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Review Paper

The Role of Scientometrics in Analyzing the Research Trends of COVID-19 Scientific Publications During the First Year of the Pandemic: A Scoping Review

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ABSTRACT

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Coronavirus, COVID-19, Pandemic, Scientometrics, Scientific publications

Aims With the rapid expansion of scientific publications on coronavirus and COVID-19, scientometrics has emerged as an essential tool for evaluating research patterns and trends, thereby contributing significantly to understanding the scientific framework of the COVID-19 pandemic. Numerous scientometric studies have been conducted in this field. Accordingly, this study aimed to review the scientometric articles published on coronavirus and COVID-19.

Materials & Methods This scoping review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. Data were collected on November 30, 2020, from databases, including PubMed, Web of Science, Scopus, and ProQuest, as well as from preprint repositories (BioRxiv and MedRxiv) and Google Scholar. After applying inclusion and exclusion criteria, 46 articles were selected for review and analysis.

Findings The findings indicated that scientometric articles on coronavirus and COVID-19 were published over a range of time intervals from February to August. A total of 19 articles focused on scientometric analyses of coronavirus-related publications, while 28 articles addressed COVID-19-related publications. Regarding data sources, 18 studies used Web of Science, 18 used Scopus, seven used PubMed, and seven utilized other databases. Some studies also collected data from several sources. The number of publications analyzed in these articles ranged from 169 to more than 47,000.

Conclusion The results highlight the rapid growth of COVID-19 publications. In this regard, the published scientometric and bibliometric studies on coronavirus aimed to provide a comprehensive overview of scientific efforts, covering various timeframes and perspectives on the pandemic.

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Introduction

In late December 2019, a case of pneumonia of unknown origin was reported in Wuhan, Hubei Province, China, the clinical features of which were highly similar to those of viral pneumonia. The World Health Organization (WHO) named the disease COVID-19, while the International Committee on Taxonomy of Viruses designated the causative agent as Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). This virus belongs to the Betacoronavirus family, which is widely distributed in nature and, like other coronaviruses, has numerous potential natural hosts that may act as intermediate or final hosts. These characteristics have created significant challenges in the prevention and treatment of COVID-19 [1].

Following the rapid increase in cases and the global spread of the virus, the WHO declared the novel coronavirus outbreak a Public Health Emergency of International Concern on January 30, 2020, marking it as the sixth such emergency worldwide and a threat to all countries [2]. The global spread of COVID-19 has led to substantial growth in scientific production on this topic across major international citation databases [3,4]. These efforts were undertaken in response to the high mortality rate, rapid transmissibility of the disease, and its profound economic and social consequences, and represent part of the scientific community's response to public health needs during this pandemic. Consequently, the rapid dissemination of scientific findings related to COVID-19 has been essential to ensure the timely application of successful clinical outcomes [5]. The importance of scientific publications in responding to outbreaks of infectious diseases has been demonstrated in previous epidemics [6]. Similarly, rapid scientific responses to public health emergencies and past pandemics have been observed [7,8], with scientific output typically increasing for up to three years following a pandemic and subsequently declining [7].

The sharp increase in COVID-19-related publications during the pandemic has played a crucial role in informing the scientific community and continuously updating knowledge about the disease [9], thereby shaping the current understanding of the disease. Nevertheless, certain aspects of knowledge in this field remain unexplored, and several questions still require rigorous scientific investigation [10]. Accordingly, given the remarkable growth of scientific output in COVID-19-related fields within medical journals, greater attention has been directed toward scientometric analyses. Evaluating the scientific production of different countries in this domain can help identify existing challenges, bottlenecks, and gaps, contribute to a better understanding of the research domain, and guide research efforts aligned with macro-level policy objectives. However, by fostering a positive, constructive, and competitive scientific environment, such evaluations can promote the development of science and technology across countries. Moreover, scientometric studies provide policymakers and planners with crucial evidence regarding the outcomes and impacts of research programs [11].

Given the vast volume of scientific publications, bibliometric and scientometric methods are efficient and valuable tools for assessing scientific progress and identifying various dimensions of COVID-19-related publications. These methods are used to determine the quantitative growth of research productivity, identify the most productive countries and institutions, track the development of research topics, and detect critical research gaps [10]. The systematic identification and evaluation of scientific outputs are essential for understanding the current state of knowledge. Scientometrics is a key approach for evaluating scientific activities. It has extensive applications in describing, explaining, and predicting the scientific performance of researchers and research institutions at national and international levels. It also provides practical methods for monitoring and ranking organizations, researchers, journals, and countries [12,13]. Scientometrics, also known as the "science of science," is a widely used statistical approach for comprehensively analyzing scientific literature within a specific field [14]. Accordingly, the present study aimed to examine and analyze scientometric articles published in the field of coronavirus and COVID-19.

Materials and Methods

The present scoping review aimed to identify and analyze scientometric articles on COVID-19. The research process was designed and implemented in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure the transparency and reproducibility of the study [15].

Data were collected on November 30, 2020, by searching the bibliographic databases PubMed, Web of Science, and Scopus using the following search strategies.

Database	Strategy
Scopus	(TITLE-ABS-KEY [COVID] OR TITLE-ABS-KEY [corona] AND TITLE-ABS-KEY [scientometrics] OR TITLE-ABS-KEY [scientometric])
ISI	TS= (Corona OR COVID) AND (scientometric OR scientometrics)
PubMed	(corona [Title/Abstract]) OR (COVID [Title/Abstract]) AND (scientometrics [Title/Abstract] OR scientometric [Title/Abstract])

In addition to these databases, other databases and preprint repositories, including ProQuest, BioRxiv, MedRxiv, and the Google Scholar search engine, were searched using the keywords COVID, corona, and scientometrics. The search was conducted without any

time limitations up to the date of data retrieval.

The inclusion criteria comprised scientific articles on COVID-19 or coronavirus that addressed scientometric or bibliometric analyses, were available in full text, and were published in English. The exclusion criteria included duplicate records retrieved from multiple databases, articles whose titles or abstracts were not relevant to COVID-19 and scientometrics, articles that did not meet the inclusion criteria after full-text review, non-scientific publications or those lacking a research structure, such as editorials, letters to the editor, and short reports without scientometric data, as well as preprints that did not meet minimum scientific quality criteria.

Results

Following the database search, 13 articles were retrieved from PubMed, 10 from Web of Science, 22 from Scopus, 132 from ProQuest, articles from BioRxiv, and 24 from MedRxiv. Subsequently, 29 duplicate articles were excluded. During the first screening stage, 143 articles were excluded based on titles and abstracts. In the second screening stage, following full-text review, eight additional articles were excluded. At this stage, nine articles retrieved from Google Scholar were also added to enhance the completeness of the search results. Ultimately, 46 articles were selected for final analysis (Figure 1).

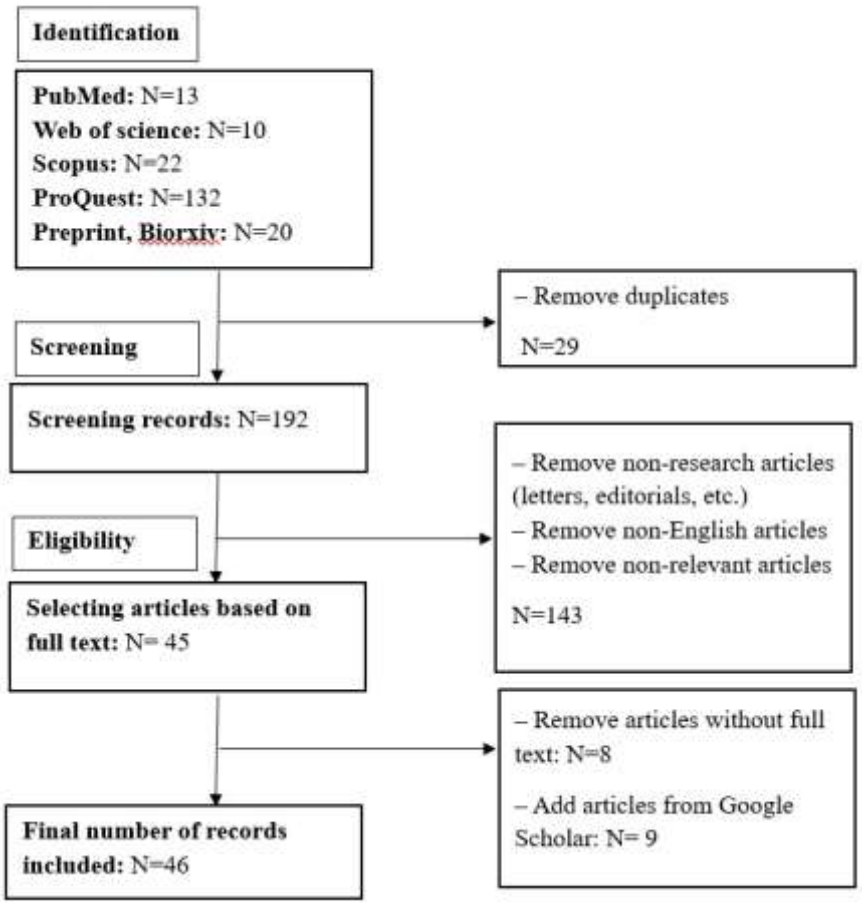

Figure 1. PRISMA Flow Diagram Illustrating the Process of Study Selection

The review of the 46 selected articles indicated that these studies analyzed publications not only on SARS, Middle East respiratory syndrome (MERS), and COVID-19, but also on other infectious diseases and pandemics. The data used in these studies were collected at different time points and extracted from various bibliographic databases. Overall, the studies can be categorized into two main groups: scientometric studies focusing on publications related to several coronaviruses and infectious diseases, and those specifically addressing COVID-19-related publications. Table 1 presents the detailed characteristics of the articles reviewed.

Table 1. Details of 46 Selected Scientometric Articles on Coronavirus

The Number of Citations	The Number of Analyzed Articles	Topic	Dataset	Authors	Month of Data Collection
0	1331	Coronavirus	Scopus	Akhter [16]	February
1	7558	Coronavirus	Scopus	Kumar Bharati and Pratap Singh [17]	

2	239 The first 30 days of the pandemic	COVID-19	PubMed	Golinelli et al. [18]	
0	451	COVID-19	Scopus	Harsanto [19]	
0	2250	COVID-19	WHO database	Kumar [20]	
0	884	COVID-19	Scopus	Kumar Siwach [21]	
0	3509	Coronavirus	Web of Science	Khaparde et al. [22]	
9	550	COVID-19	PubMed and Embase	Liu et al. [23]	March
7	7381	Coronavirus	Web of Science	Laksham et al. [24]	
0	6905	Coronavirus	Web of Science	Klingelhöfer et al. [25]	
3	1010	COVID-19	Dimensions platform	Batooli and Sayyah [26]	
4	6071	Coronavirus	Web of Science	Ahmad and Batcha [27]	
0	21559	Coronavirus	Scopus	Jana et al. [28]	
0	15297	Coronavirus	Scopus	Sahoo and Pandey [29]	
52	5780	COVID-19	Web of Science, PubMed, and Scopus databases	Tran et al. [10]	
59	12109	Coronavirus	Scopus	Haghani et al. [30]	
23	923	COVID-19	Scopus	Dehghanbanadaki et al. [31]	
0	1060	COVID-19	Scopus Web of Science	Ahmed et al. [32]	
0	541	Coronavirus	Scopus	Hugar et al. [33]	April
0	10515	Coronavirus	Scopus	Sahu et al. [34]	
0	3693	COVID-19	Scopus	Huded et al. [35]	
0	1630	COVID-19	Scopus	Sahoo and Pandy [36]	
15	11036	Coronavirus	Scopus	Zhai et al. [37]	
0	169	COVID-19	Web of Science	Lopez et al. [38]	
0	1409	COVID-19	Web of Science	Jafari et al. [39]	
10	47000	Coronavirus	CORD-19	Colavizza et al. [40]	
9	19518	Coronavirus	Scopus	Haghani and Bliemer [41]	
0	12201	COVID-19	Scopus	Amiri et al. [3]	
2	4878	COVID-19	Scopus	Lee and Haupt [42]	
4	10000	COVID-19	PubMed	Odone et al. [43]	
2	7440	COVID-19	PubMed MedRxiv, BioRxiv, ClinicalTrials.gov, Chinese Clinical Trial Registry, EU Clinical Trials Register, and 15 other trial registers	Gianola et al. [44]	May
0	290	COVID-19	Web of Science	Pathak [45]	
2	16384	COVID-19	Web of Science	Al-Zaman [46]	June
0	10850	COVID-19	Web of Science	Idhris et al. [47]	
1	50633	COVID-19	Dimensions	Aggarwal et al. [48]	
0	7185	COVID-19	Web of Science	Grammes et al. [49]	July
0	1000 most cited articles	COVID-19	Web of Science	Surulinathi et al. [50]	August
0	13833	Coronavirus	Web of Science	Senel and Topal [51]	
0	4102 keywords	Coronavirus	Web of Science	Danesh et al. [52]	
0	10700	Coronavirus	PubMed	Ramakrishnan et al. [53]	
10	5128	Coronavirus	Web of Science	Danesh and Ghavidel [54]	
13	-	Coronavirus and other infectious diseases	PubMed and Web of Science	Kagan et al. [55]	Not specified
0	239 Data for the first 30 days of the epidemic	COVID-19	Plum Analytics (PlumX)	Golinelli et al. [56]	

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The data presented in Table 1 shows that 19 articles focused on scientometric analyses of coronavirus-related publications, while 28 articles examined publications related to COVID-19. Publication data used for the scientometric analysis were collected between February and August 2020. A total of 18 articles utilized data from the Web of Science, 18 from Scopus, 7 from PubMed, and 7 from other databases. Some studies extracted publication data from multiple databases. The highest citation count among coronavirus-related scientometric studies was associated with the article entitled "The scientific literature on Coronaviruses, COVID-19, and its associated safety-related research dimensions: A scientometric analysis and scoping review," which aimed to examine the bibliographic dimensions of coronavirus research at a macro level and identify key safety-related research areas. In this study, 12,109 coronavirus-related publications were retrieved from the Scopus database and analyzed, and the article was published in April 2020 [30]. Another highly cited

article was titled "Studies of Novel Coronavirus Disease 19 (COVID-19) Pandemic: A Global Analysis of Literature," which analyzed 5,780 COVID-19-related publications retrieved from the Web of Science, PubMed, and Scopus databases. This article was also published in April 2020 [10]. In the following sections, the most crucial findings of the reviewed studies are presented separately for coronavirus- and COVID-19-specific scientometric studies.

Findings from Scientometric Studies on Coronaviruses

Regarding publications on coronaviruses and infectious diseases, the findings of relevant studies indicate that coronavirus-related publications date back to 1968, and three significant periods of increased scientific output have been observed over time [30, 37, 50–52, 55, 57]. Following each of these epidemics, a noticeable increase in related scientific publications and research activity has occurred [7, 41]. In contrast, the publication trends for diseases, such as HIV/AIDS and avian influenza, have remained relatively stable over time [55]. The leading countries in terms of coronavirus-related scientific publications were the United States, China, the United Kingdom, Germany, and Hong Kong. Countries, such as Canada, the Netherlands, South Korea, France, and Japan, produced a substantial number of publications in this field [7, 17, 24, 25, 27–29, 33, 37, 50, 51, 53, 54, 57]. The highest levels of international scientific collaboration were observed among China, the United States, Hong Kong, and the United Kingdom [16, 37]. Furthermore, publications from the United States, Germany, and China received the most citations [1]. Authors affiliated with institutions, such as the University of Hong Kong, Shenzhen Hospital (China), and the German Center for Infection Research (DZIF), demonstrated the highest levels of collaboration in producing coronavirus-related publications [29, 51]. The types of coronavirus-related publications included original articles, review articles, conference proceedings, editorials, notes, and other publication formats [28, 33, 34, 51].

The journals with the highest number of coronavirus-related publications were Journal of Virology, Emerging Infectious Diseases, Virology, and Advances in Experimental Medicine and Biology [24, 28–30, 37, 51, 53, 57]. Additionally, PLOS One, Viruses, and Antiviral Research published numerous articles in this area [16, 17, 22, 27, 33, 34, 40].

The most prolific authors were affiliated with institutions, such as Fudan University (Shanghai), Nanjing Normal University (Nanjing), the Chinese Center for Disease Control and Prevention (Beijing), and the National Institute for Viral Disease Control and Prevention (Beijing) [16]. The leading organizations in terms of research output included the University of Hong Kong, the University of California, the National Institute of Allergy, Chinese Academy of Sciences, Utrecht University, the Chinese University of Hong Kong, and the Centers for Disease Control and Prevention [24, 27, 28, 34, 54, 57]. The most frequently used keywords in these publications were SARS, MERS-CoV, SARS-CoV, coronavirus, identification, respiratory syndrome coronavirus, and infection [28, 37, 50, 52].

Initially, coronavirus-related publications primarily focused on public health and epidemic control, viral chemical structure, and studies related to treatment, vaccination, and clinical care [41]. The dominant subject areas included virology, infectious diseases, veterinary sciences, microbiology, and immunology [25]. The research topics encompassed public health and pandemic-related diseases, molecular biology, coronaviruses and influenza viruses, immunology, and experimental and diagnostic methods.

Two major citation clusters were identified in coronavirus-related publications: one focusing on public health and epidemiology, and the other on molecular biology [40]. The most prominent research areas included immunology, microbiology, medicine, biochemistry, genetics, and molecular biology [16, 17, 33]. Additional thematic clusters that received considerable attention included coronavirus infection, virus transmission, immunology, treatment, antibody responses, and viral structure and life cycle [52].

Findings from Scientometric Studies on COVID-19

The countries with the highest number of COVID-19-related scientific publications were China, the United States, the United Kingdom, Italy, and Germany [3, 10, 19, 21, 23, 35, 36, 43, 46, 47, 49, 56]. Scientometric analyses revealed a high level of international collaboration in COVID-19 research [42]. The United States was the most active country in collaborative research, with the strongest partnerships with the United Kingdom, China, and Italy [49]. China also demonstrated extensive cooperation with the United States and the United Kingdom [49]. Indian researchers showed high levels of collaboration with China, the United States, Thailand, and the United Kingdom, and studies indicated that internationally co-authored articles receive higher citation counts [45].

The top institutions in terms of the number of publications included Huazhong University of Science and Technology, Wuhan University, Fudan University, Tongji Medical College, Chinese Academy of Medical Sciences, Peking Union Medical College, and the University of Hong Kong [21, 31, 32, 35, 36, 47]. The most highly cited COVID-19 publications addressed clinical characteristics, disease course, and transmission pathways. Blog-posted articles primarily focused on early clinical features of patients during the initial outbreak and descriptions of infections in Europe and the United States. Publications reporting the first cases in Europe and the United States, along with studies on clinical manifestations of COVID-19, received the closest attention on social media platforms. The most cited article described the patient population affected by the novel disease and detailed its epidemiological,

clinical, laboratory, and radiological characteristics, as well as treatment outcomes [18]. Content analysis of the ten most influential articles revealed a focus on virus characterization, therapeutic and pharmacological treatment protocols, disease transmission, and epidemiological modeling [48].

The most common types of publications were original research articles, editorials, and letters [18, 19, 21, 36, 44, 46]. During the first five months of the epidemic, much of the scientific literature consisted of short data reports, opinions, commentaries, or secondary data analyses, rather than primary research studies [22]. The journals publishing the highest number of COVID-19-related articles included The Lancet, BMJ Clinical Research Edition, and the Journal of Medical Virology [19, 21, 30–32, 35, 36, 43, 46, 47]. The highest citation counts were associated with publications in The Lancet and the New England Journal of Medicine [35]. The most frequently used keywords in COVID-19 publications were Human, Coronavirus Infection, COVID-19, SARS-CoV-2, Coronavirus, and Hospital [19, 20, 21, 23, 32, 36, 47].

Research topics primarily focused on general and internal medicine, environmental and occupational health, immunology, microbiology, biochemistry, genetics, and biology [19, 36, 46, 49]. Three major research clusters were identified in COVID-19 studies: public health, basic sciences, and clinical research [3]. Keyword analyses further demonstrated that viral and molecular analyses, clinical, laboratory, and radiological assessments, and global public health responses were the dominant themes of published research [10]. The most prominent thematic clusters addressed acute respiratory diseases, contact tracing, and molecular epidemiology [19]. Other studies using topic modeling showed that clinical aspects—particularly emergency care guidelines and surgical management during the COVID-19 pandemic—were among the most frequently published topics [10]. Additional studies emphasized themes related to pathogenesis, epidemiology, transmission, diagnosis, treatment, prevention, and complications [31], as well as clinical manifestations and diagnosis, basic sciences, treatment, public health, technology, and media [23].

Publications were commonly categorized as epidemiological or virological studies, case reports or case series, original research articles, and observational review studies [23, 56]. In this context, Asian researchers predominantly focused on epidemiological topics, European researchers on biological research, and American researchers on epidemiology and genetics [39].

Regarding safety-related publications during the COVID-19 pandemic, the scientific community has primarily focused on issues, such as vaccine and treatment safety, patient transport safety, occupational safety of healthcare workers, laboratory biosafety, facility safety, social safety, food safety, and particularly mental health and home safety. In contrast, topics such as cybersecurity, economic safety, and supply chain safety have received comparatively less attention [30].

Interventional studies registered in clinical trial databases were conducted on humans and mainly focused on therapeutic interventions and health outcomes [44, 48]. The pharmacological agents used in clinical trials were also identified; for example, dexamethasone was among the most essential drugs evaluated during the pandemic [48].

Discussion

In line with the rapid growth of scientific publications related to the COVID-19 pandemic and in response to societal needs, scientometric studies have also been published at various time intervals. Scientometric and bibliometric analyses of coronavirus have been conducted for different purposes and across different periods to provide a comprehensive overview of researchers' efforts across various aspects of this disease.

Historically, pandemics caused by different strains of coronavirus have occurred, leading to numerous studies. Scientometric analyses have reported three distinct phases of increased publication output in 2003, 2013, and 2020, corresponding to the outbreaks of SARS, MERS, and COVID-19, respectively [30]. From November 1, 2002, to June 11, 2003, the first outbreak of atypical pneumonia (SARS-CoV) occurred in China, spreading to 30 countries, infecting approximately 8,098 individuals, and causing 916 deaths. The pandemic period continued until 2004 [58]. The subsequent outbreak of a novel coronavirus, MERS-CoV, emerged in September 2012 in Saudi Arabia, infecting over 2,428 individuals and causing 838 deaths across 27 countries, followed by an outbreak in South Korea in 2015 [59]. Evidence indicates that the global increase in scientific output during these years was driven by researchers' efforts to gain comprehensive insight into the epidemic and pandemic characteristics of these viruses. This study confirms that publication surges during epidemic periods are directly correlated with the intensity of the outbreak and global attention, as reported in scientometric studies on SARS and MERS [60].

Following the reporting of a novel coronavirus in late December 2019 and January 2020, scientific publications related to this virus increased significantly. The scientometric studies analyzed in this research also reflect the rapid growth of COVID-19 publications. After the first article was published in PubMed on January 20, 2020, the number of related publications increased rapidly, with over 300 documents published daily between January 17 and April 18 [4] and more than 500 articles indexed daily in May [43]. Scientometric researchers have also indicated that countries and regions experiencing more extensive coronavirus and COVID-19 outbreaks tend to produce more scientific publications [49, 54]. Additionally, countries with stronger research infrastructures, such as the United States and China, played a leading role in COVID-19 scientific output, consistent with findings from previous

scientometric studies on Human Papillomavirus [61].

The most common types of COVID-19 publications were research articles, editorials, and letters, reflecting the importance of non-research publications in addressing knowledge gaps during the early stages of the pandemic. Previous studies have shown that in the initial months of the COVID-19 outbreak, short data reports, opinions, commentaries (e.g., letters to the editor or perspectives), and secondary data reports predominated over primary research data [22]. Editorials and letters are non-research publications that significantly contribute to clarifying, correcting, and expanding existing knowledge, often based on the authors' experiences, thus providing new research perspectives [62]. Additionally, research reports, case reports, case series, or adverse drug reaction reports may also be published as letters [63]. Given the novelty of the virus in the early stages of the pandemic, the number of such publications increased, while numerous clinical trials and systematic reviews were registered, with results not yet published [22].

Scientometric findings on COVID-19 also indicate an overall increase in international collaborations during this period. Despite geopolitical tensions, the highest number of COVID-19 publications co-authored internationally involved collaborations between the United States and China, with their level of cooperation far exceeding that observed in non-COVID-19 research over the previous five years [42]. Analyses of international collaboration show that the United States consistently dominated coronavirus research. At the same time, China focused more on public health publications on SARS, avian influenza, and hepatitis B, with relatively less attention to diseases, such as Ebola [55]. These results highlight the pivotal role of international collaboration in accelerating scientific production and responding to global crises, such as COVID-19.

Scientometric studies of coronavirus publications have classified the literature from different perspectives. Coronavirus research articles cover a wide range of topics, with some articles spanning multiple thematic categories. This indicates that, alongside extensive medical research, broader studies on economic and social aspects were also conducted [48]. In the initial months of the pandemic, research primarily focused on prevention/control strategies and practical treatment approaches, reflecting the research community's early response [44]. This aligns with other scientometric reviews showing that health crises influence not only the medical field but also social, economic, and public policy domains, generating a substantial body of interdisciplinary literature [64, 65].

According to the findings, virology and viral biology research constitute a prominent component of coronavirus and COVID-19 studies. However, virology-focused topics have decreased over time, while studies on treatment strategies have increased [25, 40]. Clinical research publications also comprise a significant portion of COVID-19 literature, including clinical management of COVID-19 and related diseases [43]. Various aspects of clinical research, such as diagnostic tests, clinical examinations, and the management of hospitalized patients, have been of particular importance to researchers [10]. Epidemiological studies have also been a key focus of coronavirus and COVID-19 publications, with a substantial volume of relevant research. Since the data for this study were collected within the first year of the COVID-19 outbreak, virology, clinical characteristics, and epidemiology represented fundamental components for disease prevention and control. Virology and viral biology of SARS-CoV-2 are essential for effective and safe screening tests, drugs, and vaccines, while research on the clinical and paraclinical characteristics of COVID-19 provides critical guidance for patient management. Studies on public health responses and epidemiology also inform the impact of various policies and strategies on mitigating the consequences of the COVID-19 pandemic [66, 67]. This study emphasizes that virology and epidemiology played a central role in developing prevention and treatment strategies during the early stages of the outbreak.

Conclusion

The global COVID-19 pandemic has created a major crisis, posing significant public health challenges worldwide. This situation has driven the international scientific community to conduct targeted research to describe the clinical characteristics and pathogenic factors of this virus. Since the emergence of COVID-19, numerous countries, journals, institutions, and researchers have focused on the topic, resulting in a rapid increase in publications. Accordingly, scientometric studies on COVID-19 can map the growth of publications and the scientific structure in this domain. Such analyses reveal valuable research patterns and developments in coronavirus studies and provide insights into the global knowledge structure in this scientific field. Given the dynamic and continuously evolving nature of COVID-19-related knowledge, ongoing scientometric studies are necessary to monitor and analyze emerging trends. Mapping the scientific structure and uncovering the global knowledge framework of COVID-19 highlights the connection between human knowledge and scientists' activities during the pandemic, illustrating the breadth of concepts addressed. Scientometric findings in the field of COVID-19 can play a key role in guiding national and international research and health policies, assisting planners and policymakers in research and medical organizations in understanding current knowledge, identifying emerging trends, optimizing treatment strategies, and making informed, effective decisions.

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