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Bibliometric Study of periodontal publications by Iranian authors between 1995-2015: A Medline approach

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Short Communication

Abstract

BACKGROUND AND AIM: One of the methods to measure scientific achievement in a particular field is bibliometric analysis of scientific publications. The main goals of this study were bibliometric analysis of Iranian periodontal literature, study design, and topics investigated in periodontal research published from 1995 to 2015 in PubMed.

METHODS: PubMed search strategy was developed to identify all the international papers published in the field of periodontology (periodontics) by the Iranian scientists between 1995 and 2015. We performed the search protocol by typing “periodont*” in the title/abstract search box, and also the word “Iran” in the affiliation search box. We reviewed all the abstracts and removed the unrelated articles from the study. Retrieved data were analyzed using SPSS.

RESULTS: Total of 178 papers from 83 peer-reviewed journals were found from the PubMed database and were reviewed. Seventy articles (37.4%) were published in Iranian PubMed indexed journals, and 117 (62.6%) papers were published in the journals of other countries. According to the publication type of the articles, 173 (92.5%) of them were original research papers, 6 articles (3.2%) were review papers, and 5 papers (2.7%) were case reports. The results indicated that maximum number of articles was published in 2013. The most frequent article types were cross-sectional studies (29.9%) followed by clinical trials (22.5%) and case-control studies (18.7%).

CONCLUSION: In recent years, the periodontal research production has made significant progress in Iran. It seems that the Iranian periodontists should emphasize more on the design and quality of works in addition to the quantity of articles.

KEYWORDS: Bibliometrics, Medline, Periodontics, Authorship

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One of the methods widely used to measure scientific achievement of a research center, university or country in a particular field of study is bibliometric analysis of the scientific publications.¹ Bibliometric analysis is a set of statistical methods that are used to measure the quality and quantity of scientific research outputs.² Bibliometric study of a subject can help research policy makers to frame policies and develop a coherent strategy for the growth of the subject.³

Like the other fields of the medical sciences, the development of academic research has substantial influences on the

improvement of dental health system. Periodontics is an integral part of dentistry and has a principal role in interdisciplinary dental studies. However, to date, there is lack of studies on contribution of the Iranian researchers to the field of periodontics. There have been some studies on bibliometric analysis in various other fields of dentistry in Iran and for periodontics in other parts of the world.⁴⁻⁸ However, we could not find any published document about bibliometric study in periodontal literature in Iran.

The objectives of this study were to carry out a bibliometric analysis of all Iranian periodontal literature published from 1995

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to 2015 in PubMed.

Methods

A PubMed search strategy was developed to identify all the international papers published in the field of periodontology (periodontics) by the authors affiliated to Iranian institutions. The research was conducted in April 2015. We activated the filters in PubMed website to consider the papers published between 1 January 1995 and 1 January 2015. We performed the search protocol by typing "periodont*" in the title/abstract search box and the word "Iran" in the affiliation search box.

All the abstracts were reviewed by both of the authors and the papers not related to the field of periodontology were excluded from the study. Finally, 187 articles were selected, constituted our database, and were reviewed.

A checklist for retrieving the data from the articles was prepared while the following information/criteria were considered:

Year of publication, number of authors, name and country of publication of the journal [indicated in National Library of Medicine (NLM) catalogue], specialty of the first author, name of the university and the department mentioned in the affiliation of first author, type of article (original article, case report, review article or letter to the editor), and study design (systematic review, narrative review, clinical trial, cohort study, case-control, cross-sectional, case series, case report, in vitro study, animal study or letter to editor paper).

The full text of the paper was retrieved and reviewed if it was not possible to obtain the above information from the title and abstract alone.

We pursued a descriptive research approach by means of bibliometric analysis. The data obtained were organized and analyzed using SPSS (version 16, SPSS Inc., Chicago, IL, USA). Descriptive statistics were applied to summarize the results.

Results

The mentioned search protocol resulted in a

total of 365 articles. Employing the methodology described, 178 papers were finally selected from the PubMed database.

The articles were published in 83 different peer-reviewed journals. Among these, 66 journals published just one or two papers from the Iranian researchers in the field of periodontics during the study period (20 years). The "Dental Research Journal", followed by "Journal of Dental Research, Dental Clinics, Dental Prospects" published the largest number of papers in the field of periodontics from Iranian authors (16 and 14 respectively).

Based on the country of publication, 70 papers (37.4%) were published in Iranian PubMed indexed journals and 117 (62.6%) articles were published in the journals of other countries, mostly in American journals (18.2%), followed by the journals published in England (10.2%) and India (8.0%).

Years 2012 and 2013 were the most prolific years in this regard with 21 and 20 international published papers, respectively.

According to the publication type, 173 (92.5%) were original research papers, 6 articles (3.2%) were reviews and 5 papers (2.7%) were case reports. There were only 3 letters to the editor.

The mean number of authors per article was 4.67 with a range of 1 to 9 authors. First authors of the retrieved papers were from 22 universities of Iran. The top 5 prolific universities of Iran in periodontal sciences are listed in table 1. Most of the papers (according to the affiliation of the first authors) originated from the universities located in the capital city of Iran, Tehran (26.7%).

The largest number of articles was published in 2013. Figure 1 depicts the inter-annual variation in the publication of Iranian papers in this field of study.

Based on the study design of the articles, the most frequent article types were cross-sectional studies (29.9%) followed by clinical trials (22.5%) and case-control studies (18.7%) (Figure 2).

Table 1. Frequency of article published by Iranian authors in the field of periodontology from 1995 till 2015 according to the university affiliated

University	n (%)
Beheshti	29 (15.5)
Esfahan	22 (11.8)
Mashhad	22 (11.8)
Tehran	21 (11.2)
Tabriz	20 (10.7)
Shiraz	15 (8.0)
Babol	11 (5.9)
Azad Tehran	8 (4.3)
Hamadan	7 (3.7)
Qazvin	4 (2.1)
Azad	3 (1.6)
Zahedan	3 (1.6)
Baghiatollah	3 (1.6)
Ahvaz	3 (1.6)
Yazd	2 (1.1)
Kermanshah	2 (1.1)
Shahed	2 (1.1)
Hormozgan	1 (0.5)
Kerman	1 (0.5)
Guilan	1 (0.5)
Tarbiat	1 (0.5)
Chabahar	1 (0.5)
Not affiliated by university	4 (2.1)
Total	187 (100)

About 60.9% of the papers were published under the affiliation of a periodontology department. The other published papers (39.1%) had the affiliation of first author from a department or research group other than the periodontology or periodontics.

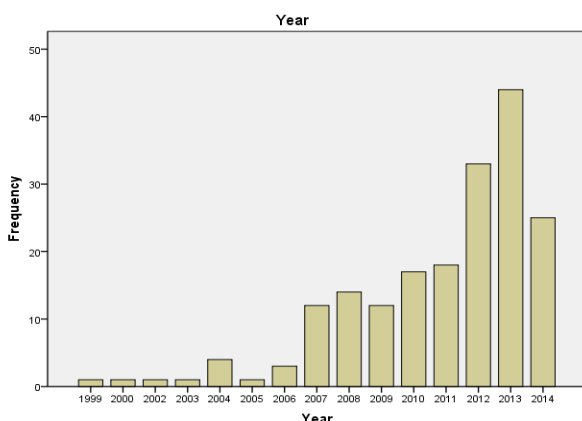


Figure 1. Frequency of paper published by Iranian authors in periodontology field in PubMed data base from 1995 till 2015
There was not any citation from 1995 till 1999

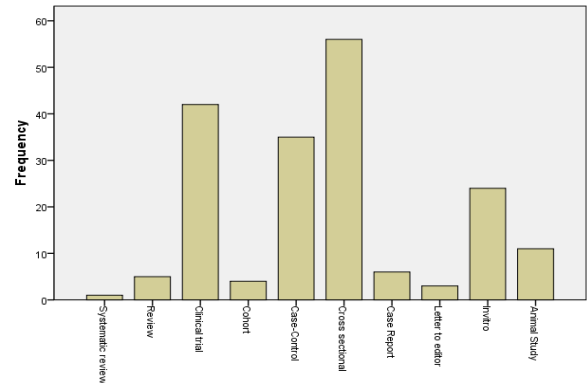


Figure 2. Frequency of different designs of article published by Iranian authors in the field of periodontology in PubMed data base from 1995 till 2015

Discussion

Evaluation of the research output is necessary and important for the scientific societies, universities, and funding organizations to frame policies and take necessary actions.^{9,10} To the best of the authors' knowledge, this is the first study that evaluated Iran's research productivity in the field of periodontology.

We are aware that a lot of valuable papers from Iranian scientists are not included in Medline database and consequently, were not analyzed in our study.¹¹ However, we used the PubMed as the data source, because of its open access and international visibility.

The first noticeable pattern in the Iranian scientific research papers in the field of periodontics is its concentration in the 4 main universities. More than half (50.3%) of the whole articles in this field were published by authors with affiliation of only 4 universities (Tehran, Shahid Beheshti, Esfahan and Mashhad) and the other half of the papers were published by researchers of more than 18 universities and research centers. These 4 dental faculties have a lot of research facilities, a large number of academic members and research funding, compared to other Iranian dental faculties.¹²

According to the results, about 80% of the articles were published from 2009 to 2014, and just 38 papers (20.3%) were indexed over the previous 14 years from the Iranian authors in the field of periodontics. In the

recent years, Iran has gained one of the fastest growth rates in scientific production in the world.¹³⁻¹⁶ This could be also the first reason of this increasing trend in the number of publications in this specific field of research. PubMed Indexing of some Iranian peer-reviewed dental journals, during recent years, can be considered as another reason of significant increase in the number of Iranian papers in the field of periodontics, after 2009.¹⁷ This growth has previously been reported in a number of articles regarding pedodontics and orthodontics, published by the Iranian scientists during the past decade.^{5,6}

The number of case-report papers (3.2%) and review articles (2.7%) were relatively small, comparing with the absolute number of the papers. Case-reports are important for the advancement of clinical science and usually need less preparation in terms of manpower and cost.¹⁸ Case-reports could be quickly written after a fortuitous encounter with a patient with rare disease.¹⁹ On the other hand, systematic reviews are so important regarding the evidence based dentistry, and are ranked as first quality articles.²⁰ This type of research also does not need large amounts of economic resources or manpower. It is considerable that the second most frequent type of study published by Iranian authors in this field was clinical trials. Although we did not attempt to categorize the quality and type of clinical trials according to randomized and controlled, it is obvious that randomized clinical trials are considered as strong evidence in evidence-based methods of prevention and treatment in dentistry.²¹ However previous investigations regarding the critical appraisal of Iranian clinical trials in the field of dentistry showed that the necessary criteria

have not been observed in an acceptable level in the works published.²² Future studies should concentrate on evaluating the quality of Iranian periodontal papers.

It should be emphasized that, in the PubMed, only the affiliation of the first author is presented.²³ Hence, articles with an Iranian scientist as the corresponding author or coauthor could be missed by this method if the first author was not from Iran. Moreover, in the past years, some Iranian researchers did not pay enough attention to the principles that should be considered in writing the scientific affiliations. This fact could also lead our search protocol to miss out some papers that were belonging to Iranian authors.

Conclusion

In the recent years, the number of periodontal research productions in Iran demonstrated a constant growth. The change was most obvious in certain journals in Iran (domestic journals). The most frequent Iranian periodontal papers published in PubMed-indexed Journals were cross-sectional studies followed by clinical trials. It seems that the Iranian periodontists should consider to conduct more systematic reviews and to publish more clinical case-reports in international peer-reviewed journals.

Conflict of Interests

Authors have no conflict of interest.

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