

S.No.	Bibliographic Description of paper	TC
1.	Mirza Muhammad Naseer & Khalid Mahmood. (2009). LIS research in Pakistan: an analysis of Pakistan Library and Information Science Journal 1998-2007. <i>PLISJ</i> , 40(3), 10-20. Also published in <i>Library Philosophy and Practice</i> , 2009.	35
2.	Rubina Bhatti. (2012). Information Literacy: Furthering the Cause of Higher Education in Pakistan. <i>PLISJ</i> , 43(1). 3-11.	20
3.	Asad Khan. (2006). Reference Librarians' Service and Customer's Satisfaction. <i>PLISJ</i> , 37(2). 30-37.	19
4.	Rubina Bhatti. (2008). Information Needs of Students - Islamia University Library, Bahawalpur. <i>PLISJ</i> , 39(3), 6-21.	13
5.	Sajjad Ahmad & Khalid Mahmood (2011). Library and Information Science Education in Pakistan: A Decade of Development, 2000 to 2009. <i>PLISJ</i> , 42(3),3-12.	13
6.	Rubina Bhatti & Aman Amjad. (2013). Approach towards Social Media of LIS Students Islamia University, Bahawalpur. <i>PLISJ</i> , 44(2), 10-16.	12
7.	Asad Khan. (2006). Digital/Virtual Reference Services in Libraries: An Internet-Based Reference Service. <i>PLISJ</i> , 37(1),13-18.	11
8.	Sher Nowrooz Khan. (2004). Expansion of DDC 21st edition number 297.63 for the Sirah. <i>PLISJ</i> , 35(4), 26-34.	11
9.	Muhammad Arif & Kanwal Ameen. (2011). Library Electronic Resources' Use- Students Attitude: Technology Acceptance Model. <i>PLISJ</i> , 42(2), 3-12.	11
10.	Muhammad Zulqarnain Akhtar. (2008). Library services and user satisfaction, Department of LIS Punjab University Lahore. <i>PLISJ</i> , 39(2), 25-34.	10
11.	Pervaiz Ahmad. (2007). LIS education in Pakistan at postgraduate level. <i>PLISJ</i> , 38(2), 12-23.	10

Discussion

PLISJ is a popular LIS journal of Pakistan having a decent history of more than fifty years of regular publications. The articles published in this journal have been reflecting the historical background and professional growth of the LIS profession during the last five decades. The journal provides a suitable platform for young as well as seasoned LIS researchers to share their valuable research and ideas with the rest of the world. The journal has gone through ups and downs but maintained its regularity. No research related to Pakistan LIS would have been completed without the reference of *PLISJ*. Samdani (1995) prepared an index of this journal consisted of the items published from 1968 to 1994 and Samdani and Mahmood (2003) further enlarged the coverage of the index from 1996 to 2002. Dr. Ghaniul Akram Sabzwari (2016), the chief editor of *PLISJ*, compiled a 50-year index on completion of the Golden Jubilee of this journal, In the preface of the index, it is stated that out of 5,360 items published in 50 years, the share of English language documents consisted of 5,030 (93.84%). A total of 1204 authors contributed their writing, among them 1109 (92%) were male and 105 international authors affiliated to 12 countries also contributed their papers in *PLISJ*.

The growth and evaluation of Pakistan LIS literature have been an interesting topic for researchers. Mahmood (1996) examined the 97 articles on Pakistan LIS published in foreign journals only and in the next year Khan and Samdani (1997) pointed out the characteristics of 506 articles published in the 72 issues of *PLB* during the period of 28 years from 1968 to 1997. Anwar and Saeed (1999) collected the data from LISA-PLUS, they included both locally and internationally published LIS material in their analysis and stated that more than half of the literature was published in *PLB*. Naseer and Mahmood (2009) reviewed the ten-year (1998-2007) records of *PLISJ* and Warriach and Ahmad (2011) assessed the 11 issues of *Pakistan Journal of Information and Library Science* published from 1995 to 2010. Khurshid (2013) repeated the Khalid (1996) study and used multiple sources to collect the data of Pakistani LIS contributed in international level on a qualitative level, out of 516 identified articles, only 145 (28%) published in impact factor journals. Anwar and Jan (2017) examined the citation impact of Pakistan LIS authors as shown on Google Scholar. Dr. Khalid Mahmood was found the most productive author with 89 papers, but Shaheen Majid emerged a highly-cited author.

For the current study, data has been extracted from the LISTA database, 361 documents were selected for analysis. These documents received 645 citations as reflected in Google Scholar, with a mean value of 1.79 citations per document. Only abstracts of the *PLISJ* documents are available on LISTA, and full-text documents are not available. *PLISJ* is published only in print format, doesn't have any regular website. Some of the authors have shared the portable document file (PDF) copies of their articles published in *PLISJ* in academic social networking sites like Academia and Reserachgate etc. to increase the visibility and accessibility of their papers. The free full-text accessibility attracts the local and international authors to read and cite the material. The citation data of the study is limited to the results of the Google Scholar database only. The articles of *PLISJ* have been cited by Masters', M. Phil., and Ph. D. students of Pakistan in their theses/dissertations and different books and reports, have not been added. A recent study on Pakistan Journal of Information Management and Libraries revealed that 96 documents were published from 2010 to 2019 and these documents gained 217 citations with the mean value of 2.26 citations per documents. The documents written by collaborative research gained the higher number of citations as compared to single author documents (Haq, Faridi & Tanveer, 2021).

The explicit fluctuation has been observed in the number of documents published in *PLISJ* but overall the growing tendency was found, from 18 documents in the year 2004 to 28 documents in 2020, with an average annual growth rate of 4.04. The average number of authors per document was increased after 2013. There has been a strong correlation found between the authorship pattern and citation impact. Anwar and Jan (2017) also reported that collaborative research received more citations as compared to a single author.

A total of 678 authors including numerous counts contribute 361 documents with an average of 1.88 authors per documents, but as unique name 264 authors recognized. Dr. Rubina Bhatti has been found a most prolific author with 39 publications. She was also a most productive author in Haq and AlFouzan

(2019) studies. In Siddique (2020) study, she was ranked third most productive LIS author from 1957 to 2018. A study on the contribution of Pakistani authors in *Library Philosophy and Practice* also confirmed that Dr. Rubina Bhatti has been the most contributing author from Pakistan with 29 publications from 2008 to 2017 (Haq, 2015).

Dr. Mirza Muhammad Naseer appeared a highly-cited author, his nine papers received 50 citations with an average of 5.56 citations per paper. Dr. Khalid Mahmood received a maximum h-index value against his documents. The research area on “biographical studies” has been on the topmost rank with 26 documents, followed by “Information Seeking Behavior”. Haq and AlFouzan (2019) also confirmed that “biographical studies” had a high value and Haq (2015) study reveals that “Information Seeking Behavior” had been a preferred area of research by Pakistani authors contributing in *Library Philosophy and Practice*. Shadab (2009) and Siddique (2020) pointed out that *Academic Libraries* had been preferred area, Khalid (1996) discovered that *Library and Information Science Education and Research* and Anwar and Saeed (1996) found that *LIS Education and Manpower* were the most researched areas.

Conclusion

The study examined the citation impact and publications output of the documents published in *PLISJ* from 2004 to 2020. Three hundred sixty-one documents were selected for analysis, published in 17 years and these documents received 644 citations with a mean ratio of 1.78 citations per document. About half of the documents (49.30%) received the range between 1 to 35 citations, while the rest of the documents haven't received any citation. Out of 264 total authors, 155 (59%) contributed only one paper each and Dr. Rubina Bhatti found a most productive author. Presently, the numbers of LIS departments in Pakistan are offering M. Phil and Ph. D. courses so a number of researchers has also been increasing. Most of the researchers opted to publish internationally because of the open accessibility, vast visibility and fast processing. Ahmad and Warraich (2013) confirmed that 67% of the documents were published in international journals from 2007 to 2012. The online open accessed articles gain more attention from the peers and authors, as Jan and Anwar pointed out the 601 LIS articles selected through Google Scholar produced by Pakistani authors, received 3,851 citations with a ratio of 6.4 citations per document. According to SCImage Journal and Country Rank (SRJ) (2020) portal, Pakistani authors produced 718 documents on LIS from 1996 to 2019. These documents received 4,036 citations and 26 documents gained h-index value. *PLISJ* is an excellent platform for LIS professionals of Pakistan, now it is the right time to launch the website and proper system of peer review to enhance the visibility and quality of the research. LIS faculty should encourage their scholars to submit quality research in national journals and similarly the editorial staff should try to adopt a fast mechanism to process the papers.

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