

A bibliometric analysis of articles published in the Saudi Endodontic Journal

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Abstract

Introduction: Bibliometric evaluation of the scientific literature quantifies the growth of individual articles and assesses their impact on subsequent publications within that field. This study investigated the bibliometric attributes of articles published in Saudi Endodontic Journal (SEJ) from 2011 to 2020.

Materials and Methods: A retrospective study was carried out on the datasets which were retrieved manually from the SEJ website in September 2020. The chronological growth of the journal was assessed based on the annual growth rate. Type and field of study for each article were categorized. The most prolific author, institution, and country were identified as well as citation and authorship patterns. Descriptive analysis of the data was performed.

Results: A total of 280 articles met the selection criteria for inclusion in the study. The total number of citations received was 1061 with 3.8 cites/document, with an average annual growth rate of 36.7%. The most frequent types of study were laboratorial (37.9%), case report (33.2%), and survey (11.1%). The most commonly occurring fields of study were root canal anatomy (25.7%), irrigation (14.6%), and canal instrumentation (12.9%). Literature reviews (9.6%) and articles on endodontic microbiology (8.3%) were associated with more citations compared to other study types and field of study, respectively. Saad Al-Nazhan has emerged as the most prolific author ($n = 16$; 5.7%), King Saud University as the most contributing institution ($n = 40$; 14.3%), and Saudi Arabia as the most contributing country ($n = 112$; 40%).

Conclusion: SEJ has contributed significantly to the growth of endodontic literature as evident by the diversity of subjects covered in the past 10 years. The increased growth in international audience reflects the sturdy confidence of the scientific community on SEJ.

Keywords: Bibliometry, citation analysis, endodontics, Saudi Endodontic Journal

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Submission: 26-02-21

Revision: 07-04-21

Acceptance: 08-04-21

Web publication: 03-09-21

Access this article online

Quick Response Code:



Website:

www.saudiendodj.com

DOI:

10.4103/sej.sej_43_21

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How to cite this article: Alfadley A, Ul Haq I, Jamleh A, Alfouzan K, Al-Nazhan S. A bibliometric analysis of articles published in the Saudi Endodontic Journal. Saudi Endod J 2021;11:327-33.

INTRODUCTION

Journals are considered a vital source for the exchange of scientific, innovative, and scholarly findings among clinicians and researchers. They also serve as a platform for scientists to add new theories, improve the existing knowledge, and formulate the creative mode of practice.^[1] Health-care professionals should carefully appraise the design of published articles in their pursuit to achieve evidence-based practice. Relying on isolated data alone such as authors' affiliation, journal name, or citation rates to judge to quality of published work is not sufficient. For instance, the number of citations received by an article is more likely to reflect the impact of that article on subsequent publications rather than their scientific quality.^[2]

The published literature of specific genre of knowledge needs to be periodically evaluated to highlight the various attributes of research articles.^[3] Alan Prichard introduced the expression of bibliometric in 1969, for the quantitative analysis, organization, and classification of articles using statistical and mathematical calculus.^[4] Bibliometric evaluation of published literature is used to provide important information on aspects such as study designs used in the articles as well as previous and contemporary research trends. Furthermore, it allows to identify productive authors, institutions, and countries. Based on that, subsequent decisions can be made such as review of existing policies including but not limited to changes in the criteria for allocation of research grants.^[5,6]

The scientists of University of Granada, Spain, are maintaining the research portal, Scimago Journal and Country Rank (SJR), based on the Scopus database. SJR provides the publications' record of 240 countries of the world. Saudi Arabia ranked 41st with 211,269 publications from 1996 to 2019, and the share of dentistry was 3761 publications, which equates to 1.78% of the total research output. It is encouraging that Saudi Arabia ranked 29th with 27,715 publications in 2019, and the share of dentistry was 687 documents, about 2.47% of the total research output. Saudi Arabia ranked 9th in dental research in global perspective for 2019.^[7]

The Saudi Endodontic Society (SES) was founded in 2010, under the canopy of the Saudi Commission for Health Specialties. In the same year, the Saudi Endodontic Journal (SEJ) was launched as a peer-reviewed and open access journal with a view to promote the art and science of endodontics locally and internationally. A renowned publisher (Medknow–Wolters Kluwer Health) is publishing three issues of the journal per annum. The president of

the SES stated in the first issue of SEJ “this journal is an appropriate and effective mode for exchange of scientific ideas and innovations,” and he encouraged endodontists to share their research findings related to the diverse themes of the specialty.^[8] There are 251 journals under the subject of dentistry and 113 under the subcategory of general dentistry that are indexed in the Elsevier's Scopus database. SEJ was indexed in general dentistry category in 2015, in the third quartile category (Q3).

Fardi *et al.*^[9] conducted the first bibliometric analysis in endodontics. In that study, trends in endodontic research were assessed by evaluating the 100 top-cited articles of five endodontic journals.^[9] Since then, several articles reporting on the various bibliometric characteristics have been published in esteemed dental and endodontic journals.^[10-13] For instance, Ordinola-Zapata *et al.* have recently reported a detailed citation analysis of research articles published in the International Endodontic Journal and Journal of Endodontics over 40 years period between 1980 and 2019.^[14] As the SEJ approaches its 10th anniversary, the authors of this work find this as an appropriate time to conduct an elaborate review of previously published articles in SEJ. Hence, the aim of this article is to assess the bibliometric indicators of the articles published in the SEJ from 2011 to 2020.

MATERIALS AND METHODS

This retrospective and observational study was carried out on the 10 years publication record of SEJ. The data were manually retrieved from the website of the SEJ (<http://www.saudiendodj.com/>) in September 2020, after the publication of the last issue of volume 10. All articles were screened and assessed by two investigators to determine their suitability for inclusion. All full-text manuscripts (original articles, case reports, and review articles) were included, whereas editorial materials, newsletters, and proceeding papers were excluded from the study.

The following variables about each article were collected: authors' names, number of authors, authors' affiliations, document title, keywords, year, volume, issue, and citation counts (based on google scholar). After evaluating the titles and abstracts (and full-text articles when required), the type of study was categorized as case report/series, clinical, epidemiological, laboratorial, review article, survey, systematic review/meta-analysis, and other (in case the study did not correspond to any of the previous types). The field of study was determined based on the subspecialties included in Fardi *et al.*'s^[9] study with minor modifications.

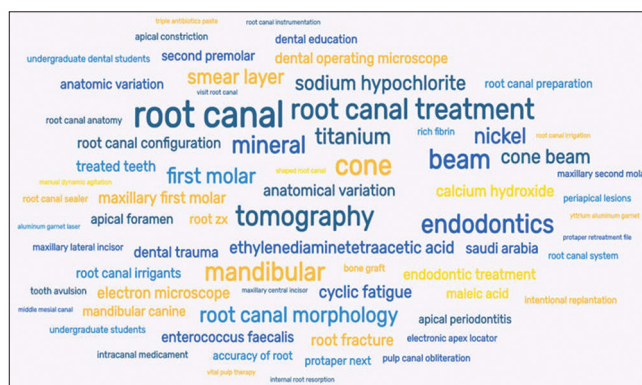
The following information were also determined: most contributing authors, institutions, and countries, as well as top-cited articles in SEJ. To ensure fair representation of scientific institutions and countries, the articles that were produced by authors from more than one institution or country were credited to all applicable institutions and/or countries. The addresses of all authors and coauthors were also noted in order to assess the institutional collaboration type (i.e., individual institution, multi-institutional collaboration within the same country, or international collaboration). The data were analyzed descriptively using Microsoft Excel. The annual growth rate of articles for each year was calculated using the following formula: ^[16]

$$= \frac{\left(\frac{\text{No. of articles for year of interest} - \text{No. of articles for previous year}}{\text{No. of articles for previous year}} \right) \times 100}{\text{No. of articles for previous year}}$$

The data included all manuscripts (original articles, case reports, and review articles) published in SEJ between September 2011 and December 2020. Based on that, 280 documents, published in 28 issues of the journal, met the selection criteria for the study. This corresponds to an average of 28 documents per year (volume) and 10 documents per issue. The average annual growth rate for the journal was 36.7%. About 63% of the documents were published between 2016 and 2020. A total of 1061 citations were received by the 280 documents, with an average of 3.8 citations per documents. The best average citations per document (8.5) was recorded in 2014 [Table 1].

series (33.2%) and cross-sectional surveys (11.1%). The citation analysis of different study types revealed that the highest cites/document were associated with review articles (9.6), followed by epidemiological studies (6.8) and laboratorial research (3.9). Regardless of the article type, most of the articles belonged to the field of root canal anatomy (25.7%), followed by irrigation (14.6%), canal instrumentation (12.9%), and radiology (12.1%). The citation analysis of the different endodontic themes showed that the highest cites/document were observed for articles on endodontic microbiology (8.3), followed by leakage studies (6.7), intracanal dressing (4.9), and irrigation (4.9). Figure 1 shows word cloud of frequently used keywords from all articles in the study sample. The most common terms found in the keyword section included expected terms and words such as root canal, root canal treatment, endodontics, tomography, sodium hypochlorite, mandibular, root canal morphology, mineral, nickel, titanium, cone, beam, and cyclic fatigue.

Table 4 presents institutions that have contributed five or more publications to SEJ in the specified period. The most prolific institution was King Saud University ($n = 40$; 14.3%), followed by Riyadh Elm University (formerly known Riyadh College of Dentistry and Pharmacology; $n = 22$; 7.9%), Manipal University ($n = 21$; 7.5%), and King



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Table 1: Distribution of documents by years, growth pattern, citations, and cites/doc

Year	Documents, n (%)	Cumulative growth, n (%)	Annual growth rate (%)	Citations	Cites/doc
2011	7 (2.5)	7 (2.50)	NA	19	2.7
2012	24 (8.6)	31 (11.1)	242.9	156	6.5
2013	20 (7.1)	51 (18.2)	-16.7	141	7.1
2014	25 (8.9)	76 (27.1)	25	212	8.5
2015	28 (10)	104 (37.1)	12	177	6.3
2016	24 (8.6)	128 (45.7)	-16.7	124	5.2
2017	33 (11.8)	161 (57.5)	37.5	107	3.2
2018	35 (12.5)	196 (70)	6.1	77	2.2
2019	35 (12.5)	231 (82.5)	0	42	1.2
2020	49 (17.5)	280 (100)	40	6	0.1
Total	280 (100)	-	-	1061	-
Average	28.00	-	36.7	106.1	3.8

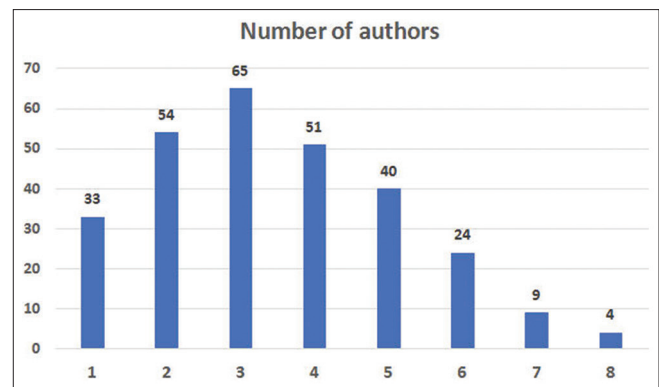
NA: Not available

Table 2: Distribution of articles based on type and field of study

	Articles, n (%)	Citations	
		n	Cites/doc
Type of study			
Case report	93 (33.2)	242	2.6
Clinical	5 (15.4)	56	3.7
Epidemiological	12 (4.3)	81	6.8
Laboratorial	106 (37.9)	417	3.9
Review article	16 (5.7)	153	9.6
Survey	31 (11.1)	107	3.5
Systematic review/meta-analysis	3 (1.1)	6	2
Other	4 (1.4)	2	0.5
Field of study			
Canal instrumentation	36 (12.9)	110	3.1
Dentin-pulp complex	15 (5.4)	52	3.5
Endodontic microbiology	13 (4.6)	108	8.3
Endodontic surgery	11 (3.9)	34	3.1
Intracanal dressing	10 (3.6)	49	4.9
Irrigation	41 (14.6)	199	4.9
Leakage	3 (1.1)	20	6.7
MTA	15 (5.4)	65	4.3
Nonsurgical retreatment	9 (3.2)	38	4.2
Obturation	28 (10)	102	3.6
Procedural errors	15 (5.4)	58	3.9
Pulpal and periapical diseases	22 (7.9)	85	3.9
Radiology	34 (12.1)	101	3
Regenerative endodontics	8 (2.9)	20	2.5
Restoration	25 (8.9)	62	2.5
Root canal anatomy	72 (25.7)	266	3.7
Root resorption	3 (1.1)	3	1
Smear layer	14 (5)	56	4
Success and failure	14 (5)	24	1.7
Traumatic dental injuries	18 (6.4)	43	2.4
Vital pulp therapy	7 (2.5)	9	1.3
Other	23 (8.2)	82	3.6

MTA: Mineral trioxide aggregate

Saud bin Abdulaziz University for Health Sciences ($n = 14$; 5%). There was a total of 254 institutions (including 8 private practices) with which the contributing authors were affiliated. Of the total articles, 156 were from individual institutions (55.7%), 96 came from multi-institutional collaboration within the same country (34.3%), and 28 were the result of international collaboration (10%). The contributing authors for the articles belong to 36 countries. The most prolific country was Saudi Arabia ($n = 112$; 40%), followed by India ($n = 110$; 39.3%). Egypt, Malaysia, and

**Figure 2: Authorship pattern of articles published in Saudi Endodontic Journal from 2011 to 2020**

Turkey contributed 9 articles each (3.2%) [Table 5].

The top-10-cited articles published in SEJ between 2011 and 2020 were cited 215 times, with a range from 15 to 38 and an average of 21.5 citations per article [Table 6]. The number of citations received was 215 citations, with a range from 15 to 38 and an average of 21.5 citations per article. Among the most-cited papers, the most frequently observed study type was laboratory-based research ($n = 4$), followed by review articles ($n = 3$). The main themes of articles in the top-10 citation list were irrigation and root canal anatomy ($n = 3$). Most of the articles in the top-10 list were conducted by authors from India ($n = 4$) and Saudi Arabia ($n = 3$) and were published in 2013 ($n = 4$). The most cited article by Garg *et al.* has assessed the antimicrobial efficacy of various irrigants against *Enterococcus faecalis* and was able to attract 38 citations.^[17] The elegant review article by Ruddle on endodontic disinfection came as a close second with 37 citations.^[18]

DISCUSSION

Saudi Arabia is playing a leading role in the patronization and creation of knowledge in the Arab World.^[19] A recent study on dental research output revealed that Saudi authors

Table 3: Authors with five or more publications

Author	Affiliated institutions	Publications, n (%)
Saad Al-Nazhan	King Saud University and Riaydh Elm University, Saudi Arabia	16 (5.7)
Nidambur Vasudev Ballal	Manipal University, India	9 (3.2)
Khalid Al-Fouzan	King Saud bin Abdulaziz University for Health Sciences, Saudi Arabia	8 (2.9)
Mohammad Ahmad Alenezi	Riyadh College of Dentistry and Pharmacy, Saudi Arabia and Ministry of Health, Kuwait	6 (2.1)
Abdelhamied Yousef Saad	King Saud University, Saudi Arabia	5 (1.8)
Ibrahim Ali Ahmad	Riyadh College of Dentistry and Pharmacology and Al Wakra Hospital, Hamad Medical Corporation, Qatar	5 (1.8)
Mansour Al-Rejaie	King Saud bin Abdulaziz University for Health Sciences, Saudi Arabia	5 (1.8)
Mohammed S Alenazy	King Khalid Hospital, Alkharj, Saudi Arabia	5 (1.8)
Mothanna Alrahabi	Taibah University, Saudi Arabia	5 (1.8)
Nassr Al-Maflehi	King Saud University, Saudi Arabia	5 (1.8)
Rakesh Mittal	Sudha Rustagi College of Dental Sciences and Research, India	5 (1.8)
Shashi Prabha Tyagi	Kothiwal Dental College and Research Centre, India	5 (1.8)

Table 4: Institutions with five or more publications

Institutions/country	Publications, n (%)
King Saud University, Saudi Arabia	40 (14.3)
Riaydh Elm University (Riyadh Colleges of Dentistry and Pharmacy), Saudi Arabia	22 (7.9)
Manipal Academy of Higher Education, Manipal University Mangalore, India	21 (7.5)
King Saud bin Abdulaziz University for Health Sciences, Saudi Arabia	14 (5)
King Abdulaziz University, Saudi Arabia	13 (4.6)
Prince Sultan Military Medical City, Saudi Arabia	11 (3.9)
All India Institute of Medical sciences, India	8 (2.9)
Taibah University, Saudi Arabia	6 (2.1)
Kothiwal Dental College and Research Centre, India	6 (2.1)
Sudha Rustagi College of Dental Sciences and Research, India	5 (1.8)
Al Jouf University, Saudi Arabia	5 (1.8)
Ministry of Health, Riyadh, Saudi Arabia	5 (1.8)

Table 5: Research productivity (3 and above) based on country

Rank	Countries	Publications, n (%)
1	Saudi Arabia	112 (40)
2	India	110 (39.3)
3	Egypt	9 (3.2)
4	Malaysia	9 (3.2)
5	Turkey	9 (3.2)
6	Kuwait	7 (2.5)
7	USA	6 (2.1)
8	Jordan	5 (1.8)
9	Indonesia	4 (1.4)
10	Italy	4 (1.4)
11	Greece	3 (1.1)
12	Iran	3 (1.1)
13	Qatar	3 (1.1)
14	Thailand	3 (1.1)
15	UAE	3 (1.1)

contributed to about 37% of dental research produced by the 22 Arab countries.^[20] Al-Mohaya reported on dental articles published in the Saudi Medical Journal between 2009 and 2016. Among the 89 dental articles, around 62% were contributed by Saudi Arabian authors.^[21] The share of dental research among total publications produced by Saudi Arabia from 2009 to 2018 was found to be 1.34%, with a total of 1771 publications.^[22]

SEJ is indexed in the Scopus database since 2015 and the dataset for the current study was collected from journal website to present complete coverage for the past

decade (2011–2020). Bibliometric analysis of published articles not only provides a historical perspective on scientific progress in the field of interest but also shows the trends in research. This study provides an overview of research progress and prevailing themes in endodontic science during the last decade in Saudi Arabia. Such progression can be observed in the remarkable growth from 24 articles in 2012 to 49 articles published in SEJ in 2020. While the number of citations that an article receives does not necessarily reflect the scientific quality of the paper, it indicates its recognition by the scientific community and its influence on subsequent publications.^[9] In this bibliometric analysis, the selected documents received 1061 citations with an average of 3.8 citations/document. A study on orthodontics research by Saudi Arabian authors reported that 302 papers received 1348 citations (4.46 cites/doc) in 24 years period.^[23] This is not surprising, however, as the date of publication is an important parameter and usually older documents attain more citations than new ones. Furthermore, citation counts may vary for each specialty and might be affected by the number of researchers publishing in a particular field of interest.^[24]

In agreement with previous studies,^[9–11] the dominance of laboratory-based research was noted in this study. This might have resulted from ethical issues prohibiting

Table 6: Top-10 cited articles published in Saudi endodontic journal between 2011 and 2020

Rank	Article	Type of article	Field of study	Country	Citations
1	Garg P, Tyagi SP, Sinha DJ, Singh UP, Malik V, Maccune ER. Comparison of antimicrobial efficacy of propolis, Morinda citrifolia, Azadirachta indica, triphala, green tea polyphenols and 5.25% sodium hypochlorite against Enterococcus faecalis biofilm. Saudi Endod J 2014;4:122-7	Laboratorial	Irrigation Endodontic microbiology	India	38
2	Ruddle CJ. Endodontic disinfection: Tsunami irrigation. Saudi Endod J 2015;5:1-12	Review article	Irrigation	United States	37
3	Al-Fouzan KS, AlManee A, Jan J, Al-Rejaie M. Incidence of two canals in extracted mandibular incisors teeth of Saudi Arabian samples. Saudi Endod J 2012;2:65-9	Laboratorial	Root canal anatomy	Saudi Arabia	23
4	Chakravarthy PK, Moorthy JK. Radiographic assessment of quality of root fillings performed by undergraduate students in a Malaysian Dental School. Saudi Endod J 2013;3:77-81	Clinical	Obturation	Malaysia	21
5	Allothmani OS, Chandler NP, Friedlander LT. The anatomy of the root apex: A review and clinical considerations in endodontics. Saudi Endod J 2013;3:1-9	Review article	Root canal anatomy	Saudi Arabia and New Zealand	17
6	Al-Nazhan S, Al-Daifas A, Al-Maflehi N. Radiographic investigation of in vivo endodontically treated maxillary premolars in a Saudi Arabian sub-population. Saudi Endod J 2012;2:1-5	Epidemiological	Root canal anatomy	Saudi Arabia	16
7	Jain D, Dasar PL, Nagarajappa S. Natural products as storage media for avulsed tooth. Saudi Endod J 2015;5:107-13	Review article	Traumatic dental injuries	India	16
8	Martina LP, Ebenezar AV, Ghani MF, Narayanan A, Sundaram M, Mohan AG. An <i>in vitro</i> comparative antibacterial study of different concentrations of green tea extracts and 2% chlorhexidine on Enterococcus faecalis. Saudi Endod J 2013;3:120-4	Laboratorial	Irrigation Endodontic microbiology	India	16
9	Sonu KR, Girish TN, Ponnappa KC, Kishan KV, Thameem PK. "Comparative evaluation of dentinal penetration of three different endodontic sealers with and without smear layer removal" - Scanning electron microscopic study. Saudi Endod J 2016;6:16-20	Laboratorial	Obturation Smear layer	India	16
10	Alhekeir DF, Al-Sarhan RA, Mokhlis H, Al-Nazhan S. Endodontic mishaps among undergraduate dental students attending King Saud University and Riyadh Colleges of Dentistry and Pharmacy. Saudi Endod J 2013;3:25-30	Survey	Procedural errors	Saudi Arabia	15

experiments on humans, a lack of suitable alternatives to root canal treatment^[25] or the presence of some studies where *in vivo* models could be utilized. Despite that, laboratory research is essential to confirm the effectiveness of materials or techniques prior to its use in clinical practice. In light of this, it is recommended to investigate barriers to conduct studies with higher level of evidence such as systematic reviews and randomized controlled trials. In this study, the odds of being highly cited was higher for literature reviews as reflected by their cites/document value. A similar finding was noted by Moraes *et al.*, who assessed the bibliometric attributes of articles published in the Brazilian dental journal over 30 years period.^[10] This might be attributed to the fact that the authors tend to cite the review article instead of the original paper.^[26]

In this study, root canal anatomy was the most common field of study covered by the published articles. There are two possible explanations for this observation. First, about one-third of the published articles in SEJ were case reports. Second, the widespread use of contemporary endodontic advancements in recent years such as dental operating microscope and cone-beam computed tomography has contributed to the surge in number of publications

related to root canal anatomy. Regarding the field of study, endodontic microbiology was the most commonly cited subspecialty. This might be another evidence of the strong association between the field of microbiology and endodontics as a clinical discipline. It is noteworthy to mention that in previous studies that assessed top-cited articles in endodontics, endodontic microbiology was found to be the most commonly occurring endodontic subspecialty.^[9,11]

The contributing authors for the articles belong to 36 countries and about 60% of the papers were produced by international authors. Hence, while SEJ is a known regional journal that publishes research manuscripts in different areas of endodontics, the presented data suggest that the journal has succeeded in attracting the attention of international endodontic community. This study has its own limitations. The present bibliometric analysis assessed the 10 years publication record of SEJ using descriptive statistical methods. Future work should compare the performance of SEJ with regional dental journals. After successful 10-year journey, now, it might be the right time for SEJ to increase the frequency of publications from 3 issues per annum to make it quarterly with 4 issues per annum.

CONCLUSION

SEJ provides a platform for clinicians and researchers to share their findings with the scientific dental community through published work. The journal has covered different fields of study and study designs during its 10 years of existence so far. The fact that about three-fifths of the published articles involved international authors reflects the increasing growth in international audience of SEJ.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

- Warriach NF, Ahmad S. Pakistan Journal of Library and Information Science: A bibliometric analysis. Pak J Info Manage Lib 2016;12:1-7.
- Cheek J, Garnham B, Quan J. What's in a number? Issues in providing evidence of impact and quality of research(ers). Qual Health Res 2006;16:423-35.
- Jamjoom AB. Medical speciality research in Saudi Arabia: A bibliometric assessment of productivity and worldwide ranking. J Health Spec 2017;5:23-9.
- Prichard A. Statistical bibliography or bibliometrics. J Doc 1969;25:348-9.
- Shehatta I, Mahmood K. Research collaboration in Saudi Arabia 1980–2014: Bibliometric patterns and national policy to foster research quantity and quality. Libri 2016;66:13-29.
- Hirsch JE. An index to quantify an individual's scientific research output. Proc Natl Acad Sci U S A 2005;102:16569-72.
- Scimago Journal & Country Rank. SJR International Science Ranking. Available from: <https://www.scimagojr.com/countryrank.php?year=2019>. [Last updated on 2020 Apr 01].
- Al Fouzan K. President's message. Saudi Endod J 2010;1:4.
- Fardi A, Kodonas K, Gogos C, Economides N. Top-cited articles in endodontic journals. J Endod 2011;37:1183-90.
- Moraes RR, Morel LL, Correa MB, Lima GD. A bibliometric analysis of articles published in Brazilian dental journal over 30 years. Braz Dent J 2020;31:10-8.
- Yılmaz B, Dinçol ME, Yalçın TY. A bibliometric analysis of the 103 top-cited articles in endodontics. Acta Odontol Scand 2019;77:574-83.
- Ahmad P, Dummer PM, Noorani TY, Asif JA. The top 50 most-cited articles published in the International Endodontic Journal. Int Endod J 2019;52:803-18.
- Adnan S, Ullah R. Top-cited articles in regenerative endodontics: A bibliometric analysis. J Endod 2018;44:1650-64.
- Ordinola-Zapata R, Peters OA, Nagendrababu V, Azevedo B, Dummer PM, Neelakantan P. What is of interest in endodontology? A bibliometric review of research published in the International Endodontic Journal and the Journal of Endodontics from 1980 to 2019. Int Endod J 2020;53:36-52.
- Loonen MP, Hage JJ, Kon M. Plastic surgery classics: Characteristics of 50 top-cited articles in four Plastic Surgery Journals since 1946. Plast Reconstr Surg 2008;121:320e-7e.
- Prats MI, Bahner DP, Panchal AR, King AM, Way DP, Lin S, et al. Documenting the growth of ultrasound research in emergency medicine through a bibliometric analysis of accepted academic conference abstracts. J Ultrasound Med 2018;37:2777-84.
- Garg P, Tyagi SP, Sinha DJ, Singh UP, Malik V, Maccune ER. Comparison of antimicrobial efficacy of propolis, *Morinda citrifolia*, *Azadirachta indica*, triphala, green tea polyphenols and 5.25% sodium hypochlorite against *Enterococcus faecalis* biofilm. Saudi Endod J 2014;4:122-7.
- Ruddle CJ. Endodontic disinfection: Tsunami irrigation. Saudi Endod J 2015;5:1-12.
- Zaher WA, Meo SA, Almadi MA, Neel KF. Research productivity of health-care institutions of Saudi government: Ten-year based bibliometric analysis. J Nat Sci Med 2018;1:13-6.
- Haq IU, Alfouzan SK, Alfouzan RK, Nadeem M, Latif A. Bibliometric appraisal on dental research at Kingdom of Saudi Arabia from 1998-2017. Libr Philos Pract 2019;2019:2518.
- Al-Mohaya MA. Dental publications at the Saudi Medical Journal: Where do we stand 2009-2016. Saudi Med J 2016;37:345-7.
- Haq IU, Al Fouzan K. Research in dentistry at Saudi Arabia: Analysis of citation impact. Libr Philos Pract 2019;2019:2765.
- Haq IU, Al Ehaideb A, Al-Jundi A. Publication output on orthodontics research in Saudi Arabia. Libr Philos Pract 2020;2020:3858.
- Garfield E. What Is a Citation Classic? Available from: <http://garfield.library.upenn.edu/classics.html>. [Last accessed on 2020 Dec 03].
- Torabinejad M, Kutsenko D, Machnick TK, Ismail A, Newton CW. Levels of evidence for the outcome of nonsurgical endodontic treatment. J Endod 2005;31:637-46.
- Garfield E. Citation-classics and citation behavior revisited. Curr Contents 1989;12:30-5.