

# Research Contributions of Pakistani LIS Scholars: A review of SCOPUS database

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## Abstract

**Purpose:** The purpose of this study is to present bibliometric analysis of the SCOPUS database and to highlight research contributions of Pakistani Library and Information Science scholars covering the period 1985 to 2022.

**Design/methodology/approach:** The paper is based on quantitative analysis of a total of 197 articles of Pakistani LIS scholars retrieved from Scopus Database.

**Research limitations:** The paper is limited to the Scopus database covering the period from 1985 to 2022.

**Originality value:** As yet there have been no such studies conducted that investigated the various bibliometric aspects of Pakistani LIS scholars in Scopus database therefore, this study is one of the unique studies and has important implications for LIS scholars and researchers.

**Key findings:** Findings of the study showed that 2021 was the most productive year in terms of research contributions in which 56 research papers were published by Pakistani LIS scholars. Prominent authors, who contributed more included Professor Dr. Kanwal Amin and Dr. Khalid Mahmood. Most of the research papers were published in Library Philosophy and Practice. Department of Information Management, University of the Punjab, Lahore remained the most dynamic institution with a contribution of 75 research publications.

**Practical implications:** This study will encourage researchers in Pakistan and elsewhere in various subject fields to analyse citations from multiple databases to provide comprehensive assessment of research performance, citations, h-index scores and ranking of scholars. The study is also important for those who intend to use suitable databases for the assessment of academicians' research output and its impact in their employment and promotion celebrations

**Contribution to knowledge:** It is one of the first ever studies on the subject as no such study has been conducted in Pakistan measuring the research contributions of LIS scholars using Scopus database.

**Keywords:** Scopus; LIS research scholars; Bibliometric; Citation analysis; Research performance; Research productivity; Statistical bibliography.

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### **Introduction**

Bibliometric, a sub-discipline of Library and Information Science (LIS), emerged as a prominent research field, is used as an effective tool for evaluating research performance in various subject fields. Bibliometric studies have been used increasingly for research assessment. Bibliometric analysis is carried out to assess the research productivity and pattern of publications in different fields of knowledge and now a days this method is extensively used. The word 'bibliometric' is a combination of Latin and Greek words "biblio" (Books) and "metrics" (statistics, measurement, mathematical applications) referring to mathematical applications to the study of books (Hussain & Arslan, 2021). The word bibliometric is a substitute of "Statistical Bibliography" having been introduced by Alan Prichard back in 1969 (Senel & Demir, 2018, Dash & Chaudhary 2021, Naseer & Mahmood, 2009 and Rehman, Ismail & Khan 2017). It has now become a dominant tool to be used for measuring the value of research and inquiry by applying different indicators and metrics for the identification of author patterns, research productivity, publication growth etc (Dash & Chaudhary 2021).

Thus, Bibliometric is the use of statistical analysis to understand authorship patterns, publication, and literature use (Glazel, 2003). Harrods's Library Glossary and Reference Book defines bibliometric as "application of statistics and mathematics to the study of the use made of books and other media within and between library systems". Another definition of Bibliometrics given by Mahapatra (2000) is "the quantitative analysis of the characteristics, behaviour and productivity of all aspects of written communication, library staff and information users" Bibliometrics has been considered useful for appraisal of research output quality (Middleton, 2005). Bibliometric is the numerical assessment of behaviour, characteristics and productivity of written communication.

In the field of libraries and librarianship, Bibliometrics is a key tool to be used in LIS research (Manivanan & Sanjeevi, 2012) as it is the most relevant technique for appraising and evaluating statistical output of the research and publications of a particular subject. In the field of LIS, the role of bibliometric is of utmost significance (Laengle et al., 2017). Since several bibliometric studies have been conducted highlighting research contributions of LIS scholars in various scholarly journals, however, online databases such as Scopus is one of the most neglected fields which needs to be explored bibliometrically. Moreover, after going through the relevant literature, it was found that no study was conducted till date that may highlight research contributions of Pakistani LIS scholars in the

SCOPUS database. This major purpose of this study is to analyse research contributions of Pakistani LIS scholars in the SCOPUS database with respect to the authorship pattern, type of publications, publication productivity and chronological distribution.

### **Objectives**

Following are the major objectives of this research study:

1. To determine the chronological distribution of articles contributed by Pakistani LIS researchers.
2. To know about the most productive Pakistani research contributors in the field of Library and Information Science
3. To find out the publication productivity of Pakistani LIS researchers associated to various Institutions.
4. To know about the publication productivity of Pakistani LIS researchers in comparison to the researchers of other Countries.

### **Methodology**

The study applied bibliometric approach to analyze the research contribution of LIS scholars from Pakistan in Scopus Database from 1985-2022. This study used quantitative documentary research technique. The data was retrieved from Scopus Database in April 2022. After retrieving the data, a list of LIS journals wherein these articles were published, was compiled to know about the research contributions of Pakistani LIS scholars. The study did not consider papers of other types such as editorials, reviews, letters to the editor and opinion papers. To ensure large number of results, the authors used keywords like Pakistan, Library, Pakistani Librarianship and LIS in Pakistan. A total of 250 articles and book series were retrieved in the initial state whereas in the data-cleaning stage, article title and name of the authors were carefully checked and duplicates and inappropriate records were removed from the final sample. Thus a total of 197 articles were selected for analysis for the present study and entered in Microsoft Excel spreadsheet, which identified variables such as Keywords used, most prolific authors, journals, institutions, etc. It should also be noted that only journal articles and book series were included in the study. Finally, all relevant data was sorted, tabulated and incorporated in a logical order for analysis.

### **Literature Review**

Several research studies published in various fields have analysed various journals using bibliometric technique. Some of the major journals which have been analysed bibliometrically include JASIST (Agarwal & Islam, 2020), journal of Islamic study (Hussain,

Ibrahim, & Saeed, 2019). Pakistan Journal of Pharmaceutical Sciences (Ahmed and Ullah, 2018), European Journal of Marketing (Martínez-López, Merigó, Valenzuela-Fernández, & Nicolás, 2018), Journal of Surgery Pakistan (Baladi, 2017), IJDLS (Verma & Singh, 2017), A Bibliometric Analysis of the Journal of Rural Development and Administration by Ismail, and Khan (2017) and Journal of Advanced Nursing (Železnik, Blažun Vošner, & Kokol, 2017) and many more. Several authors have conducted bibliometric studies in different fields like Bibliometric analysis of digital literacy research output (Alagu & Thanuskodi, 2019), Evaluation of the Scholarly Literature on Information Literacy (Haq, Hussain & Tanveer, 2021) and Bibliometric Analysis of Defence Science Journal during 2005-2014 by Muthumari and Raja (2016). In these studies, different aspects were analysed like growth, author patterns, productive authors, and collaborative trends, etc. For example, Larivière, Sugimoto, and Cronin (2012) analysed the scholarly published literature in LIS using bibliometric techniques. The study provided bibliometric analysis of research productivity i-e; authorship pattern, citation trends and scholarly publications in social science and humanities. Patel et al (2021) conducted a bibliometric study of Webology. The study analysed publication trends covering the period from 2006 to 2020. The study found that 2020 was the most productive period in terms of research publication during which 92 papers were published in total. The study found that Iranian scholars contributed 63 papers which is the highest number of publications contributed by the authors of any country followed by Indian authors with 50 research publications and the authors of United States with 25 publications. Ahmad and Warraich (2013) conducted a study to know the authorship patterns of Pakistani LIS scholars. Their study revealed that LIS teachers and students in Pakistan liked to conduct collaborative research. The study revealed that most of the teachers of library and information science in the University of Punjab, Pakistan, published papers in the journals issued outside of the country. Siddique et al (2021), in his study on bibliometric analysis of library professionals covering the period from 1957 to 2018. The study analysed online databases such as Web of Science, LISTA, Scopus and LISA. The study found that Library Science teachers from the University of Punjab, Pakistan were the major researchers who got published more research papers in journals of repute.

Hassan, Haddawy and Zhu (2014) conducted a bibliometric study on sustainable development in SCOPUS database covering the period 2000-2010. Their study revealed that Chinese scholars produced more research papers on sustainable development however in respect of citation count they were found weak as compare to the scientists of other countries. The study concluded that bibliometric

studies are essential for the growth and development of various disciplines.

Haq, Faridi & Tanveer (2021) highlighted the publication output of PJIM&L, based on the Scopus database. Findings of the study indicated that between 2010 to 2019, the journal published 96 papers with an average of 9.6 publications a year and with a growth rate of 44.89%. The study stated that all these papers were contributed by a total of 127 authors. Professor Dr. Kanwal Amin of the DLIS, University of Punjab was found to be the main contributor. The citation analysis of the study indicated that PJIM&L was cited worldwide in various international journals of repute. Warraich and Ahmad (2011) evaluated conducted a bibliometric study of Pakistan Library and Information Science journal covering the period 1995 to 2010. The study reported that PLISJ published a total of 111 articles on various aspects of LIS during 1995 to 2010. The most productive contributors were reported to be Dr. Khalid Mahmood and Dr. Kanwal Amin. The most productive institutions were the University of Punjab, Pakistan and Karachi University. Similarly, in a study on LIS research in Pakistan (1957-2018), Siddique et al (2020) reported that there was a positive upward trend in LIS research in Pakistan. The study found DLIS of the University of Punjab, Pakistan, as the main contributor to the LIS literature followed by the Library School of Karachi University.

Abid Hussain (2020) conducted a statistical review of the Journal of Strategic Studies. He found that 317 papers were published in the said journal from 2008-2018 with a mean of 7.2 papers per issue. He indicated that in authorship pattern, a single author contributed 73.74% of the total articles. Alagu and Thanuskodi (2018) analysed research productivity on IL by Indian researchers in the WOS database from 1993 to 2017 who found that 113 records contributed by Indian authors wherein Joshi ranked first with three articles. The study showed that the "Journal of Evolution of Medical and Dental Sciences" (JEMDS) was most productive journal with 9-article contributed by Indian authors. The contributions were from 19 countries in which United States contributed the most (14-documents)

Verma, Das and Sinha (2019) analysed the research productivity of the Department of Computer Science, Assam University in various professional journals during the period 2010 to 2016. The study revealed that a total of 154 research papers were published by the faculty and students of the Department of Computer Science, Assam University with 2016 as the most productive year having got published 45 papers while 2012 was found to be the lowest with only 5 research papers during the period under study.

Hodonu-Wusu and Lazarus (2018) analysed LIS research during 1980-2017 using bibliometrics techniques. Their study revealed that 6498 researches relating to LIS were indexed in the WOS database during 1980-2017. The study indicated that 1981 was the least productive year with only 13 research articles while the most productive year was 2016 with 595 research articles. The study also found that research from USA got highest number of citations (39.54%) of the total citation).

### Data Analysis and Discussion

#### Access Status

Table-1, shows that all the articles were open access out of which 11 articles were in Gold Open Access category, 5 articles in Bronze Open Access category and 10 articles in Green Open Access category.

Table-1: Access Status

Number of Results :	197
OPEN ACCESS -	197
Gold	11
Bronze	5
Green	10

#### Source Type and Language of Articles

Table-2 indicates the type of publications and their language. Out of 197 publications, 196 were journal articles while only one was a book series. The language of all these was English.

Table-2: Source Type and Language of Articles

Source Type		Language	
Journal Articles	196	English	197
Book Series	1		

#### Year-wise Distribution of Articles

As given in table-3, a total of 197 articles were published during the period under study (1985-2022). The year 2021 was the most productive year with 56 articles which is 28.87% of the total articles published during the study period followed by 2020 (24 articles) and 2017 (17 articles). While less productive years were found to be 1985, 1988, 1996, 1999, 2000, 2002 and 2006 with one article each. It is also reported that the average contribution per year is 8.8 articles.

Table-3: Year-wise Distribution of Articles

Sr. No.	Year	Total Articles	Percentage
1	2022	5	1.55%
2	2021	56	28.87%
3	2020	24	12.37%
4	2019	11	5.67%
5	2018	10	5.15%
6	2017	17	8.76%
7	2016	14	7.22%
8	2015	6	3.09%
9	2014	6	3.09%
10	2013	13	6.70%
11	2012	2	1.03%
12	2011	4	2.06%
13	2010	5	2.58%
14	2009	7	3.61%
15	2008	2	1.03%
16	2007	2	1.03%
17	2006	1	0.52%
18	2005	5	2.58%
19	2002	1	0.52%
20	2000	1	0.52%
21	1999	1	0.52%
22	1996	1	0.52%
23	1989	1	0.52%
24	1985	1	0.52%
<b>Total</b>		<b>197</b> <b>(8.08 articles/year)</b>	<b>100%</b>

### Most Dynamic Authors

Table-4, typify the most prolific authors with respect to contributions/articles. Ameen, K contributed 25 articles and considered as the most productive author during the study period. The second productive author is Mahmood, K, who contributed 21 articles, followed by Bhatti, R. (15-articles), Warrach, N.F. (12-articles), and Rafiq, M (10-articles). A study conducted by Swain &

Panda (2012) also determine the most prolific authors according to their number of contributions and found that Jakir Thomas is the most productive author with 21-articles.

*Table-4: Most Dynamic Authors*

Rank	Author Name	Articles Contributed
1	Ameen, K.	25 (12.89%)
2	Mahmood, K.	21 (10.82%)
3	Bhatti, R.	15 (7.73%)
4	Warraich, N.F.	12 (6.19%)
5	Rafiq, M.	10 (5.15%)
6	Malik, A.	9 (4.64%)
7	Khan, A.	10 (4.12%)
8	Naeem, S.B.	8 (4.12%)
9	Ahmed, S.	7 (3.61%)
10	Anwar, M.A.	6 (3.09%)
<b>Total</b>		121/197Articles (62.37 %)

### Most Prolific Journals

Table-5 presents the top ten ranked journals in the decreasing order of articles' contribution. It was found that contribution from Library Philosophy and Practice was high (60-articles), followed by International Information and Library Review (11-articles) and Library Review (10-articles).

*Table-5: Most Prolific Journals*

Rank	Source Title	Total Contributions
1	Library Philosophy And Practice	60 (30.45%)
2	International Information And Library Review	11 (5.58%)
3	Library Review	10 (5.07%)
4	Electronic Library	7 (3.55%)
5	Global Knowledge Memory And Communication	7 (3.55%)
6	Pakistan Journal Of Information Management And Libraries	7 (3.55%)

7	Journal Of Academic Librarianship	6 (3.04%)
8	Health Information And Libraries Journal	5 (2.53%)
9	Information Development	5 (2.53%)
10	Malaysian Journal Of Library And Information Science	5 (2.53%)

### Most Frequently Used Keywords in the Articles

Table-6 shows fifteen most frequently used keywords in which the keyword “Pakistan” was used. Results indicated that the word Pakistan was used 74 times, followed by the keyword “Human” (18 times), and “Article” (12 times). A total of 160 keywords were used 613 times in 197 papers with a mean of 3.16. Verma, Das & Sinha (2019) in their study also found that an average of 4.25 keywords per paper was used in the publications during the study period.

*Table-6: Most Frequently Used Keywords in the Articles*

S. No.	Keyword	Mentioned in Articles
1	Pakistan	74
2	Human	18
3	Article	12
4	Libraries	11
5	Library And Information Science	11
6	Bibliometrics	10
7	Humans	10
8	University Libraries	10
9	Academic Libraries	9
10	Information Literacy	9
11	Bibliometric Analysis	8
12	Librarians	8
13	Female	7
14	Information Science	7
15	Librarianship	7

### Most Collaborative Institutions

Table-7 presents the most prolific institution, to which most of the contributing authors were affiliated, and contributed a number of articles during the study period. The most productive institution was found to be the University of the Punjab, from which the authors contributed 75 articles during 1985-2022. The next most productive institution was the Islamia University of Bahawalpur (31 articles), followed by University of Sargodha (19-articles), Government College University Lahore (12), Allama Iqbal Open University (12), University of Peshawar & University of Karachi (11-articles each), Nanjing University & National University of Sciences and Technology Pakistan (8-articles each), while only 7-articles were contributed from the University of Home Economics.

*Table-7, Most Collaborative Institutions*

Rank#	Name of Institution	No. of Contributions
1	University of the Punjab	77 (39.08%)
2	The Islamia University of Bahawalpur	31 (15.73%)
3	University of Sargodha	19 (9.64%)
4	Government College University Lahore	12 (6.09%)
5	Allama Iqbal Open University	12 (6.09%)
6	University of Peshawar	12 (6.09%)
7	University of Karachi	11 (5.58%)
8	Nanjing University	8 (4.06%)
9	National University of Sciences and Technology Pakistan	8 (4.06%)
10	University of Home Economics	7 (3.55%)

### Country-wise Authors' Affiliation

Table-8 shows total number of researchers (257) by country who contributed their articles to various research journals. As given in table-8, the researchers were from 18 different countries with 197 (75.49%) from Pakistan. Saudi Arabia ranked 2<sup>nd</sup> with 19 authors affiliation, followed by China (13), Malaysia (8), and United States (5), Australia (3), India, Sweden, and United Kingdom (2). While rest of the authors were from other countries.

Table=8, country-wise authors affiliation

Sr. No.	Country	Total	Percentage
1	Pakistan	197	75.49
2	Saudi Arabia	19	7.39
3	China	13	5.06
4	Malaysia	8	3.11
5	United States	5	1.95
6	Australia	3	1.17
7	India	2	0.78
8	Sweden	2	0.78
9	United Kingdom	2	0.78
10	Rest of the world	6	-----
<b>Total</b>		<b>257</b>	<b>100.00</b>

### Funding Sponsored Articles

Table-9 shows that a total of 50 research articles were sponsored by the institutions out of which National Natural Science Foundation of China sponsored four articles, Higher Education Commission Pakistan, King Saud University & National Science Foundation sponsored two articles each. Forty other institutions/organizations sponsored one article each while the status of 144 articles could not be identified.

Table-9: Funding Sponsored Articles

Sr. No.	Funding Sponsors	Articles	No.	Funding Sponsors	Articles
1	National Natural Science Foundation of China	4	24	Ministry of Science and Technology	1
2	Higher Education Commission, Pakistan	2	25	Minist�rio da Educa�o e Ci�ncia	1
3	King Saud University	2	26	National Plan for Science, Technology and Innovation	1
4	National Science Foundation	2	27	National Stroke Foundation	1
5	Anacostia Community	1	28	Online	1

	Museum			Computer Library Center	
6	Australian Research Council	1	29	Prince Sultan University	1
7	Beijing Institute of Technology	1	30	Robert H. Lurie Comprehensive Cancer Center	1
8	Canadian Anesthesiologists' Society	1	31	Stanford University	1
9	Canadian Institutes of Health Research	1	32	Taif University	1
10	China Postdoctoral Science Foundation	1	33	Universidad de Granada	1
11	Chinese Academy of Sciences	1	34	Universiti Malaya	1
12	City, University of London	1	35	Universiti Sains Malaysia	1
13	Department of Education and Training	1	36	University College London	1
14	Fundação para a Ciência e a Tecnologia	1	37	University Research Council, Aga Khan University	1
15	Government of Canada	1	38	University of Arizona	1
16	Hermon Slade Foundation	1	39	University of California	1
17	Indiana University	1	40	University of California, Los Angeles	1
18	Indiana University Bloomington	1	41	University of Illinois	1
19	Institute of Infection and Immunity	1	42	University of London	1
20	Key Laboratory of Computer System and Architecture	1	43	University of Pretoria	1
21	King Abdulaziz City for Science and Technology	1	44	University of Queensland	1
22	King Fahd University of Petroleum and Minerals	1	45	Undefined	144
23	Ministry of Higher Education, Malaysia	1	46		

**Findings and Conclusion**

This paper attempted to determine the bibliometric indicators for the research contribution of Pakistani LIS scholars in Scopus Database. The findings of this study are:

- Total number of publications published during 1985-2022 was found to be 197 articles, in which 196 were journal articles and one was book series.
- The findings showed that the year 2021 was the most productive year with 56 research papers which is 28.87% of the total papers published during the period under study. Least productive years were 1985, 1988, 1996, 1999, 2000, 2002 and 2006 with one paper each.
- The top most productive authors were Kanwal Amin (25 papers), Khalid Mahmood (21-papers) & Rubina Bhatti (15 papers).
- Majority of the research articles were published in *Library Philosophy and Practice* (60 articles), *International Information and Library Review* (11 articles) & *Library Review* (10 articles).
- The most dynamic institutions were University of the Punjab (75 articles), Islamia University of Bahawalpur (31 articles), & University of Sargodha (19 articles).

People related to the profession of Library and Information science, academicians and research scholars have found it challenging to select journals having promising quality and impact. Some quality and well known online journals have demonstrated their spirit to be selected as the correct channel of publications to follow suit. This research study has precisely researched various bibliometric facets of research contributions of Pakistani scholars associated to the field of LIS in the Scopus database. The findings revealed that research contributions of Pakistani LIS scholars was increasing day by day, however, most of the publications were contributed by LIS academicians whereas working library professionals have contributed only a few publications. There is a need that new researchers in this field should be trained and encouraged to follow the footsteps of academicians and explore new areas of LIS research. It is hoped that the various approaches given in this study will be helpful and could be used as tools by researchers in examining and observing growth of research and identifying the gaps and weaknesses in LIS research. Moreover, studies based on other data sources are needed for uncovering characteristics of research activities by the LIS scholars.

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