

# Scientometric Study of the Indian Journal of Plastic Surgery

W. Regina Chandra<sup>1</sup> and R. Jayabal<sup>2</sup>

<sup>1</sup>Research Scholar and <sup>2</sup>Librarian (S.G.)

<sup>1&2</sup>Sri Ramakrishna Mission Vidyalaya College of Arts and Science, Coimbatore, Tamil Nadu, India  
E-Mail: regimaria79@gmail.com, jayabalraju@gmail.com

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**Abstract** - The study critically analyses the 309 research articles published in the Indian Journal of Plastic Surgery during the span of ten years from 2009 to 2018. It is an online open access journal and the required data for the study were downloaded from its website. The data were analysed with the help of MS Excel, and bibliometric indicators such as year-wise distribution, relative growth rate, authorship collaboration and length of articles have been applied for the analysis. The study reveals that the maximum numbers of articles were contributed by multiple authors and that Indian authors have contributed more number of articles during period of study. The length of the articles published in the Indian Journal of Plastic Surgery during the period of study was three to sixteen pages.

**Keywords:** Scientometrics, Plastic Surgery, Indian Journal

## I. INTRODUCTION

Scholarly articles are indispensable for any discipline for the growth of new ideas. Many such articles are published together as journals devoted to a particular field for the benefit of the scholars of the field and also for the development of the field. Publication of journals in the field of science is growing manifold, day by day. So, it has become necessary to analyse these journals in order to assess them. Scientometric studies provide a quantitative approach for measuring and analysing science. The International Encyclopaedia of the social and behavioural sciences defines 'Scientometrics' as the "study of the quantitative aspects of scientific communication, R&D practices and science and technology (S&T) policies" (Leydesdorff, 2001). Analytical studies of these journals provide ample information about the performance of the journals. This information is useful to the scholarly community to assess the course of activities in the field. It also helps the librarians to plan collection and utilisation of funds according to the growth or decline of the journal. Tague-Sutcliffe (1992) defines Scientometrics as "the study of the quantitative aspects of science as a discipline or economic activity. It is part of the sociology of science and has application to science policy-making. It involves quantitative studies of scientific activities, including, among others, publication, and so overlaps bibliometrics to some extent".

## II. RELATED STUDIES

Scientometric studies have been carried out on the literature output in the field of medical sciences. Some of them are:

Bhavosingh Korra (2017) analysed the articles published in the Journal of Cognitive Neuroscience from 2007 to 2016 to find out the year-wise growth of the articles published, authorship pattern, length of paper etc., The study revealed that maximum number of papers were published in 2007 and 2012; the highest number of research papers were contributed by three authors and the average pages per paper is 7.3. Amehtab Alam Ansari and Mohd. Kamal (2008) analysed the characteristics of the literature published in the field of "Meningitis" from 3035 references from the three volumes of index medicus from 2004 to 2006. The analysis revealed that the journal "Neurology Science" of USA ranked first and "Appenzeller, S" was the most productive author contributing 16 articles. Sathiavathy, Vinayagamoorthy, Ramakrishnan and Shanthi (2014) conducted a study on the authorship pattern in the field of Chronic Liver Disease from 77177 records collected from MEDLINE database during the period 1984 to 2013. The study concluded that more than 90% of the total contributions represented collaborative research and the degree of collaboration was 0.91. The Co-Authorship Index (CAI) for single author paper was decreasing during the study period while that for multi-authored papers was in the increasing trend.

## III. GENESIS OF THE SOURCE JOURNAL

Indian Journal of Plastic Surgery is a peer-reviewed open access medical journal published by Medknow Publications on behalf of the Association of Plastic Surgeons of India. It covers research on all aspects of aesthetic plastic surgery. Indian Journal of Plastic Surgery (ISSN: 0970-0358) is 3 Issues publication of the Association of Plastic Surgeons of India. The journal is registered with the following abstracting partners: Baidu Scholar, CNKI (China National Knowledge Infrastructure), EBSCO Publishing's Electronic Databases, Ex Libris – Primo Central, Google Scholar, Hinari, Infotrieve, National Science Library, Proquest, TdNet, and Wanfang Data. The journal is indexed with, or included in, the following: DOAJ, Emerging Sources Citation Index, Index Copernicus, Indian Science Abstracts, IndMed, PubMed Central, Scimago Journal Ranking, SCOPUS, and Web of Science.

## IV. OBJECTIVES OF THE STUDY

1. To find out the year-wise distribution of articles
2. To identify the authorship pattern

3. To determine the geographical distribution of contributors
4. To examine the average length of the articles

### V. METHODOLOGY

The methodology employed in the current study is scientometrics, which is used to analyse in detail, the bibliographic attributes of the articles and the references appended at the end of each article published in the Indian Journal of Plastic Surgery. Data were downloaded from the study journal’s website (<http://www.ijps.org.in>). Three hundred and nine articles from ten volumes from the year 2009 to 2018 have been taken for consideration of the present study.

The information about the authors and collaboration for each article, nativity of authors, and year of publication and length of the articles have been studied in detail. The collected data are organized, tabulated and analysed using simple statistical methods with the help of MS-Excel.

### VI. DATA ANALYSIS AND INTERPRETATIONS

The articles (309 Nos.) published in the Indian Journal of Plastic Surgery during the ten years 2009 to 2018 have been analysed based on the objectives of the study. Interpretations of the analysis are presented in the following tables.

TABLE I YEAR-WISE DISTRIBUTION OF THE ARTICLES

S. No.	Year	No. of Articles	Percentage	Cumulative Number of Articles	Cumulative Percentage
1.	2009	23	7.44	23	7.44
2.	2010	23	7.44	46	14.89
3.	2011	36	11.65	82	26.54
4.	2012	39	12.62	121	39.16
5.	2013	32	10.36	153	49.51
6.	2014	36	11.65	189	61.71
7.	2015	25	8.10	214	69.26
8.	2016	31	10.03	245	79.29
9.	2017	30	9.71	275	89.00
10.	2018	34	11.00	309	100.00
	Total	309	100.00		

Table I shows the year-wise distribution of the 309 articles published during the period from 2009 to 2018. The highest number of articles 39 (12.62%) were published in the year 2012 and the lowest number of articles 23 (7.44%) published in the year 2009 and 2010. The average number of articles published during the study period is 30.9.

TABLE II RELATIVE GROWTH RATE AND DOUBLING TIME OF THE ARTICLES

S. No.	Year	No. of Articles	Cumulative No. of Articles	W1	W2	RGR	Doubling Time
1	2009	23	23		3.14		
2	2010	23	46	3.14	3.83	0.69	1.00
3	2011	36	82	3.83	4.41	0.58	1.20
4	2012	39	121	4.41	4.80	0.39	1.78
5	2013	32	153	4.80	5.03	0.23	2.95
6	2014	36	189	5.03	5.24	0.21	3.28
7	2015	25	214	5.24	5.37	0.12	5.58
8	2016	31	245	5.37	5.50	0.14	5.12
9	2017	30	275	5.50	5.62	0.12	6.00
10	2018	34	309	5.62	5.73	0.12	5.94

The analysis of data on the literary output of the Indian Journal of Plastic Surgery has also been done with parameters such as Relative Growth Rate (RGR) and Doubling Time (DT). It is seen from Table II that relative growth rate has been in the decreasing trend from 0.69 to 0.12 and the doubling time of Indian Journal of Plastic Surgery articles is increasing year by year during the study period.

TABLE III AUTHORSHIP PATTERN

S. No.	Year	No. of Authors			
		Single	Double	Three	More than Three
1	2009	3	6	4	10
2	2010	4	10	3	6
3	2011	5	8	8	15
4	2012	4	10	5	20
5	2013	4	6	5	17
6	2014	2	6	7	21
7	2015	4	2	3	16
8	2016	3	5	6	17
9	2017	1	3	3	23
10	2018	2	3	4	25
	Total	32	59	48	170
	%	10.36	19.09	15.53	55.02

Table III shows the details about the authorship pattern. The majority of the articles (55.01%) have been contributed by more than three authors; followed by two authors (19.09%) and then by three authors (15.53%). The articles contributed by single authors were 10.36%.The findings reveal that collaborative research pattern exists in the field of Plastic Surgery.

TABLE IV GEOGRAPHICAL DISTRIBUTION OF THE ARTICLES

S. No.	Name of the Country	No. of Articles	%	S. No.	Name of the Country	No. of Articles	%
1	India	236	76.38	13	Belgium	2	0.65
2	Italy	11	3.56	14	Korea	2	0.65
3	Turkey	11	3.56	15	Spain	2	0.65
4	Egypt	8	2.59	16	Thailand	2	0.65
5	Nigeria	5	1.62	17	UK	2	0.65
6	USA	4	1.29	18	Greece	1	0.32
7	Iran	4	1.29	19	Indonesia	1	0.32
8	Brazil	3	0.97	20	Nepal	1	0.32
9	UAE	3	0.97	21	Pakistan	1	0.32
10	Germany	3	0.97	22	Sweden	1	0.32
11	Japan	3	0.97	23	Switzerland	1	0.32
12	Bangladesh	2	0.65	24	Total	309	100.00

Table IV shows the geographical distribution of the articles. The result indicates that 76.38% of articles were contributed

by Indian authors and the remaining 23.68% of the articles were contributed by authors from other countries.

TABLE V LENGTH OF THE ARTICLES

S. No.	Year	No. of Pages					Total
		3 - 4	5 - 6	7 - 8	9 - 10	above 10	
1	2009	5	10	3	4	1	23
2	2010	3	9	9	2	-	23
3	2011	1	15	11	8	1	36
4	2012	1	16	12	8	2	39
5	2013	-	12	11	4	5	32
6	2014	1	9	18	6	2	36
7	2015	3	10	7	3	2	25
8	2016	-	5	14	9	3	31
9	2017	-	5	16	8	1	30
10	2018	1	4	16	12	1	34
	Total	15	95	117	64	18	309
	%	4.85	30.74	37.86	20.72	5.83	100

Table V indicates that majority of the articles (117 articles) have a length of 7-8 pages, followed by 95 articles (30.74%) articles having 5-6 pages and 18 articles (5.83%) having the length of more than ten pages. The length of articles published in the Indian Journal of Plastic Surgery during the study period was minimum three pages and maximum sixteen pages.

**VII. FINDINGS OF THE STUDY**

1. The highest number of articles 39(12.62%) were published in the year 2012 and the lowest number of articles 23(7.44%) were published in the years 2009 and 2010. The average number of articles published during the study period is 30.9.

2. Relative Growth Rate has been in the decreasing trend from 0.69 to 0.11 from 2009 to 2018 and doubling time of the Indian Journal of Plastic Surgery was increasing year by year.
3. The majority of the articles 170(55.01%) were contributed by more than three authors.
4. The majority of the articles 236(76.38%) have been contributed by Indian authors.
5. The length of the articles published in the Indian Journal of Plastic Surgery during the study period was minimum three pages and maximum sixteen pages.

**VIII. CONCLUSION**

Plastic Surgery refers to any type of surgery undertaken for reconstructing or repairing parts of the body by transfer of

tissue, either in the treatment of injury or for cosmetic reasons. The history of plastic surgery dates back to 800 BC. Hence this field has to its credit a vast amount of literature in the form of books, reviews, case reports, articles, journals etc., published by eminent authors and the research community in the field. The current scientometric analysis of the publications in the Indian Journal of Plastic Surgery for the ten year period shows that research publications in the field of plastic surgery are collaborative in nature, the contribution of Indian authors is more than authors of other countries and that the length of the articles during the period of study range from a minimum of three pages to sixteen pages.

### REFERENCES

- [1] Jayabal, R & Balasubramanian, K, (2018). A Scientometric Study of Indian Journal of Chemical Technology. *Library Philosophy and Practice (e-journal)*. 2004. Retrieved from <http://digitalcommons.unl.edu/libphilprac/2004>.
- [2] Bhavosingh Korra (2017). Journal of Cognitive Neuroscience: A bibliometric Analysis. *International Journal of Library and Information Studies*, 7(1), 185-190.
- [3] Mini Devi, B & Vijayalekshmi C S, (2017). Bradford's Law of Scatter Revisited: Scientometric Analysis Based on Biomedical Literature. *International Journal of Library and Information Studies*, 7(4), 97-103.
- [4] Sathiavathy. C, Vinayagamoorthy. P, Ramakrishnan. J & Shanthi. J (2014). Authorship Pattern and Collaborative Research in the Field of Chronic Liver Disease (1984-2013). *Asian Journal of Information Science and Technology*, 5(1), 36-41.
- [5] Packiyaraj. M, Manoharan. A, Kumaravel.J. P. S, (2013). A Scientometric Assessment of Research Output in Textile Technology. *Asian Journal of Information Science and Technology*, 3(2), 27 – 33.
- [6] Lakshmi Sankari. R, Chinnasamy. K (2012). Indian Journal of Biotechnology (IJBT): A Scientometric Analysis. *International Journal of Library and Information Studies*, 2(1), 21-32.
- [7] Ansari, MehtabAlam & Kamal, Mohd (2008). Research Output on 'Meningitis': A Bibliometric Study. *Indian Journal of Library and Information Science*, 2(1), 5-12. 2.
- [8] Subramanyam, K (1983). Bibliometric studies of research collaboration: A review. *Journal of Information Science*, 6, 33-38.