

Scientific Production on Monkeypox in Dentistry: A Bibliometric Analysis

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ABSTRACT

Aim: To analyze the characteristics and visibility of the scientific production of monkeypox in dentistry.

Materials and methods: A bibliometric study was carried out with the publications indexed in the Scopus database up to 22 September 2022. A search strategy was developed using Boolean operators “AND” and “OR,” in addition to the MeSH term “monkeypox virus” (MPXV) in the subarea of dentistry. The bibliometric indicators were measured objectively with the SciVal program.

Results: Of the publications identified, 40% were indexed in first-quartile journals. India and Brazil are the countries with two published papers, while India has more views than the rest. Banaras Hindu University, Varanasi, Uttar Pradesh, India and Dr. Ram Manohar Lohia Hospital, New Delhi, India are the institutions with the highest number of citations with respect to the world average (FWCI: 2.74). The *International Dental Journal* has a publication on monkeypox in the field of dentistry. India is the country with the most authors (06) who have published about the study. Samaranayake Lakshman Perera is the most productive and high-impact author.

Conclusion: In the area of dentistry, scientific production on monkeypox is still scarce; however, the publications identified are mainly in high-impact indexed journals (Q1 and Q2). It is necessary to prioritize this disease as a line of research, in addition to articulating efforts between dental teams from different institutions.

Clinical significance: It is necessary to demonstrate the characteristics of scientific publications on monkeypox in dentistry worldwide in order to have a panoramic view of the dynamics of scientific articles in this area.

Keywords: Bibliometrics, Dentistry, Monkeypox virus.

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INTRODUCTION

Following the impact of the COVID-19 pandemic, the world is likely to face a new outbreak of viral origin.¹ Monkeypox is a pathology that develops from a zoonotic virus belonging to the genus *Orthopoxvirus* of the family Poxviridae.^{2,3} Current evidence suggests that the sudden outbreak of this virus may have originated in the epidemic regions (United States of America and Canada) with subsequent spread to other parts of the world. In fact, the World Health Organization reports that from January 2022 to 21 September 2022, 61,753 laboratory-confirmed cases of monkeypox and 23 deaths have been reported in different regions of the world.⁴

Monkeypox virus can be transmitted from person to person by direct contact with skin lesions or respiratory transmission through the exchange of secretions; and indirectly by contact with the patient's clothing.^{5,6} Although there is no conclusive evidence of sexual transmission,⁷ MPXV is occurring more frequently in men who have sex with men.^{8,9}

Some of the symptoms associated with MPXV infection, especially in the first few weeks, are similar to those present in influenza chaos, such as myalgias, lethargy, fever, and lymphadenopathy.^{10,11} The hallmark of this disease is disseminated vesiculopustular eruptions, which go through several stages prior to desquamation.¹² In addition, it is possible that infected persons may develop varying levels of dehydration due to vomiting, diarrhea, and ulcers in the mouth and throat. Rarely, Monkeypox causes permanent complications.¹¹

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The California Dental Association has suggested that the dental team should be the first in line for the examination and timely detection of signs and symptoms of monkeypox, such as oral cavity enanthem.^{13,14} As preventive actions in dental care, it is necessary to consider that treatment in people with confirmed or probable MPXV should be performed when there is no longer a possibility of infection, it is essential to isolate these cases and care for them in isolated rooms, complying with all protective measures, such as the proper use of personal protective equipment, frequent hand

washing and disinfection of areas and supplies that had contact with infected patients.^{6,15}

The recent outbreak of MPXV in 2022 has generated greater interest in the scientific community due to the sudden outbreak, spread, and lack of collective immunity of the population, especially in the field of medicine; however, in dentistry, the production of knowledge is still incipient, which points to the need to propose actions to promote the development of scientific evidence that will contribute to strengthening the clinical practice of these professionals because it will allow early recognition, effective treatment, containment of cases, and aid in the prevention of spread. Therefore, the objective of this research is to analyze the trends, impact, and visibility of the scientific production of monkeypox in dentistry.

MATERIALS AND METHODS

Study Design

A descriptive bibliometric study that analyzed secondary data, which were scientific publications in scientific journals belonging to the Scopus database (from January 2019 to October 2022). The measurement of bibliometric indicators was objective, using the SciVal program.

Search Strategy

The search for information was carried out in Scopus. The Boolean operators AND and OR were used, as well as the terms MeSH to form the following search strategy: “monkeypox viruses” OR “mokeypoxvirus” OR “monkeypoxviruses” OR “monkey pox virus” OR “monkey pox viruses” OR “benign epidermal monkey pox” OR “chimpanzepox” OR “monkey pox” OR “monkeypox virus infection” AND “subjarea (dent).” The search was conducted on 22 September 2022 and 16 published papers were identified. The study included documents in the field of dentistry, in any language, and which could be exported with the SciVal program.

Data Analysis

For the analysis of the information, the SciVal program was used, which is a Scopus tool that allows the evaluation of scientific production. This software was used to evaluate the following different bibliometric indicators: The number of publications, citations and citations per publication, authors with the highest production and their respective h-index, country and type of collaboration, Field-Weighted Citation Impact (FWCI), CiteScore 2020, journal quartile, Source-Normalized Impact per Paper (SNIP) and SCImago Journal Rank (SJR). Finally, frequencies and percentages were estimated. The information was presented in summary tables.

RESULTS

The scientific production on monkeypox in dentistry in the years prior to 2021 was null, while in last year, five published papers were identified, of which two manuscripts were indexed in Q3 journals (Fig. 1).

Brazil and India were the countries with two manuscripts published each. Followed by China, Italy, and Qatar with one manuscript, respectively. In relation to the citations received, India, China and Qatar received one citation respectively. Since the publications are recent it is understandable that the number of citations is still low (Table 1).

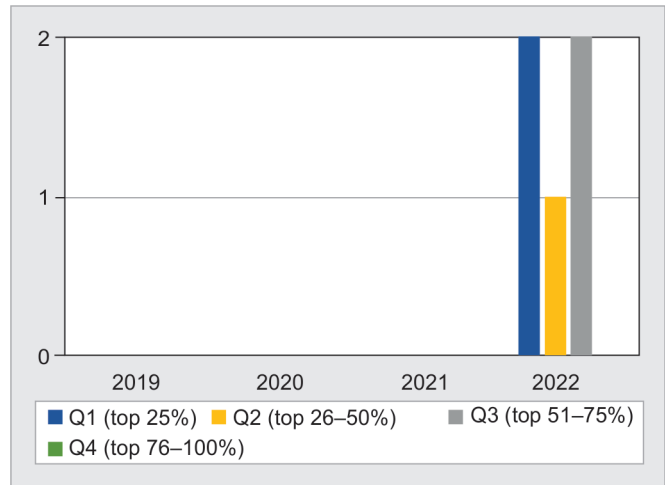







Fig. 1: Scientific production on monkeypox in dentistry according to quartile of scientific journals

Table 1: Countries with scientific production in Scopus on monkeypox in dentistry

Country	Scholarly output	Views count	FWCI	Citation count
Brazil 	2	1	0	0
India 	2	9	1.37	1
China 	1	1	1.45	1
Italy 	1	0	0	0
Qatar 	1	1	1.45	1

FWC, Field-Weighted Citation Impact










All institutions have a published paper on monkeypox in dentistry, moreover, most (03) of these institutions are from India, and Brazil is the only country in Latin America with institutions that have published on the topic of study. Banaras Hindu University and Dr. Ram Manohar Lohia Hospital, New Delhi, India are the institutions with the highest number of citations with respect to the world average, with an FWCI of 2.74 each (Table 2).

Publications about this research have been mainly in high-impact indexed journals, ranked first and second. The *International Dental Journal* presents one citation per publication, while the journals *Special Care in Dentistry* and *Oral Diseases* have the most authors, with six and four, respectively (Table 3).

India was the country with the highest number of authors who have published on monkeypox in the field of dentistry (five), followed by Brazil, with three authors. Of these, Pandey Aishwarya, and Reddy N Gowtham have the highest number of citations with

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Table 2: Institutions with scientific production in Scopus on monkeypox in dentistry

<i>Institution</i>	<i>Country</i>	<i>Scholarly output</i>	<i>Citations</i>	<i>Authors</i>	<i>Citations per publication</i>	<i>FWCI</i>
The University of Hong Kong		1	1	1	1	1.45
Banaras Hindu University		1	1	1	1	2.74
University of Foggia		1	0	2	0	0
Hamad Medical Corporation		1	1	1	1	1.45
Qatar University		1	1	1	1	1.45
Universidade de São Paulo		1	0	2	0	0
Pontifícia Universidade Católica de Minas Gerais		1	0	6	0	0
Saveetha University		1	0	3	0	0
Dr. Ram Manohar Lohia Hospital		1	1	1	1	2.74











FWCI, Field-Weighted Citation Impact

Table 3: Scientific journals with scientific production in Scopus on monkeypox in dentistry

<i>Scopus source</i>	<i>Quartile</i>	<i>Country</i>	<i>Publications</i>	<i>Citations</i>	<i>Authors</i>	<i>Citations per publication</i>	<i>SNIP</i>	<i>CiteScore 2020</i>	<i>SJR</i>
<i>Oral Diseases</i>	Q1		2	1	4	0.5	1.356	6.3	0.762
<i>Special Care in Dentistry</i>	Q2		1	0	6	0	0.911	1.9	0.418
<i>International Dental Journal</i>	Q1		1	1	2	1	1.471	4.2	0.678
<i>Oral Surgery</i>	Q3		1	0	2	0	0.358	0.7	0.2
<i>International Journal of Dentistry and Oral Science</i>	*		1	0	3	0	0.08	-	-

*Discontinued in Scopus database (Q4 until 2021). SJR, SClmago Journal Rank; SNIP, Source-Normalized Impact per Paper

Table 4: Top 10 authors with scientific production in Scopus on monkeypox in dentistry

Name	Country	FWCI	h-index	Scholarly output	Most recent publication	Citations	Citations per publication
Samaranayake Lakshman Perera		1.45	57	1	2022	1	1
Lo Muzio Lorenzo		0	56	1	2022	0	0
Shanmugam Rajesh Kumar		0	36	1	2021	0	0
Anil Sukumaran		1.45	29	1	2022	1	1
Souto Giovanna Ribeiro		0	10	1	2022	0	0
Horta Martinho Campolina Rebello		0	17	1	2022	0	0
Sandhya Raghu		0	8	1	2021	0	0
Rocha Breno Amaral		0	6	1	2022	0	0
Pandey Aishwarya		2.74	1	1	2022	1	1
Reddy N Gowtham		2.74	1	1	2022	1	1

FWCI, Field-Weighted Citation Impact

respect to the average number of citations worldwide (FWCI: 2.74). In addition, Samaranayake Lakshman Perera is the author with the highest productivity and impact for all the citations his publications have received (h-index: 57) (Table 4).

DISCUSSION

The new outbreak of monkeypox has put the health systems of all countries on alert, and all health personnel are actively working on its prevention, detection, and time management. Likewise, research teams have started to produce new knowledge related to this disease, its transmission, symptoms, and other aspects.

Research related to the dental practice linked to MPXV is still incipient; however, there are reports of cases of lesions in the oral cavity due to this disease.^{16,17} This makes it necessary for dentists to pay more attention to the patient’s history as well as to protection and infection control measures since their professional work is performed in direct, face-to-face contact with the person.¹⁸

This study has shown that monkeypox represents an area of interest and need for dental research since the greatest proportion of studies has been published in high-impact first- and second-quartile journals, mainly from the USA and the UK. This makes it clear that the authors who are producing manuscripts are interested in the visibility and credibility of these journals, and subsequent use by other authors for their research.¹⁹

The collection of data from new ideas and research problems allows knowledge networks to be in constant development and growth.²⁰ Among the countries that have collaborated with the production of articles, the leadership of Brazil stands out, as the only Latin American country, and its institutions such as the Universidade de São Paulo and the Pontifícia Universidade Católica de Minas Gerais. In addition, Indian institutions also had relevant participation in the subject of this study.

It is important to emphasize that collaboration between institutions and authors of different nationalities and professions is necessary to increase quality research. For this purpose, it is considered appropriate to have a reference in research in a certain field of knowledge, such is the case of Samaranayake Lakshman Perera (hindex: 57) who is one of the authors with the highest production and impact in the academic and scientific community, given the number of citations in all his publications; and, accordingly, he has shown to be aligned with the current research demands, through his study related to the implications of monkeypox in dental practice.⁶

Among the limitations of the study, it can be considered that, due to the type of bibliometric methodology, some metadata of the published documents may not exist. Another limitation is that other prestigious databases should be included in future studies to have a more panoramic view of the world production of monkeypox in dentistry.

CONCLUSION

In conclusion, scientific production about monkeypox in the field of dentistry is still scarce, however, the dissemination of these papers has been done in journals indexed in Scopus of the first and second quartile. In addition, the authors who have contributed the most to this subject are from India.

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