

Community pharmacy based research activity in India: A bibliometric study of the past ten years

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Abstract

Objectives: The objective of this study was to analyze and record the published evidence regarding community pharmacy practice in India during the past decade (1998-2008).

Methods: A bibliometric review analysis of the original papers was undertaken to assess the different aspects of community pharmacy practice in India. The MEDLINE, Index Copernicus, IndMed, DOAJ databases and the journals such as Indian Journal of Pharmaceutical Sciences and Indian Journal of Hospital Pharmacy were used as data sources. Type of papers, type of journals, category of papers, production indicators and impact factor of the journals were analyzed.

Results: Thirty papers were included in the study. The papers were published in 13 different journals, 33.3% of them being in the Indian Journal of Hospital Pharmacy. The average number of authors per paper was 2.73 (SD=1.41). Impact factor was available for only three journals.

Conclusions: There are limited studies being published in India which cover the community pharmacy related activities in India. The key indicators which emerge from the literature review present some fundamental challenges to the development of the role of the community pharmacist in India.

Keywords: Community pharmacy, India, Community pharmacy practice, Bibliometric review

Introduction

The expansion of the role of community pharmacists was given an important boost in 1990, when Hepler and Strand¹ coined the term 'pharmaceutical care'. However, community pharmacy is not considered a well established healthcare profession in India. Community pharmacies are managed by less qualified (as compared to many countries) diploma trained pharmacists. Recently many pharmacists, institutions and professional organizations have indicated a clear strategy for pharmacist's involvement in management of modern medicines including their selection, optimization, safe and cost effective therapy. Though for sometime the World Health Organization has had a vision for the pharmacists' role in health promotion² and in safe and effective use of medicines. To date the involvement of Indian community pharmacists in such activities are not known. Recently revised and new journals such as Indian Journal of Hospital Pharmacy, Indian Journal of Pharmacy Practice and International Journal of Community Pharmacy are focusing on

community based pharmacy activities. Also, in the recent decade or so, there has been a noteworthy increase in the number of presentations at national conferences focusing activities in community pharmacies necessitating the need to record the full extent of community pharmacy based publication.

Study of publication patterns, known as bibliometric study is a useful tool for obtaining information and trends in a certain subject area. There are reviews of the scientific literature concerning community pharmacies in various countries³⁻⁴, but there is no bibliometric analysis focusing on Indian community pharmacy publications. The aim of this study was to undertake a bibliometric analysis of the published literature regarding community pharmacy practice in India.

Methods

A bibliometric review of articles or papers that described the community, retail or private pharmacy practice in India was undertaken. The search covered the period 1998 to December

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2008 using Medline/Pubmed, Index Copernicus, IndMed and DOAJ databases. A direct search was made in primary sources, specifically in the journals Indian Journal of Pharmaceutical Sciences (online) and Indian Journal of Hospital Pharmacy (offline). Google, Google Scholar and Scirus search engines were also used.

Search strategies included the terms: community (or retail, private) pharmacy in India, community pharmacy practice in India and community (or retail) pharmacist in India. For the PubMed/Medline search, the term community pharmacy and India was used. The search strategy for the review included all the permutations of each term, including plurals as well as associated words: pharmacy, pharmacies, pharmacist, pharmacists, pharmacists', drug retailer(s) among others. Reference lists of retrieved papers were also scanned for other relevant papers.

Papers or articles were included in the review if they met the following criteria: English language, publication dates between 1998 to December 2008, relevant to community pharmacy, and research (or review) based on Indian scenario. The study restricted to English language as the language for pharmacy teaching, administration, management and practice is English in India. Papers were excluded if they were hospital and clinical studies. Editorials, letters, and articles available in pharmacy news weeks or periodicals were also excluded.

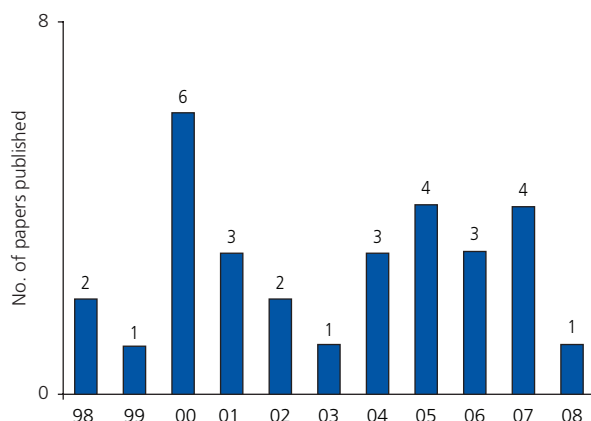
The search strategies were refined after conducting pilot searches. All terms were searched for in title, abstract and main body text. We reviewed the outcome of each search. The title and the abstract of the articles retrieved were analyzed to identify original papers. Identification of relevant papers was based on strict predetermined criteria. All original papers (research and review) which provided an aspect of community pharmacy based activity were included in our study. The articles restricted to opinions and studies that did not involve community pharmacists/ pharmacies were excluded. Also excluded were papers relying on anecdotal evidence to provide a general overview or statement.

The variables recorded for each paper were: main author, number of authors, year of publication, journal type, area of study, origin of bibliographic references. The change in the number of publications in the period studied, the number of authors per publication, authors' affiliation, the citation index, the impact factor of the journals in which the articles were published, were all recorded and analyzed.

Results

One hundred fifty four papers were identified, of which 109 were journal based, and 45 non journal articles. After excluding non journal articles and duplicated papers, only 24 complied with the inclusion criteria. A further 6 relevant papers were identified from cross reference lists, a total of 30 papers were therefore included in the review and analysis⁵⁻³⁴.

Figure 1. Distribution of papers by year of publication



The papers included for consideration were published in 13 journals (Table 1), and 33.33% of the papers were published in Indian Journal of Hospital Pharmacy. A total of 22 papers were published in Indian journals, whereas the remaining 8 papers were published in the Pharmaceutical Historian, Social Science and Medicine, The Pharmaceutical Journal, Research in Social, Administrative Pharmacy, American Journal of Health-System Pharmacist, International Pharmacy Journal and in International Journal of Tuberculosis and Lung Diseases.

Of all the papers, 36.66% were surveillance studies, 26.6% case (or research) studies, and remaining reviews, reports or commentaries. Figure 1 shows number of papers published during 1998-2008. Four papers published in impact factor (IF) or indexed journals were contributed by non-pharmacy researchers.

The total number of authors was 82, which corresponded to 68 different individuals. Seven papers were written by a single author and the average number of authors per paper was 2.73 (SD=1.41). Sixty three authors from a total of 68 published one paper (92.6%). The number of authors listed according to number of paper published is shown in Table 2. The Impact factors (IF) of the journals in which the papers were published are depicted in Table 1.

Discussion

A total of 30 papers on Indian community pharmacy aspects (3 papers per annum) represent a very low rate of publication in this area of study. There could be many reasons for this including the non availability of appropriate pharmacy practice journals in India and also may be long time required for publication in the leading Indian journals such as Indian Journal of Pharmaceutical Sciences. More than 50% of the papers are published in 3 Indian journals; Indian Journal of Hospital Pharmacy, Indian Journal of Pharmaceutical Education and Research, and Indian Journal of Pharmaceutical Sciences. None of these journals are included in the Science Citation Index (SCI) of the Journal Citation Reports (JCR) database managed by the Institute for Scientific Information (ISI) and therefore is not considered for the impact

Table 1. Distribution of papers and journals impact factor (IF)

Journal	ISSN	Articles published	IF (year)
Indian Journal of Hospital Pharmacy	0019-526X	10	No
Indian Journal of Pharmaceutical Education and Research*	0019-5464	4	No
Indian Journal of Pharmaceutical Sciences	0250-474X	3	No
Eastern Pharmacist	0012-8872	3	No
International Journal of Tuberculosis and Lung Diseases	1027-3719	2	2.24 (2007)
Research in Social and Administrative Pharmacy	1551-7411	1	NA
Pharma Review	0973-399X	1	No
American Journal of Health-System Pharmacist	1079-2082	1	1.71 (2007)
International Pharmacy Journal	1010-0423	1	No
Pharmaceutical Historian (London)	0079-1393	1	No
Social Science and Medicine	0277-9536	1	2.45 (2007)
The Pharmaceutical Journal	0031-6873	1	No
International Journal of Community Pharmacy	NA	1	No

NA- Not available; *-Previous name- Indian Journal of Pharmaceutical Education

factor (IF) calculation. The absence of IF and non-indexation in those databases prevents wide publicity or further citation of the work. However, recently the latter two journals are included in Science Citation Index Expanded database, which will boost citation index of the papers published in these journals. Many of the studies carried out are descriptive studies of community pharmacy practice primarily concerned with a limited number of specific issues and a few are speculative opinion. Also, there is no study involving controlled randomized experimental designs. The results may, however, serve as an indictment of pharmacy policy and decision makers for failing to encourage researchers about the discipline.

To our knowledge this is the first bibliometric study of the literature in the community pharmacy based research in India.

The community pharmacy practice aspects in India are neglected field in terms of scientific publication output as compared with the publication of papers in other fields of pharmaceutical sciences. There is a need to undertake research into community pharmacists' activities and to systematically assess their education and training needs.

Table 2. Number of authors according to the number of papers published

No. of papers	1	2	3	5	8
Authors	63	02	01	01	01
Percent	92.6	1.47	1.47	1.47	1.47

Conclusion

We conclude that only a small number of research or review articles on community pharmacy activity were available. This is perhaps indicative that less emphasis has been placed on the community pharmacy research necessitating the need to focus on the areas such as medicine utilization and appropriate use of medicines.

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