CURRENT TRENDS IN PUBLISHING IN DENTISTRY

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ABSTRACT:

This study aimed to observe the current trends in publishing in the scientific literature in dentistry. Articles from the highest 10 ranked journals from the category of Dentistry, Oral Surgery & Medicine, of Science Citation Index Expanded (SCIE) of Thomson Reuters were analyzed in regard to the topics addressed, and as research methodology. This study results suggest that, the publishing trend is characterized by dominance of original researches, from which most are clinical studies. Regarding the latter, there can be noticed that a great variety of study designs were reported, most of them being cross-sectional studies, cohort study, case reports and case series, a long follow-up period being found especially in cohort studies, an important part of them being conducted on large sample size. Most of the articles addressed topics related to therapy, and were in the field of Implant dentistry. The great variety of article, as designs and topics addressed, can be regarded as positive facts identified, even so, it is desired to observe an increase publication of the studies that have a high level of evidence, namely reporting randomized controlled trials and systematic reviews.

Keywords: *research, scientific literature, study methodology, systematic review, oral science*

Introduction

Science advances through research, it having an increased impact on every day medical practice due to several factors as the improved adherence to evidence based practices. One important route of dissemination of scientific knowledge involves journal publications, in this regard a well-recognized barrier for the usage of this information being the ability of the end-user to extract relevant knowledge from literature base [1-3]. The quantity of scientific literature in dentistry is voluminous, as in other scientific fields, great interest by clinicians probably being given to highest impact journals, known also as "reputable journals" [4], that are seen as publications that present studies with sound methodology and high level of evidence, but also that can be seen as means of capturing the trends of publishing, and of course the trends of science, in the respective field. This study aimed to observe the current trends in publishing in the scientific literature in dentistry.

Method

For this research, the highest 10 ranked journals from the category of Dentistry, Oral Surgery & Medicine, of Science Citation Index Expanded (SCIE) of Thomson Reuters were analyzed. The journal selection was based on data from Journal Citation Reports. There ranking method used was based on the value of the Impact Factor for the year 2013, the last identified at the time the research was conducted. Accordingly, the 10 highest ranked journals were the ones presented in table 1. For each journal selected, firstly there was established the number of journal issues that were included in volume for the year 2014. Afterwards, an issue was randomly selected using Microsoft excel

software (Table 1). The journal issue randomly selected from 2014 volume was analyzed. From them, only articles belonging to the category "Review and Original research were assessed. Other types of articles, as Letters to the editor and Invited Editorials, were excluded from analysis.

Abbreviated Journal Title	ISSN	Rank	Impact Factor	No of issues in the 2014 volume	The issue of 2014 volume, randomly selected for analysis	Number of articles analyzed
DENT MATER	0109-5641	1	4,160	12	8	20
J DENT RES	0022-0345	2	4,144	12	4	15
J CLIN PERIODONTOL	0303-6979	3	3,610	12	1	11
CLIN ORAL IMPLAN RES	0905-7161	4	3,123	12	3	17
ORAL ONCOL	1368-8375	5	3,029	12	4	11
PERIODONTOLOGY 2000	0906-6713	6	3,000	3	3	16
MOL ORAL MICROBIOL	2041-1006	7	2,841	6	2	4
J DENT	0300-5712	8	2,840	12	2	14
CLIN IMPLANT DENT R	1523-0899	9	2,796	4	4	17
J ENDODONT	0099-2399	10	2,788	12	7	26

Table 1. Highest 10 ranked journals, with details on journal information, and on selected issues for article analysis

The articles selected were analyzed as content analysis, in regard to the medical topics addressed, and as research methodology. Two evaluators assessed them separately, followed by discussions for reaching an agreement on including them in one particular category.

Results

A total of 151 articles were analyzed. From them, 120 (79,5%) were original researches and 31 (20,5%) were literature reviews. The majority of them were related to therapy (n=94; 62%), and the rest to prognosis (n=20; 13%), etiology (n=19, 13%), diagnosis (n=11; 7%), medical device evaluation (n=4; 3%), and manifestation of oral diseases (n=3; 2%). Mostly they were in the field of Implant dentistry (n=39; 26%), Endodontics (n=27; 18%); Oral and maxillofacial surgery (n=25; 17%); Cariology and restorative dentistry (n=24, 16%); Prosthodontics (n=16; 11%) and Periodontology (n=14; 9%).

Analyzing the review articles (n=31), we observed that most of them were narrative reviews (n=23; 74%), the others being systematic reviews without meta-analysis (n=2; 6,5%) and systematic reviews with meta-analysis (n=6; 19%). From review articles most of them related to therapy (n=15; 48%) and were in the field of Implant dentistry (n=14; 45%) and Oral and maxillofacial surgery (n=9; 29%).

Analyzing the original research articles (n=120), we observed that 44 (37%) of them were clinical studies on humans, 14 (12%) were in vivo studies, on animal models, 19 (16%) were in vitro studies, and 43 (35,8%) were tests conducted on

experimental models.

The original research articles (n=44) that reported clinical studies on humans were mainly related to therapy (n=22; 50%), fewer focusing on etiology (n=9; 20,5%), prognosis (n=9; 20,5%), and diagnosis (n=4; 9%). They were in the field of Implant dentistry (n=11; 25%), Oral and maxillofacial surgery (n=9; 20,5%), Cariology and restorative dentistry (n=6, 13,6%), Endodontics (n=5; 11%), Periodontology (n=6; 14%), Prosthodontics (n=4; 9%), and Orthodontics (n=2, 4,5%). In regard to study methodology, we observed that most of them were analytic, observational, prospective studies, generally belonging to most basic study designs – most frequently being encountered cross-sectional studies, case reports and case series and cohort study (Table 2). From the prospective studies, in one study the follow-up period was not clearly stated. Analyzing the remaining 24 studies we observed that some of them had very long follow-up period, this being found especially in cohort studies, and in case report and case series (Figure 1). Analyzing the sample size we observed that 6 (14%) of them had sample size above 1000 subjects (from 1104 to 82375 persons), 7 (16%) of them sample size between 101 and 399 patients, 10 of them between 50 and 92 patients, and the rest were conducted on samples less than 50 patients.

Study design
Descriptive – 13 (29,5%)
Analytic – 31 (70,5%)
Observational – 37 (84%)
Experimental - 7 (16%)
Prospective – 25 (57%)
Retrospective – 3 (7%)
Cross-sectional – 16 (36%)
Randomized controlled trials – 7 (16%)
Cohort studies – 9 (20,5%)
Case-control studies – 3 (7%)
Cross-sectional studies – 10 (23%)
Case reports and Case series – 9 (20,5%)
Other or unclear – 6 (14%)

Table 2. The study designs used in the clinical studies on humans

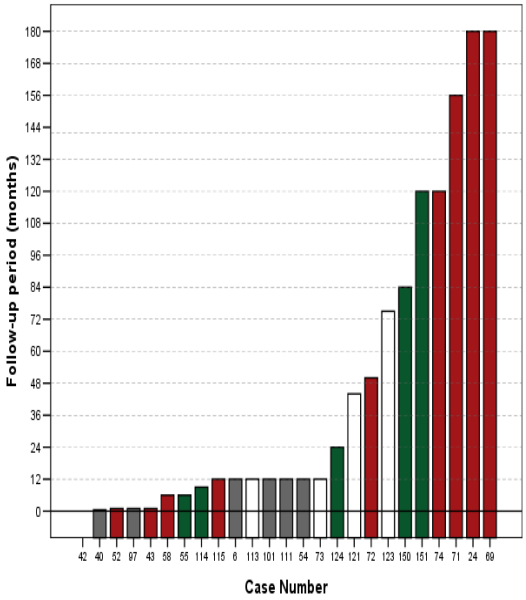

Figure 1. Follow-up period in prospective studies (cohort study – red; case report and case series – green; randomized controlled trial – grey; other or unclear – white)

Analyzing the articles reporting in vivo studies on animal models, we observed that were used the following animals: rats (n=5; 36%), mice (n=2; 14%), dogs (n=3; 22%), rabbits (n=2; 14%), goats (n=1; 7%), mini-pigs (n=1; 7%). All articles except one were related to therapy and half of them were in the field of Implant dentistry.

Articles reporting researches on experimental models mostly used samples of dental materials (n=16; 40%); extracted human teeth (n=13; 32,5%), finite element method models (n=6; 15%), and less frequent extracted teeth of animal origin and some dental products (e.g., dental implants). Most of the articles were in the field of Endodontics, Cariology and restorative dentistry and Prosthodontics.

Analyzing the corresponding author nationality, there was observed that most frequent countries of origin were the following: US (n=19; 13%); Germany

(n=14; 9%); Brazil (n=12; 8%); China (n=12; 8%); Belgium (n=11; 7%) and UK (n=10; 7%).

Discussion

This study results suggest, by analyzing the recent articles form the scientific literature in dentistry, that the publishing trend is characterized by dominance of original researches, from which most are clinical studies. Regarding these, there can be noticed that a great variety of study designs are used within them, most of them being cross-sectional studies, cohort study, case reports and case series, a very long follow-up period being found especially in cohort studies, an important part of them being conducted on large sample size. Most of the articles addressed topics related to therapy, and were in the field of Implant dentistry.

Dissemination of research findings is considered one of most important steps of this process, that need to be properly addressed by end-users, in medical research many times these being the medical practitioners, because beside reputable journals there are others without accurate scientific review, whose use might contribute to making a wrong opinion, that may lead to unsafe or non-beneficial clinical decisions [5]. Accurate scientific information usually is found in journals that have an appropriate peer review process, that include in the editorial board well-known specialist in their domain, most often from the academic staff of high ranked universities. Other aspects that count when forming an opinion on one particular journal are related to its publisher, greater confidence being given to prestigious publishing houses as Elsevier or Nature Publishing group, and of course to indexing in prestigious databases, as MEDLINE/PubMed and Web of Science. Web of Science is seen nowadays as one of most prestigious and selective multidisciplinary citation index, including many influential and prestigious journals [6]. Considering the previous, in this study the selected journals, with highest impact factor of their domains were considered reputable journals, therefore presumably being representative for the trends of scientific knowledge in their field.

The results of this study suggest that Implant dentistry represents the topic that currently is most appealing in the fields of oral science. This fact might be explainable considering it represents a relatively new technique in dentistry, so having a greater need of understanding, and also considering their wide range of application, e.g. for prosthetic rehabilitation in different variants, fixed or removable dental prosthesis; for increasing orthodontic anchorage [7-12]. Regarding study design of original researches on human subjects, there were identified rather frequent case series and case reports, these having low level of evidence. Even so, frequency of non-evidence based articles was considerably lower compared to the one reported in other studies that analyzed it in journals in a specific dental field, as Endodontics or Oral and maxillofacial surgery [13;14]. Regarding the literature review articles, by our results the systematic reviews are in minority, their infrequently in dental sciences being previously highlighted, it being relatively linked to the fact that the evidence available is not strong [15].

Among study limitations there can be mentioned the limited numbers of journals in this study, considering also most of the journals are dedicated to one specific field of dental sciences. Therefore, in the first place for a thematic point of view, the articles identified might not show the current trend.

Conclusions

In dentistry, current trends of publishing is characterized by great variety of articles published, in regard to their topic and methodology. Generally, most of the articles are original researches, an important part being clinical studies, of which most cross-sectional study, cohort study, case series and case reports. Implant dentistry currently seems to be the main theme of interest. The great variety of article, as

designs and topics addressed, can be regarded as positive facts identified, even so, it is desired to increase the frequency of articles that have a high level of evidence, namely reporting randomized controlled trials and systematic reviews.

References

1. Allen HG, Stanton TR, Di Pietro F, Moseley GL. Social media release increases dissemination of original articles in the clinical pain sciences. PLOS ONE. 2013; 8(7): e68914.
2. Preoteasa CT, Axante A, Cristea AD, Preoteasa E. The Relationship between Positive Well-Being and Academic Assessment: Results from a Prospective Study on Dental Students. Education Research International. 2016; 2016: 8 pages.
3. Preoteasa CT, Constantinescu MV, Preoteasa E. **Predicting the psychological well-being of dental students during the semester evaluation period: a prospective study.** STOMA.EDUJ. 2016;3:47-53.
4. Jacobson DA, Bhanot K, Yarascavitch B, Chuback J, Rosenbloom E, Bhandari M. Levels of evidence: a comparison between top medical journals and general pediatric journals. BMC Pediatr. 2015;15:3.
5. Hansoti B, Langdorf MI, Murphy LS. Discriminating Between Legitimate and Predatory Open Access Journals: Report from the International Federation for Emergency Medicine Research Committee. West J Emerg Med. 2016;17(5):497-507.
6. Gasparyan AY. Bibliographic databases: some critical points. J Korean Med Sci. 2013;28(6):799-800.
7. Yao J, Tang H, Gao XL, McGrath C, Mattheos N. Patients' expectations to dental implant: a systematic review of the literature. Health Qual Life Outcomes. 2014;12:153.
8. Preoteasa E, Florica LI, Obadan F, Imre M, Preoteasa CT. Minimally Invasive Implant Treatment Alternatives for the Edentulous Patient — Fast & Fixed and Implant Overdentures. In Turkyilmaz I (Ed). Current Concepts in Dental Implantology. 2015; InTech, Croatia.
9. Preoteasa E, Imre M, Lerner H, Tancu AM, Preoteasa CT. Narrow Diameter and Mini Dental Implant Overdentures. In Virdi M (Ed). Emerging Trends in Oral Health Sciences and Dentistry. 2015; InTech, Croatia.
10. Preoteasa CT, IonescuE, Preoteasa E. Risks and Complications Associated with Orthodontic Treatment. In Bourzgui F (Ed). Basic Aspects and Clinical Considerations. 2012; InTech, Croatia.
11. Mardan Abdulla N, Preoteasa CT, Imre M, Tancu AM, Preoteasa E. Self-reported denture satisfaction in completely edentulous patients. Romanian Journal of Oral Rehabilitation. 2013;5(4):88-95.
12. Preoteasa CT, Axante A, Hagiu AM, Cristea AD, Preoteasa E. Comparative analysis of phonetic tests used for assessing the smile display. Romanian Journal of Oral Rehabilitation. 2016;8(1):43-50.
13. Shafiei L, Shahravan A. The level of evidence in two leading endodontic journals. Iran Endod J. 2013;8(1):18-21.
14. Lau SL, Samman N. Levels of evidence and journal impact factor in oral and maxillofacial surgery. Int J Oral Maxillofac Surg. 2007;36(1):1-5.
15. Bader J, Ismail A; ADA Council on Scientific Affairs; Division of Science; Journal of the American Dental Association. Survey of systematic reviews in dentistry. J Am Dent Assoc. 2004;135(4):464-73.