

Research on Orofacial Pain in India: A Bibliometric Study

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ABSTRACT

Introduction: Orofacial pain is a common complaint affecting the lives of millions of people around the world. It is a public health problem and it is important to judge the extent of research undertaken in the diagnosis and management of orofacial pain and its underlying mechanisms. The aim of this study is to provide a quantitative overview of research on orofacial pain in Indian scenario by using bibliometric techniques on recent scientific publications on orofacial pain indexed in PubMed, IndMed and PakMediNet.

Materials and methods: Data was collected from online databases viz. PubMed, IndMed and PakMediNet. The data set included papers published during 2006 to 2010.

Results: A total of 122 articles which were based on Indian scenario were published from 2006 to 2010 in PubMed, IndMed and PakMediNet. A total of 78.7% were published in PubMed, out of which 54.2% were research based articles.

Conclusion: Descriptive study of research done in India on orofacial pain from 2006 to 2010 based on PubMed, IndMed and PakMediNet database is presented. Taking into account the manpower available, research productivity in India in the field of orofacial pain is in its zygotic stages. The reason for this may be attributed due to the lack of standardization. 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 research on orofacial pain in India and further studies could be done for assessment of quality of research.

Keywords: Bibliometric, Orofacial pain, Research.

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INTRODUCTION

Orofacial pain is a common complaint affecting the lives of millions of people around the world and it is the most common complaint which brings the patient to the dentist. Chronic orofacial pain often constitutes a challenging diagnostic problem that can be complicated by psychosocial factors and typically requires multidisciplinary treatment approaches. Epidemiologic studies have reported that more than 25% of the adult population has experienced some type of orofacial pain in the last few months.¹ Even though orofacial pain is not a disease *per se*, it is characterized by a set of symptoms associated with a wide range of orofacial dysfunctions, including, for example, temporomandibular

disorders, caries, periodontal diseases and trigeminal neuralgia.² Additionally, specific biologic, emotional and psychologic manifestations in certain individuals increase the difficulties encountered in diagnostic and management procedures.

Over several decades, a number of studies on orofacial pain have led to important advances in the understanding and treatment of orofacial pain. These have been reviewed in qualitative evaluations of scientific research on orofacial pain from both its biologic³⁻⁵ and psychologic^{6,7} dimensions.

Because orofacial pain is a public health problem and it is important to judge the extent of research undertaken in the diagnosis and management of orofacial pain and its underlying mechanisms. The aim of this study was therefore to provide a quantitative overview of research on orofacial pain in Indian scenario by using bibliometric techniques on recent scientific publications on orofacial pain indexed in PubMed, IndMed and PakMediNet.

Through this basic presentation, we intend to provide orofacial pain researchers with an informative description of scientific publishing activity to date in this field; this in turn should help facilitate future interdisciplinary research in the overlapping research areas of dentistry, oral biology and neurosciences.

MATERIALS AND METHODS

Raw data for the study was obtained from online databases viz PubMed, IndMed and PakMediNet. The data set included papers published during 2006 to 2010. Data collection was performed in two successive steps:

- Step 1 extracted publications dealing with orofacial pain in dentistry based on Indian scenario. To retrieve papers dealing with orofacial pain, we used three sets of words (the use of asterisks retrieved all words following the stem character string): The first was related to orofacial terms (odontol*, periodontal, tongue, endodont*, salivary glands, mandible, maxilla, mouth, tooth, jaw, gingiva, temporomandibular, dent*, orofacial, trigeminal), the second set was related to pain terms (pain*, nocicep*, analgesi*, hyperalg*, hypoalg*, allodynia, neuralgia, arthralgia, headache, migraine) and third word used was 'India' so as to limit the articles based on Indian scenario. Boolean operators were used to select papers, if at least one word of each set was present in the title, abstract, the author keywords, or keywords plus.

- Step 2 refined the selection in step 1. The title, abstract and keywords of each publication were scrutinized and publications were excluded when the work presented did not refer to dental competency (for example, when the pain keyword was related to another part of the body or when a study referred to the ophthalmic branch of the trigeminal nerve, the paper was discarded). Following the refinement procedure, all publications (through inspection of their abstracts, titles and keywords) were classified into 1 of 3 categories, i.e. Case report, Review article and Research article.

Finally, all data were tabulated using Microsoft Excel 2007.

RESULTS

A total of 122 articles were published during 2006 to 2010 in PubMed, IndMed and PakMediNet based on Indian scenario. Main contribution, i.e. 78.7% was made by PubMed and among which most of them, i.e. 54.2 % were research based. Figure 1 depicts the interannual variation of the publications in PubMed during the entire study period. It shows that in the year 2010, out of the 37 articles published, 22 articles were research based, eight were review articles and seven were case reports. We can clearly see that number of research articles have drastically increased in the period of 2009 to 2010, i.e. from 12 to 22. Figure 2 depicts the details of the type of the publications, showing the maximum contribution made by PubMed, i.e. out of 122 articles, 60 were research based, 36 were case reports and 26 were review articles. Figure 3 depicts the interannual variation of the publications in IndMed during the entire study period. It shows that scarcity of research articles published in IndMed. The projection of growth trend is depicted in Figures 4A and B which show two types of growth trend, i.e. both for the last 5 years (2006-2010) and for the last year (2009-2010). If we follow the growth trend of the year 2009-2010, research is going to be increased dramatically and we can expect the number of research articles to cross the figure of 110 by the year 2015.

The entire articles were published in 21 journals and 54 (44.6%) were published in Indian Journal of Dental Research and 19 (15.6%) were published in Journal of Oral Pathology and Medicine.

The mean number of authors was 3.36 ± 1.13 with a range of one to six authors.

DISCUSSION

Periodical evaluation of the scientific research is important for various professional societies, individual scientists,

scholarly institutions and funding organizations to frame policies and take necessary actions. The quality of scientific contributions is estimated from the long-term impact that it has made on the concerned field and similar outcomes.⁸

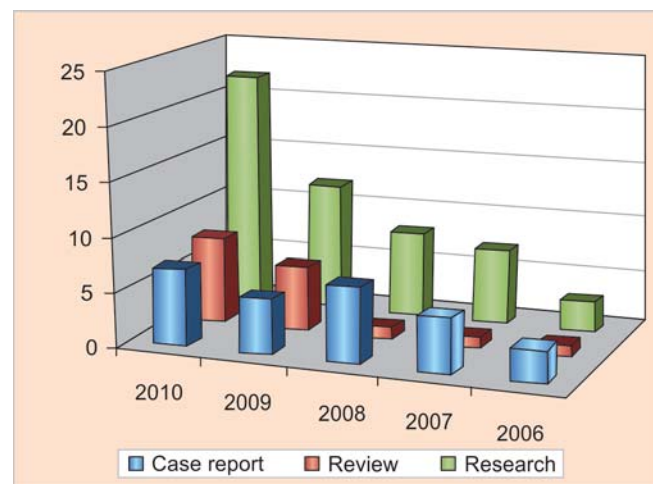


Fig. 1: Interannual variation of the publications in PubMed during the entire study period

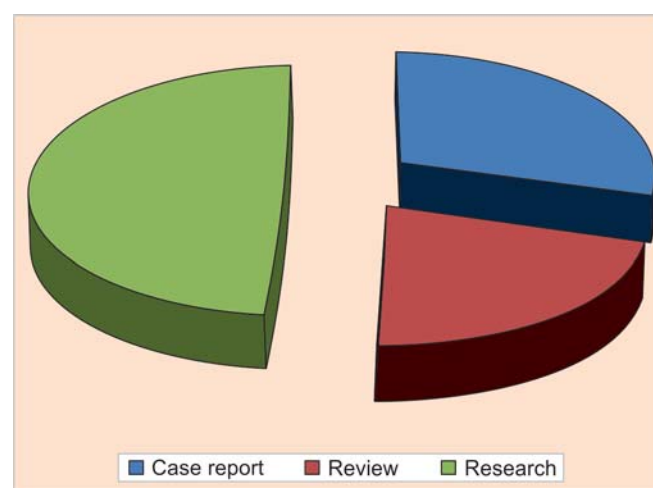


Fig. 2: Details of type of the publications

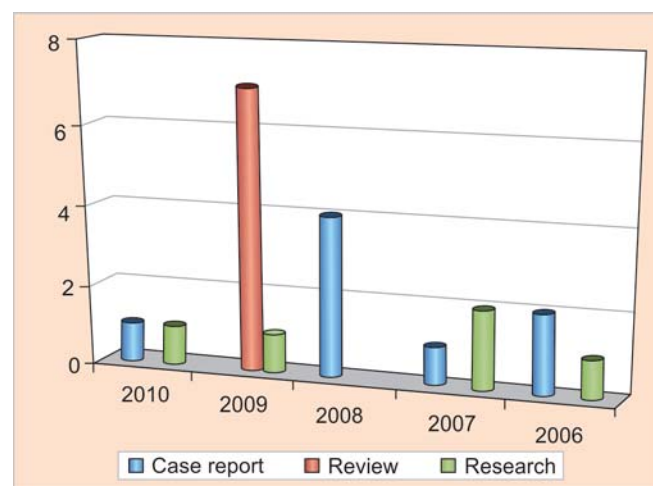
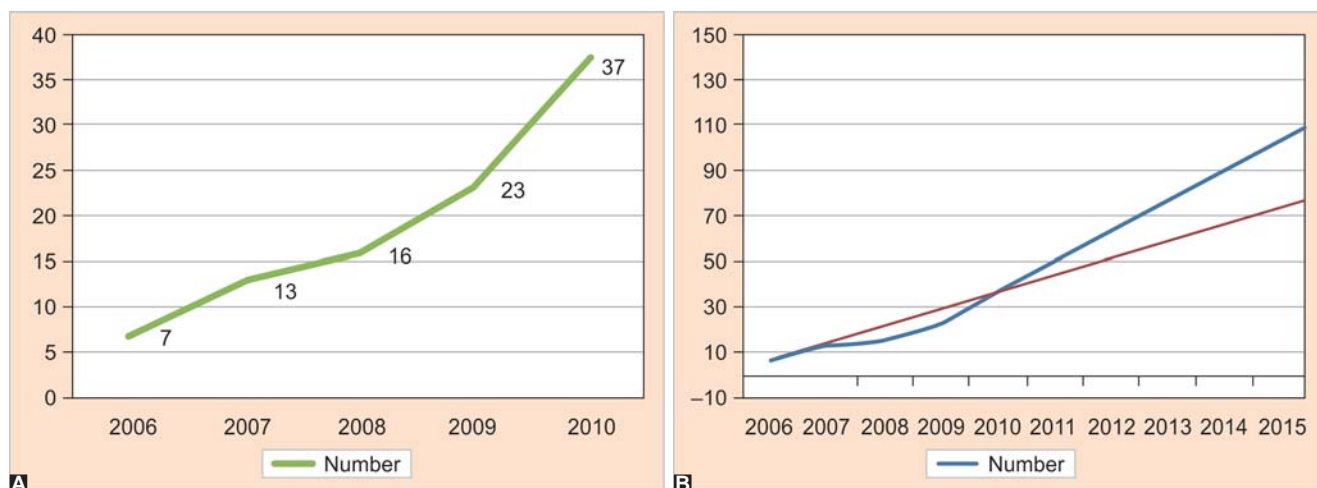


Fig. 3: Interannual variation of the publications in IndMed during the entire study period



Figs 4A and B: Growth prediction chart

Publication analysis, as with any method chosen to assess scientific production, does not cover the entirety of scientific production.⁹ Although PubMed is not representative entirety of the peer-reviewed publication, only indexed peer-reviewed publication are listed in PubMed and they have their own established criteria's for a journal to be 'indexed' in PubMed. However, it has been successfully used in other published partial analyses of dental research production.¹⁰⁻¹² Further this article suffers from a drawback of being quantitative and not qualitative in nature.

According to our study most of the orofacial pain research work emanates from academic institutions and a very minor part from private laboratories, clinics and other funded institutes. Although there is a drastic increase in the number of publications in the last year but still it is very less if we compare it with the number of dental colleges and the number of postgraduate students. At present (November 2011), there are 294 colleges providing undergraduate courses and 169 colleges providing postgraduate courses. According to DCI, this year (2011) there are 292 postgraduate students in the field of oral medicine and radiology and at present (November 2011) IAOMR has 1230 life members and around 12 annual members. So if we compare the productivity of research in the field of orofacial pain as compared to the manpower available, it is very less. Similar study was done by Robert et al in 2008 which depicted that research in orofacial pain in India and Singapore together accounted only for seven out of 975 articles published in the year 2004 to 2005 in Thomson Reuters Scientific Database.² Although there is increase in the field of research articles but again it is in its developing stages and we still lack behind many nations in the field of research on orofacial pain. As seen in the projected growth trend we are hoping that in near future there will be drastic increase in the field of research. With

increasing awareness and a conducive environment to get published, many articles will get published provided the geographical and economical inequalities are taken care by imparting selective training and equal opportunity. The results of this study would help people in identifying the areas that have to be promoted, providing the finer skills of documentation, reporting skills and imparting stronger research methodological skills.

CONCLUSION

Descriptive study of research done in India on orofacial pain from 2006 to 2010 based on PubMed, IndMed and PakMediNet database is presented. Taking into account the manpower available, i.e. number of dental colleges, number of postgraduate students and the members of IAOMR, we are still in budding stages of research in the field of orofacial pain and still we lack behind many nations.

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 research on orofacial pain in India. Reason for less research in India may be attributed to the lack of standardization in this field. This kind of analysis may contribute to the development of scientific and technological policies in dentistry, which is of special relevance in emerging fields that are currently undergoing rapid transformation.

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