



Bibliometric Analysis of the Scientific Production of the Pesquisa Brasileira em Odontopediatria e Clínica Integrada: 2007-2017

Paulo Floriani Kramer^{1,2}, Carlos Alberto Feldens¹, Mariana Cézar Ilha¹, Tássia Silvana Borges³,
Alessandro Leite Cavalcanti⁴

¹Department of Pediatric Dentistry, School of Dentistry, Lutheran University of Brazil, Canoas, RS, Brazil.

²Department of Pediatric Dentistry, School of Dentistry, Pontifical Catholic University of Rio Grande do Sul, Porto Alegre, RS, Brazil.

³Department of Pediatric Dentistry, School of Dentistry, Lutheran University Center of Palmas, Palmas, TO, Brazil.

⁴Department of Dentistry, School of Dentistry, State University of Paraíba, Campina Grande, PB, Brazil.

Author to whom correspondence should be addressed: Paulo Floriani Kramer, Rua 24 de Outubro 435, Conjunto 307, Porto Alegre, RS, Brazil. 90510-002. Phone: +55 51 3222-0033. E-mail: paulokramer@hotmail.com.

Academic Editors: Alessandro Leite Cavalcanti and Wilton Wilney Nascimento Padilha

Received: 28 May 2018 / Accepted: 27 September 2018 / Published: 11 October 2018

Abstract

Objective: To analyze the bibliometric profile of articles published in the Pesquisa Brasileira em Odontopediatria e Clínica Integrada (PBOCI). **Material and Methods:** In this documental study, two trained examiners independently assessed the abstracts of all articles published between 2007 and 2017. Articles were categorized according to the study design, dental specialty and institutional affiliation of the main author. The full article was read whenever the abstract did not allow its classification. Descriptive statistics were used to calculate the absolute and relative frequencies. **Results:** In total, 670 articles were identified, with predominance of publications in the areas of Pediatric Dentistry (33.3%), Community Health (18.7%) and Restorative Dentistry (12.2%). The most used designs were cross-sectional (58.3%), especially in the areas of Pediatric Dentistry and Community Health; and laboratory studies (25.7%), mainly in the areas of Restorative Dentistry and Endodontics. The Brazilian universities that most published in the Journal were the Federal University of Paraíba (9.7%), followed by the State University of São Paulo (6.4%) and University of São Paulo (6%), characterizing predominance of the Southeastern and Northeastern regions. The publications of authors with international affiliation represented 9.1%. The distribution among nations reveals studies from countries such as India (34.5%), Nigeria (14.8%), Bosnia (11.5%) and Iran (8.2%). **Conclusion:** PBOCI has provided Brazilian and foreign researchers the opportunity to disseminate studies in all areas of Dentistry, but studies in the fields of Pediatric Dentistry and Community Health are predominant. The most frequent designs were cross-sectional and laboratorial, and in relation to foreign participation, there is predominance of research from countries such as India, Nigeria and Bosnia.

Keywords: Information Science; Bibliometrics; Periodicals; Journal Article.

Introduction

The search for the best scientific evidence in clinical decision making in dentistry has been gaining attention in recent years. Scientific journals have increasingly sought greater visibility of their publications with an emphasis on the indexing process [1]. In this sense, Journals undergo merit evaluations, scoring aspects such as regularity of publications, quality of information, language of publication, composition of the editorial body and institution of origin of authors, among others.

According to the 2013-2016 quadrennial report of Graduate Programs of Brazil conducted by the Coordination for the Improvement of Higher Education Personnel (CAPES) [2], the area of Dentistry has increased in a considerable and consistent way the intellectual production, emphasizing that all subareas had at least one Journal classified as "A". The graduate programs produced in this period 15,948 complete articles in Brazilian and foreign Journals. Brazilian Dentistry has therefore been prominent in intellectual production with a clearly differentiated growth curve, even among countries with long tradition of health research [2].

With the constant increase in the publication of scientific articles, the quality of this production should be evaluated. In this way, bibliometry has been proposed to quantify the processes of written communication, establishing a basis for the formation of science [3,4]. Bibliometry is a quantitative tool that allows reducing the subjectivity inherent of indexing and retrieval of information, producing knowledge in a specific subject area and identifying the most outstanding themes, innovations that have occurred over time, and gaps that represent opportunities for researchers and institutions [5-7].

The Pesquisa Brasileira em Odontopediatria e Clínica Integrada [*Brazilian Research in Pediatric Dentistry and Integrated Clinic*] (PBOCI) is a scientific Journal of international circulation edited by the Association for Support of Oral Health Research (APESB), published in a continuous model, being available online in Open Access format. PBOCI is funded by the main funding agencies of Brazil (National Council for Scientific and Technological Development - CNPq and the Coordination for the Improvement of Higher Education Personnel - CAPES, through the CNPq / CAPES Call No 26/2017 - Editorial Program) and by the State University of Paraíba (UEPB), aimed at publications of scientific works in the area of Dentistry. The Journal is indexed in the two most important international databases that provide bibliometric indicators (Emerging Sources Citation Index (ESCI) – Web of Science™ Core Collection / Clarivate Analytics and Scopus® / Elsevier).

Brazil has established a system for the evaluation of Graduate Programs in the country, known as Qualis, which is one of the fundamental instruments for the evaluation of intellectual production, adding the quantitative to the qualitative aspect [8]. The criteria for defining and distributing the scientific Journals in each stratum are established by respective areas of evaluation, which may result in different classifications for the same Journal in each of these areas [9]. In this aspect, the Journal was classified in the last four years (2013-2016) as Qualis B2 for Nursing, Education and Interdisciplinary areas and Qualis B3 for Dentistry, Community Health and Physical Education areas, and also ranks in 11 other areas of knowledge.

Therefore, the aim of this study was to analyze the profile of articles published in the Pesquisa Brasileira em Odontopediatria e Clínica Integrada from 2007 to 2017 through a bibliometric analysis.

Material and Methods

Study Design and Data Collection

This is a descriptive study using documental research. In the period from 2007 to 2017, eleven volumes were published, totaling 31 issues, with three annual issues between 2007 and 2010 (quarterly periodicity), four annual issues between 2011 and 2014 (quarterly periodicity) and a single annual publication between years 2015 to 2017, period in which the Journal began to adopt the system of publication through continuous model. For years 2007 and 2008, data were extracted from the Journal's website (<http://revista.uepb.edu.br/index.php/pboci/index>), while for the remaining years (2009-2017), information was obtained from the Scopus® database (<https://www.scopus.com>). For data collection, the abstract of the published article was initially used. On occasions when this was not enough to extract data, the entire article was read. Articles were analyzed and classified according to the year of publication, dental specialty, study design, corresponding author's affiliation and foreign participation.

The categorization of articles was performed by two researchers independently (TSB and MCI). Training was carried out in periodic meetings for the revision of concepts and parameters aiming at standardization in the classification of articles. In case of disagreement, a third researcher (PFK) participated in the categorization until a consensus among examiners was established. Prefaces, editorials, notes, comments and publications of abstracts at national scientific meetings were excluded as they were not subject of the investigation.

The study designs were categorized as: systematic review, randomized clinical trial, cohort, case-control, cross-sectional, case series, *in vivo* laboratory, *in vitro* laboratory and literature review [10,11]. Specialty was classified according to the 22 specialties regulated by the Brazilian Federal Council of Dentistry (CFO) [12]. Specialties Orthodontics and Functional Orthopedics of Maxillaries were gathered in the same area. The origin of authors was identified according to the institution of origin of the corresponding author of each article (Brazilian and foreign university), in order to obtain the total number of publications of each university.

Data Analysis

Data were analyzed using IBM SPSS Statistics for Windows Software, version 20 (IBM Corp., Armonk, NY, USA). Descriptive statistics were used to calculate the absolute and relative frequencies.

Results

The sample consisted of 670 articles published in the period from 2007 to 2017. Figure 1 shows the number of articles according to the year of publication. There is variation in the number of

articles published over the years, with minimum of 45 articles (in 2014) and maximum of 95 articles (in 2011). The average number of articles per year was 67.

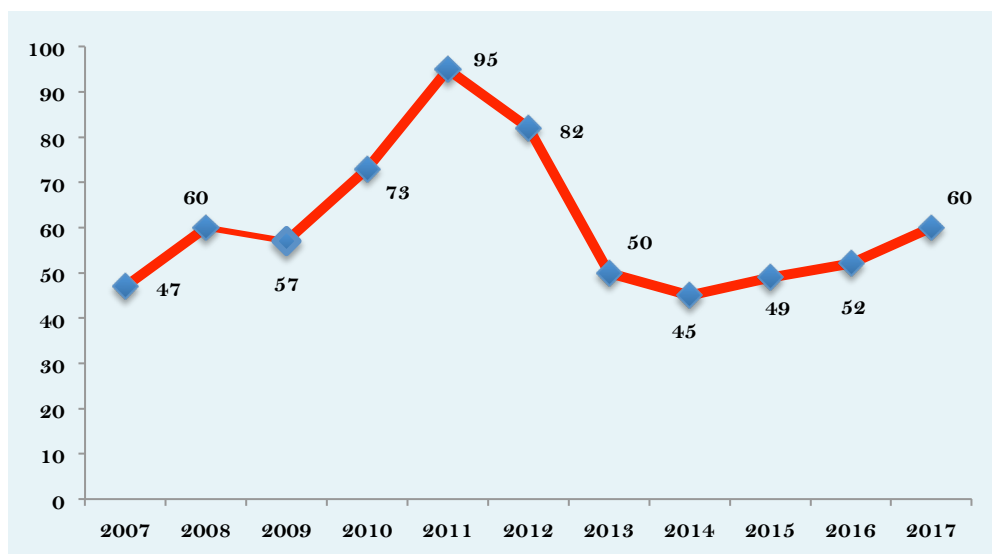


Figure 1. Number of articles published in the PBOCI Journal according to the year.

Figure 2 shows the distribution of articles according to the dental specialty. Pediatric Dentistry stood out with 33.3% of works, followed by Community Health (18.7%) and Restorative Dentistry (12.2%). Specialties with lower number of publications were Temporomandibular Joint Dysfunction Syndrome and Orofacial Pain (0.7%) and Forensic Dentistry (0.7%). No studies were found in the areas of Occupational Dentistry, Sports Dentistry, Maxillofacial Prosthesis, Acupuncture and Homeopathy.

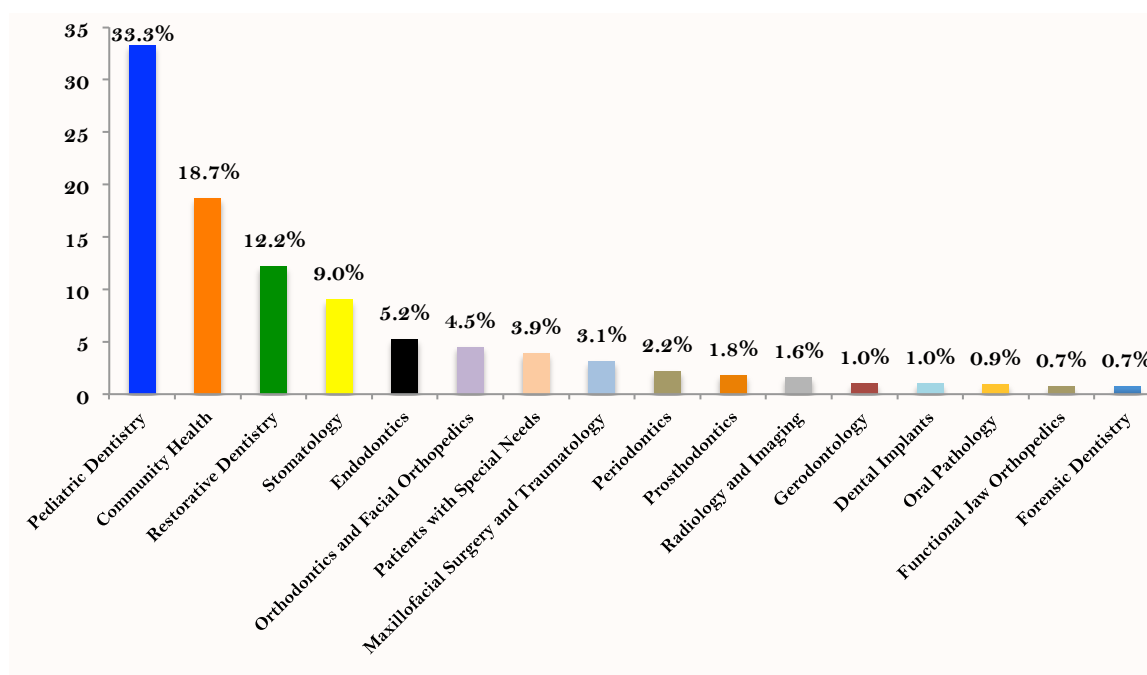


Figure 2. Distribution of articles according to the dental specialty.

Figure 3 shows the methodological designs of publications. Cross-sectional studies accounted for 58.3% of the total, followed by *in vitro* and *in vivo* laboratory studies (25.7%), comprising more than 80% of the designs observed in that period. Randomized controlled trials, case-control studies, cohort, systematic reviews and case series corresponded to 9.2% of all published articles.

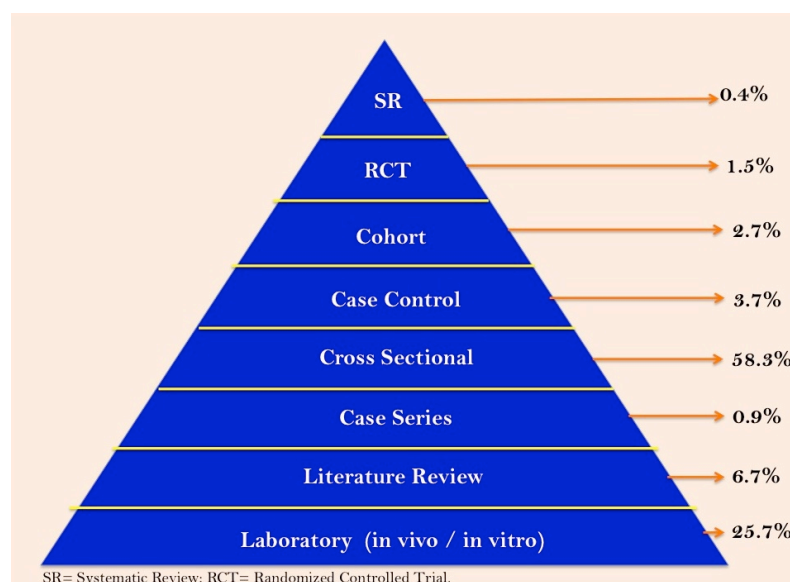


Figure 3. Distribution of articles according to the methodological design.

Table 1 shows that cross-sectional studies represented the most frequent design in the areas of Patients with Special Needs (88.5%; 23/26), Community Health (87.2%; 109/125), Orthodontics and Facial Orthopedics (70.0%; 21/30), Pediatric Dentistry (65.5%; 146/223) and Stomatology (57.7%; 34/60). Laboratory studies, in turn, stood out in the areas of Restorative Dentistry (84.1%; 69/82) and Endodontics (77.1%; 27/35).

Table 1. Distribution of study designs according to the specialty.

Dental Specialties	Design								Total N
	LAB N	LR N	Case Se N	Cr Sec N	Case Ct N	COH N	RCT N	SR N	
Pediatric Dentistry	38	13	1	146	10	11	4	0	223
Community Health	3	5	0	109	2	2	2	2	125
Restorative Dentistry	69	4	0	6	1	0	1	1	82
Stomatology	12	8	1	34	5	0	0	0	60
Endodontics	27	4	1	2	0	1	0	0	35
Orthod. Facial Orthopedics	5	2	0	21	2	0	0	0	30
Patients with Special Needs	0	1	2	23	0	0	0	0	26
Maxillofacial Surg. Traumatol.	6	1	0	10	2	0	2	0	21
Periodontics	1	1	1	9	2	0	1	0	15
Prosthodontics	4	1	0	7	0	0	0	0	12
Radiology and Imaging	1	1	1	8	0	0	0	0	11
Gerodontology	0	2	0	5	0	0	0	0	7
Dental Implants	3	0	0	2	0	2	0	0	7
Oral Pathology	3	0	0	2	0	1	0	0	6
Temporomandibular Dysfunction	0	0	0	4	1	0	0	0	5
Forensic Dentistry	1	1	0	3	0	0	0	0	5

LAB = Laboratory; LR = Literature Review; Case Se = Case Series; Cr Sec = Cross-Sectional; Case Ct = Case Control; COH = Cohort; RCT = Randomized Controlled Trial; SR = Systematic Review.

According to Table 2, researchers from Brazilian universities accounted for 90.9% of publications. Among these universities, the Federal University of Paraíba (9.7%), São Paulo State University (6.4%), University of São Paulo (6.0%) and State University of Paraíba (4.5%) stood out with about a quarter of articles published in that period. In addition, 16 Brazilian universities accounted for 54.4% of all publications. Greater concentration of works produced in the southeastern (7 universities) and northeastern regions (6 universities) was observed; followed by the southern region (2 universities). Of these, only the Lutheran University of Brazil is a private institution; all others are public universities (state or federal). The publications of authors with international affiliation accounted for 9.1% of the total. The distribution among nations reveals studies from countries such as India (34.5%; n = 21), Nigeria (14.8%; n = 9), Bosnia (11.5%; n = 7), Iran (8.2%; n = 5), Venezuela (4.9%; n = 3), United States of America, Kenya, Republic of Slovakia, Colombia and Turkey (3.3% each; 2 studies each), Russia, Serbia, Malaysia, England, United Arab Emirates, El Salvador (1.6% each; 1 study each).

Table 2. Distribution of articles according to the corresponding author's affiliation.

Author's Affiliation	N	%
Brazilian Universities		
Federal University of Paraíba (UFPB)	65	9.7
São Paulo State University (UNESP)	43	6.4
University of São Paulo (FO-USP)	40	6.0
State University of Paraíba (UEPB)	30	4.5
University of Pernambuco (UPE)	25	3.7
Federal University of Minas Gerais (UFMG)	25	3.7
Federal University of Pernambuco (UFPE)	20	3.0
Federal University of Juiz de Fora (UFJF)	18	2.7
Fluminense Federal University (UFF)	17	2.5
Piracicaba Dental School - University of Campinas (FOP-UNICAMP)	14	2.0
Federal University of Rio Grande do Norte (UFRN)	14	2.0
Federal University of Rio de Janeiro (UFRJ)	14	2.0
Federal University of Maranhão (UFMA)	13	1.9
Federal University of Santa Catarina (UFSC)	11	1.7
Lutheran University of Brazil (ULBRA)	10	1.5
Federal University of Bahia (UFBA)	10	1.5
Others Brazilian Universities*	247	36.7
Total	609	90.9
Foreign Universities		
	61	9.1
Total	670	100.0

*Universities that did not add 1% of articles published in the period.

Figure 4 shows the distribution of Brazilian publications in the PBOCI according to the regions of Brazil. The northeastern and southeastern regions concentrated the largest number of studies, with 36.1% and 35.8%, respectively. The southern region represented 13.9% of publications, and the midwestern and northern regions accounted for approximately 5.0% of published articles.

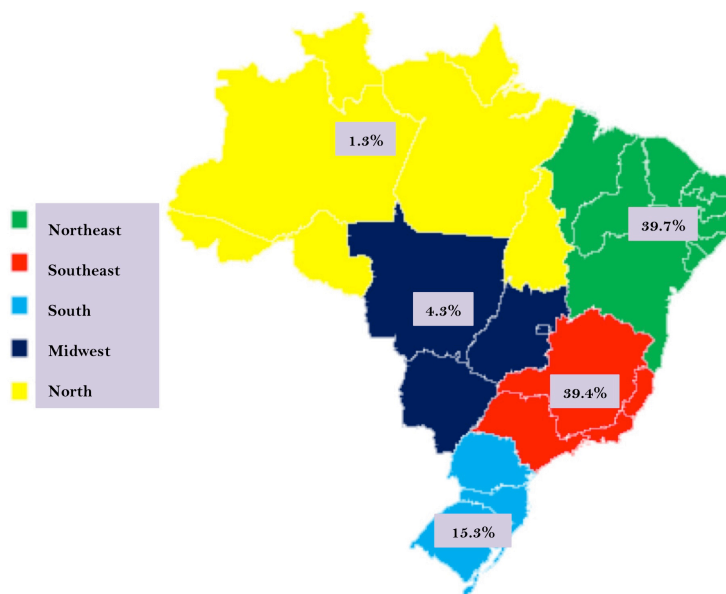


Figure 4. Distribution of articles according to the regions of Brazil.

Discussion

Bibliometric studies allow the analysis and evaluation of scientific production, contributing to the understanding of the behavior of science in a given field. Based on these indicators, it is possible to determine what is more important or meaningful in a scientific context by assessing its trends [4].

The Journal *Pesquisa Brasileira em Odontopediatria e Clínica Integrada* showed a great variation in the number of articles published per year and the variation in the number of annual editions was not associated with the number of published articles. It was verified that during the analyzed period, PBOCI underwent important changes, including the indexation in international databases, adoption of the English language, reformulation of the Editorial Board, adoption of DOI (Digital Object Identifier) and, no less important, the implementation of the continuous publication model, in line with the main international Journals. The main aim of the continuous publication of papers is to accelerate communication of research work, thus contributing to make it available and faster for reading and citation [13].

The areas of Pediatric Dentistry and Dentistry in Community Health stand out, representing approximately half of published articles. The largest number of published articles in the area of Pediatric Dentistry is possibly related to the fact that the Journal includes this specialty in its name, which determines more demand of professionals of this area. Moreover, the fact that there is no other Journal aimed at Pediatric Dentistry in Brazil also contributes to the concentration of articles in this specialty. In turn, the high proportion of articles in the area of Dentistry in Community Health is due, at least in part, to the growing interest and demands for production of knowledge that contributes to the Unified Health System (SUS) [14,15]. Another important aspect is that the PBOCI is the Brazilian Journal with the largest annual publication of articles in the field of oral health in public health [16]. On the other hand, it is noteworthy that other specialties that

effectively constitute "Integrated Clinic" do not constitute a relevant part of publications, such as Prosthodontics, Periodontics and Oral and Maxillofacial Surgery and Traumatology. This occurs, at least in part, because researchers in these areas are still unaware of the Journal's potential, including its increased visibility. This is a gap whose completion can contribute to the dissemination of Brazilian scientific production in the area and further leverage the impact of the Journal.

The evaluation of study designs evidenced a large number of publications with low potential to establish scientific evidence. Cross-sectional and laboratory studies accounted for 84% of publications. Although cross-sectional studies do not contribute to defining interventions at individual or collective level [17,18], it is important to estimate prevalence and identify factors associated with different health problems. However, it was the design used in approximately 90% of studies in the area of Dentistry in Community Health and 65.5% in the area of Pediatric Dentistry.

Laboratory studies, in turn, represent more than 80% of publications in the area of Restorative Dentistry and two-thirds in the area of Endodontics in the study period. This fact demonstrates that the research process that simulates biological conditions in laboratory is a characteristic of Brazilian researchers [18]. Although important for the establishment of hypotheses that precede research in humans, this design has no potential to consolidate clinical behaviors in addition to being sometimes repetitive [17,19]. However, if considered as preliminary steps involving future clinical outcomes, they are important for the evolution of the research and the search for the best scientific evidence [19].

The small number of studies with potential to contribute to the definition of clinical behaviors (randomized controlled trials and systematic reviews) may be related to the difficulty of their execution, since they require greater time and cost, requiring the researcher greater experience for their execution, as well as a research group prepared to develop them [20,21]. In addition, articles with such designs tend to be submitted and published in major international Journals.

PBOCI publications are mostly from institutions in the southeastern and northeastern regions of Brazil. The great concentration of studies carried out in the Northeastern region can be explained by the fact that the Journal was created by Professors of the State University of Paraíba. The high proportion of articles from the Southeastern region, in turn, is possibly due to the fact that 68% of the country's Graduate Programs are located in this region. The results are in line with the Brazilian scientific-technological framework and potential in the development of research through Graduate Programs. The need for more investments in research in the other regions is evident, providing opportunities for knowledge production that reflects different realities in Brazil [22,23].

Regarding the nature of institutions, the study shows the superiority of public institutions in the percentage of publications. It is a fact that public institutions provide greater support to scientific research [24]. Other researchers also found greater proportion of publications from public institutions in studies with similar methodology [24-26]. It is also noteworthy that a significant number of publications are of international origin, demonstrating the interest of foreign researchers in publishing in PBOCI. The countries that most contributed were India (34.4%) and Nigeria

(14.8%). This significant increase of foreign authors verified in the 2015-2017 triennium should be associated to the indexing in the Emerging Sources Citation Index (Web of Science™ / Clarivate Analytics), which allowed increasing the international visibility of the Journal and to contribute to the accounting of citations of works published by the H index. In addition, the number of authors and country of publication can also help spread among peers, therefore influencing the number of citations [27].

The possible limitations of this study were related to the form of identification of the institutional affiliation of authors, the criteria of classification of dental specialties and methodological design. The criterion adopted, based on the corresponding author, may have inadequately categorized some studies, since there may be collaborators from several institutions in the same work. On the other hand, the standardization of data collected is fundamental in bibliometric studies, and possibly allowed obtaining results with less information bias. In relation to dental specialties, another option for classification could have been used, such as the areas established by the International Association for Dental Research (IADR), which could have altered the distribution of articles within specialties. However, the definition of the study design was based on international classification references [10,11], allowing comparison with other publications from different parts of the world.

In view of the above, it could be inferred that the currently adopted editorial policy, the increase in international visibility provided by indexing in the Emerging Sources Citation Index database (Web of Science™ / Clarivate Analytics) and the increase of indicators in Scopus®/SCImago/Elsevier, accredited the Journal for a better classification in the Brazilian system of journal evaluation (Qualis Capes) in the area of Dentistry to be published in 2018 by the Coordination for the Improvement of Higher Education Personnel.

Conclusion

The Pesquisa Brasileira em Odontopediatria e Clínica Integrada journal (PBOCI) has become a vehicle of fundamental importance for the dissemination of oral health investigations produced by Brazilian and foreign researchers. Specifically in Brazil, studies involve Pediatric Dentistry and Community Health, laboratory and cross-sectional studies, and are mostly from Universities in the Northeastern and Southeastern regions. The scientific knowledge produced in the other regions, as well as in specialties that characterize Integrated Clinic, such as Periodontics, Dental Prosthesis and Maxillofacial Surgery and Traumatology, have been poorly represented in publications, indicating future opportunities. In relation to foreign participation, there is predominance of research from countries such as India, Nigeria and Bosnia.

Acknowledgments

This study was supported by the National Council for Scientific and Technological Development (CNPq) - Fellowship of Research Productivity (Process 302850/2016-3).

References

1. Campos M. Conceitos atuais em bibliometria. *Arq Bras Oftalmol* 2003; 66(4):18-22. [Portuguese]
2. Brasil. Ministério da Educação. Relatório de Avaliação – Odontologia. Coordenação de Aperfeiçoamento de Pessoal de Nível Superior. 2017. Available at: <http://capes.gov.br/images/stories/download/avaliacao/relatorios-finais-quadrienal-2017/20122017-ODONTOLOGIA-quadrienal.pdf>. [Accessed March, 15 2018]. [Portuguese]
3. Vanti NAP. From bibliometry to webometry: A conceptual exploration of several forms of measuring information and knowledge. *Ci Inf* 2002; 31(2):152-62. doi: 10.1590/S0100-19652002000200016.
4. Guimarães JAC, Gracio MCC, Matos DFO. Scientific production of research grantees in Information Science from the National Council for Scientific and Technological Development (CNPq): A study of journal articles. *DataGramaZero* 2014; 15(2):1-8.
5. Okubo Y. Bibliometric indicators and analysis of research systems: Methods and examples. Paris: OCDE; 1997/ STI; Working Papers; 1997/1.
6. Kim MY, Jarshen L, White R, Niederman R. Benchmarking the endodontic literature on Medline. *J Endod* 2001; 27(7):470-3. doi: 10.1097/00004770-200107000-00009.
7. Dias AA, Narvai PC, Rêgo DM. Scientific output trends in oral health in Brazil. *Pan Am J Public Health* 2008; 24(1):54-60.
8. Barata RCB. Ten things you should know about the Qualis. *RBPG* 2016; 13(30):13-40. doi: 10.21713/2358-2332.2016.v13.947.
9. Farias MR, Storb BH, Storpirtis S, Leite SN. Impact Factor: An appropriate criterion for the Qualis journals classification in the Pharmacy area?. *Braz J Pharm Sci* 2017; 53(3):e01001. doi: 10.1590/s2175-97902017000301001.
10. Fletcher RH, Fletcher SW. *Clinical Epidemiology: The essentials*. Baltimore: Lippincott Williams & Wilkins; 2005.
11. Dekkers OM, Egger M, Altman DG, Vandenbroucke JP. Distinguishing case series from cohort studies. *Ann Intern Med* 2012; 156(1):37-40. doi: 10.7326/0003-4819-156-1-201201030-00006.
12. Brasil. Conselho Federal de Odontologia (CFO). Consolidação das Normas para Procedimentos nos Conselhos de Odontologia - Resolução: CFO - 161/2015. Available at: <http://www.nota10.com.br/ResolucaoCFO16115.pdf>. [Accessed March, 15 2018]. [Portuguese]
13. Miranda PEV. Continuous publication. *Matéria* 2011; 22(1):00001. doi: 10.1590/s1517-707620170001.0241.
14. Birman EG. Rumos da pesquisa odontológica. *Pesq Odontol Bras* 2002; 16(4):1. [Portuguese]
15. Moimaz SAS, Amaral MA, Garbin CAS, Saliba TA. Brazilian national exam on students' performance (Enade) in dentistry: Quantitative and qualitative analysis of the 2016 national exam. *Pesq Bras Odontoped Clin Integr* 2018; 18(1):e3672. doi: 10.4034/PBOCI.2018.181.06.
16. Celeste RK, Warmling CM. Brazilian bibliographical output on public oral health in public health and dentistry journals. *Ciência Saúde Coletiva* 2014; 19(6):1921-32. doi: 10.1590/1413-81232014196.04932013.
17. Oliveira GJ, Oliveira ES, Leles CR. Survey of study design of papers published in Brazilian dental journals. *Rev Odonto Cienc* 2007; 22(55):42-7.
18. Bervian J, Bruch CM, Rodrigues PH, Poletto VC, Kramer PF. Bibliometric analysis of scientific production in the Revista da Faculdade de Odontologia da Universidade de Passo Fundo (RFO/UPF), Brazil. *RFO* 2011; 16(3):244-51.
19. Rode SM. Editorial. *Pesq Odontol Bras* 2000; 14(supl):1. [Portuguese]
20. Sutherland SE. An introduction to systematic reviews. *J Evid Base Dent Pract* 2004; 4(1):47-51. doi: 10.1016/j.jebdp.2004.02.021.
21. Al-Namankany AA, Ashley P, Moles DR, Parekh S. Assessment of the quality of reporting of randomized clinical trials in paediatric dentistry journals. *Int J Paediatr Dent* 2009; 19(5):318-24. doi: 10.1111/j.1365-263X.2009.00974.x.
22. Cavalcanti AL, Melo TRNB, Barroso KMA, Souza FEC, Maia AMA, Silva ALO. The scientific dental research profile in Brazil. *Pesq Bras Odontoped Clin Integr* 2004; 4(2):99-104.
23. Guimarães R, Lourenço R, Cosac S. Epidemiological research in Brazil. *Rev Saúde Pública* 2001; 35(4):321-40. doi: 10.1590/S0034-89102001000400001.
24. Pontes KT, Silva EL, Mâcedo Filho RA, Silva DR, Lima FJ. Bibliometric study of scientific production in Endodontics. *Arch Health Invest* 2017; 6(9):435-8. doi: 10.21270/archi.v6i9.2221.

25. Brito Jr. M, Dias LC, Veloso DNP, Camilo CC, Martins AMEBL, Ferreira RC. Bibliometric study of Brazilian manuscripts published in international journals of endodontics: 2008-2010. *Arq Odontol* 2011; 47(2):84-9.
26. Xavier AFC, do Ó AL, Cavalcanti AL. Analysis of the scientific production in dentistry in the Brazilian northeastern region based on data from a dentistry conference. *Arq Odontol* 2011; 47(3):127-34.
27. Muniz FWMG, Celeste RK, Oballe HJR, Rösing CK. Citation analysis and trends in review articles in dentistry. *J Evid Based Dent Pract* 2018; 18(2):110-18. doi: 10.1016/j.jebdp.2017.08.003.