

# Analysis And Visualisation Of Research Trends In Endodontic: A General Review

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## **ABSTRACT**

*Endodontic is the diagnosis, treatment, and prevention of diseases of the dental pulp and the surrounding tissues. Endodontic procedures can be surgical or non-surgical. The bibliometric analysis had been conducted to understand the active authors, organizations, journals, and countries involved in the research domain of “Endodontic” by using the published articles from “Scopus”. The resources were analyzed using the VOS viewer to develop analysis tables and visualization maps. The most active journal in this research domain was identified as the Journal of Endodontics and the International Endodontic Journal. The most active country of the research domain was the United States of America and the United Kingdom. The leading organizations engaged in the research regarding “Endodontic” were Saveetha Dental College and Hospitals and Saveetha Institute of Medical and Technical Sciences of India. The most active authors who had made valuable contributions related to “Endodontic” were Soltanoff W. and Seltzer S.*

**Keywords:** Endodontic, Bibliometric analysis, VOS viewer, Health

## **1. INTRODUCTION**

Endodontics is the diagnosis, treatment, and prevention of diseases of the dental pulp and the surrounding tissues<sup>1-2</sup>. In other words “endodontics” deals with the inside portion of teeth, various diseases associated with the dental pulp and surrounding tissues, its treatment, surgery, skills, and equipment. Endodontics procedures can be surgical or non-surgical. The non-surgical endodontics procedures are called endodontics treatments. The endodontics procedure involves root canal therapy, endodontics retreatment surgery, treating injuries and cracks in teeth, and dental pulp<sup>3</sup>. This study focuses on consolidating literature regarding “endodontics” by identifying the leading authors, countries, journals, and organizations engaged in research regarding “endodontics”. The first section is the introduction, followed by the discussion of the methodology by which the research was conducted. The third section deals with results. The fourth section deals with the discussion and conclusion.

### *1.1 Research Objectives*

- a) To consolidate the literature regarding the “Endodontics”
- b) To find out the trends related to research in the “Endodontics”

The following research questions are framed for conducting bibliometric analysis systematically.

### *1.2 Research Questions*

- a) Who are the active researchers working on “Endodontics”?
- b) Which are the main organizations and countries working on “Endodontics”?

c) Which are the main journals related to “Endodontics”?

## 2. RESEARCH METHODOLOGY

This bibliometric analysis had drawn resources only from the Scopus. For the article selection, the Boolean used was TITLE-ABS (Endodontics) on 30/12/2020. All the tables in this paper were created by using Microsoft Excel and VOS Viewer. Grammarly was used for spelling and grammar checks. Mendeley was used for article review and citation. This paper had been inspired by bibliometric analysis in its presentation style, analysis, and methodology from the works.<sup>4-8</sup>

## 3. RESULTS

This first round of search produced an outcome of 2330 documents, in 24 languages, out of which 1784 documents were in English. The classification of document categories is shown in Figure 1. For improving the quality of the analysis, we had selected only the peer-reviewed articles and all other documents had not been considered. Thus after using filters “Article” and “English” the second round search produced an outcome of 1201 English articles (both open access and others) and had been used to conduct bibliometric analysis and visualization using VOS Viewer. The English research articles in this domain since 1950 had been shown in Figure 2.

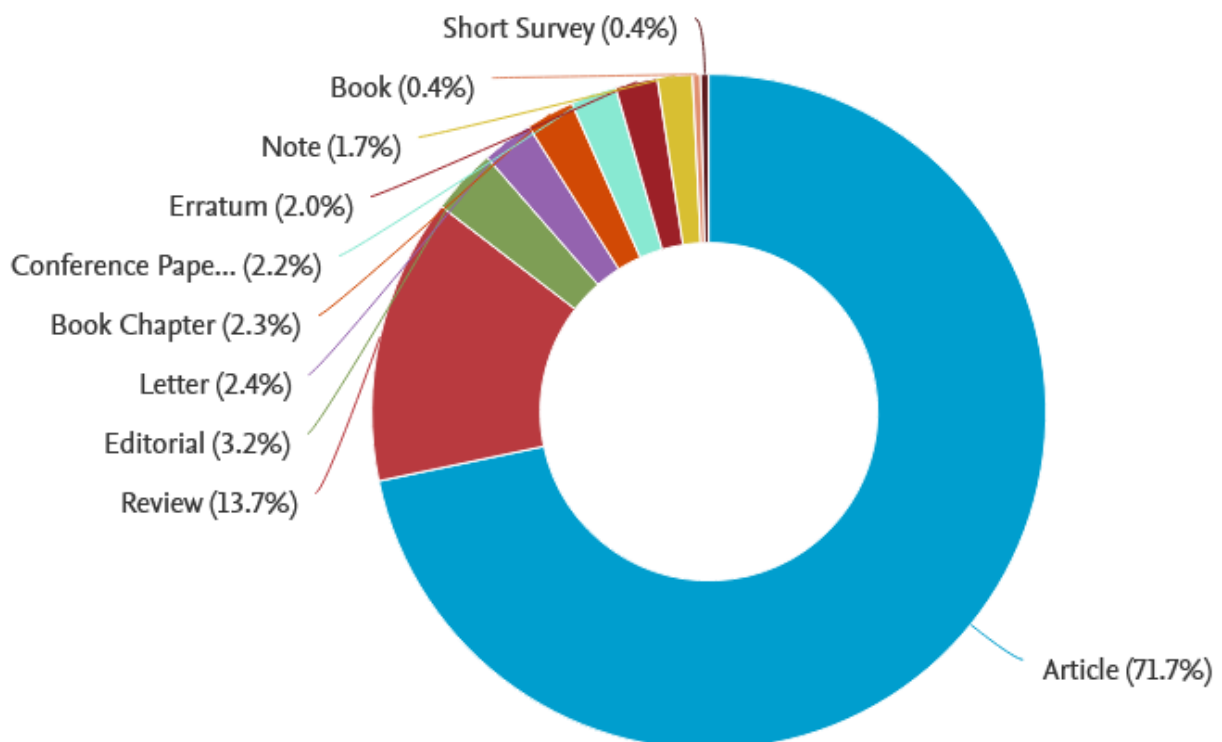


Figure 1: Classification of the documents on “Endodontic”, Source: www.scopus.com

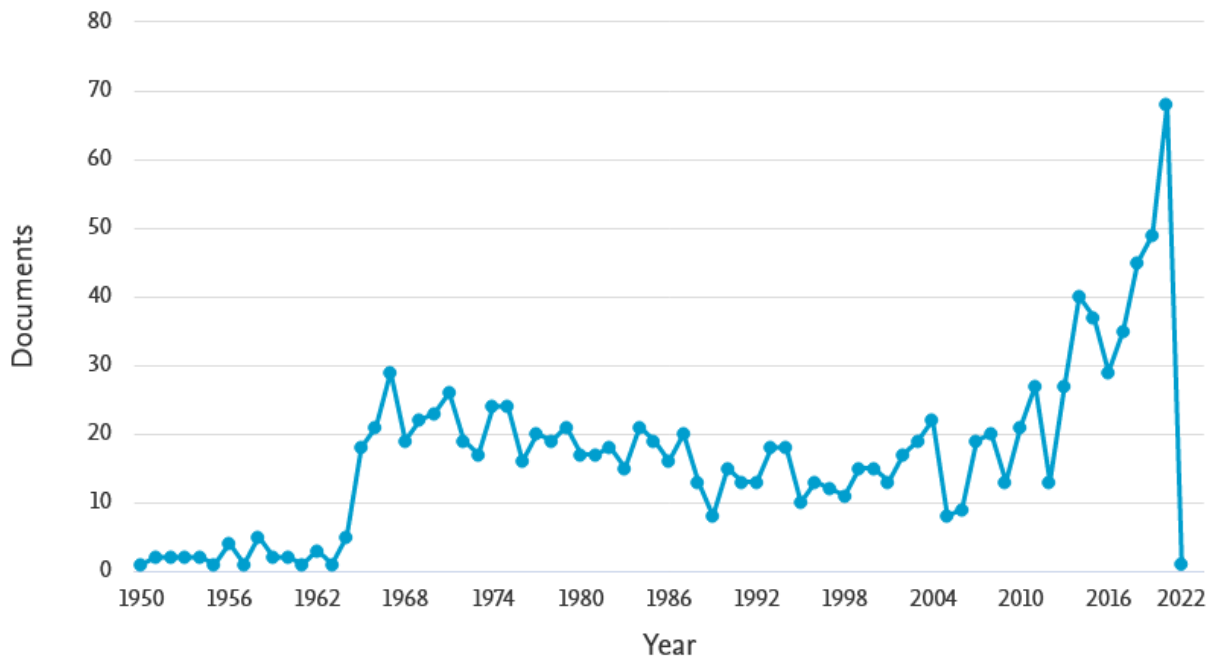


Figure 2: Period wise publication of English articles, Source: WWW.scopus.com

### 3.1 Who are the leading authors on “Endodontics”?

Co-authorship analysis, publication volume, and citation analysis had been used to spot out the leading authors on endodontics. The results of co-authorship analysis and citation analysis using VoS viewer are shown in figure 3 and figure 4 respectively. Leading authors based on publication volume are shown in Figure 5. For a better presentation of the analysis, the parameters used were the minimum number of documents of an author as seven and the minimum number of citations of authors as one. This combination plotted the map of 17 authors, in 15 clusters.

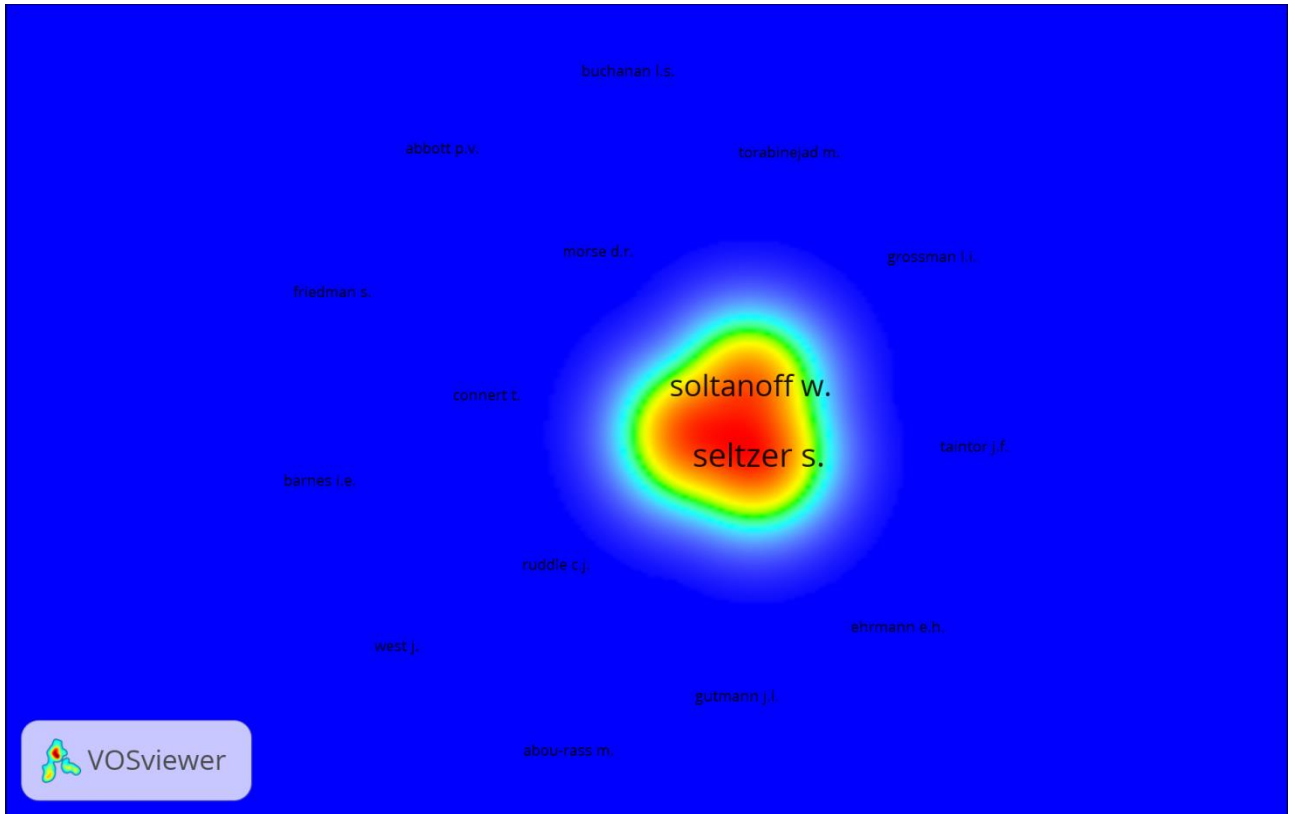


Figure 3: Co-authorship analysis on basis of authors

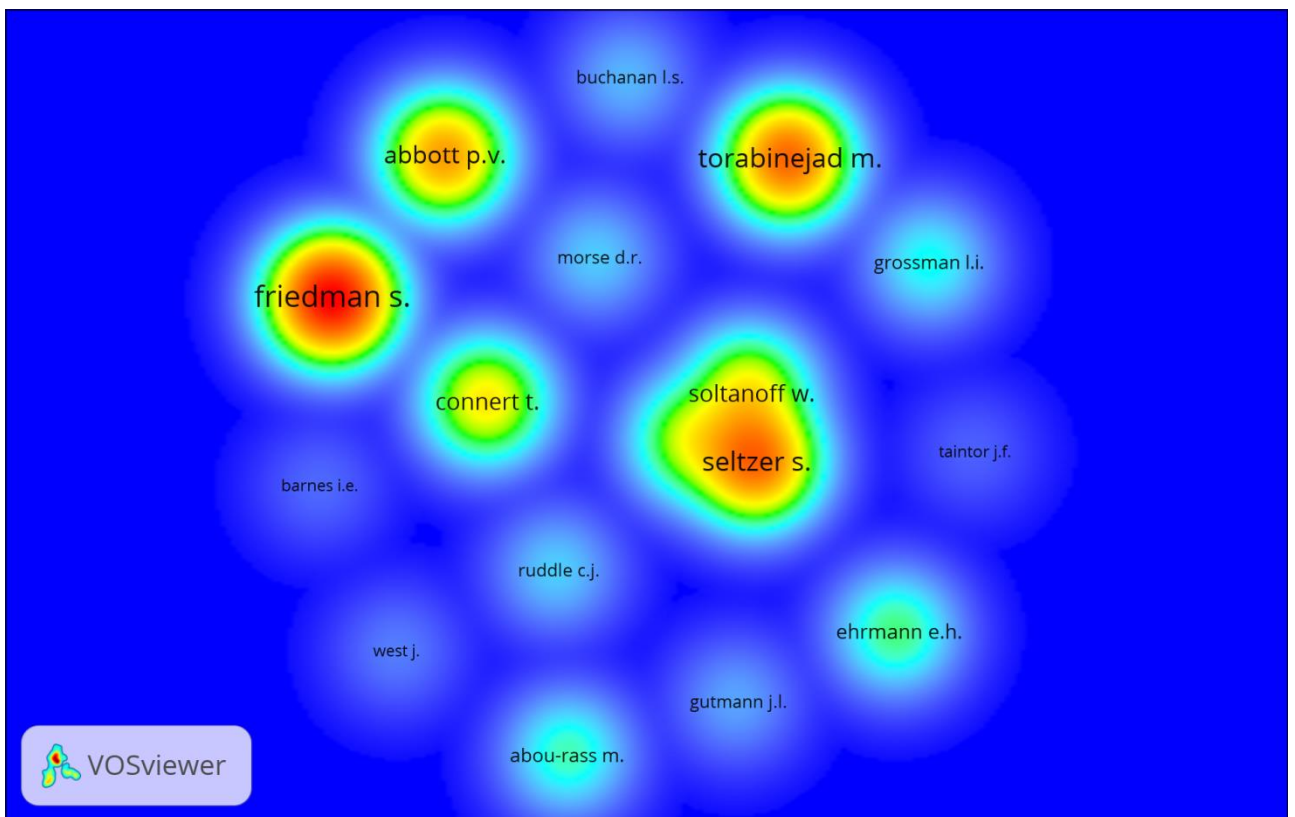


Figure 4: Citation analysis based on authors.

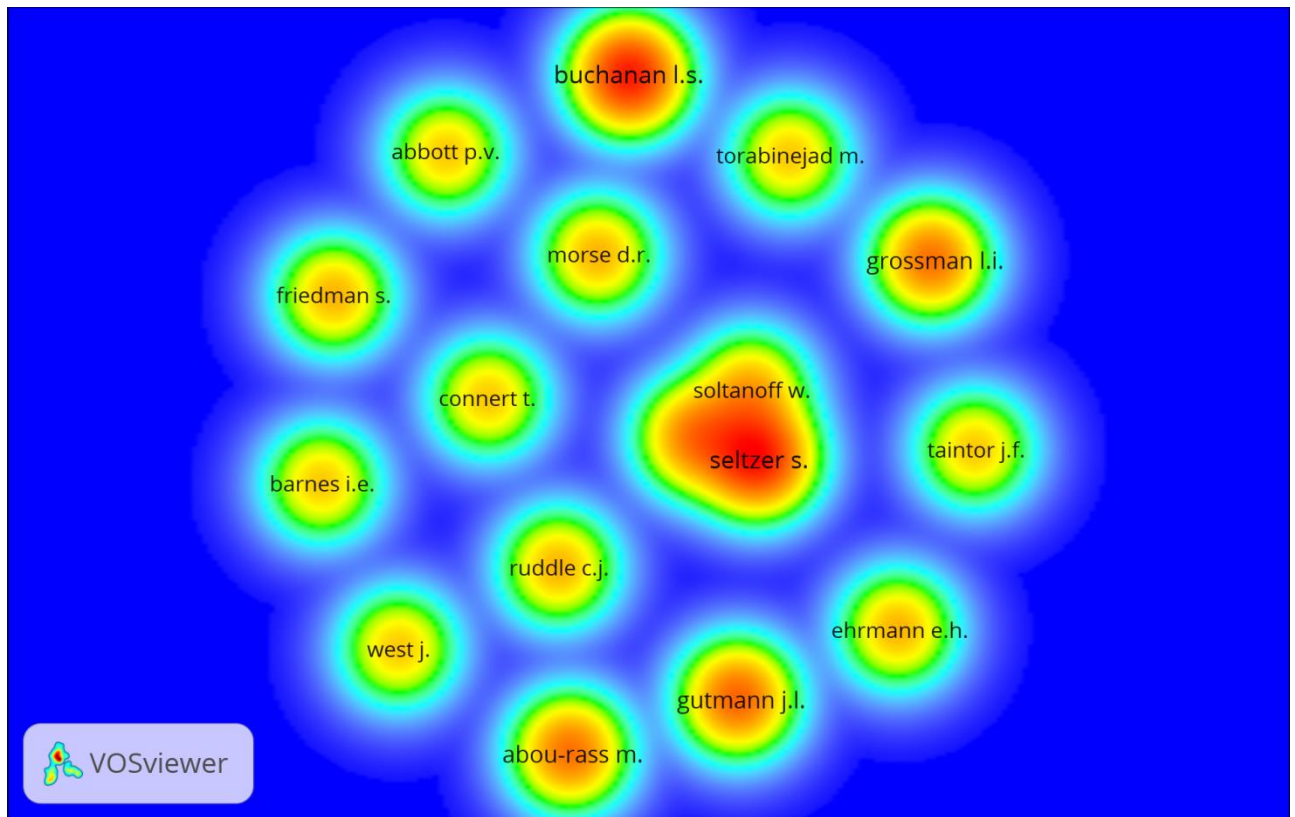


Figure 5: Leading authors based on the publication of documents

In Co-occurrence analysis, we had used all keyword analyses, by keeping the minimum number of occurrences of a keyword as 50. This combination plotted the map of 38 thresholds, in three clusters. The overlay visualization of co-occurrence analysis of keywords has been shown in Figure 6.





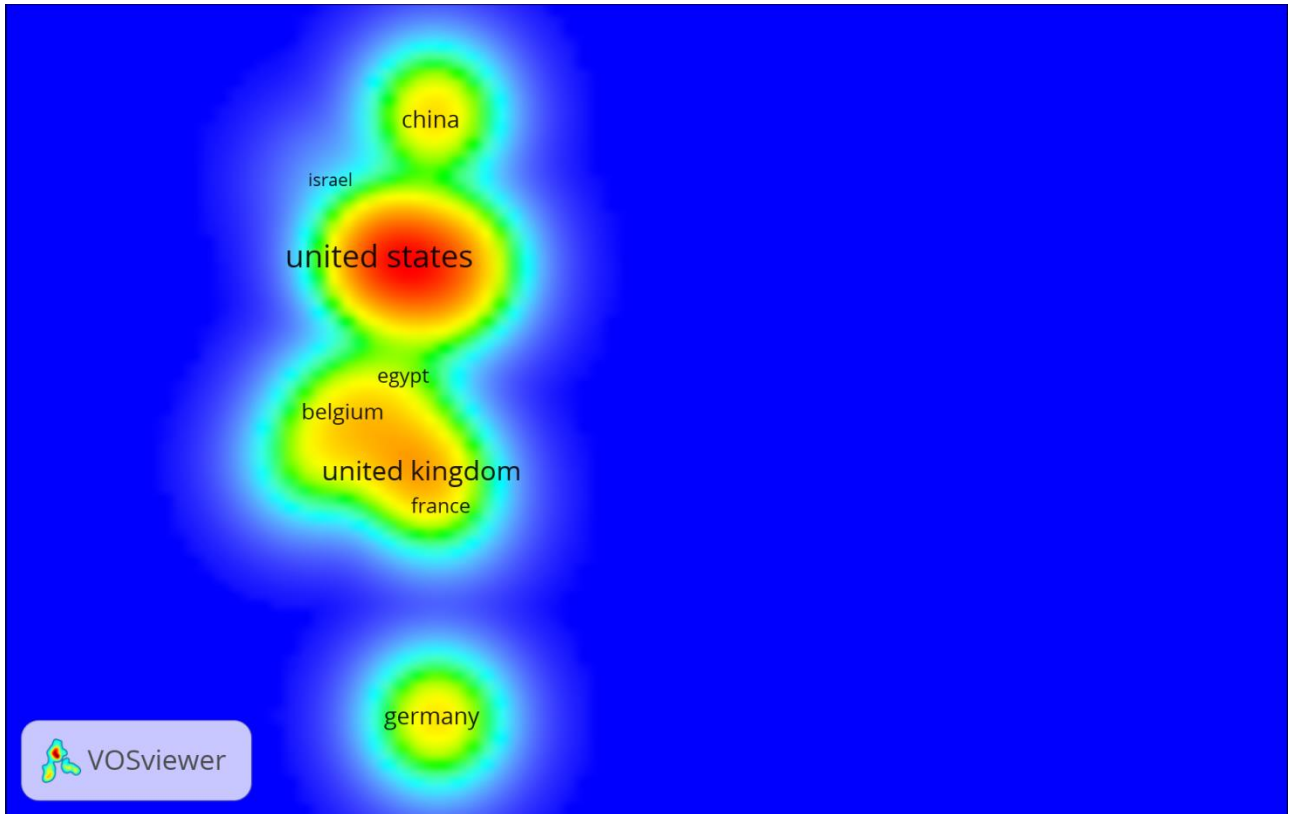


Figure 7: Co-authorship analysis on basis of countries

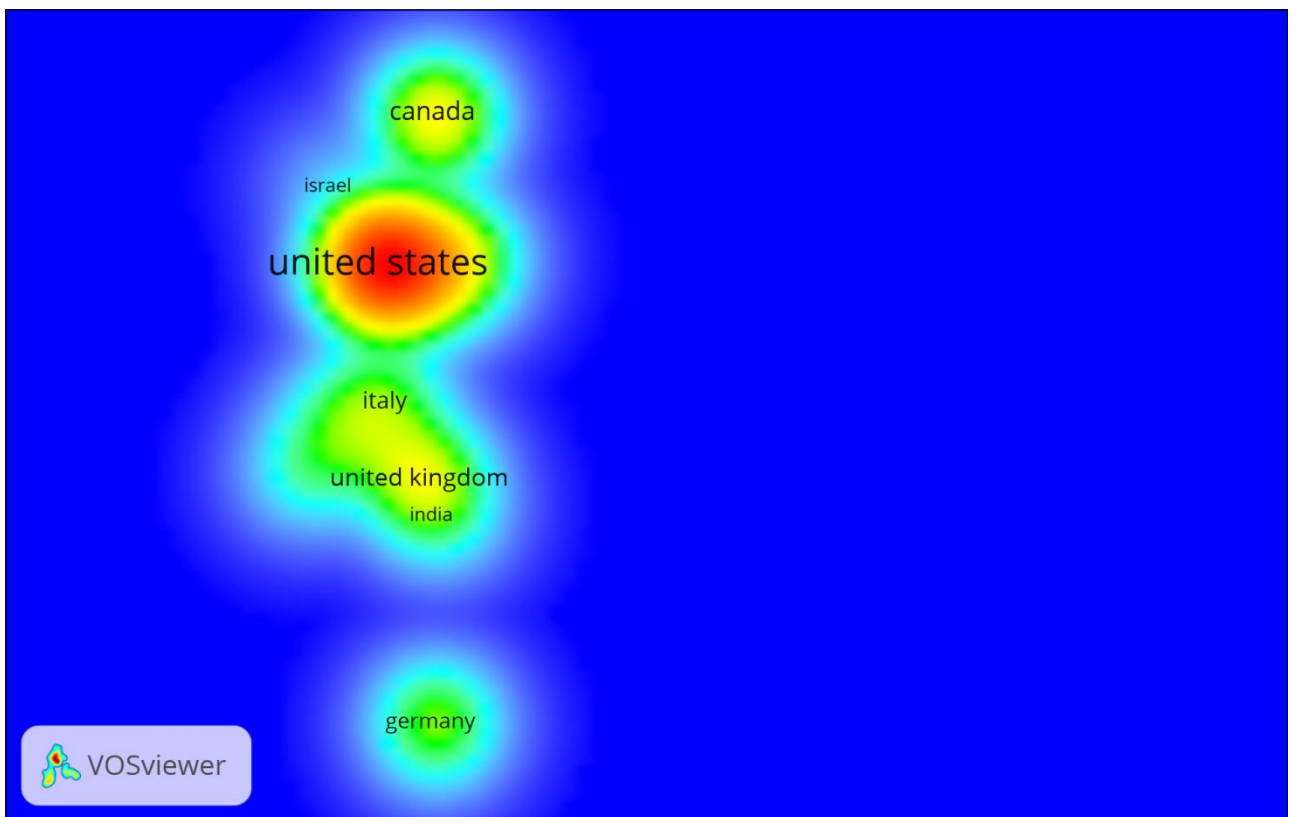


Figure 8: Citation analysis on basis of countries

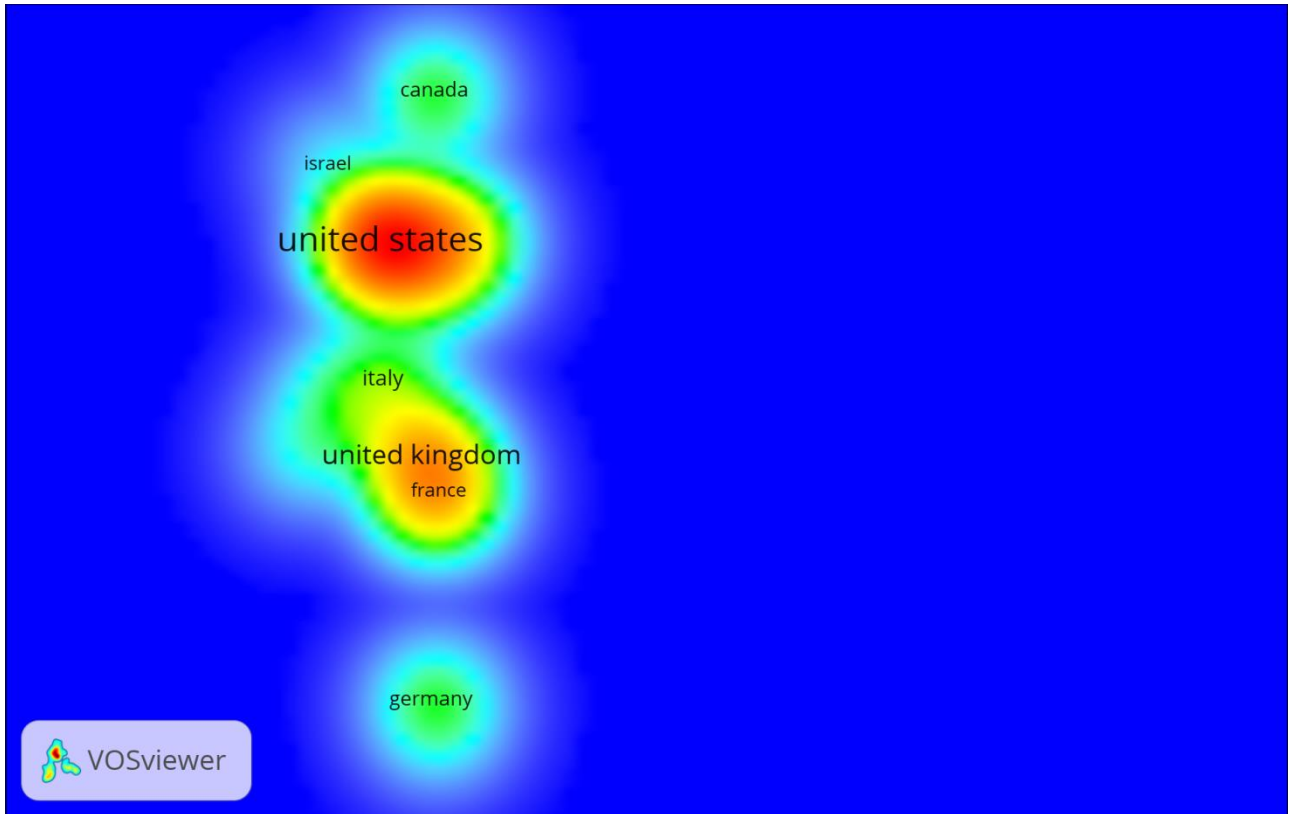


Figure 9: Leading countries in the publication of documents

### 3.3 Which are the leading journals on “Endodontic”?

Link analysis and citation analysis were used to identify the most active journal in this research domain. We have also used publication volume to identify the leading journals in this research domain. We have taken the parameters of the minimum number of documents of a journal as two and the minimum number of citations of a journal as one for the link analysis and citation analysis. The citation analysis of top journals relating to “Endodontics” had been shown in Figure 10. Link analysis is shown in Figure 11 and the analysis of journals based on publication volume in Figure12.



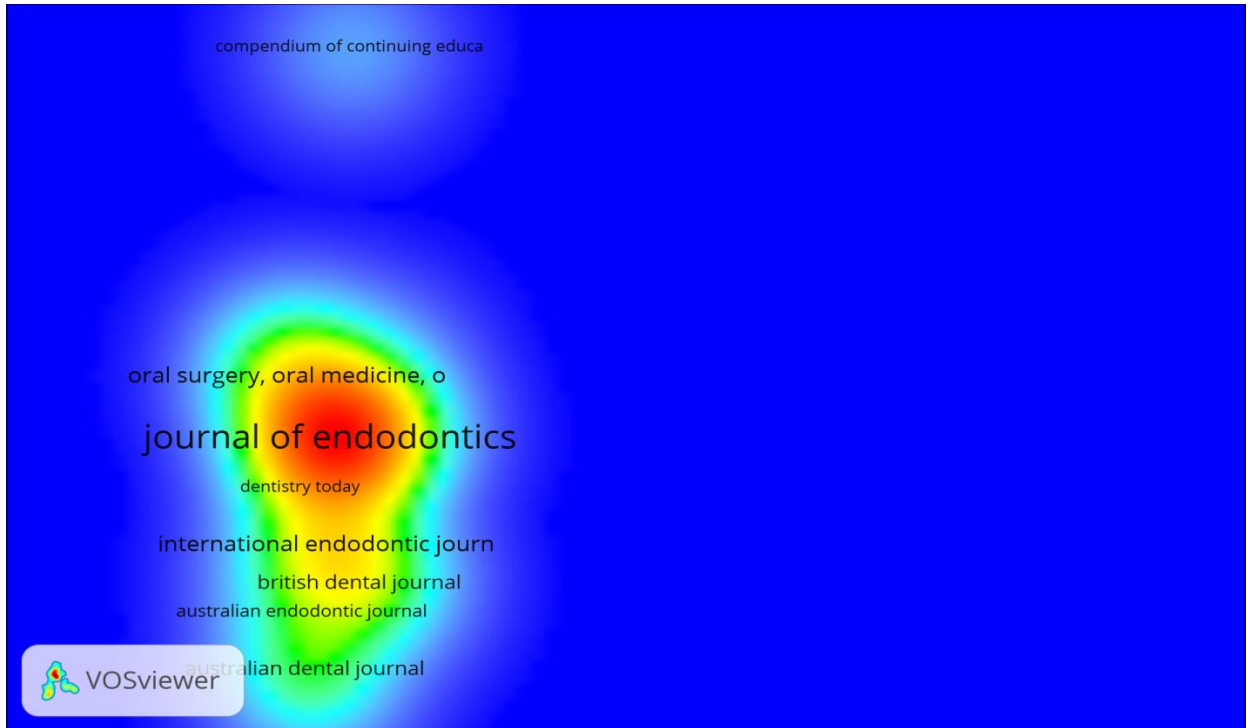


Figure 10: Leading journals based on citation

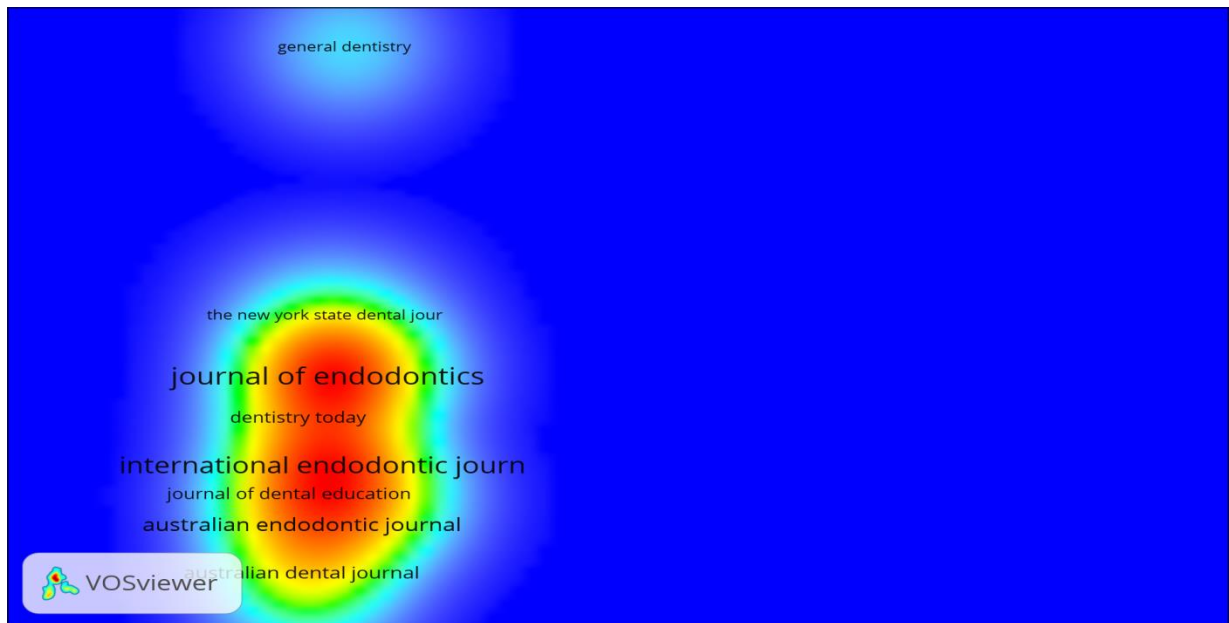


Figure 11: Leading journals based on co-authorship links

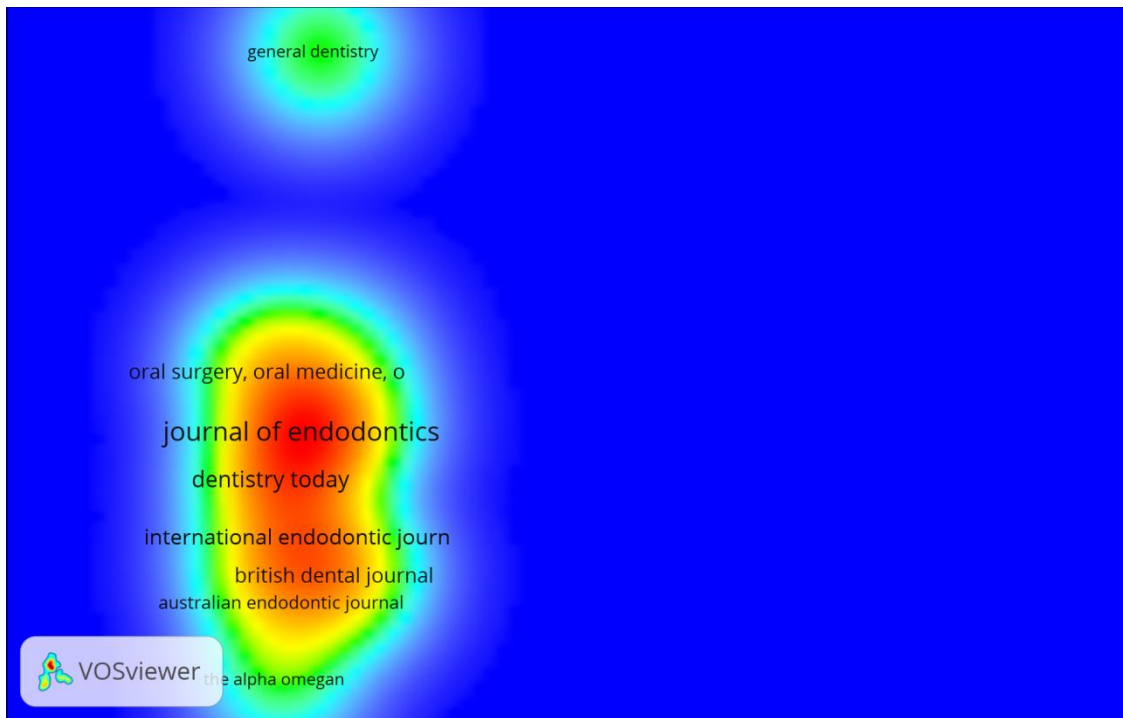


Figure 12: Leading journals based on publication volume

#### 4. DISCUSSION AND CONCLUSION

Endodontics is an interesting research domain and the most active journal was the Journal of Endodontics and International Endodontic Journal. The most active country of the research domain was the United States of America and the United Kingdom with the leading position in the citation, publication volume, and co-authorship links. The leading organizations engaged in the research regarding “Endodontic” were Saveetha Dental College and Hospitals and Saveetha Institute of Medical and Technical Sciences of India. The most active authors who had made valuable contributions related to “Endodontic” were Soltanoff W. and Seltzer S. with the leadership in publications, citations, and co-authorship links. This research domain offers a new avenue for researchers regarding future research. From the above discussion regarding the bibliometric patterns in the research regarding the “Endodontic”, this research had observed a gradual increase in research interest regarding the “Endodontic” from the starting of the millennium and the momentum is going on positively. This points out the relevance and potential of this research domain (Refer to Figure 2).

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