

2019

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Ullah, Saeed, "Publication Trends Of Pakistan Heart Journal: A Bibliometric Study" (2019). *Library Philosophy and Practice (e-journal)*. 2237.

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PUBLICATION TRENDS OF PAKISTAN HEART JOURNAL: A BIBLIOMETRIC STUDY

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ABSTRACT

Objective: This paper aims to describe bibliometric study of scholarly literature published in Pakistan Heart Journal covering period from 2005 to 2015 and to explore publication trends.

Methodology: This quantitative study applied required bibliometric methods to analyze Original articles, authorship pattern, citations, contributions from different regions and other relevant parameters of Pakistan Heart Journal covering period from January 2005 to June 2015. The data is collected from Postgraduate Medical Institute (PGMI) Library.

Results: The study reveals that number of articles published in each issue of the journal ranges from 09 to 44. In regard to productivity, male authors had highest contribution (90.84%) and majority of authors belonged to Khyber Pukhtunkhwareion (41.69%). The finding shows that Lady Reading Hospital Peshawar had the highest research productivity in the region. Cardiology is main subject area covered in the articles with Ischemic heart disease as leading topic (23%) followed by Preventive cardiology (19.47%). Articles with three authors were more in numbers (24.03%). Journal (95.36%) proved to be the more cited source of information. Variation was found in the number of references cited in each article, 38.67% (87) articles have 11-20 references. Article's length was also analyzed and it was revealed that majority (30.22%) of articles were comprised of three pages.

Conclusion: The Study investigated that the frequency of Pakistan Heart Journal found irregular with gradual increase in number of articles. Significant increase in number of articles had been seen in the last five years. Being a special journal about heart diseases, large number of articles was on Ischemic heart disease followed by Preventive cardiology.

Keywords: Scientometrics, Bibliometrics, Post Graduate Medical Institute library, Original articles- PHJ, Pakistan Heart Journal-Bibliometrics

INTRODUCTION

The term bibliometric was first coined by a library scientist named Pritchard in 1969 which means application of mathematical and statistical techniques to research documents to describe its characteristics. The term gained popularity in 1980 and scientists started using the term in their studies.

Sengupta¹ defines the term bibliometrics as “The organization, classification and quantitative evaluation of Publication pattern of all macro and micro communications, along with their authorships by mathematical and statistical calculations.” Polanco² describes bibliometric study as a technique used for description, evaluation, and monitoring of published research. It describes a particular field, quantification as well as focus on research productivity by institution. Similarly, Broadus³ define Bibliometric study is the process of the quantitative study of physical published materials which includes articles, reports, and case studies. A bibliometric study means the number of published articles, authorship, geographical location, authorship pattern, institutions affiliation, ranking by the subject of the article, research groups or individual investigators and affiliations, as well as the number of citations received.

Due to an unprecedented growth in scientific research output during the last decade, Bibliometric studies gained great significance in research area by applying it on publications to find out various aspects of research output.¹⁸ The bibliometric study of individual journals helps the librarians to make the right selection of journals for its libraries,¹⁹ therefore, need arises to carry out bibliometric studies on individual journals to find out its publication traits.

Pakistan Heart Journal (PHJ) is one of the leading and international-repute peer-reviewed journals in the field of cardiology. PHJ is an open access journal and published by Pakistan Cardiac Society on quarterly basis for the last 4 decades. PHJ aims at promoting high quality research in the field of cardiology by publishing documents reviewed by internationally recognized experts. Pakistan Heart Journal publishes original articles, review articles, case reports, editorials, special communications and short communications relating to cardiovascular diseases. The Pakistan Heart Journal accepts the contribution of researchers from local community as well as abroad.

Literature Review:

Ullah,¹⁷ in the Bibliometric analysis of journal of surgery, examined authors contributions, geographical affiliation, citations, and gender-wise contribution. In another study, Ullah¹⁶ analyzed Journal of collage of

physician and surgeon Pakistan from 2010 -2014 and explored various bibliometric indicators. **Swain**⁵ conducted the bibliometric study of Library Philosophy and Practice from 2004-2009 and analyzed productivity of various countries. **Thanuskodi**⁶ made a bibliometric study of the Indian Journal of Chemistry to examine various trends of publication. **Asha et al**⁷ conducted a study on Indian Journal of Pure and Applied Mathematics which showed that journal articles are the more cite documents. The contribution of foreign authors is more dominant as compared to local authors. **Ahmed**⁸ also carried out a bibliometric study to evaluate documents in the field of health sciences. **Ullah et al**⁹ conducted a bibliometric study on the Journal of the Ayub Medical College (JAMC) to find out publication and citation patterns. The study found that majority of authors contributed from Khyber Pakhtunkhwa. **Jena**¹⁰, in the bibliometric study of Indian Journal of Fiber and Textile Research 1996-2004, studied the various aspects of Publications. **Bojo et al.**¹¹ conducted a study on Spanish Journal of Chemotherapy. They studied that most of the articles were original and the work of autonomous regions Madrid and Valencia were in greatest Percentage. In another study, the authors explained bibliometrically study of Indian journal of plant physiology.¹² **Ibrahim et al**¹³ made a study on bibliometric analysis of the Journal of Pakistan Medical Association and contents of the journal were analyzed geographically by dividing the country into seven different regions.

The literature review shows that significance of bibliometrics to measure the quality of a journal by analyzing its scientific productivity. The present study, therefore, aims to carry out bibliometric analysis of PHJ to find out its publication trends.

OBJECTIVES

The study has the following main objectives:

1. to determine year-wise division of articles of PHJ;
2. to study authorship and citation patterns of PHJ;
3. to evaluate ranking of authors by geographical affiliation;
4. To rank articles by subject.
5. To find out length of articles published in PHJ;
6. To explore number of references per article cited by author in PHJ.

METHODOLOGY

This study was conducted to analyze the characteristics and trends of papers published in PHJ during the period from January 2005 to June 2015. To meet the objectives of the study, relevant bibliographical information regarding articles published in PHJ were recorded for analysis. Twenty eight issues were analyzed

which composed of original article and case reports. PHJ had published two issues No. 1, 2 and 3,4 combined. Issues No. 3 and 4 of the year 2015 were not included in this study as these were not published at the time of conduction of this study. This study was limited to original articles and case report published in PHJ. Editorials, short communication and letters were excluded from the study. The official website [<http://www.pakistanheartjournal.com>] was used as a primary source of information. In this study, geographically Pakistan was divided into four zones i.e. Punjab, KP, Baluchistan and Sindh, all foreign contributions were conceded into International zone. The data were analyzed using Microsoft excel 2010.

RESULTS

The collected bibliographical data was scrutinized and systematically analyzed. The data produced the following results.

Total number of articles published was 226. In the first seven years (2005 to 2011), the highest number of articles per year was 6.19% of the published articles. It was increased to 19.50% in 2012 and 2013 as per analysis of Table 1. Authorship pattern were different in articles: single author (4.37%), two authors (8.73%), three authors (24.02%), four authors (14.85%), five authors (18.80%), six authors (10.92%) and more than six were (18.34%) as per scrutiny of Table 2. The contributions of male authors were 952 (90.84%) out of total 1034 authors. Foreign contributors were reported as 97 (9.38%). Among national authors, 431 (41.69%) contributed from KP, 286 (27.65%) from Punjab, 214 (20.70%) from Sindh, and 06 (.58%) from Baluchistan as shown in Table 3. Table 4 contains data about the length of articles. It was reported that these articles are of various length: two pages (0.44%), three pages (6.67%), four pages (14.67%), five pages (30.22%), six pages (26.67%) and more than six pages (21.33%) articles were reported respectively. Table 5 reveals that out of 5081 references, the number of references taken from journals were 4836 (95.36%), 113 (2.19%) from books, 64 (1.23%) from case reports and 39 (.65%) from website. Number of references per article were reported in different ranges: 22 (9.78%) having 5-10 references, 87 (38.67%) articles having 11-20 references, 21-30 references were cited for 76 (33.78%) articles and 31-40 references were cited for 32 (14.22%) articles as per Table 6. Cardiology was the major theme of the articles published in this Journal. Ischemic heart disease (23%), preventive cardiology (19.47%), intervention cardiology and heart failure (9.74%) each.

DISCUSSION:

The Pakistan Heart Journal is the official journal of Pakistan Cardiac Society. The Journal is regularly publishing from 2011. A progression was seen in the articles per year ratio in the last few years. Three

author's papers were reported as high which shows similarity with the JAMC study of Midraret al⁹. Many bibliometric studies of this type have been carried out in other countries by Kaylyan and Seninin 1995 on the Journal of Oil Seeds Research which revealed that the single-author papers account for only 12%. Papers with two authors (39%) were found to be in majority¹⁴. Space Medicine and Medical Engineering (1999) documented that 94 (13.1%) were single-author papers in Beijing.¹⁵ Male predominance was reported in PHJ which was same in SU et al in JCPSP.¹⁶

The results show a very low self-citation rate in PHJ; the authors need to cite other work in the journal to improve its status as a useful knowledge base for medical science in Pakistan. In the current study, co-authored papers were more prevalent than those with a single author which suggests that medical publications need collaboration.

Majority of the authors were geographically affiliated to KP region for the reason that PHJ is published from KP by Lady Reading Hospital Peshawar. These data suggest that distribution of the authors is influenced by location of the journals. Same results were reported in bibliometric study of JAMC⁹. However, if compared with JAMC, Punjab has contributed a more papers in PHJ. Unlike JCPSP and JPMA,^{16,17} Ischemic heart disease is the dominant subject in PHJ.

This study indicates that more than 95% of the total citations are from journal literature as a result of the decline in the importance of the book as a vehicle of communication. It is more than JAMC and in contrast with Angamma, and Jayatissa in which book was a main source of citation.

Table 1: Number of Article Per Year

Year	Issue No. 01	Issue No. 02	Issue No. 03	Issue No. 04	Total	% Age
2005	05	05			10	4.42
2006	04	05			09	4.00
2007	05	05			10	4.42
2008	06	06			12	5.30
2009	07	07			11	4.90
2010	06	05			11	4.90
2011	05	09			14	6.19
2012	12	11	11	10	44	19.50
2013	11	11	11	11	44	19.50
2014	11	10	10	09	40	17.70
2015	10	11	00	00	21	9.30
Total					226	100.13

Authorship Pattern

Table 2: Authorship Pattern

Year	05	06	07	08	09	10	11	12	13	14	15	Total	%Age

Single Author	01	00	00	01	03	01	01	01	01	01	00	10	4.37
Two Author	02	00	01	01	03	01	00	01	05	05	01	20	8.73
Three Author	03	06	01	04	02	02	04	04	13	08	08	55	24.02
Four Author	02	00	03	03	01	04	02	02	04	06	07	34	14.85
Five Author	00	00	03	03	02	01	03	09	11	08	03	43	18.80
Six Author	00	02	00	00	02	02	01	08	05	05	00	25	10.92
More Than six	02	01	02	00	01	00	03	18	06	07	02	42	18.34
Total	09	09	10	12	14	11	14	43	44	40	21	229	100.03

Table 3: Geographical Affiliation/Contribution of Authors

Area	05	06	07	08	09	10	11	12	13	14	15	Total	%age
Punjab	01	23	08	24	14	17	14	28	44	67	46	286	27.65
KP	00	06	00	00	09	05	43	192	90	70	16	431	41.69
Sindh	27	06	39	17	17	17	09	10	21	29	22	214	20.70
Baloch.	03	03	00	00	00	00	00	00	00	00	00	06	.58
Foreign	06	00	00	02	10	03	00	16	32	21	07	97	9.38
												1034	100

Table 4: Length of Article

Pages	05	06	07	08	09	10	11	12	13	14	15	Total	%age
02 pages	00	00	00	01	00	00	00	00	00	00	00	01	.44
03 pages	01	01	00	00	03	01	00	02	01	05	01	15	6.67
04 pages	00	03	00	01	01	01	02	04	04	11	06	33	14.67
05 pages	05	02	04	01	05	02	04	16	16	11	02	68	30.22
06 pages	02	02	01	01	02	01	05	14	13	10	09	60	26.67
>06 Pages	02	01	03	08	03	05	03	08	11	02	02	48	21.33
Total												225	100

Table 5: Citation Pattern

Subject	05	06	07	08	09	10	11	12	13	14	15	Total	%age
Journal	253	179	206	240	315	236	305	966	969	732	435	4836	95.36
Book	06	07	05	04	04	03	04	23	18	35	04	113	2.19
Report	06	05	09	00	02	03	01	07	15	08	08	64	1.23
Thesis	00	00	00	00	00	00	00	00	00	00	00	00	00.00
URL	00	04	05	03	00	01	03	05	06	05	07	39	.65
Other	00	02	01	03	02	03	02	05	08	02	01	29	.57
Total	265	197	226	250	323	246	315	1006	1016	782	455	5081	100

Table 6: Reference per Article

No. of Reference	05	06	07	08	09	10	11	12	13	14	15	Total	%age
5 -10	01	01	00	03	02	00	01	02	03	06	03	22	9.78
11-20	03	03	05	04	08	03	04	14	19	17	07	87	38.67
21-30	03	03	02	03	01	08	07	17	15	12	06	76	33.78
31-40	02	02	02	00	02	00	02	10	05	02	05	32	14.22
41-50	00	00	01	01	01	00	00	00	01	01	00	05	2.22
>50	01	00	00	00	01	00	00	00	01	00	00	03	1.33
Total												225	100

Table 7: Subjects Covered by the Journal

	Subject	05	06	07	08	09	10	11	12	13	14	15	Total	%age
01	Interventional Cardiology	02	01	00	01	01	02	03	03	06	00	03	22	9.74
02	Preventive Cardiology	02	04	00	01	03	03	03	06	06	10	06	44	19.47
03	Heart Failure	01	00	00	00	02	02	01	05	07	04	00	22	9.74
04	Ischemic Heart Disease	02	01	03	03	02	03	06	13	04	06	09	52	23.00
05	Electro Physiology	01	01	00	01	02	01	00	02	02	04	01	15	6.64

06	Cardiology Others	01	01	01	02	04	01	00	04	05	04	03	26	11.50
07	Cardio vascular	02	00	01	01	00	01	00	01	02	00	02	10	4.42
08	Cardio thoracic	01	00	00	01	00	00	00	00	00	02	02	06	2.65
09	Medicine	02	00	00	00	02	01	00	00	00	06	02	13	5.76
10	Peads Cardio	00	00	00	00	00	00	00	00	00	02	01	03	1.32
11	Peads	00	00	01	00	00	00	00	00	01	00	00	02	.90
12	H Science	00	00	00	00	00	00	00	00	01	00	01	02	.90
13	Surgery	00	00	00	01	00	00	00	00	00	00	00	01	.44
14	Pathology	00	00	00	00	00	00	01	00	00	00	00	01	.44
15	Gynea	00	00	00	00	00	00	01	00	00	00	00	01	.44
16	Daibits	00	00	00	00	00	00	00	01	00	00	00	01	.44
17	Zoology	00	00	00	00	00	00	00	00	00	00	01	01	.44
18	Hapititus	00	00	01	00	00	00	00	00	00	00	00	01	.44
19	Pharmacology	00	00	00	00	00	00	00	00	00	01	00	01	.44
20	Psychiatry	00	00	00	00	00	00	00	00	00	00	01	01	.44
21	Bio Chemistry	00	00	00	00	00	00	00	00	00	00	01	01	.44
Total		14	8	7	11	16	14	15	35	34	39	33	226	100

CONCLUSION

Pakistan Heart Journal issued irregularly with gradual increase in number of articles. A significant increase in number of articles was observed during last five years. Furthermore, the journal's irregular frequency was normalized and its current issues are regularly published on quarterly basis. Original articles are the main type of the articles published. Majority of authors belongs to Pakistan especially from Khyber PukhtunKhwa although some foreign authors have also contributed in some issues. Being heart journal, higher numbers of articles were on Ischemic heart disease followed by Preventive cardiology. Although significant quality work on intervention cardiology and heart failure also Published. The bibliometric study of Pakistan Heart Journal will help the editors to know about the various gaps of the Journal like identification of references approach, authorship pattern, geographic affiliation of author and thematic approach. These identifications and gaps will assist and guide the publisher to make the Journal more and more qualitative.

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Date Received: April 11,2016

Date Revised: July 15,2016

Date Accepted: August 29,2016