

## COMPARATIVE RESEARCH PRODUCTIVITY OF PAKISTAN HEART JOURNAL AND JOURNAL OF SAUDI HEART ASSOCIATION (JSHA): A BIBLIOMETRIC ANALYSIS 2012 – 2016

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Date Received: October 02, 2017  
Date Revised: November 11, 2017  
Date Accepted: December 08, 2017

### Contribution

ZHB & MHS conceived the idea, planned the study and drafted the manuscript, collected data, did statistical analysis and critically reviewed manuscript. All authors contributed significantly to the submitted manuscript.

**All authors declare no conflict of interest.**

This article may be cited as: Baladi ZH, Satti MH. Comparative research productivity of Pakistan Heart Journal and journal of Saudi heart association (jsha): A bibliometric analysis 2012 – 2016. Pak Heart J 2018; 51 (01): 09-14

### ABSTRACT

**Objective:** To compare the growth of scientific research specifically in medical specialty of cardiology, gender-ship of authors' participated in research and affiliation with geographic locations published in the JSHA and PHJ during the period of 2012–2016.

**Methodology:** The data of original, review articles and case reports manually checked, download and collected during the June – August 2017 for numerical analysis from the websites of e-journal of Journal of Saudi Heart Association and Pakistan Heart Journal.

**Results:** A total 40 journals, 10.1% issues with the contribution of 1840 authors in 393 articles and 9.8% (186; 10.7 and 207; 9.6) original, review articles and case reports which were published in Journal of Saudi Heart Association and Pakistan Heart Journal during the years 2012 – 2016. The participation of multi-authors 367; 93.3% (97; 52.1% and 202; 97.5%) were found in majority instead of single or solo authors. A gender wise contribution of males was higher 1656; 90 than the females 174; 9.4. The participation of 35 countries with 125; 31.8% (97; 521% JSHA and 25; 13.5%) publications shows their interest in respective journals.

**Conclusion:** The contribution of Journal of Saudi Heart Journal and Pakistan Heart Journal offer local latest evidence based information in cure and prevention of cardiology diseases to physicians and researchers. The contribution of authors from inside country and abroad gives national and international recognition the journals.

**Key Words:** Pakistan heart journal, Saudi heart association, Bibilometric analysis

## INTRODUCTION

The usage of bibliometric analysis for gauging the research performance of a journal is common in this environment of research communities. Quantifying the numeric data of research productivity and contribution of authors in publications shows the culture of importance and validity to specific discipline by society. Journals play an important role in the scholarly communication of different domain from very past by containing the original thought contents, ideas, views, research works and findings of researchers, scholars and academicians. Citation data can be used in many ways for a variety of purposes. In a competitive environment, it is important for an institution to show how performance supports its mission.<sup>1</sup>

The Journal of Saudi Heart Association and Pakistan Heart Journal are peer reviewed and published scholarly articles to promote cardiology research and facilitate researchers in the area of Acute coronary syndrome (ACS), , Coronary Artery Bypass Grafting (CABG), Cardiopulmonary Diseases & Bypass (CPDP), Chronic Non-Anginal Post-Operative Pain (COPOP), Congenital Heart Diseases, Coronary Artery Diseases, Echocardiography, valvular heart disease, Mitral stenosis, Myocardial Infraction (MI), Type 2 diabetes mellitus and Body Mass Index (BMI) under Saudi Heart Association and Pakistan Cardiac Society.

The aim of this study is to compare the growth of scientific research specifically in cardiology, gender of authors' participated in research and affiliation with geographic locations published in the JSHA and PHJ during the period of 2012–2016.

## METHODOLOGY

In this cross sectional study, the objectives were set to explore for study 1) to assess the growth of original articles, review articles and case reports in all volumes & issues; 2) to

examine the use of key words, ratio of pages, references taken from journals published in country and internationally; 3) to evaluate the contribution of authors in publications with gender wise distribution of the first author; 4) categorize the pattern of authorship; and 5) the geographic affiliation of authors. For answering the above objectives, the data of original articles, review articles and case reports published in JSHA & PHJ during the year 2012 to 2016, was collected and downloaded for statistical analysis in MS Office (Excel 2010) in the libraries of College of Applied Medical Sciences and College of Science and Health Profession, King Saud bin Abdulaziz University for Health Sciences Riyadh, Kingdom of Saudi Arabia throughout the period of June 2017 to August 2017 from websites of the respective e-journals of JSHA (<http://www.sha.org.sa>) & PHJ (<http://www.pkheartjournal.com>).

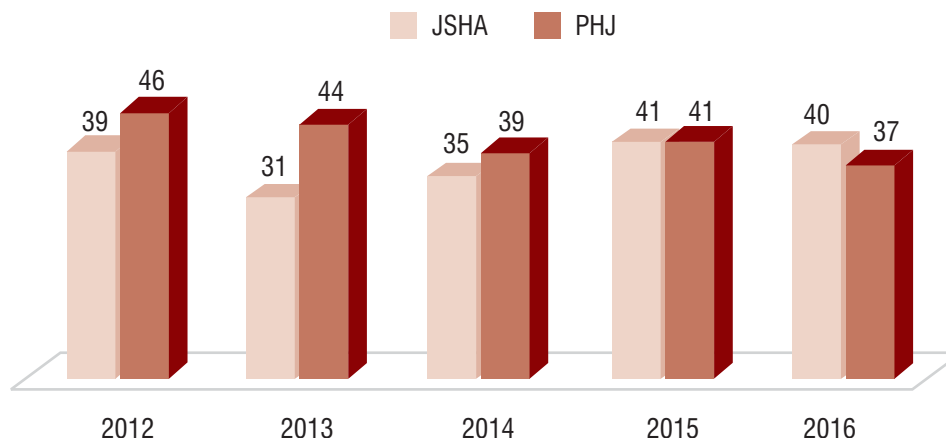
## RESULTS

We examined the all 40 issues of JSHA and PHJ (20 issues of each journal) and found that a total of 393 articles were published in both journals which translates to 9.8 articles per issue. JSHA published a total of 186 articles which is 9.3 per issue and PHJ published 207 articles equaling 10.35 articles per issue during the years 2012 - 2016. Figure 1 reveals fluctuations in the publications of JSHA & PHJ.

Further Breakdown in Distribution of Articles Year, Volume & Issue-Wise from 2012 – 2016 of JSHA & PHJ. Max; 12 and Min; 7 Articles are the Highest and Lowest Number of Publications in Any Issue of Both Journals. (Table 1)

The research productivity of original, review articles, case reports, key words, pages and usage of references taken from journals published in the country of host journal or internationally from 2012 – 2016. (Table 2) The contribution of 1840 (850 JSHA and 980 PHJ) authors were documented for the 393 (186 and 207) articles published in JSHA and PHJ during the years 2012 - 2016. The average number of

**Figure 1: Year Wise Research Productivity of JSHA & PHJ from 2012-2016**



**Table 1: Year, Volume & Issues**

	Issue I	Issue II	Issue III	Issue IV	Total Articles	Average Article per issue
2012 JSHA V:24	9	12	10	8	39	9.75
2012 PHJ V:45	12	11	13	10	46	11.5
2013 JSHA V:25	8	8	8	7	31	7.75
2013 PHJ V:46	11	11	11	11	44	11
2014 JSHA V:26	9	9	9	8	35	8.75
2014 PHJ V:47	11	9	10	9	39	9.75
2015 JSHA V:27	10	10	11	10	41	10.25
2015 PHJ V:48	10	11	10	10	41	10.25
2016 JSHA V:28	9	10	10	11	40	10
2016 PHJ V:49	9	9	8	11	37	9.25
Articles Published in all issues	98	100	100	95	393 (9.8 articles per issue)	

**Table 2: Research productivity**

	JSHA 2012 - 2016	PHJ 2012 - 2016
Original Articles	82	173
Review Articles	21	4
Case Reports	83	30
Total Articles	186	207
Key Words	743	747
Pages	1176 (17.5 pages per article)	1112 (18.7 pages per article)
References taken from journals published in country of host journal	91	181
References taken from journals published internationally	4268	4337
Total References	4359	4518

authors per article was found 4.56 for JSHA and 4.73 for PHJ. Distinguishing genders of authors was easy, based on their names pronounced in Arabic Language, so it is revealed that out of 1656 authors, 89.6% were of males and only 174 that accounts to 9.4% were females for 393 articles. There are slight difference between the two journals as first authors in both journals were 38 females (9.6%). Of 34 who were first authors 23 (67%) of them were first author in PHJ. (Table 3)

Figure 3 reveals that most articles had multi-authors – 367 (93.3%) and was dominant in the research productivity, most of the articles 86 (21.8%) were written by three authors. Of total 21 (11.2%) articles were written by solo authors from 186 articles of Journal of Saudi Heart Association and 46 (22.2%) articles written by five authors from 207 articles of Pakistan Heart Journal. One review article was found in issues of 2015 in JSHA which were

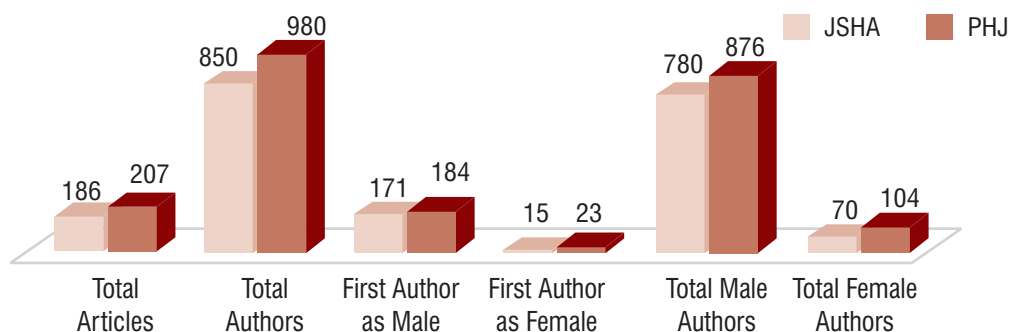
written by 26 authors collaboratively.

Further breakdown of authorship pattern is shown in table 4.

Of the total, 186 articles related to twenty-three geographic locations of authors published in JSHA and 207 articles written by authors related to 14 countries during the 2012 - 2016. The authors affiliated with Pakistan grabbed a major share 179 (86.4%) of publications in PHJ as against authors related with Kingdom of Saudi Arabia having 89 (47.8%) in the publication of JSHA during the years 2012 – 2016. (Table 5)

It is also revealed that Egypt is second productive country participated with 24 (12.9%) and 6 (2.9%) articles published in JSHA & PHJ. The authors affiliated with Kingdom of Saudi Arabia were 02 (0.9%) in PHJ and Pakistan participated with 01 (0.54%) in JSHA.

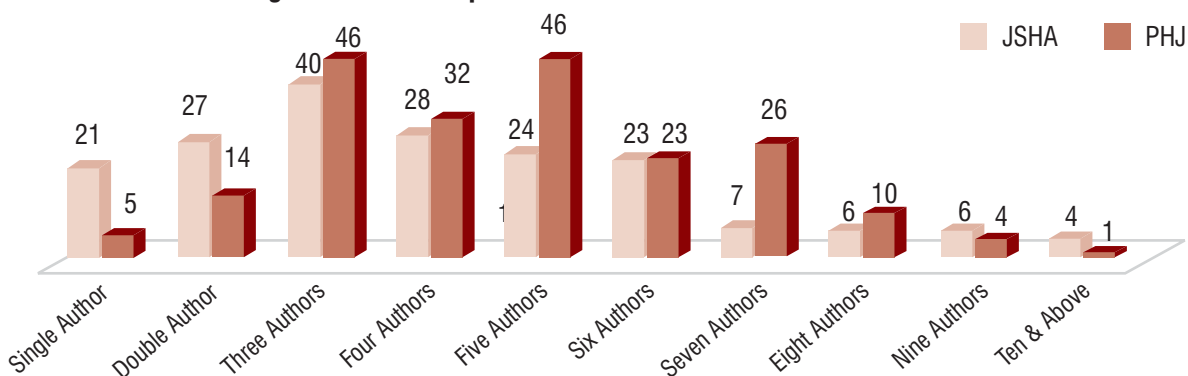
**Figure 2: Research Productivity and Contribution of Authors in JSHA & PHJ from 2012-2016**



**Table 3: Authors contribution with gender specification in JSHA & PHJ from 2012 - 2016**

	JSHA	PHJ
Total Articles	186	207
Total Authors	850 (21.8 authors per article)	980 (21.1 authors per article)
First Author as Male	171 (92%)	184 (88.8%)
First Author as Female	15 (8%)	23 (11.2%)
Total Male Authors	780 (91.7% of total authors)	876 (89.3% of total authors)
Total Female Authors	70 (8.2% from of authors)	104(10.6% of total authors)

**Figure 3: Authorship Pattern in JSHA & PHJ from 2012-2016**



**Table 4: Author Ship Pattern In All Issues of JSHA & PHJ from 2012 – 2016**

Pattern of authors	2012		2013		2014		2015		2016		Total authors with %	
	JSHA	PHJ	JSHA	PHJ	JSHA	PHJ	JSHA	PHJ	JSHA	PHJ		
Single Author	8	2	3	1	7	1	3	0	0	1	26	6.6%
Double Author	3	2	1	3	2	5	10	1	11	3	41	10.4%
Three Authors	6	5	10	12	10	8	7	15	7	6	86	21.8%
Four Authors	6	2	5	5	5	6	4	10	8	9	60	15.2%
Five Authors	7	9	4	12	4	9	5	9	4	7	70	17.8%
Six Authors	5	7	5	4	6	4	3	4	4	4	46	11.7%
Seven Authors	1	14	1	5	0	2	3	0	2	5	33	8.4%
Eight Authors	1	4	1	2	0	2	2	1	2	1	16	4.0%
Nine Authors	1	1	1	0	1	2	3	0	0	1	10	2.5%
Ten & Above	1	0	0	0	0	1	1	0	2	0	5	1.2%
Total with %	39 9.9%	46 11.7%	31 7.8%	44 11.2%	35 8.9%	40 10.1%	41 10.4%	40 10.1%	40 10.1%	37 9.4%	393	

**Table 5: The Geographic Affiliation of Authors in JSHA & PHJ from 2012 - 2016**  
(Largest to smallest)

S. No	Total Article Published	Countries	%	S. No	Total Article Published	Countries	%
1	89	KSA	47.85%	1	179	Pakistan	86.47%
2	24	Egypt	12.90%	2	6	Egypt	2.90%
3	12	USA	6.45%	3	5	Iran	2.42%
4	11	India	5.91%	4	3	China	1.45%
5	10	Italy	5.38%	5	3	Jordan	1.45%
6	7	Tunisia	3.76%	6	2	KSA	0.97%
7	6	Oman	3.23%	7	2	New Zealand	0.97%
8	4	Iran	2.15%	8	1	India	0.48%
9	4	UAE	2.15%	9	1	Nigeria	0.48%
10	3	Bangladesh	1.61%	10	1	Slovakia	0.48%
11	4	Turkey	2.15%	11	1	Sri Lanka	0.48%
12	2	UK	1.08%	12	1	Turkey	0.48%
13	1	Bahrein	0.54%	13	1	USA	0.48%
14	1	Canada	0.54%	14	1	West Indies	0.48%
15	1	Lebanon	0.54%		207		
16	1	Malaysia	0.54%				
17	1	Morocco	0.54%				
18	1	Pakistan	0.54%				
19	1	Poland	0.54%				
20	1	South Africa	0.54%				
21	1	Sudan	0.54%				
22	1	Taiwan	0.54%				
23	1	Lebanon	0.54%				
	186						

## DISCUSSION

In this study, we find 393 (186; 9.3% and 207; 10.35%) articles published in all issues of JSHA and PHJ on regular basis. These journals provide a unique opportunity to researchers of cardiovascular diseases to access and share experiences with new thoughts. A constant approach of JSHA and PHJ in publications shows the strict rules and criteria in publishing the scientific research and this behavior got national and international attention from the research community.

Ibrahim M, Jan SU analyzed the publications of original articles in the Journal of Pakistan Medical Association from 2009 – 2013, they stated that a total number of 913 original articles were found in regular issues of the JPMA. The number of articles increased steadily from 148 to 214 respectively from 2009 to 2013. Three author contributions ranked the highest with 206 articles; 481 authors were geographically affiliated to Province of Sindh, Pakistan.<sup>2</sup> A bibliometric study was conducted under the title of Influential journals in health research: a bibliometric study; to identify the leading journals over the last 25 years (1990–2014) on Public Health, Environmental and Occupational Health,

Health Management and Economics, Health Promotion and Health Behavior, Epidemiology, Health Policy and Services, Medicine, Health Informatics, Engineering and Technology, and Primary Care. The results indicate a wide dispersion between categories being the American Journal of Epidemiology, Environmental Health Perspectives, American Journal of Public Health, and Social Science & Medicine, the journals that have received the highest number of citations over the last 25 years.<sup>3</sup> A similar, another bibliometric studies have been conducted on journals related mainly to scientific fields and are based principally on various metadata elements such as author, title, subject, citations and so forth. This type of analysis provides useful indicators of trends, scientific productivity, emphasis on research in various fields, and researcher preferences for publication. Typically, bibliometric consider organization, classification, and quantitative evaluation of publication patterns as well as provide an analysis of macro-communication.<sup>4</sup>

A study was conducted on title of the impact factor of an open access journal does not contribute to an articles citation and 102 open access journals with 101 non-open access journals published in January 2011 were included,

open access journals (median 15.5 vs 12) were found to have significantly more citations overall compared to non-open access journals results. It concludes that Citations of papers are positively influenced by the journal's impact factor (IF). For non-open access (non-OA) journals, this influence may be due to the fact that high-IF journals are more often purchased by libraries, and are therefore more often available to researchers, than low-IF journals.<sup>5</sup> A ten year bibliometric study of Pakistan journal of medical science reveals that 1199 articles were contributed by 3798 authors collaboratively. 731; 61% articles were written by authors related to an-other geographic locations. And all 1199 articles covered 39 sub-specialties' of medical sciences during the years 2001 – 2010. With a constant methodology of publications in each issue of a journal is to support research and open new doors of thinking and participation in internationally.<sup>6</sup>

The development of scientific environment specifically in medical sciences is not easy because it requires; a) latest technological tools and gadgets, b) collaboration among researchers, pharmaceutical companies and visionary academic bodies, c) awareness in masses in terms of preventive measures. Provision of access of both journals is appreciable. Participation of researchers from around the world strengthens the ideas to coop-up and decrease the pain and sorrows of cardiovascular disease patients.

### LIMITATION

This study presents only numbers and not inclined or declined growth of any organization and standards.

### CONCLUSION

To conclude, the contribution of Journal of Saudi Heart

Journal and Pakistan Heart Journal offer local latest evidence based information in cure and prevention of cardiology diseases to physicians and researchers. The contribution of authors from inside country and abroad gives national and international recognition the journals.

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