

# Journal of the College of Physicians and Surgeons of Pakistan: Five Years Bibliometric Analysis

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## ABSTRACT

To conduct the bibliometric analysis of the Journal of the College of Physicians and Surgeons Pakistan (JCPSP) from 2012 to 2014. The prime objectives of this report were to determine the number and percentage of articles by year, authorship pattern, gender and geographical affiliation, ranking by subject and citation analysis. A data collection instrument was developed as bibliometric form. The data was analysed using the Microsoft Excel spread sheet. Editorials and letters to editors were excluded. There were 1106 total research documents, including 721 original articles and 385 case reports. A rapid increase in number of articles per year was noticed, more original papers than case reports. Majority of the authors were male. The contribution of Balochistan and Khyber Pakhtunkhwa was less than the other provinces. JCPSP was the most cited document in the reference list of the research documents. The scholars of Khyber Pakhtunkhwa and Balochistan and female researchers should give more attention in writing quality articles eligible for consideration at this Journal. It is also suggested that writers should be compelled to address such fields of medical sciences as neurology, nephrology, anatomy and pharmacology, while writing original articles and case reports.

**Key Words:** *Bibliometric analysis. Journal of the College of Physicians and Surgeons Pakistan (JCPSP). Medical research. Publication. Citation analysis.*

## INTRODUCTION

The term bibliometrics was first introduced by Prichard in 1969, and became famous in 1980s.<sup>1</sup> It is "the organization, classification and quantitative evaluation of publication pattern of all macro and micro communications, along with their authorships by mathematical and statistical calculations".<sup>2</sup> Polanco described bibliometric study as a technique used for description, evaluation, and monitoring of published research.<sup>3</sup> It can describe a particular field quantity as well as focus on research productivity by an institution.

Broadus defined bibliometrics study as the process of the quantitative study of published materials which include articles, reports, and case studies.<sup>4</sup> It is based on the number of published articles, authorship, author's geographical location, authorship productivity, institution's affiliation, ranking by the subject of the article, research group or individual investigator and

affiliation, and the number of citations received, among others. The bibliometric analysis deals with methodological field focused on the structural analysis of the information contained in scientific publications and provides different indicators to the scholars who aid in the analysis of information. It facilitates to monitor expansion of literature and patterns of research.

The Journal of the College of Physicians and Surgeons Pakistan (JCPSP) is a biomedical research journal launched in 1991 with a quarterly frequency to monthly from 1999. JCPSP is recognized by Pakistan Medical and Dental Council (PMDC) and also recognized by Higher Education Commission (HEC), Pakistan.<sup>5</sup> Index Medicus and MEDLINE are the largest databases and indexing agencies of the world who indexed JCPSP in 2002. The Journal also disseminates and provides access to contents globally through the website of PubMed. The editorial board includes national and international medical practitioners of high repute from the USA, UK, Canada, Sudan and some other countries of the world. Institute of Scientific Information is regularly monitoring and evaluating the Impact Factor (IF) of JCPSP through the Impact Factor of Thomson-Reuters. Journal Citation Report (JCR) calculated 5-year IF in 2010 and 2011, which was the highest among its contemporary Pakistani biomedical journals at that time.

The JCPSP publishes research work of local and international researchers duly peer-reviewed by the reviewers, as original articles, case reports, review articles, commentaries, articles on medical education and new technology, letters to the editor and editorials, covering core biomedical health science subjects, basic

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medical sciences and emerging community problems - environment, health and population. The articles, reviewed and processed as per International Committee of Medical Journals Editors (ICMJE) criteria, are published in JCPSP.

The prime objectives of the study were to find out the number and percentage of published research articles by year, the authorship pattern, the citation of articles, and to explore ranking by subject of the articles.

## METHODOLOGY

The researchers scrutinised original articles, review articles and case reports excluding editorials and letters to editor, published in the JCPSP from 2010 to 2014. Original articles were tabulated along with textual discussion; whereas, case reports were interpreted textually.

A data collection instrument as bibliometric form was developed. It included the type and year of publication of articles, the number of first authored articles, joint authored articles, numbers of articles on the basis of subject/area, number of citations, the authors' geographical location at the time of publication provided by the authors themselves, and institutional affiliations. The collected data were analysed and percentages were determined.

## RESULTS

The total number of articles published in the 60 issues-under-discussion was 1106 including 721 original articles and 385 case reports.

The analysis of Table I depicts that the most original articles were published in the year 2014 followed by 2013. The year 2012 had the lowest original articles during the years under study. The maximum number of original articles (18) was published in the September issue No. 9 of the year 2014. The least number of original articles in an issue was 8 in July issue No. 7 in 2011 and December 2012. However, there was a reasonable increase in number of original articles per year.

Publication of case reports per year/issue was about half of the publication of articles in the defined timeframe (2010-2014). In the year 2012, the highest number of case reports was published (n=100), which was more than one quarter of the total publications of case reports in the specified time. The January issue of 2013 contained no case report, followed by issue No. 10 (October) of 2014 having only 2 case reports. The number of publication of case reports was inversely proportional to the number of original articles in the designated timeframe (2010-2014).

**Table I:** Distribution of original articles by year and issue numbers.

Year	Issue No.												Total	Percentage
	1	2	3	4	5	6	7	8	9	10	11	12		
2010	11	12	14	13	12	13	14	12	12	12	11	10	146	20.25%
2011	09	11	11	11	11	11	08	10	12	11	11	10	126	17.48%
2012	10	09	10	10	12	10	10	09	10	11	10	08	119	16.50%
2013	20	10	11	11	10	10	13	13	13	14	10	12	147	20.39%
2014	14	15	14	15	15	15	16	14	18	17	16	14	183	25.38%
													721	100.00%

**Table II:** Authorship number pattern for original articles.

Year	Single author	Two authors	Three authors	Four authors	Five authors	Six authors	More than six authors
2010	06	26	34	38	19	09	09
2011	03	17	25	34	15	15	10
2012	02	13	25	32	25	12	10
2013	20	22	27	39	11	15	10
2014	14	26	39	41	28	28	07
Total	45	104	150	184	98	79	46
Percentage	6.37%	14.73%	21.25%	26.06%	13.88%	11.19%	6.52%

**Table III:** Citation pattern.

Subject	2010	2011	2012	2013	2014	Total	Percentage
Research journals	2772	2165	1963	2728	3682	13310	92.36%
Books	156	84	88	118	160	606	4.21%
Reports	15	29	08	18	28	98	0.68%
Thesis / dissertation	01	02	01	11	01	16	0.11%
URL	49	59	49	61	81	299	2.07%
Others	17	17	10	13	25	82	0.57%
Total	3010	2356	2119	2949	3977	14411	100.00%

**Table IV:** Subjects covered by published articles in 2010-2014.

Subject	2010	2011	2012	2013	2014	Total	Percentage
Anatomy	03	04	01	02	00	10	0.90%
Anaesthesia	04	06	10	07	03	30	2.71%
Biochemistry	01	01	03	02	03	10	0.90%
Cardiology	11	12	09	09	08	49	4.43%
Community medicine	05	02	02	05	10	24	2.17%
Dentistry	07	08	12	09	16	52	4.70%
Dermatology	10	03	03	05	02	23	2.08%
ENT	07	08	12	06	05	38	3.44%
Gastroenterology	05	06	02	04	09	26	2.35%
Gynecology / obstetrics	12	13	08	17	10	60	5.42%
Medicine	36	34	35	32	28	165	14.92%
Nephrology	01	00	00	00	03	04	0.36%
Neurology	03	00	01	04	00	08	0.72%
Neurosurgery	08	00	04	09	00	21	1.90%
Oncology	07	02	04	05	02	20	1.81%
Ophthalmology	11	06	14	16	15	62	5.61%
Orthopaedics	11	04	03	07	04	29	2.62%
Paediatrics	09	21	19	14	22	85	7.69%
Pathology	38	23	26	24	31	142	12.84%
Pharmacology	00	04	01	01	01	07	0.63%
Physiology	00	01	01	08	08	18	1.63%
Plastic surgery	03	05	03	01	06	18	1.63%
Psychiatry	10	04	00	02	03	19	1.72%
Radiology	13	10	10	10	06	49	4.43%
Surgery	35	22	29	25	01	112	10.13%
Urology	05	08	04	04	04	25	2.26%
Grand Total	255	207	216	228	200	1106	100%

Table II shows that joint authorship was more dominant than single authorship with respect to the publication of original articles from 2010 to 2014. Four-authored articles were more in number followed by three-authored and two-authored, respectively. There was a low trend of more than six, and single authorship pattern.

Three-authored case reports were more followed by four-authored than the rest of the authorship patterns. Similarly, six-authored and single-authored case reports were less in numbers as compared to the rest of patterns. The bibliometric study of Annals of Library and Information Studies from 1999 to 2005 showed that the single-authored contribution was the highest.<sup>6</sup>

About two-thirds of the articles were written by male scholars (n=2027). Female contribution was greatest in year 2014 followed by the year 2013.

There was no difference between the gender-wise authorship contribution of case reports (n=1100) and original articles (n=2027). The results produced for case reports were the same as for original articles. The female contribution in the case reports was about one quarter of the total.

Regarding original articles, Punjab had the highest articles published (n=1313) followed by Sindh (n=1241), Balochistan (n=30), and Khyber Pakhtunkhwa (n=135), whereas international contributions (n=416) were also low.

There was no contribution of Baluchistan regarding case reports in the year 2014. Case reports from Khyber Pakhtunkhwa were also low.

More than half articles had 21 - 30 references at their end. About one-third of the articles had 11 - 20 references. More than 30 references were given at the end of only 2% of the articles.

Table III showed that research journals were the more cited document. Books and Web resources were also cited to some extent. There was a very minimal citation from a thesis or dissertation.

Internal medicine was the subject which was more addressed by the scholars. Pathology and Surgery stood second and third in this race, respectively. Nephrology, Neurology, Anatomy and Pharmacology were the least published subjects in JCPSP.

**Discussion and suggestions:** Generally, the number of articles in the JCPSP increased in the recent years. The total number of articles published during the mentioned 5 years was 1106 including 721 original articles and 385 case reports. Female contribution was less as compared to male. The province of Punjab was far ahead while contributing in this reputed Journal. The trend of joint authorship was at high level. It was documented that journals were the more cited source by researchers. It showed the tendency of scholars towards literature search. Books citation was minimal. Reports, Web sources and thesis/dissertations were the sources which had a very little importance in terms of citations. Medicine and Pathology had more articles as compared to the rest of medical subjects published in this important and reputed medical science Journal. Ibrarhim *et al.* also found the same results for JPMA.<sup>7</sup>

The scholars of Khyber Pakhtunkhwa and Balochistan should give due attention to contribute more to this Journal. The female doctors should also be encouraged for contribution in this Journal. It is also suggested that writers should also address other important sub-fields of medical science like Neurology, Nephrology, Anatomy and Pharmacology to address the scarcity of local literature in these fields.

**Editor's note:** JCPSP is a peer-reviewed Journal that strictly follows an individual house-style and merit-based quality policy guided by ICMJE criteria. There is no gender, provincial or speciality quota. JCPSP does not encourage non-peer reviewed publication citation as a policy matter.

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