

A Bibliometric Analysis of Articles Published by Indian Prosthodontists in Medline Database during 1995-2010

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Abstract: The study was undertaken to estimate the availability of literature on PubMed-Medline by Indian prosthodontists from 1995 to 2010 by using bibliometric analysis. The articles available on PubMed-Medline database in time span of 1st January 1995 to 31st December 2010, where authors' affiliation had the words "Dental" and "India" were selected. The information collected were: name of the journal, year of publication, specialty of the first author, number of authors, reach of the journal, status of the journal, state of origin, and type of article. From this data, the performance of specialty of prosthodontics was analyzed. The number of articles published by prosthodontist was 121. Among them, 73 got published in international journals and 48 in Indian journals. A majority of 44 journals were published in *Indian Journal of Dental Research* followed by 15 in the *Journal of prosthodontics*. Out of these articles, 72 were on the basis of original research done by the authors. Nearly 47.1% of the published articles were from the institutes in Karnataka, followed by Tamil nadu (16.5%), and Maharashtra (8.3%). Although the overall distribution of the publication trends seems to be constant from 1996 to 2006, there seems to be boom in the publication trend since 2007. The result of this study could be used by various professional societies, individual scientists, scholarly institutions, and funding organizations to frame essential policies regarding the improvement of the science of prosthodontist and to the benefit of common Indians.

Keywords: prosthodontists, PubMed, database

INTRODUCTION

The global dissemination of the information, makes it useful for the whole medical community, only becomes effective after publication in peer-reviewed journals indexed in worldwide accepted databases such as MEDLINE [1]. The analysis of publications is one of the most widespread approaches, but has also drawn the most criticism. Despite the controversies, very few objective data have been published to determine research ranking in the field of dentistry.

Research completed and not published is the same as research not done at all. It is not only important to pursue a research question with enthusiasm and dedication, but it is equally important to have the perseverance to publish the research findings [2].

Analysis of scientific research in biomedical fields is a complex process and no methodology that fully satisfies the needs of researchers, institutions and administrators has been developed to date. One method for assessing information availability is bibliometric analysis. The use of this statistical method is to analyze a body of literature to reveal historical development. It consists 3 steps: 1) retrieval and assessment of the availability of evidence, 2) evaluation of quality of evidence, 3) synthesis of combined evidence from

multiple studies to draw inferences about the evidence on a particular topic [3]. Regarding scientific journals, the bibliometric indicators are useful for assessing the journal's internal affairs, its relative position with respect to the dispute for scientific publication, and the basis for strategic editorial policies [4].

This study is focused on retrieval and estimation of the availability of the literature in prosthodontic dentistry, that one can potentially use to make clinical decision and for development of community and technological policies in the field of dentistry. The purpose of this study was to estimate the availability of dental literature between 1995 to 2010, contributed by Indian Prosthodontists on PubMed-Medline Database, using bibliometric analysis.

MATERIAL AND METHODS

A comprehensive review of the PubMed – Medline Database was performed online using the MeSH Terms “Dental” and “India”. No journal or type of articles limitations was set. All articles, from all type of journal including basic sciences, clinical medical sciences, and dental journals were included. All articles those were displayed were considered for the analysis. The following criteria were followed for accumulating the data: a) first author’s affiliation was only considered for the study, b) non dental (medical articles) from dental institutions were also included for the study, but under a separate category, c) only Indian institutions were considered for the study.

From this collection of articles, the following data were retrieved: year of publication, number of authors, name of the journal, reach of the journal (depending on the readership-specialty/other specialty/ general dental/ medical journal), status of the journal (published in India or at other nations), specialty (dental) of the first author (all dental specialties, basic medical sciences, or others), state of origin, type of research (case reports [including case series]/reviews /original research [encompass epidemiological, comparative, qualitative, cross sectional, longitudinal, *In vivo* and clinical trial studies]/technical notes/others [such as editorial, *etc*]). There were certain issues such as improper citation of name of the institution/department and no citation of state of origin. Considering the data as visible on the National Institute of Health Website, the database for the study was prepared and no corrections and addition/deletions were performed by the author. Those data that were missing were excluded from the study.

Type of Publications

Pincus *et al.* [8] classification was used to define the types of article according to the following definitions:

Original research article

Manuscript presenting original data, systematically collected and with a clearly defined methodology;

LITERATURE REVIEW

Review of previously published articles, including a synthetic presentation of ideas and outcomes, not having the authors as the primary source of data and information;

CASE REPORT

Description of up to 10 reports of clinical cases, not containing statistical summary.

All data thus gathered were entered in SPSS software version 16.0. From this database, the performance of Department of Prosthodontics was calculated. Descriptive analysis was performed and presented. Inter-annual distributions, state wise distribution, and types of research are presented. Mean number of authors per document in each year is also presented. Microsoft Excel 2010 was used to assess the trend analysis using the present trend of growth of research outputs.

RESULTS

Employing the methodology mentioned, search was carried out in first fortnight of January 2011. The number of articles published by prosthodontist was 121. Among them, 73 got published in international journals and 48 in Indian journals. (Table-1) shows the list of journals which had publications by Prosthodontists during the study period. A majority of 44 journals were published in *Indian Journal of Dental Research* followed by 15 in the *Journal of Prosthodontics*. (Table-2) shows the distribution of publications by prosthodontists, along with the mean number of authors, when the journals were categorized based on their type, location of publication, and the type of articles published. Out of the overall 121 articles, 72 were on the basis of original research done by the authors. (Table-3) shows the state wise distribution of the publication trends during the study period. Nearly, 47.1% of the published articles were from the institutes in Karnataka, followed by Tamil nadu (16.5%) and Maharashtra (8.3%). (Table-4) shows the trend of publications by Prosthodontists during the study period. Although the overall distribution of the publication trend seems to be constant from 1997 to 2006, there seems to be boom in the publication trend in 2007 with around 11 articles in 2007 that has increased to 40 in 2010. The projection of the growth trend is depicted in (Fig-1) and (Fig-2). By the year 2050, approximately 110 articles are expected to be produced if the trend of 1996-2007 continues. However, if the trend of 2005-2009 were considered, the number of article per year in 2050 would be above 390.

Table-1: List of journals which had publications by Prosthodontists during the study period (1995-2010)

Name of the Journal	Number of Publication
Indian journal of dental research	44(36.4%)
Journal of prosthodontics	15(12.4%)
Gerodontology	15(12.4%)
Journal of prosthetic dentistry	10(8.3%)
International journal of prosthodontics	3(2.5%)
Quintessence international	3(2.5%)
N Y Stat dental journal	3(2.5%)
European journal of prosthodontics and restorative dentistry	3(2.5%)
J Contemporary dental practise	3(2.5%)
Journal of oral Implantology	2(1.7%)
International dental journal	2(1.7%)
Journal of Oral rehabilitation	2(1.7%)
International journal of oral and maxillofacial implants	2(1.7%)
Kathmandu university medical	2(1.7%)
Journal of conservative dentistry	2(1.7%)
Journal of advanced prosthodontics	1(0.8%)
European journal of dentistry	1(0.8%)
Prosthet orthot international	1(0.8%)
Journal of Oral sciences	1(0.8%)
Journal of prosthodontic and restorative dentistry	1(0.8%)
Indian journal of paediatric dentistry	1(0.8%)
Journal of applied biomaterial and biosciences	1(0.8%)
Open Dent journal	1(0.8%)
Prim Dent care	1(0.8%)
Journal of Indian society of pedodontic and preventive dentistry	1(0.8%)

Table-2: Depicting the mean number of authors among reach, status of journals, and type of articles

Type of Journal based on reach	No of Publication	Median+IQ No. of authors
1. Prosthodontics	38(31.4%)	3+1
2. General Dental	77(63.6%)	3+1
3. Other Speciality	2(1.7%)	4.5+1
4. Medical	4(3.3%)	3+1.5
Type of Journal based on location	No of Publication	Median+IQ
1. Indian	48(39.7%)	3+2
2. International	73(60.3%)	3+1
Type of Article	No of Publication	Median+IQ
1. Case Report	26(21.5%)	3+2
2. Original Article	72(59.5%)	3+2
3. Review	23(19%)	2+1

Table-3: The statewise distribution of the publication trends during the study period

Name of the State	No of Publication	Median+IQ
Andhra Pradesh	2(1.7%)	1
Goa	4(3.3%)	3+1
Karnataka	57(47.1%)	3+2
Kerala	1(0.8%)	3
Madhya Pradesh	6(5%)	2.5+1
Maharashtra	10(8.3%)	2.5+2
New Delhi	8(6.6%)	3+2
Punjab	4(3.3%)	2+2
Pondi	1(0.8%)	3
Rajasthan	1(0.8%)	4
Tamilnadu	20(16.5%)	2.5+1
Uttar Pradesh	7(5.8%)	5+2

Table-4: Distribution based on the trend of publications by Prosthodontists during the study period

Year of Publication	No of Publication
1997	1(0.8%)
1998	1(0.8%)
1999	3(2.5%)
2000	2(1.7%)
2001	4(3.3%)
2002	2(1.7%)
2003	4(3.3%)
2004	6(5%)
2005	5(4.1%)
2006	2(1.7%)
2007	11(9.1%)
2008	23(19%)
2009	17(14%)
2010	40(33.1%)

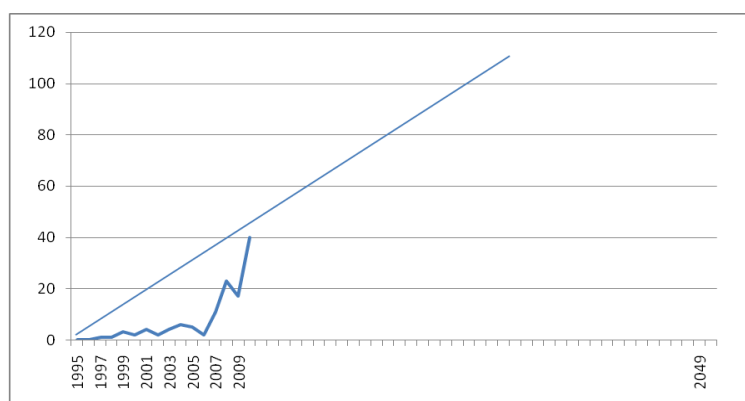


Fig-1: Trend analysis using 1995-2010 data

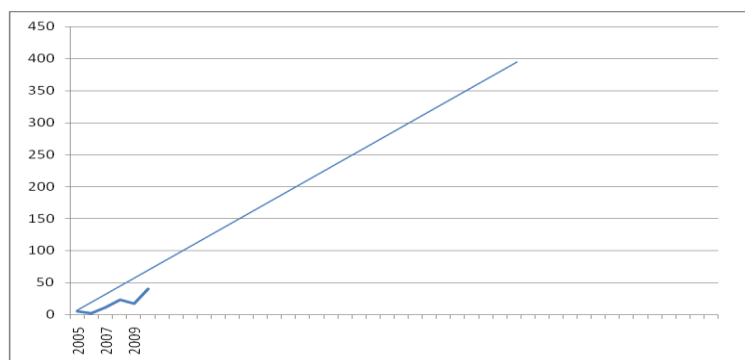


Fig-2: Trend analysis using 2005-2010 data

DISCUSSION

Bibliometrics is not a new discipline, and it would probably be wrong to understand it simply as a means of scientific control. It has many creative possibilities and can help in mapping the intellectual growth of a discipline and paving the way to a more sophisticated approach to evidence-based medicine [5].

PubMed-Medline is a widely used database created by the National Center for Biotechnology Information and National Institute of Health, USA. This database is updated almost daily and contains details of millions of manuscripts in the field of life sciences. It is

the most widely used search tool for millions of health and life sciences researchers. PubMed-Medline is the NLM's (National Library of Medicine, USA) premier online bibliographic database which is freely accessible, and covers all the fields such as medicine, nursing, dentistry, veterinary medicine, health care system, and the preclinical sciences [6].

India had ranked 26th position in terms of number of peer-reviewed published dental manuscripts in the period 1999-2003 using ISI database approach (0.66% of all contribution globally). This was produced by 366 authors, with a productivity of 0.361, a mean of

inter-annual variation rate of percentual average increase during the study of the productivity and the number Indian authors as 16.31, relative specialization index as 11.01, specific weighting of the dental scientific production of India in relation to its general scientific production as 0.241, weighted impact factor of 1.025 and relative impact factor of 0.964, mean citation rate for each document as 2.05 and nine documents from India in the five top 5 journals with highest impact factor [7].

There were 57,112 dental research articles published by 126 countries across the globe in the 12 year period. India had published 693 articles during the period, with a contribution of 1.21% to the global dental research. India had published an average of 57.75 ± 75.05 dental research articles per year.

The reason for the increase in the quality and quantity of the Indian dental literature during the study period could be due to following:

- Increase in the quality and quantity of the Indian dental force.
- Change in the policy of the Indian dental academic circles.
- Increased opportunities
- Increasing global presence of Indian Diasporas who helped their Indian dental friends.
- Increased government and NGO funding opportunities or a combination of all or some of these factors.
- Publication based promotion and
- Creating institutes similar to the national institute of dental and craniofacial research

Growth of any profession is based not only on the amount of research and publication on materials and techniques but also, more importantly, on the proportion of fellow professionals who read these publications and put them into practice. Knowledge can be researched, published, and shared but knowledge which is not read and imbibed is useless. Hence, the philosophy of “publish and perish” has to go hand in hand with the philosophy of “read or become redundant”.

CONCLUSION

The strategies, methodological filters, and results demonstrate substantial and increased trend of publications by Indian prosthodontists, this approach to bibliometric assessment may also be useful for information retrieval and stratification. Such studies will be useful for multiple audiences. These audiences includes: patients and clinicians making decision about clinical care, academics concern about the evidence base for curriculum decisions, researchers interested in identifying gap in available knowledge base, corporate entities interested in developing new products, policy makers who fund clinical research, health care

purchasers who make decision about care compensation, and finally for professional societies that seek to provide guidance for their membership.

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