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# JOURNAL OF POSTGRADUATE MEDICAL INSTITUTE: ANALYSIS THROUGH BIBLIOMETRIC LENS

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## ABSTRACT

**Objective:** To analyze the publication patterns of Journal of Postgraduate Medical Institute (JPMI) over a period of 32 years.

**Methodology:** Bibliometric technique was used to evaluate original articles, review articles and case reports published in JPMI from 1986 to 2018. Publication patterns were analysed with regards to number of published articles per year, their specialty wise distribution and geographical distribution. Citations pattern was also noted.

**Results:** A total of 1671 articles were published in JPMI in a time span of 32 years. The year 2004 was recorded as the most productive year with 113 publications. Khyber Pakhtunkhwa (KP) province was the most contributing geographic zone (n=4614, 79.94%). The subject of surgery (n=205, 12.58%) followed by medicine (n=198, 12.15%) were the most frequent subjects of research. Journals (n=29400, 90.03%) followed by books (n=2035, 6.23%) were cited more in all publications. Five pages articles were larger in number. The female contribution was one-fifth of the total.

**Conclusion:** The study concluded that the subjects of surgery and medicine were more published and majority of the authors that contributed in the published articles were from KP.

**Key Words:** Bibliometric; Journal of Postgraduate Medical Institute; Publication.

## INTRODUCTION

The most commonly used word for statistical analysis in library and information sciences is "Bibliometric". Bibliometric is a dynamic process for assessment of scholarly documents in library and information sciences. The word bibliometric is the combination of "Latin and Greek words "biblio" and "metrics", meaning the application of mathematics to the study of bibliography.<sup>1</sup> The term was first devised by Alan Pritchard in Statistical Bibliography or Bibliometrics, published in 1969. According to Pritchard, Bibliometric is "the application of mathematics and statistical methods to books and other media of communication".<sup>2</sup>

Journal of Postgraduate Medical Institute (JPMI) is the official journal of Postgraduate Medical Institute Peshawar (PGMI), which was started in 1986 as an annual publication. In 1993, the frequency of the journal changed to biannual and from 2004 till date, it is being published as a quarterly peer reviewed, open access medical journal.<sup>3</sup> The editorial board consists of reputed medical professionals from Pakistan and abroad. The core objective of the journal is to provide a platform through which the research conducted in medical institutions is refined and communicated to health professionals.<sup>4</sup> JPMI publishes articles of local and international researchers after peer-review. These

include original articles, case reports, review articles, commentaries, articles on medical education, letters to the editor and editorials.

This study is planned to reflect the portrait of JPMI over the last 32 years.

## METHODOLOGY

Bibliometric technique was adopted for analysis of acquired data extracted from JPMI. Secondary data was extracted and evaluated. The characteristics and trends of the published articles were evaluated. This analysis was limited to the original articles, review articles and case reports published from 1986 to 2018. Letters to the editors and editorials were excluded. All the issues of the journal available in the periodical section of the library of Postgraduate Medical Institute Hayatabad, Peshawar, were collected, organized and scrutinized. The authors' institutional and geographic affiliations and addresses mentioned in the concerned research papers were taken into account for analysis. For geographical assessment, the whole country was categorized province-wise i.e., Punjab, Sindh, Khyber Pakhtunkhwa, Baluchistan, Gilgit Baltistan and Capital territory Islamabad. In addition, all foreign authors were placed in international category of authorship.

Data were entered into MS Excel and descriptive statistics were calculated.

## RESULTS

A total of 1671 research articles were published during the study period. In 2004, highest number of articles (n=113, 6.76%) were published, followed by the year of 2005, in which 87 (5.21%) articles were published. Table 1 shows all the details.

Majority citations (n=29400, 90.03%) were from the journals, followed by books 2035 (6.23%). Details are given in table 2. There were 664 (40.94%) articles with 11-20 references, followed by 478 (29.47%) articles with 21-30, 293 (18.06%) articles with 1-10, 130 (8.01%) articles with 31-40 and

57 (3.52%) articles with over 40 references, respectively.

Three authors contribution was in 390 (23.52%) articles, followed by article with four authors (n=330, 19.90%), two authors (n=328, 19.78%), and more than 5 authors (n=171, 10.32%) in the rankings. Male authors (81.75%) were almost four times greater than female authors (18.25%). (Table 3).

Original articles were published mostly in the subject of surgery (n=205, 12.58%), followed by medicine (n=198, 12.15%). The details are given in table 4.

Most authors were from Pakistan (n=5423, 93.95%). Authors from other countries were 349 (6.65%). Table 5 gives further breakdown.

Majority of the articles (n=458, 27.54%) comprised of five pages, followed by articles

of four pages (n=399, 23.99%), of more than six pages (n=325, 19.54%), of six pages (n=267, 16.06%) and of two pages (n=59, 3.55%), respectively.

## DISCUSSION

Analysis depicted that research contribution of male authors was more, corresponding with other aspects of the society. Majority of the articles were published through joint authorship which is usual in other parts of the world as well. The subjects of medicine and surgery were reported as the more addressed subjects. This is due to the fact that both the subjects have more faculty and clinical units as compared to other specialties. The same results were recorded in a bibliometric study carried out about the Journal

Table 1: Number of Article Per Year

| Year  | Issue 01 | Issue 02 | Issue 03 | Issue 04 | Total | Percentage |
|-------|----------|----------|----------|----------|-------|------------|
| 1986  | 17       | 00       | 00       | 00       | 17    | 1.02       |
| 1987  | 00       | 18       | 00       | 00       | 18    | 1.08       |
| 1988  | 28       | 00       | 00       | 00       | 28    | 1.68       |
| 1990  | 25       | 00       | 00       | 00       | 25    | 1.50       |
| 1991  | 16       | 16       | 00       | 00       | 32    | 1.92       |
| 1993  | 17       | 18       | 00       | 00       | 35    | 2.10       |
| 1994  | 17       | 22       | 00       | 00       | 39    | 2.33       |
| 1995  | 18       | 15       | 00       | 00       | 33    | 1.97       |
| 1996  | 22       | 20       | 00       | 00       | 42    | 2.51       |
| 1997  | 19       | 20       | 00       | 00       | 39    | 2.33       |
| 1998  | 19       | 17       | 00       | 00       | 36    | 2.15       |
| 1999  | 26       | 24       | 00       | 00       | 50    | 2.99       |
| 2000  | 17       | 17       | 00       | 00       | 34    | 2.03       |
| 2001  | 20       | 17       | 00       | 00       | 37    | 2.21       |
| 2002  | 24       | 21       | 00       | 00       | 45    | 2.69       |
| 2003  | 30       | 16       | 00       | 00       | 46    | 2.75       |
| 2004  | 24       | 31       | 30       | 28       | 113   | 6.76       |
| 2005  | 21       | 24       | 22       | 20       | 87    | 5.21       |
| 2006  | 20       | 22       | 21       | 20       | 83    | 4.97       |
| 2007  | 15       | 15       | 15       | 17       | 62    | 3.71       |
| 2008  | 15       | 16       | 16       | 17       | 64    | 3.83       |
| 2009  | 21       | 16       | 16       | 16       | 69    | 4.13       |
| 2010  | 15       | 17       | 15       | 15       | 62    | 3.71       |
| 2011  | 15       | 16       | 14       | 20       | 65    | 3.89       |
| 2012  | 20       | 19       | 19       | 19       | 77    | 4.61       |
| 2013  | 21       | 19       | 19       | 22       | 81    | 4.85       |
| 2014  | 24       | 21       | 18       | 13       | 76    | 4.55       |
| 2015  | 11       | 10       | 17       | 20       | 58    | 3.47       |
| 2016  | 17       | 18       | 17       | 16       | 68    | 4.07       |
| 2017  | 17       | 21       | 20       | 19       | 77    | 4.61       |
| 2018  | 21       | 20       | 15       | 17       | 73    | 4.37       |
| Total | 592      | 526      | 274      | 279      | 1671  | 100        |

Table 2: Citation pattern

| Year       | Journal | Books | URL  | Reports | Thesis | Others | Total |
|------------|---------|-------|------|---------|--------|--------|-------|
| 1986       | 62      | 20    | 00   | 06      | 00     | 03     | 91    |
| 1987       | 195     | 36    | 00   | 07      | 00     | 00     | 238   |
| 1988       | 99      | 45    | 00   | 00      | 00     | 02     | 146   |
| 1990       | 209     | 34    | 00   | 12      | 00     | 03     | 258   |
| 1991       | 216     | 39    | 00   | 04      | 00     | 05     | 264   |
| 1993       | 275     | 49    | 00   | 11      | 01     | 05     | 341   |
| 1994       | 443     | 59    | 00   | 12      | 01     | 13     | 528   |
| 1995       | 497     | 56    | 00   | 05      | 03     | 05     | 566   |
| 1996       | 552     | 62    | 00   | 02      | 00     | 10     | 626   |
| 1997       | 781     | 64    | 00   | 08      | 01     | 22     | 876   |
| 1998       | 526     | 57    | 00   | 04      | 02     | 10     | 599   |
| 1999       | 754     | 99    | 00   | 12      | 07     | 23     | 895   |
| 2000       | 511     | 63    | 00   | 09      | 04     | 10     | 597   |
| 2001       | 684     | 59    | 00   | 00      | 01     | 09     | 753   |
| 2002       | 702     | 74    | 13   | 08      | 01     | 18     | 816   |
| 2003       | 692     | 74    | 00   | 07      | 00     | 14     | 787   |
| 2004       | 1969    | 212   | 05   | 20      | 03     | 29     | 2238  |
| 2005       | 1561    | 154   | 09   | 24      | 04     | 23     | 1775  |
| 2006       | 1581    | 104   | 11   | 08      | 05     | 30     | 1739  |
| 2007       | 1263    | 78    | 07   | 12      | 02     | 26     | 1388  |
| 2008       | 1392    | 53    | 09   | 08      | 02     | 16     | 1480  |
| 2009       | 1386    | 74    | 09   | 13      | 01     | 21     | 1504  |
| 2010       | 1256    | 43    | 09   | 07      | 00     | 12     | 1327  |
| 2011       | 1356    | 85    | 36   | 20      | 01     | 13     | 1511  |
| 2012       | 1565    | 81    | 29   | 14      | 02     | 21     | 1712  |
| 2013       | 1631    | 64    | 19   | 22      | 00     | 37     | 1773  |
| 2014       | 1453    | 58    | 30   | 10      | 03     | 29     | 1583  |
| 2015       | 1188    | 40    | 22   | 06      | 00     | 19     | 1275  |
| 2016       | 1335    | 17    | 73   | 03      | 13     | 19     | 1460  |
| 2017       | 1636    | 62    | 59   | 12      | 03     | 36     | 1808  |
| 2018       | 1630    | 20    | 35   | 01      | 00     | 15     | 1701  |
| Total      | 29400   | 2035  | 375  | 287     | 60     | 498    | 32655 |
| Percentage | 90.03   | 6.23  | 1.15 | .88     | .18    | 1.53   | 100   |

Table 3: Contribution of Authors Gender Wise

| Year | Male | Female | Total | Male Percentage | Female Percentage | Total Percentage |
|------|------|--------|-------|-----------------|-------------------|------------------|
| 1986 | 29   | 01     | 30    | .50             | .02               | .52              |
| 1987 | 35   | 05     | 40    | .61             | .09               | .70              |
| 1988 | 38   | 04     | 42    | .66             | .07               | .73              |
| 1990 | 56   | 05     | 61    | .97             | .09               | 1.06             |
| 1991 | 64   | 06     | 70    | 1.11            | .10               | 1.21             |
| 1993 | 62   | 10     | 72    | 1.07            | .17               | 1.24             |
| 1994 | 68   | 12     | 80    | 1.18            | .21               | 1.39             |
| 1995 | 87   | 04     | 91    | 1.51            | .07               | 1.58             |
| 1996 | 120  | 06     | 126   | 2.08            | .10               | 2.18             |
| 1997 | 91   | 10     | 101   | 1.58            | .17               | 1.75             |
| 1998 | 94   | 12     | 106   | 1.63            | .21               | 1.84             |
| 1999 | 139  | 16     | 155   | 2.41            | .28               | 2.69             |
| 2000 | 78   | 26     | 104   | 1.35            | .45               | 1.80             |
| 2001 | 87   | 18     | 105   | 1.51            | .31               | 1.82             |
| 2002 | 116  | 11     | 127   | 2.01            | .19               | 2.20             |
| 2003 | 123  | 11     | 134   | 2.13            | .19               | 2.32             |
| 2004 | 303  | 43     | 346   | 5.25            | .74               | 5.99             |
| 2005 | 253  | 51     | 304   | 4.38            | .88               | 5.26             |

|       |      |      |      |        |        |      |
|-------|------|------|------|--------|--------|------|
| 2006  | 242  | 37   | 279  | 4.19   | .64    | 4.83 |
| 2007  | 218  | 36   | 254  | 3.78   | .62    | 4.40 |
| 2008  | 229  | 42   | 271  | 3.97   | .73    | 4.70 |
| 2009  | 244  | 50   | 294  | 4.23   | .87    | 5.1  |
| 2010  | 231  | 38   | 269  | 4.00   | .66    | 4.66 |
| 2011  | 234  | 32   | 266  | 4.06   | .55    | 4.61 |
| 2012  | 264  | 48   | 312  | 4.57   | .83    | 5.40 |
| 2013  | 230  | 78   | 308  | 3.98   | 1.35   | 5.33 |
| 2014  | 204  | 96   | 300  | 3.53   | 1.67   | 5.20 |
| 2015  | 142  | 77   | 219  | 2.46   | 1.33   | 3.79 |
| 2016  | 199  | 66   | 265  | 3.45   | 1.14   | 4.59 |
| 2017  | 214  | 106  | 320  | 3.71   | 1.84   | 5.55 |
| 2018  | 224  | 97   | 321  | 3.88   | 1.68   | 5.56 |
| Total | 4718 | 1054 | 5772 | 81.75% | 18.25% | 100% |

of the College of Physician and Surgeon Pakistan in 2016.<sup>5</sup> The research output in term of publications on Positron Emission Tomography (PET) during the study period of 2002 - 2012 for Annals of Nuclear Medicine, indicated that an increase was observed from 547 (2002) to 986 (2007) and 1838 (2012) articles.<sup>6</sup> This showed that research output had increased during the study period in the said journal. Similarly, a research was conducted on the toxicology which elaborated that there was improvement in the output of toxicology research in journals of the Arab world.<sup>7</sup> In Pakistan, a bibliometric study carried out to evaluate the Journal of Ayub Medical College from the period of 1997-2006, concluded that there was increase in the research output in term of volume and number of article. It was further stated that the articles submitted to the journal were predominantly original articles and majority of the papers submitted were from Pakistani authors.<sup>8</sup> Similarly, another study was conducted which concluded that the research output had increased in the Journal of College of Physician and Surgeon from 2010 to 2014. Results showed that the research articles had increased during the last 5 years with the highest contribution from the province of Punjab, which may be due to the larger population of the province.<sup>5</sup>

Another study stated that there were 437 citations in 32 research articles published in the two issues of the volume 31 of Rawal Medical Journal from January to December 2006. The study concluded that most authors were Pakistani. The study also concluded that indexing methods like web of science and Ullrich indexing were used

to improve the literature search and improve journal quality.<sup>9</sup>

An international bibliometric study of dermatology revealed that research output had improved in terms of authorship pattern and number of citations per article over the years. Most of papers were having single author. The study indicated that authors from 12 different countries contributed to this journal as found in the study of 11 volumes.<sup>10</sup>

Analysis of data from JPMI depicted that three authors contribution was the most frequent as compared to one, two or more authorships. Four authors contribution was reported more prominent in Pakistan Journal of Surgery.<sup>11</sup> Journals were the most cited source. On the other hand, analysis of citation pattern of Dialogue showed that book was the more cited document.<sup>12</sup>

## CONCLUSION

The year 2004 followed by 2005 were the most productive years. Surgery and Medicine were given more attention. Journals followed by books were cited more in all publications as compared to web sources, conference proceedings and other sources. Five pages articles were larger in number. The female contribution was one-fifth of the total.

## REFERENCES

1. Ullah S, Jan SU. Bibliometric analysis of published literature in Journal of Medical Sciences Peshawar-Pakistan. *Libr Philos Pract.* 2020;4722.
2. Pritchard A. Statistical bibliography or bibliometrics. *J Doc.* 1969;25(4):348-9.

3. Postgraduate Medical Institute. [homepage of Postgraduate Medical Institute] [online] 2019. [Accessed on: January 11, 2019]. Available from: URL:<https://www.pgmi.edu.pk/about>
4. Javaid A. JPMI-A journey of twenty five years: It is just the beginning... *J Postgrad Med Inst.* 2011;25(4):277-9.
5. Ullah S, Jan SU, Jan T, Ahmad HN, Jan MY, Rauf MA. Journal of the College of Physicians and Surgeons of Pakistan: five years bibliometric analysis. *J Coll Phys Surg Pak* 2016;26(11):920-3
6. Baek S, Yoon DY, Min KJ, Lim KJ, Seo YL, Yun EJ. Characteristics and trends of research on positron emission tomography: a bibliometric analysis, 2002–2012. *Ann Nucl Med.* 2014;28(5):455-62. <https://doi.org/10.1007/s12149-014-0836-7>.
7. Zyoud SE, Al-Jabi SW, Sweileh WM, Awang R. A bibliometric analysis of toxicology research productivity in Middle Eastern Arab countries during a 10-year period (2003-2012). *Health Res Policy Syst.* 2014;12(1):1-21. <https://doi.org/10.1186/1478-4505-12-4>.
8. Ullah M, Butt IF, Haroon M. The Journal of Ayub Medical College: a 10-year bibliometric study. *Health Inf Libr J.* 2008;25(2):116-24. <https://doi.org/10.1111/j.1471-1842.2007.00757.x>.
9. Javed M, Shah SS. Rawal Medical Journal-An analysis of citation pattern. *Rawal Med J.* 2008;33(2):254-7.
10. Jemec GB, Nybæk H. A bibliometric study of dermatology in central Europe 1991–2002. *Int J Dermatol.* 2006;45:922-6. <https://doi.org/10.1111/j.1365->



Table 5: Geographical Affiliation/Contribution of Authors

| Year       | Islamabad | KPK   | Punjab | Sindh | Baluchistan | International | Total |
|------------|-----------|-------|--------|-------|-------------|---------------|-------|
| 1986       | 00        | 23    | 00     | 00    | 00          | 07            | 30    |
| 1987       | 00        | 37    | 02     | 00    | 00          | 01            | 40    |
| 1988       | 00        | 37    | 00     | 00    | 00          | 05            | 42    |
| 1990       | 00        | 50    | 04     | 00    | 00          | 07            | 61    |
| 1991       | 00        | 67    | 00     | 01    | 00          | 02            | 70    |
| 1993       | 00        | 68    | 01     | 00    | 00          | 03            | 72    |
| 1994       | 00        | 72    | 00     | 00    | 00          | 08            | 80    |
| 1995       | 00        | 91    | 00     | 00    | 00          | 00            | 91    |
| 1996       | 00        | 115   | 03     | 01    | 00          | 07            | 126   |
| 1997       | 00        | 69    | 11     | 12    | 02          | 07            | 101   |
| 1998       | 00        | 104   | 00     | 00    | 00          | 02            | 106   |
| 1999       | 00        | 143   | 02     | 05    | 00          | 05            | 155   |
| 2000       | 02        | 81    | 08     | 02    | 06          | 05            | 104   |
| 2001       | 00        | 102   | 01     | 02    | 00          | 00            | 105   |
| 2002       | 00        | 113   | 01     | 00    | 04          | 09            | 127   |
| 2003       | 00        | 131   | 01     | 00    | 00          | 02            | 134   |
| 2004       | 01        | 337   | 00     | 00    | 00          | 08            | 346   |
| 2005       | 02        | 269   | 07     | 06    | 00          | 20            | 304   |
| 2006       | 01        | 255   | 20     | 00    | 00          | 03            | 279   |
| 2007       | 00        | 238   | 10     | 03    | 00          | 03            | 254   |
| 2008       | 11        | 215   | 09     | 13    | 00          | 23            | 271   |
| 2009       | 00        | 260   | 18     | 02    | 00          | 14            | 294   |
| 2010       | 00        | 249   | 12     | 00    | 00          | 08            | 269   |
| 2011       | 12        | 212   | 11     | 06    | 00          | 25            | 266   |
| 2012       | 04        | 251   | 24     | 11    | 02          | 20            | 312   |
| 2013       | 14        | 211   | 26     | 13    | 00          | 44            | 308   |
| 2014       | 29        | 169   | 34     | 43    | 01          | 24            | 300   |
| 2015       | 27        | 144   | 14     | 21    | 04          | 09            | 219   |
| 2016       | 28        | 175   | 38     | 10    | 00          | 14            | 265   |
| 2017       | 42        | 166   | 58     | 21    | 00          | 33            | 320   |
| 2018       | 31        | 160   | 92     | 01    | 06          | 31            | 321   |
| Total      | 204       | 4614  | 407    | 173   | 25          | 349           | 5772  |
| Percentage | 3.53      | 79.94 | 7.05   | 3.00  | 0.43        | 6.05          | 100   |

- 4632.2006.02821.x.
11. Ullah S, Ahmad HN, Jan SU, Jan T, Shah S, Butt NI, Jan MY. A statistical analysis of Pakistan Journal of Surgery: A bibliometric lens from 2007-2016. Pak J Surg. 2017;33(2):123-7.
12. Jan SU, Hussain A, Ibrahim M, Khan I. The Dialogue through Bibliometric Lens: From 2006 to 2015. Dialogue (Pakistan). 2016;11(4):462-73.

### Author's Contribution

MYJ conceived the idea, drafted initial manuscript, collected data from the record and carried out corrections after per reviewers' remarks. SU did sequence wise data provision, carried out data compilation, analysis, critical review and literature search. SUJ carried out data compilation, analysis, critical review and literature search. HNA did data collection, bibliography and drafting of final manuscript. Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

### Conflict of Interest

Authors declared no conflict of interest

### Grant Support and Financial Disclosure

None

### Data Sharing Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.