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Comparative Bibliometric Analysis of Six Health Science Journals Published in Pakistan 2006-2015

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Comparative Bibliometric Analysis of Six Health Science Journals Published in Pakistan 2006-2015.

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Abbreviations:

JSP:	Journal Surgery of Pakistan
PJMR:	Pakistan Journal of Medical Research
PPJ:	Pakistan Pediatric Journal.
PJO:	Pakistan Journal of Ophthalmology.
PHJ:	Pakistan Heart Journal.
JLUMHS:	Journal of Liaquat University of Medical & Health Sciences.
HEC:	Higher Education Commission of Pakistan
PMDC:	Pakistan Medical & Dental Council

Key words: Bibliometric, research productivity, health sciences, Pakistan

ABSTRACT

Introduction: The aim of this study is to compare the growth of research published in following six e-journals published from Pakistan during the period of 2006-2015.

- 1). *Journal Surgery of Pakistan,*
- 2). *Pakistan Journal of Medical Research,*
- 3). *Pakistan Pediatric Journal,*
- 4). *Pakistan Journal of Ophthalmology,*
- 5). *Pakistan Heart Journal and*
- 6). *Journal of Liaquat University of Medical & Health Sciences.*

Methodology: The data of published items of all targeted six Pakistani medical journals were downloaded from their respective websites and saved the required information in Microsoft Excel Sheet during January to May 2018 for statistical analysis. Number of published items, authors, gender-wise segregation of authors and authorship pattern were calculated.

Results: Total 2133 research items published in 230 issues of six e-journals during 2006-2015 with an average of 9.27 articles per issue, 7949 authors contributed their research with an average of 3.72 authors per papers. Gender-wise distribution of authors showed that majority of authors (n=6022; 75.7%) were male while female authors counted 1921 (24.1%). Gender-wise distribution of first author revealed that the share of female authors were 28.2%. Bulk of research (n=1951; 91.4%) were produced by collaborative efforts.

Conclusion: It is concluded that surgery and allied specialties is the preferred area of research and there is need to conduct more research on cardiology. Most of the papers were written in collaborative efforts and three authors pattern was found most favorite.

INTRODUCTION:

Journals are a canvas to portray the role of the researcher in a communication of ideas, views, opinions, and findings of the experiments, thoughts, and experiences of the authors in a specific way or generally. Every article published in the journal having numeric information to show the status of an article. Quantifying the numeric data of publications shows the research performance of a journal. Rattan (2014) opined that innovative research with original findings and emerging applications of existing knowledge are published in journals.

The Journal of Surgery Pakistan (JSP) is official journal International College of Surgeons of Pakistan Chapter and SAARC Association of Surgeons Pakistan Chapter. JSP contributed in the field of surgery and its allied disciplines were published its first volume in the year 1996 and indexed in Index Medicus for Eastern Mediterranean Regions (IMEMR) and approved by Pakistan Medical & Dental Council (PMDC) and Higher Education Commission (HEC) of Pakistan. (<http://www.jsp.org.pk>)

The Pakistan Journal of Medical Research (PJMR) is the official journal of the Pakistan Health Research Council, started its publication in 1958. PJMR is approved by Pakistan

Medical & Dental Council; it covers Biomedical, clinical and different areas of public health research. (<http://www.pjmr.org.pk>)

The Pakistan Pediatric Journal (PPJ) is internationally recognized journal deals the field of pediatrics and its subspecialties, preventive & social child health published by Pakistan Pediatric Association. PPJ started its publication in 1977 on a quarterly basis. PPJ is recognized by PMDC, HEC of Pakistan and indexed in Scimagojr database. (<http://www.ppa.org.pk/>)

The Pakistan Journal of Ophthalmology (PJO) is the official journal of Ophthalmological Society of Pakistan started its publication in 1985. PJO is recognized by PMDC, HEC of Pakistan and indexed in Copernicus, Index Medicus for Eastern Mediterranean Region. (<http://www.pjo.com.pk>)

The Pakistan Heart Journal (PHJ) is official journal of the Pakistan Cardiac Society started its publication in 1968. . PHJ is recognized by PMDC, HEC of Pakistan and indexed in Copernicus, Index Medicus for Eastern Mediterranean Region. (<http://www.pkheartjournal.com>)

The Journal of Liaquat University of Medical & Health Sciences (JLUMHS) is the official journal of Liaquat University of Medical and Health Sciences, started its publication in 2002. JLUMHS is recognized by PMDC, HEC of Pakistan and indexed in Copernicus, Index Medicus for Eastern Mediterranean Region and Embase. (<https://www.lumhs.edu.pk/jlumhs/>)

All journals published peer-reviewed research articles Five journals published on quarterly base only JLUMHS published on triannual bases. The JSP, PPJ, PJO, and PHJ were established and run by professional associations/organizations to promote and facilitate specific disciplines. PJMR and JLUMHS are published by public sector council and university to deal the literature of basic medical and health sciences, and communicable diseases.

Harrod's Librarians' Glossary and Reference Book (Prytherch, 2016) defined the term bibliometric as:-

“Application of statistics and mathematics to the study of the use made of books and other media within and between library systems”

Bibliometric analysis supports to improve the bibliographic control of a published literature, a gauging tool to evaluate the growth of research productivity. The aim of the present study is to carry out a comparative bibliometric analysis of the research productivity and authorship pattern of six Pakistani e-journals on health sciences published during 2006 to 2015.

LITERATURE REVIEW:

A comparative study of 393 articles published in two heart journals one from Pakistan and other from Saudi Arabia was carried out by Baladi and Satti (2018). Five years published data of 20 issues of each journal were compared, 207 articles published in PHJ and 186 in Journal of Saudi Heart Association (JSHA). Total 1840 researchers contributed, 980 in PHJ and 850 in JSHA, an average of authors per article found 4.73 in PHJ and 4.56 in JSHA. Male authors were dominated (n=1656; 89.6%), 93.3% of research was carried out through collaborative efforts. (Baladi & Satti, 2018).

Baladi & Umedani (2017) conducted a bibliometric analysis on *Pakistan Journal of Medical Research* from 2001 to 2010. Total 1199 articles published during ten years with 29.9% articles per issue. Total 3798 researchers contributed, 80.30% were male and 87.77% articles were the results of joint efforts.

Ibrahim and Jan (2015) carried out bibliometric assessment of 913 articles published in *Journal of Pakistan Medical Association* during 2009 to 2013. A study showed that the ratio of a collaborated researcher is 97%. Gender distribution of first author analysis revealed that 62% authors were male while 38% female.

Jan et. al. (2016) reported the analysis on 721 articles published in *Journal of College of Physicians and Surgeons Pakistan (JSPSP)* from 2012 to 2014. This paper exposed that 93% articles were written in multi-authors, four authorship pattern ranked highest.

A study (Ullah, Butt & Haroon, 2008) steered on 572 articles published during 1997 to 2006 in the *Journal of Ayub Medical College*. Only 9.79% of articles were produced by the single author. Total

403 authors contributed. This study suggested that authors should be encouraged to cite their local literature, which would help to increase the authority of national medical journals.

OBJECTIVES:

Following were the objective of the study:-

1. To assess the growth of articles in all volumes & issues;
2. To evaluate the contribution of authors in publications with gender-wise distribution of the first author
3. To categorized the pattern of authorship.

METHODOLOGY:

This observational study was carried out in the library of King Saud bin Abdulaziz University for Health Science from January to May 2018. The data of published items of all targeted six Pakistani medical journals were downloaded from their respective websites and saved the required information in Microsoft Excel Sheet for statistical analysis. Number of articles including original articles, review articles and case reports, number of authors their gender and authorship pattern were calculated for analysis.

RESULTS:

Present study examined the 230 issues of six targeted Pakistani e-journals on Health Sciences published during 2006 to 2015. There were 2133 research items published. Table 1 showed the research growth of published in respective journals issue-wise in studied period. Highest number of articles (457) published in JSP with an average of 114.2 articles per issue followed by PJO (418), lowest score of articles (235) recorded in PHJ with 58.7 articles per issue.

Table 1: Research productivity of JSP, JLUMHS, PJMR, PPJ, PJO, and PHJ during the period of 2006 – 2015

S. No	Year	All Issue 1	All Issues 2	All Issues 3	All Issues 4	Total With %	Average articles per issue
1	JSP 2006 - 2015	119	110	117	111	457 (21.4%)	114.2
2	PJMR 2006 - 2015	70	73	76	70	289 (16.2%)	72.2
3	PPJ 2006 - 2015	98	96	93	100	387 (13.5%)	96.7
4	PJO 2006 - 2015	105	111	105	97	418 (18.1%)	104.5
5	PHJ 2006 - 2015	73	41	78	43	235 (19.6%)	58.7
6	JLUMHS 2006 - 2015	106	120	121		347 (11%)	115.6
Total		571	551	590	421	2133	

Figure: 1 revealed that 2133 articles were written by 7949 authors. Gender-wise distribution of authors showed that majority of authors 6022; 75.7% were male and 1921; 24.1% were counted as female. The gender analysis of first author resulted that the majority of articles (n=1530; 71.7%) male authors dominated while the share is female as first authors is also satisfactory (n=603; 28.2%).

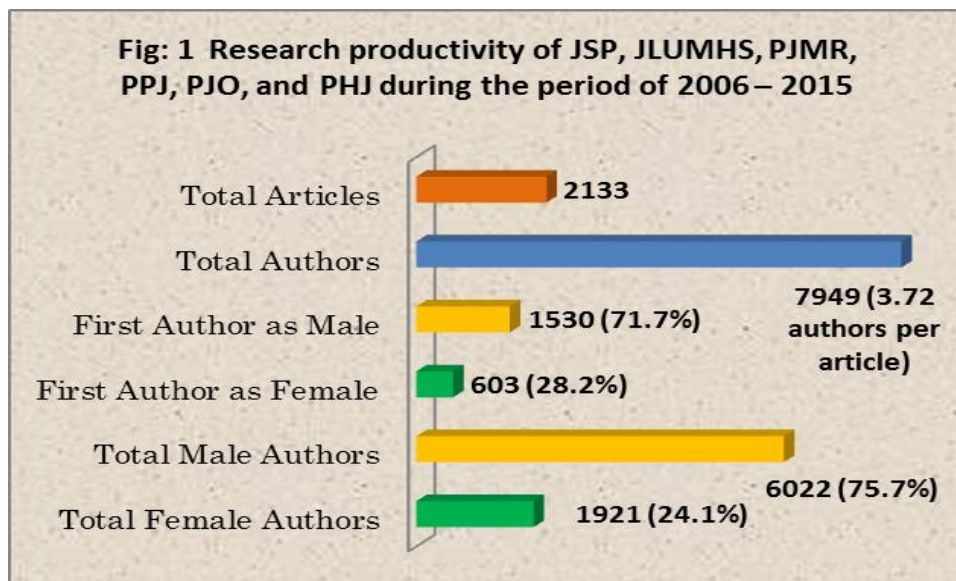


Table 2: showed further breakdown in distribution of articles published in JSP, JLUMHS, PJMR, PPJ, PJO, and PHJ during the period of 2006 - 2015.

Table 2: Research productivity of JSP, JLUMHS, PJMR, PPJ, PJO, and PHJ during the period of 2006 - 2015							
S. No	Name of Journal with Year 2006-2015 (All issues)	Total Articles	Total Authors with per Article	Total Male Authors %	Total Female Authors %	First Author as Male %	First Author as Female %
1	JSP	457 (21.4%)	1574 (3.4%)	1079 (68.5%)	495 (31.4%)	290 (18.4%)	167 (10.6%)
2	PJMR	289 (13.5%)	1035 (3.5%)	707 (68.3%)	328 (31.6%)	179 (17.2%)	110 (10.6%)
3	PPJ	387 (18.1%)	1367 (3.5%)	964 (70.5%)	403 (29.4%)	256 (18.7%)	131 (9.5%)
4	PJO	418 (19.6%)	1524 (3.6%)	1283 (84.1%)	241 (15.8%)	335 (21.9%)	83 (5.4%)
5	PHJ	235 (11%)	1079 (4.5%)	979 (90.7%)	100 (9.2%)	213 (19.7%)	22 (2%)
6	JLUMHS	347 (16.2%)	1370 (3.9%)	1010 (73.7%)	354 (25.8%)	257 (18.7%)	90 (6.5%)
	Total	2133	7949 (3.7%)	6022 (75.7%)	1921 (24.1%)	1530 (71.7%)	603 (28.2%)

Figure 2 described the pattern of authorship, that multi-author 1951; 91.4% were dominant in the publications, most of the 567; 26.5% articles were written by three authors' pattern. Only 182; 8.5% articles were written by solo authors from 2133 articles in JSP, PJMR, PPJ, PJO, PHJ, and JLUMHS during the period of 2006 – 2015.

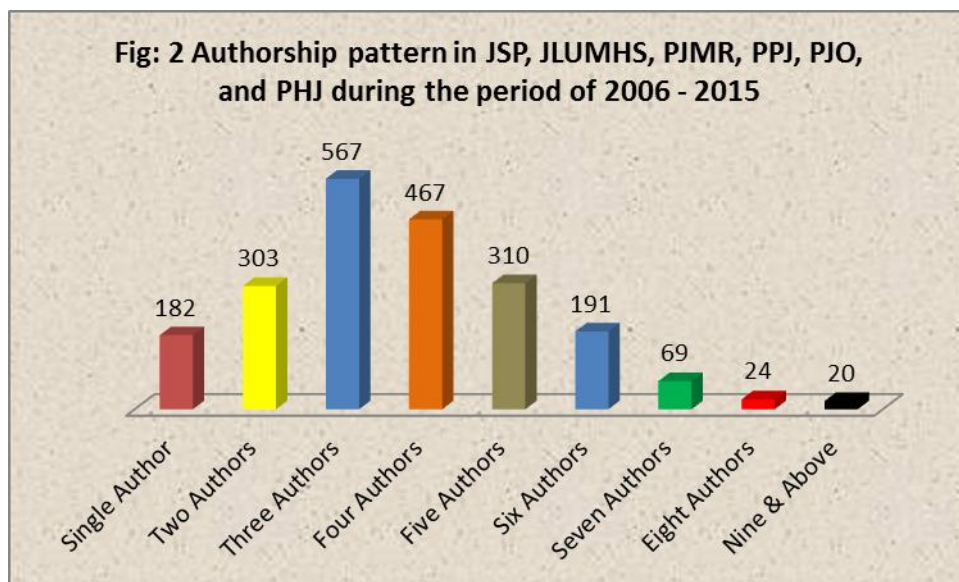


Table 3 shows the breakdown of authorship pattern.

Table 3: Author ship pattern in all issues of JSP, JLUMHS, PJMR, PPJ, PJO & PHJ from 2006 - 2015											
S. No	E-Journals	Single Author %	Two Authors %	Three Authors %	Four Authors %	Five Authors %	Six Authors %	Seven Authors %	Eight Authors %	Nine & Above %	Total & %
1	JSP 2006 - 2015 (1 - 4)	51 (28%)	74 (24.4%)	141 (24.8%)	89 (19%)	54 (17.4%)	31 (16.2%)	15 (21.7%)	1 (4.1%)	1 (5%)	458 (21.4%)
2	PJMR 2006 - 2015 (1 - 4)	25 (13.7%)	58 (19.1%)	72 (12.7%)	60 (12.8%)	38 (12.2%)	21 (11%)	8 (11.5%)	3 (12.5%)	4 (20%)	290 (13.5%)
3	PPJ 2006 - 2015 (1 - 4)	46 (25.2%)	62 (20.4%)	99 (17.4%)	84 (18%)	50 (16.1%)	25 (13%)	8 (11.5%)	7 (29.1%)	6 (30%)	388 (18.2%)
4	PJO - 2006 - 2015 (1 - 4)	35 (19.2%)	65 (21.4%)	98 (17.2%)	96 (20.5%)	79 (25.4%)	36 (18.8%)	6 (8.7%)	1 (4.1%)	2 (10%)	419 (19.6%)
5	PHJ - 2006 - 2015 (1-4)	9 (4.9%)	16 (5.2%)	58 (10.2%)	37 (8%)	49 (15.8%)	26 (13.6%)	23 (33.3%)	10 (41.6%)	7 (35%)	236 (11%)
6	JLUMHS 2006 - 2015 (1 - 3)	16 (8.7%)	28 (9.2%)	99 (17.4%)	101 (21.6%)	40 (13%)	52 (27.2%)	9 (13%)	2 (8.3%)	0 (0%)	348 (16.3%)
7	Total with %	182 (8.5%)	303 (14.2%)	567 (26.5%)	467 (21.8%)	310 (14.5%)	191 (9%)	69 (3.23%)	24 (1.1%)	20 (0.9%)	2133

Findings:

1. The Maximum 457 (21.4%) articles published in JSP and minimum 235 (11%) articles were published in PHJ. It is found that maximum 1574 with an average of 3.4% authors per article produced 457 papers in JSP and 1035 articles with an average of 3.5 authors per article appeared in PJMR.
2. The majority of the researcher is affiliated with the host country, their affiliation with the institute; Islamic names and their membership with ResearchGate are common tools to identify the genders specification of authors to differentiate from each other.
3. This study also revealed that 6022 (75.7%) authors contributed articles as male and 1921(24.1%) authors as a female in 2133 articles. There are slightly different between male authors as the first author of both journals. Female 38; 9.6% participated as a first author and 34; 2.4% shows participation as increase by females as the first author in the PHJ.
4. Highest ratio of female authors counted in PJMR with 328 (31.6%) and lowest ration recorded in PHJ with 100 (9.2%), proportionately, the highest ratio of male authors 979 (90.7%) were found in PHJ.
5. The maximum 51 (28%) articles written by solo authors were found in JSP followed by 46 (25.2%) in PPJ and minimum 9 (5%) in PHJ followed by 16 (8.7%) in JLUMHS out of 182 articles.
6. The 7 (35%) articles written by nine and above authors in PHJ followed by 6 (11%) in PPJ out of 20 articles as maximum participation of authors in one article.

Conclusion

Comparative bibliometric analysis of six selected e-journals on medical sciences explicated that 2133 articles with an average of 9.27 articles per issue written by 7949 authors had been published from 2006 to 2015. Male author dominated and plenty of articles written by multi-authors. Most of the articles were written for PJS and the lowest numbers of articles were for PHJ. Only one comparative study of two heart journals was found during the literature review. There is a need to conduct more comparative studies to find the research writing trends in medical sciences.

Disclaimer: This study presents only numbers and not inclined or declined growth of any organization, city, country and standards.

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