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Research article

Global Level Research Output in Monkey Pox: A Scientometric Analysis

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ABSTRACT

The current study examined the growth of research publications released between 2062 and 2024 using a sample of 203 articles published in the field of Monkey Pox. The biggest number of papers, 121 (59.61%), were published in 2021-2024. During the study period, an article's RGR gradually declined from 0.86 in 1970-1973 to 0.76 in 2021-2024. The doubling time of article publishing gradually increases, from 0.80 in 1970-1973 to 90 in 2021-2024. The most prolific authors in the subject of Monkey Pox, it is found that Marennikova, S.S. has contributed the maximum number of articles i.e., 16 (23.88%) research publications in India. The vast majority of research output is available in the form of Article 121 (59.61%) research publications, and the country-wise distribution of publications shows that India provided the most articles (146), accounting for more than 44 (30.14%) research publications. The institutions with the University of Organisation Mondiale de la Santé published 7 (17.07%) articles, and the journals revealed that Bulletin of the World Health Organization ranked best with 9 (20.45%) publications. The time series analysis statistical application in Monkey Pox research articles is predicted to reach approximately 60 in 2025 and 70 in 2030. So, at the time, rigorous examination confirmed that the number of publications on monkey pox study was increasing. The widely referenced paper is Galdiero S., Falanga A., et al. (2011) Silver nanoparticles as potential antiviral drugs, Molecules, 16(10):8894-8918. The citation count is 778, as is the review's document type.

Keywords: Scientometric, Tuberculosis, RGR, Time series analysis, Highly cited paper, RCI.

INTRODUCTION

Mpox is an infectious condition that can result in a painful rash, swollen lymph nodes, fever, headache, muscular discomfort, back pain, and low energy. Most people recover completely, but a few become critically ill. Mpox is caused by the monkeypox virus (MPXV). It is an enclosed double-stranded DNA virus from the Orthopoxvirus genus of the Poxviridae family, which contains variola, cowpox, vaccinia, and other viruses. Clade Ia and Ib epidemics are also becoming more common in the Democratic Republic of the Congo and other African countries. As of August 2024, clade Ib had been discovered beyond Africa. The virus's natural reservoir is unknown, however several small mammals, including squirrels and monkeys, are vulnerable.

Mpox transmits from person to person mostly through close contact with an mpox carrier, including household members. Close contact includes skin-to-skin (such as touching or sex), mouth-to-mouth or mouth-to-skin contact (such as kissing), and being face-to-face with someone who has mpox (such as chatting or breathing close together, which can generate infectious respiratory particles). People who have several sexual partners are more likely to develop mpox. People can also get mpox from contaminated clothing or linen, needle injuries in health care, or community

venues like tattoo parlors. The infection may transmit to the fetus during pregnancy or birth. Contracting mpox during pregnancy can be harmful to the fetus or newborn infant, resulting in pregnancy loss, stillbirth, newborn mortality, or difficulties for the parent. MPox is transmitted from infected animals to humans through bites or scratches, or during activities like as hunting, skinning, trapping, cooking, playing with carcasses, or eating animals [1].

Scientometrics Study

Scientometrics is one of the truly interdisciplinary academic topics that encompasses practically every scientific field. Furthermore, several large bibliometric studies of significant scientific topics have appeared over the last two decades. Bibliometrics now refers to the science of measuring documents. The term measurement refers to the use of mathematical and statistical approaches to determine the growth of documents, the scattering or literature in various forms of documents, the publication of documents by an author, the influence of a document, etc. In their publication on the history of comparative anatomy, Cole and Eales (1917) [2]. Used statistical methods to analyze the literature known as statistical analysis. The most significant contribution was made by Hulme (1923) [3]. When he published the book Statistical Bibliography; this word was used for statistical measurements until the late 1960s. Ranganathan (1948) [4]. Developed the word librametry to describe the measurement of various library operations and services using mathematical and statistical methods.

Alan Prichard (1969) [5]. Invented the term "bibliometric" to refer to the use of mathematical and statistical approaches to books and other media, the process of written communication, and the nature and scope of a profession. Van Raan (1997) [6]. Scientometric research focuses on quantitative investigations of science and technology. As stated by Beck (1978) [7]. "Scientometrics is defined as the quantitative evaluation and inter-comparison of scientific activity, productivity, and progress". Bookstein (1995) [8]. Defined scientometrics as the science of measuring science. Scientometrics is also regarded as a bibliometric assessment for assessing scientific growth, societal relevance, and the influence of scientific and technological applications." According to Ingwerson and Christensen (1997) [9]. "Informatics designates a recent extension of the traditional bibliometric analysis, also to cover non-scholarly communities in which information is produced, communicated, and used" [10].

Review of Literature

Nishavathi E, and Jeyshankar R. (2020) [11]. Investigate Scientometrics and social network analysis (SNA) methods were used to assess the international scientific collaboration (ISC) of All India Institute of Medical Sciences (AIIMS) for a period of ten years (2009-2018). The dataset contains 19,622 records obtained from the Scopus database. The mean degree of collaboration is 0.95, implying that AIIMS researchers collaborate both domestically (80.29%) and internationally (14.67%). The data show a hyper-authorship pattern, with a medium-sized research team consisting of 4 to 10 authors contributing a maximum of 62.08% (12,182) publications. 71.97% of study findings are distributed throughout journal articles. The most preferred journals published 58.55% of the medical literature. In Pajek, an undirected collaboration network with 179 vertices (Vn) and 11,938 edges is built to study AIIMS's ISC from 2009 to 2018.

Donthu, Kumar and Pattnaik (2020) [15]. Did a 45-year bibliometric examination of the journal of business research. They highlighted that Michel Laroche and Jean-Charles Chebat have the most JBR publications, each with 39 papers, followed by Arch G. Woodside, who has 30. The writers' affiliated nations are the United States (4810) and the United Kingdom (2817), which have the most JBR articles. They also looked at co-authorship and bibliographic couplings between authors and their connected institutions and nations, as well as journal co-citations and the co-occurrence of author-specific keywords. The journal's citation impact grew with time, with 95.96% of published papers obtaining at least one citation. The most productive year was 2017, when JBR published 765 articles, the highest total between 1973 and 2017.

Rajendran P, Manickaraj J, Elango B. (2013) [16]. Evaluates the research output in wireless communication contributed by Indian scientists between 2001 and 2012, as documented in the SCOPUS database. A total of 1128 records were retrieved and exported to Microsoft Excel. The distribution of various means of communication among Indian scientists has been provided, with 808 (71.63%) appearing as conference papers. RGR decreases from 0.56 in 2002 to 0.26 in 2012, but the related Dt steadily increases from 1.24 to 2.67. The degree of collaboration ranges from

0.83 to 1, with an average of 0.95 for the study period. The journals of Communications in Computer and Information Science Germany with 51 (4.52%) research articles, and the institutions of Anna University with 32 rank first. The widely cited publication Dighe P.A., Mallik R.K., Jamuar S.S. (2003) Analysis of transmit-receive diversity in Rayleigh fading. IEEE Transactions on Communications, 51(4): 694–703. Cited by 254, the document of Article the country of India.

Sujatha and Padmini (2015) [16]. studied IEEE Transactions on Antennas and Propagation. It published 3442 papers between 2010 and 2014, with a maximum of 789 articles in 2014 and an average of 688 pieces per year. They reported that 3442 articles were submitted by 86 nations, with a high of 57 countries in 2013. The majority of the contributions (921) were from the United States, followed by China (572); India ranked 21st with 52 articles. The journal published 2374 articles in core fields including communication (926), antennas (733), wireless (342), electromagnetics (217), and wave propagation and scattering (156). These are the fields that have garnered the most attention in study, hence the magazine title Antennas and Propagation.

Govindasamy M. and Senthilkumaran P (2021) [12]. Scientometric analysis of black pepper research publications from Scopus Database from 2011 to 2020, includes 2076 research publications. During the study period, 316 (15.22%) research papers were contributed in the year 2020. The average number of research papers per year is 207.6, and the compound annual growth rate is 7.31. The associated growth rate in 2012 is 0.28 and 0.06 in 2019, while the doubling time is 2.44 in 2012 and 11.08 in 2019. Out of 2076 research papers, 122 are single-authored, while the remainder 1954 are multi-authored. Articles contribute a maximum of 1735 (83.57%) research publications. Bhat, A.I. was the most productive author, contributing 17 (0.81%). Food Chemistry contributes up to 33 (1.59%) of research papers, while the National Natural Science Foundation of China funds up to 57 (2.75%). India is the most prolific country, accounting for 712 (34.30%) of all contributions, followed by China.

Vellaichamy & Esakkimuthu (2020) [13]. Conducted a bibliometric analysis of the International Journal of Robotics Research from 2010 to 2019. A total of 983 publications were published, and the degree of collaboration ranged from 0.92 to 0.99, with a mean of 0.97. The study indicated that the most articles were published in 2019, with the most contributions ranging in length from 16 to 20 pages, and that the majority of authors preferred to publish their findings as articles. According to the authorship pattern, the most papers (11.29) were published by more than five authors, and five authored papers accounted for 10.78 percent of total publications. Two percent of research papers were recorded as single written. The length of publication analysis reveals that the majority (32.89%) of research papers have published sixteen to twenty pages, while the least number (4.11%) of research papers have published six to ten pages.

Raza and Malik (2019) [13].Bibliometric examination of the journal of knowledge management from 2009 to 2016. Between 2009 and 2016, 508 publications were published in the journal by 1214 authors representing 57 countries and 584 institutions. The contributions from the United States and the United Kingdom ranked first and second in five indicators, respectively. Australia placed third in total and collaborative articles, and fourth in single country and corresponding author articles. Although India is placed ninth in terms of total articles, its single-country articles percentage is the highest among the top ten countries. Between 2009 and 2016, 508 publications were published in the journal by 1214 authors representing 57 countries and 584 institutions. The contributions from the United States and the United Kingdom totaled 126 (24.8%) publications. The two leading contributing institutions, Lakehead University and McMaster University, were both from Canada, as were the top two contributing writers.

Objectives of the study

Study the publishing and growth rate of literature on monkey pox.

To analyze the RGR and doubling time of publications during the study period.

Identify the leading writers and institutions in the subject of monkey pox.

Analyze publication distribution across countries and journals for research.

Determine the distribution of items in the monkey pox field based on their form.

Identify keywords and funding agency for research articles.

Analyze time series data for monkey pox.

Methodology

The researcher gathered the necessary research data on monkey pox from the online Scopus database. It covers the period from 1962 to 2024 and serves as the primary source of data for this study. The researcher retrieved 203 records from the Scopus database using the search term "Monkey Pox" AND PUBYEAR > 1961 AND PUBYEAR < 2025. The data was collected on September 2, 2024, in a Micro Soft Excel sheet.

Data Analysis and Interpretation

Year-Wise Growth Monkey Pox Research Publication

Table 1: Year-Wise Growth Monkey Pox Research Publication

Block Years	Publications	%	Citations	%	CPP	H-index	RCI
1962-1969	8	3.94	100	4.65	12.50	8	0.58
1970-1973	11	5.42	61	2.84	5.55	7	0.26
1974-1977	18	8.87	200	9.30	11.11	11	0.52
1978-1983	6	2.96	416	19.34	69.33	4	3.22
1984-1988	10	4.93	536	24.92	53.60	8	2.49
1989-1999	8	3.94	73	3.39	9.13	6	0.42
2001-2005	6	2.96	19	0.88	3.17	3	0.15
2006-2009	8	3.94	70	3.25	8.75	4	0.41
2010-2019	7	3.45	89	4.14	12.71	5	0.59
2021-2024	121	59.61	587	27.29	4.85	20	0.23
Total	203	100.00	2151	100.00			

Table 1 shows the rise of research publications published between 1962 and 2024, using a sample of 203 articles published in the field of Monkey Pox. The biggest number of papers, 121 (59.61%), were published in 2021-2024. The second-highest number of articles (18, or 8.87%) were contributed in 1974-1977. These two years are regarded the most productive. The production of publications increased by 68.48% over these two years. However, just 6 articles (2.96%) were published between 1978 and 1983, as well as 2001 and 2005.

During the 10-block year research, 203 publications received a total of 2151 citations. In 1984-1988, 10 (4.93%) articles received a maximum of 536 (24.92%) citations, with a CPP of 53.60, an H-index of 8, and an RCI of 2.49. Following 416 (19.34%) citations, 6(2.96%) articles were obtained between 1978 and 1983. In 1978-1983, the average citation per publication was 69.33, with an H-index of 4 and an RCI of 3.22. In the years 2001-2005, the lowest number of citations was 19 (0.88%), with 6 (2.96%) research articles. The CPP is 3.17, H-index is 3, and RCI is 0.15.

RGR and Doubling time in the field of Monkey Pox Research Publication

Table 2 clearly indicates the mean relative growth rate and doubling time of Monkey Pox-related publications across the study period. During the study period, the RGR of an article declined steadily from 0.86 in 1970-1973 to 0.76 in 2021-2024. The doubling time of article publishing gradually increases, from 0.80 in 1970-1973 to 0.96 in 2021-2024. The above debate can be summarized as follows: the article's RGR declined progressively. Conversely, the articles' doubling time gradually increased.

Table -3 shows the contribution of the most prolific authors in the field of Monkey Pox. It is observed that Marennikova, S.S. has contributed the highest number of articles, i.e. 16 (23.88%) research publications in India, followed by Shelukhina, E.M. 11 (16.42%) research publications in the United States, and Wenner, H.A. 8 (11.94%) research publications in Pakistan. Bolano, C.R., Cho, C.T., Grab, B., Matsevich, G.R., and Nakano, J.H. are the authors with the fewest research publications in China, the United Kingdom, France, Russia, and the Russian Federation.

The largest number of citations is 516 (34.31%) research articles, with an H-index of 5, a CPP of 86, and an RCI of 3.83. Following 509 (33.84%) research papers, the H-index is 4, the CPP is 127.25, and the RCI is 5.67. The lowest number of citations is 24 (1.60%) research papers, the H-index is 2, the CPP is 6, and the RCI is 0.27.

Most Prolific Subjects in the Field of Monkey Pox Research Publication

Table 4 shows the contribution of the most prolific subjects in the field of Monkey Pox. It is observed that Medicine contributed the highest number of with 136 (46.90%) research publications, followed by Immunology and Microbiology with 40 (13.79%) research publications, and Computer Science with 28 (9.66%) research publications. Decision Sciences and Social Sciences had the fewest research articles (9, or 3.10 percent).

Table 2: RGR and doubling time in the field of Monkey Pox Research Publication

Block Years	Publications	Cum	W1	W2	RGR=(W2-W1)	Dt=(0.693/RGR
1962-1969	8	8		2.08		
1970-1973	11	19	2.08	2.94	0.86	0.80
1974-1977	18	37	2.94	3.61	0.67	1.04
1978-1983	6	43	3.61	3.76	0.15	4.61
1984-1988	10	53	3.76	3.97	0.21	3.31
1989-1999	8	61	3.97	4.11	0.14	4.93
2001-2005	6	67	4.11	4.20	0.09	7.39
2006-2009	8	75	4.20	4.32	0.11	6.14
2010-2019	7	82	4.32	4.41	0.09	7.77
2021-2024	121	203	4.41	5.31	0.76	0.96
Total	203	648		6.47		

Most Prolific Authors in the Field of Monkey Pox Research Publication

Table 3: Most Prolific Authors in the Field of Monkey Pox Research Publication

Author	Country	No, of Publications	%	Citation	%	CPP	h-index	RCI
Marennikova, S.S.	India	16	23.88	121	8.05	7.56	6	0.34
Shelukhina, E.M.	United States	11	16.42	63	4.19	5.73	5	0.26
Wenner, H.A.	Pakistan	8	11.94	77	5.12	9.63	5	0.43
Jezek, Z.	Nigeria	6	8.96	516	34.31	86.00	5	3.83
Kamitsuka, P.S.	Saudi Arabia	6	8.96	70	4.65	11.67	5	0.52
Bolano, C.R.	China	4	5.97	38	2.53	9.50	4	0.42
Cho, C.T.	United Kingdom	4	5.97	46	3.06	11.50	4	0.51
Grab, B.	France	4	5.97	509	33.84	127.25	4	5.67
Matsevich, G.R.	Russia	4	5.97	24	1.60	6.00	2	0.27
Nakano, J.H.	Russian Federation	4	5.97	40	2.66	10.00	3	0.45
		67	100.00	1504	100.00			

Table 4: Most Prolific Subjects in the Field of Monkey Pox Research Publication

Subject	No. of Publications	%
Medicine	136	46.90
Immunology and Microbiology	40	13.79
Computer Science	28	9.66
Biochemistry, Genetics and Molecular Biology	17	5.86
Engineering	15	5.17
Pharmacology, Toxicology and Pharmaceutics	13	4.48
Physics and Astronomy	12	4.14
Mathematics	11	3.79
Decision Sciences	9	3.10
Social Sciences	9	3.10
Total	290	100.00

Country-wise Distribution of Monkey Pox Research Publication

Table 5: Country-wise Distribution of Monkey Pox Research Publication

Country	Publications	%	Citation	%	CPP	h-index	RCI
India	44	30.14	99	5.52	2.25	5	0.18
United States	32	21.92	260	14.48	8.13	10	0.66
Pakistan	14	9.59	107	5.96	7.64	5	0.62
Nigeria	10	6.85	40	2.23	4.00	4	0.33
Saudi Arabia	9	6.16	54	3.01	6.00	4	0.49
China	8	5.48	97	5.40	12.13	3	0.99
United Kingdom	8	5.48	100	5.57	12.50	3	1.02
France	7	4.79	87	4.85	12.43	4	1.01
Russia	7	4.79	16	0.89	2.29	2	0.19
Russian Federation	7	4.79	935	52.09	133.57	6	10.86
Total	146	100.00	1795	100.00			

Table 5 depicts the geographical distribution of publications; out of 146 articles, India contributed the highest number of articles, amounting to more than 44 (30.14%) of the total publication, followed by the United States 32 (21.92%), and Pakistan 14 (9.59%); these three countries together contributed more than 61.65% of the world publications in the field of Pakistan Monkey Pox. Furthermore, it is discovered that Nigeria 10(6.85%), South Africa 9(6.16%), China 8(5.48%), United Kingdom 8(5.48%), France, Russia, and Russian Federation 7(4.79%). The research publication with the most citations (935, 52.09%) has an H-index of 6, a CPP of 133.57, and an RCI of 10.86. The H-index is 10, the CPP is 8.13, and there are 260 (14.48%) research papers. The lowest number of citations is 16 (0.89%) research articles, the H-index is 2, the CPP is 2.29, and the RCI is 0.19.

Top ten Research Institutions in the field of Monkey Pox Research Publication

Table -6 summarizes the research publications of the top ten research institutions at the worldwide level in the field of Monkey Pox. In total, they published 41 publications, which was approximately double the number of world publications during the study period. The Organisation Mondiale de la Santé alone released 7 (17.07%) publications, followed by the Ministry of Health of the Russian Federation, which contributed approximately 6 (14.63%), the University of Kansas Medical Center, which published 5 (12.20%), and the University of Ibadan, which published 4 (9.76%) research pieces. The institutions with the fewest research publications include The Ohio State University, SRM Institute of Science and Technology, Jawaharlal Nehru Technological University Hyderabad, Ludwig-Maximilians-Universität München, and Lebanese American University. The maximum number of research papers is 936 (86.517%), with an H-index of 6, a CPP of 133.71, and an RCI of 5.01. The H-index is 4, the CPP is 8.83, and the RCI is 0.33. The lowest number of citations is 1 (0.09%) research articles, with an H-index of 1, a CPP of 0.33, and an RCI of 0.01.

Table 6: top ten Research Institutions in the field of Monkey Pox Research Publication

Organization	Publications	%	Citation	%	CPP	h-index	RCI
Organisation Mondiale de la Santé	7	17.07	936	86.51	133.71	6	5.07
Ministry of Health of Russian Federation	6	14.63	53	4.90	8.83	4	0.33
University of Kansas Medical Center	5	12.20	2	0.18	0.40	1	0.02
University of Ibadan	4	9.76	44	4.07	11.00	2	0.42
Saveetha Institute of Medical and Technical Sciences	4	9.76	5	0.46	1.25	1	0.05
The Ohio State University	3	7.32	6	0.55	2.00	2	0.08
SRM Institute of Science and Technology	3	7.32	5	0.46	1.67	1	0.06
Jawaharlal Nehru Technological University Hyderabad	3	7.32	1	0.09	0.33	1	0.01
Ludwig-Maximilians-Universität München	3	7.32	1	0.09	0.33	1	0.01
Lebanese American University	3	7.32	29	2.68	9.67	3	0.37
Total	**41**	**100.00**	**1082**	**100.00**			

Most Productive Journals in the field of Monkey Pox Research Publication

Table 7: Most Productive Journals in the field Monkey Pox Research Publication

Journals	Publications	%	Citation	%	CPP	h-index	RCI
Bulletin Of The World Health Organization	9	20.45	87	23.45	9.67	8	1.15
Acta Virologica	6	13.64	44	11.86	7.33	4	0.87
Zhurnal Mikrobiologii Epidemiologii I Immunobiologii	6	13.64	8	2.16	1.33	2	0.16
Voprosy Virusologii	5	11.36	15	4.04	3.00	2	0.36
Archiv Fur Die Gesamte Virusforschung	4	9.09	53	14.29	13.25	4	1.57
Medecine Tropicale	4	9.09	49	13.21	12.25	3	1.45
Annals Of Medicine And Surgery	3	6.82	39	10.51	13.00	1	1.54
Revista Colombiana De Obstetricia Y Ginecologia	3	6.82	5	1.35	1.67	1	0.20
2022 8th International Conference On Signal Processing And Communication ICSC 2022	2	4.55	42	11.32	21.00	2	2.49
American Journal Of Epidemiology	2	4.55	29	7.82	14.50	2	1.72
Total	**44**	**100.00**	**371**	**100.00**			

Table -7 lists the top ten most productive journals in the field of monkey pox. It discovered that the Bulletin of the World Health Organization is at the top of the list, with 9 (20.45%) publications obtaining the first spot. As a result, Acta Virologica and Zhurnal Mikrobiologii Epidemiologii ranked second with a total of 6 publications (13.64%). Voprosy Virusologii 5(11.36%) took third place. These three journals appear to be the most productive in the field of monkeypox. The remaining productivity journals are likewise shown in the table above. The lowest scientific publications in 2022 are the 8th International Conference on Signal Processing and Communication ICSC 2022 and the American Journal of Epidemiology 2 (4.55%).The greatest is 87 (23.45%) research articles, with a CPP of 9.67, an H-index of 8, and an RCI of 1.15. Following 53 (14.29%) research papers, the CPP is 13.25, the H-index is 4, and the RCI is 1.57. The lowest number of citations is 5 (1.35%) research articles, the CPP is 1.67, the H-index is one, and the RCI is 0.20.

Type of Document wise distribution in Monkey Pox Research Publication

Table 8 shows the bibliographical form-wise distribution of documents, indicating that the vast majority of research output is available in the form of Article 121 (59.61%), with a significant number of publications also published in the form of Research Review 30 (14.78%). In addition, conference papers account for 20 (9.85%) of research publications. A significant number of articles were brought in the form of letters and editorials, respectively 17 (8.37%) and 6 (2.96%). However, very few publications are available in the form of Book Chapter 3 (1.48%), Short Survey 3 (1.48%), Note 2 (0.99%), and Data Paper 1 (0.49%). According to the preceding discussion, the bulk of

publications are in the form of articles and reviews, accounting for 74.39% of research publications.

Table 8: Type of Document wise distribution in Monkey Pox Research Publication

Document Type	Publications	%	Cumulative	%
Article	121	59.61	122	30.05
Review	30	14.78	151	37.19
Conference Paper	20	9.85	50	12.32
Letter	17	8.37	37	9.11
Editorial	6	2.96	23	5.67
Book Chapter	3	1.48	9	2.22
Short Survey	3	1.48	6	1.48
Note	2	0.99	5	1.23
Data Paper	1	0.49	3	0.74
	203	100.00	406	100.00

The keywords of the Monkey Pox Research Publication

Table 9: Keywords of the Monkey Pox Research Publication

Keyword	Frequency	%
Human	98	17.72
Monkeypox	87	15.73
Monkeypox Virus	74	13.38
Animal	52	9.40
Article	50	9.04
Monkey Pox	45	8.14
Humans	40	7.23
Poxvirus	39	7.05
Poxviridae	35	6.33
Nonhuman	33	5.97
Total	553	100.00

Table 9 shows the contribution of the most prolific subjects in the field of Monkey Pox. It is observed that Monkey Pox has contributed the highest number of Human with 98 (17.72%) research publications, followed by Monkey Pox with 87 (15.73%) research publications, and Monkey Pox Virus with 74(13.38%) research publications. Nonhuman was the lowest term, accounting for 33 (5.97%) of research publications.

The Funding agency of the Monkey Pox Research Publication

Table 10 shows the contribution of the most prolific funding agency in the field of monkey pox. It is observed that spice has contributed the highest number of National Institute of Allergy and Infectious Diseases with 2 (16.67%) research publications, followed by National Institutes of Health with 2 (16.67%) research publications, and Agence Nationale de la Recherche with 1 (8.33%) research publications.

Time Series Analysis

Time series analysis demonstrates that the estimated growth values are determined from past data. A straight-line equation is used to estimate future values based on existing data. Jeyshankar and Ramesh Babu employed time series analysis (2013)18. Ravichandran.S, Vivekanandhan.S, and G. Vinita Angeline (2022) [19].

Table 10: Funding agency of the Monkey Pox Research Publication

Name of the Funding Agency	Publications	%
National Institute of Allergy and Infectious Diseases	2	16.67
National Institutes of Health	2	16.67
Agence Nationale de la Recherche	1	8.33
Anhui Academy of Recycling Economical and Technical Engineering, Chinese Academy of Sciences	1	8.33
Anhui Institute of Optics and Fine Mechanics, Chinese Academy of Sciences	1	8.33
BMC Software	1	8.33
Beijing Institute of Genomics, Chinese Academy of Sciences	1	8.33
Bureau of Development and Planning, Chinese Academy of Sciences	1	8.33
Bureau of Frontier Sciences and Education, Chinese Academy of Sciences	1	8.33
Bureau of International Cooperation, Chinese Academy of Sciences	1	8.33
Total	12	100.00

Time Series Analysis Monkey Pox Research Publication

Table 11: Time Series Analysis Monkey Pox Research Publication

Block Year	Count (Y)	X	X2	XY
1962-1969	8	-5	25	-40
1970-1973	11	-4	16	-44
1974-1977	18	-3	9	-54
1978-1983	6	-2	4	-12
1984-1988	10	-1	1	-10
1989-1999	8	1	1	8
2001-2005	6	2	4	12
2006-2009	8	3	9	24
2010-2019	7	4	16	28
2021-2024	121	5	25	605
Total	203		110	517

Table 11 shows that the time series analysis formula has been projected for the monkey pox research papers in 2025 and 2030.

The straight Line Equation is

$Y = a + bx$

Here,

$\sum Y = 203$, $\sum X^2 = 110$, $\sum XY = 517$

$a = \sum Y/N = 203/10 = 20.3 = 20$

$b = \sum XY/ \sum X^2 = 517/110 = 4.7 = 4$

Estimated publications in the year 2025 are when X=2025-2015=10

$Y = a + bx$

$= 20 + (4*10) = 20+40 = 60$

The Estimated literature in 2030 is when X=2030-2015=15

$Y = a + bx$

$= 20 + (4*15) = 20 + 60 = 70$

Based on a time series analysis statistical application, the anticipated growth rate for monkey pox research papers in 2025 is about 60, and in 2030 it is around 70. So, at the time, rigorous examination confirmed that the number of publications on monkey pox study was increasing.

Table 12: Highly Cited papers Monkey Pox Research Publication

Titles	Citations	Document types
Galdiero S.; Falanga A.; et.al (2011) Silver nanoparticles as potential antiviral agents, Molecules, 16(10):8894-8918.	778	Review
Breman J.G.; Ruti K.; et.al (1980) Human monkey pox, 1970-79, Bulletin of the World Health Organization, 58(2)165-182.	404	Article
Jezek Z.; Grab B.; (1988) Human monkey pox: secondary attack rates, Bulletin of the World Health Organization, 66(4):465-470.	174	Article
Jezek Z.; Grab B.; et.al (1988) Clinico-epidemiological features of monkey pox patients with an animal or human source of infection, Bulletin of the World Health Organization, 666(4):459-464.	157	Article
Jezek Z.; Szczeniowski M.; et.al (1988) Human monkey pox: Confusion with chickenpox, Acta Tropica, 45(4):297-307.	122	Article
Berthet N.; Descorps-Declère S.; et.al (2021) Genomic history of human monkey pox infections in the Central African Republic between 2001 and 2018, Scientific Reports, 11(1) article no 13085.	87	Article
Jezek Z.; Grab B.; et.al (1988) Clinico-epidemiological features of monkey pox patients with an animal or human source of infection, Bulletin of the World Health Organization, Tropical and Geographical Medicine, 40(2):73-83.	68	Article
López-Ferrer D.; et.al (2011) Pressurized pepsin digestion in proteomics: An automatable alternative to trypsin for integrated top-down bottom-up proteomics, Molecular and Cellular Proteomics, 10(2).	46	Article
Bhunu C.P.; Mushayabasa S. et.al (2011) Modelling the transmission dynamics of pox-like infections, IAENG International Journal of Applied Mathematics, Modelling the transmission dynamics of pox-like infections, 41(2):141-149.	45	Article
Martín-Delgado M.C. et.al (2022) Monkey pox in humans: a new outbreak; [Monkey pox (Viruela del mono) en humanos: un nuevo brote], Revista Espanola de Quimioterapia, Monkey pox in humans: a new outbreak; [Monkey pox (Viruela del mono) en humanos: un nuevo brote], 35(6):509-518.	39	Review

Highly Cited papers Monkey Pox Research Publication

Table 12 shows the highly cited paper. Galdiero S., Falanga A., et al. (2011). Silver nanoparticles as possible antiviral agents. Molecules 16(10):8894-8918. The citation count is 778, as is the review's document type. Breman J.G., Ruti K., et al. (1980). Human monkey pox, 1970-79. Bulletin of the World Health Organization, 58(2), 165-182. Citations include 404 and document-type of article, as well as Jezek Z., Grab B., and (1988) Human monkey pox: secondary attack rates, Bulletin of the World Health Organization, 66(4):465–470. The article's citations total 174, as does its document type. The top ten highly cited papers include two reviews and eight articles.

Major Findings of the Study

The current study examined the growth of research publications released between 2062 and 2024 using a sample of 203 articles published in the field of Monkey Pox. The biggest number of papers, 121 (59.61%), were published in 2021-2024. The second-highest number of articles (18, or 8.87%) were contributed in 1974-1977.

The RGR of an article has fallen from 0.86 in 1970-1973 to 0.76 in 2021-2024 across the study period. The doubling time of article publishing gradually increases, from 0.80 in 1970-1973 to 90 in 2021-2024.

The majority of research output is available in the form of Article 121 (59.61%) research publications. India has the highest number of articles, accounting for over 44 (30.14%) out of 146.

The University of Organization Mondiale de la Santé published 7 (17.07%) articles, whereas the Bulletin of the World Health Organization ranked first with 9 (20.45%) publications.

Humans contributed the most to research articles, accounting for 98 (17.72%). The National Institute of Allergy and Infectious Diseases contributed the most, with two (16.62%) scientific articles.

Monkey Pox research articles are predicted to use time series analysis at a rate of approximately 60 in 2025 and 70 in 2030. So, at the time, rigorous examination confirmed

that the number of publications on monkey pox study was increasing.

The widely referenced paper is Galdiero S., Falanga A., et al. (2011) Silver nanoparticles as potential antiviral drugs, Molecules, 16(10):8894-8918. The citation count is 778, as is the review's document type.

CONCLUSION

The monkey pox virus was found in Denmark (1958) in monkeys used for study. The first human case of mpox was a nine-month-old infant from the Democratic Republic of the Congo in 1970. Following the eradication of smallpox in 1980 and the discontinuation of smallpox vaccine worldwide, mpox progressively spread throughout central, eastern, and western Africa. Since then, mpox has been documented infrequently in Central and Eastern Africa (clade I) and West Africa (clade II). In 2003, an epidemic in the United States was traced back to imported wild animals (clade II). In terms of publication distribution by nation, India provided the most papers (146), accounting for more than 44 (30.14%) of research publications. The institutions with the University of organization Mondale de la Santé published 7 (17.07%) articles, while the journals determined that the Bulletin of the World Health Organization ranked first with 9 (20.45%) publications. The highest number of keywords contributed the highest number of Human with 98 (17.72%) research articles, and the highest number contributed by the National Institute of Allergy and Infectious Diseases with 2 (16.62%). Since 2005, thousands of cases have been reported in the Democratic Republic of the Congo each year. In 2017, mpox resurfaced in Nigeria and is now spreading among Nigerians and visitors to other countries.

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