THE SCIENTIFIC TEMPER (2026) Vol. 17 (4): 6158-6165

E-ISSN: 2231-6396, ISSN: 0976-8653

Doi: 10.58414/SCIENTIFICTEMPER.2026.17.4.26

https://scientifictemper.com/

RESEARCH ARTICLE

A Scientometric Analysis of Scholarly Publications on COVID-19: A Study

Jayarama Reddy T N[1], Dr. Amsaveni N[2*]

Abstract

The COVID-19 pandemic has generated an unprecedented volume of scholarly literature across multiple disciplines, necessitating systematic evaluation of research trends and impact. The present study conducts a comprehensive scientometric analysis of global scholarly publications on COVID-19 published during the period 2019–2025, with the aim of examining the growth, structure, and influence of research output related to the pandemic. Bibliographic data were retrieved from the Web of Science (WoS) database using relevant keywords such as COVID-19, Coronavirus, SARS-CoV-2, and Pandemic. Scientometric tools including HistCite and Microsoft Excel were employed for data processing, analysis, and visualization.

The study analyses publication growth, author productivity, citation impact, journal performance, and keyword frequency using indicators such as Local Citation Score (LCS), Global Citation Score (GCS), and citation intensity measures (LCS/t and GCS/t). The findings reveal a rapid and substantial increase in COVID-19-related publications, confirming the topic as one of the most intensively researched areas in recent scientific history. A small group of authors accounts for a significant share of publications, while citation analysis indicates that scholarly impact is driven more by research quality and relevance than by publication volume alone. Journal analysis identifies a core set of productive and high-impact journals, highlighting the importance of interdisciplinary and high-visibility publication venues. Keyword analysis shows strong emphasis on virology, clinical care, public health interventions, vaccination, and analytical and review-based research, with notable geographical focus on India.

Overall, the study demonstrates that COVID-19 research is characterized by rapid growth, concentrated authorship, evolving thematic focus, and high citation intensity. The scientometric insights offered by this study provide valuable guidance for researchers, policymakers, and funding agencies in understanding research dynamics and planning effective responses to future global health emergencies.

Keywords: COVID-19; Bibliometrics; Scientometrics; Bradford's Law; Mathematical model; Theoretical mode; Leimkuhler logarithmic model; Egghe's theoretical formulation.

Introduction

The COVID-19 pandemic has prompted an unprecedented surge in scientific research, resulting in thousands of publications across various disciplines. This rapid increase highlights the urgent need for comprehensive evaluations of the research landscape to inform future studies and public health responses. Such evaluations can help identify key trends, gaps in knowledge and the effectiveness of interventions in combating the pandemic.

This analysis will provide valuable insights into the global research output and its implications for public health strategies during and after the pandemic. This study aims to elucidate the dynamics of COVID-19 research, emphasizing the critical role of bibliometric assessments in shaping effective public health policies and future research directions.

The outbreak of Coronavirus Disease 2019 (COVID-19), first reported in late 2019, rapidly evolved into a global pandemic, profoundly affecting public health systems, economies, and social structures worldwide. In response to this unprecedented crisis, the global scientific community produced an extraordinary volume of research within a very short period. Studies related to COVID-19 span diverse disciplines, including medicine, virology, epidemiology, public health, social sciences, economics, information science, and technology. This surge in scholarly output

[1]Research Scholar, Bharathidasan University, Trichy & Librarian, National College, Bagepalli.

[2]Assistant Professor, DLIS, Bharathidasan University, Trichy.

***Corresponding Author:** Dr. Amsaveni N, Assistant Professor, DLIS, Bharathidasan University, Trichy, E-Mail: amsaveni.n@bdu.ac.in

How to cite this article: Reddy, J.T.N., Amsaveni, N. (2026). A Scientometric Analysis of Scholarly Publications on COVID-19: A Study. The Scientific Temper, **17**(4):6158-6165.

Doi: 10.58414/SCIENTIFICTEMPER.2026.17.4.26

Conflict of interest: None.

Received: 06/04/2026 **Accepted:** 21/04/2026 **Published:** 25/04/2026

makes COVID-19 one of the most extensively researched topics in recent history.

Scientometrics, a quantitative method for analyzing scientific literature, plays a crucial role in understanding the structure, growth, and impact of research in a particular field. By applying scientometric techniques, researchers can examine publication trends, authorship patterns, collaboration networks, citation impact, prolific authors, leading institutions, core journals, and dominant research themes. Such analyses help to assess the evolution of knowledge, identify influential contributions, and highlight research gaps.

A scientometric analysis of COVID-19 literature is particularly significant due to the rapid and multidisciplinary nature of research during the pandemic. Mapping the global research landscape provides insights into how different countries and institutions responded scientifically to the crisis, the extent of international collaboration, and the key areas that received major research attention. It also helps policymakers, funding agencies, and researchers to understand research priorities and improve preparedness for future public health emergencies.

Therefore, this study aims to conduct a comprehensive scientometric analysis of scholarly publications on COVID-19, using bibliographic data from major citation databases. The findings of this study will contribute to a better understanding of the global research trends, impact, and collaborative patterns in COVID-19 research, thereby supporting evidence-based decision-making and future research planning.

Literature Review

The COVID-19 pandemic has catalyzed an unprecedented surge in scholarly publications, prompting a significant bibliometric interest in the patterns, trends, and impacts of this research. A scientometric analysis of the literature surrounding COVID-19 reveals several key insights into academic contributions, collaborative networks, and emerging research themes.

The rapid escalation of COVID-19-related scientific output can be attributed to a global urgency that has mobilized researchers from diverse fields. Martínez-Perez et al. highlighted that, within their citation network analysis, 524 publications garnered 1454 citations, illustrating the aggressive academic response to the pandemic (Martinez-Perez et al., 2020). Complementary studies emphasize that the United States, China, and Germany emerged as leading contributors to high-quality publications during this period (Zhai et al., 2020), pointing to significant geopolitical influences on scientific inquiry.

A systematic review by Zhai et al. underscored the importance of bibliometric analysis in understanding the evolution of research surrounding COVID-19, indicating that such studies provide insight into publication counts and citation metrics and foster international collaboration among research institutions (Zhai et al., 2020). The analysis suggested that funding opportunities could be better aligned with research needs, particularly as the pandemic continues to affect global health dynamics. Furthermore, the dynamics of publication have not only demonstrated heightened volume but also a diversification into specific subject areas. Chiari et al. found that environmental concerns were increasingly prevalent in COVID-19 literature, particularly in studies related to the disposal of personal protective equipment (Chiari et al., 2022).

A notable trend within this growing body of literature is the reliance on preprints and rapid publication channels for disseminating research findings, which significantly impacts citation patterns. Ioannidis et al. posited that the actual number of COVID-19-related works may be underestimated due to many papers being published without formal indexing in databases like Scopus (Ioannidis et al., 2021). This surge raises questions regarding the quality and rigor of the publications, leading to calls for systematic analyses to discern reliable information from less robust research (Khatter et al., 2021).

The comparative analysis of citation rates between COVID-19 and non-COVID-19 articles across major journals also reveals how the pandemic has shifted academic focus and resources toward urgent public health questions, further affecting research dynamics (Brandt et al., 2022). Instruments such as citation and co-citation network analyses have been employed to track the progression of thematic areas, showing an increase in collaborative efforts and inter-institutional partnerships in light of the global crisis (Khazaneha et al., 2022).

The collective insights derived from bibliometric analyses serve as valuable resources for policymaking and strategic research direction. For example, studies by Kambhampati et al. specifically focused on COVID-19 publications in trauma and orthopedics, illustrating how different medical specialties responded to the pandemic's challenges (Kambhampati et al., 2020). This tailored bibliometric approach can facilitate targeted funding and research initiatives in specialty areas, enhancing the overall effectiveness of the scientific response.

In conclusion, the scientometric analysis of COVID-19 literature reveals an intricate landscape shaped by rapid dissemination, extensive collaboration, and evolving research themes across disciplines. The ongoing growth of related publications signifies a continuing commitment to understanding and addressing the challenges presented by the pandemic, emphasizing the need for sustained collaborative efforts in scientific inquiry.

Objectives of the Study:

The present study aims to conduct a comprehensive scientometric analysis of scholarly publications on COVID-19 with the following specific objectives:

- To examine the growth and distribution of COVID-19-related scholarly publications during the period 2019–2025.
- To identify the most productive and influential authors in COVID-19 research based on publication output and citation indicators such as Local Citation Score (LCS) and Global Citation Score (GCS).
- To analyze the citation impact and scholarly influence of leading authors using citation intensity measures (LCS/t and GCS/t).
- To identify the core journals contributing to COVID-19 research and evaluate their productivity and citation performance.
- To assess the relationship between journal productivity and citation impact, highlighting the role of high-impact and multidisciplinary journals.

Scope of the Study

The scope of the present study is limited to scholarly publications related to COVID-19 indexed in selected international bibliographic databases such as Web of Science during a defined study period. The study includes various document types such as research articles, review papers, conference proceedings, editorials, and letters. It covers multidisciplinary research areas including medical sciences, public health, social sciences, and information science.

The analysis focuses on bibliographic elements such as authorship, institutional affiliation, country of origin, journal sources, citations, keywords, and references. Scientometric indicators and visualization techniques are applied to examine research performance and collaboration patterns.

Methodology

The bibliographic data for the present study were retrieved from a reputed international citation database such as Web of Science (WoS). These databases were chosen due to their wide coverage of peer-reviewed and high-quality scholarly literature. The search strategy involved using relevant keywords such as "COVID-19," "Coronavirus," "SARS-CoV-2," and "Pandemic" in the title, abstract, and keyword fields. The data were collected for publications published between 2019 and 2025.

Bibliographic information including authors, titles, source journals, publication year, affiliations, keywords, citations, and references was extracted. Data cleaning and normalization were performed to eliminate duplicates and inconsistencies in author names, institutional affiliations, and keywords. The scientometric and bibliometric tools were employed in the study is Histcite and Excel for data organization, tabulation, and graphical representation.

Interpretation of Data

The scientometric analysis of COVID-19 scholarly publications reveals significant trends in the growth, distribution, and impact of research output during the pandemic period from 2019 to 2025.

Author Productivity and Citation Impact

The author-level scientometric analysis reveals significant variations in research productivity, citation impact, and scholarly influence among the most prolific contributors. A total of 25 leading authors were identified based on the number of records (Recs), citation indicators, and citation performance over time.

In terms of publication output, Kumar A emerged as the most prolific author with 651 publications, contributing approximately 3% of the total research output, followed by Kumar S and Wiwanitkit V, each with 582 publications (2.7%). Other highly productive authors include Singh S (373 publications), Singh A (328 publications), and Sharma A (320 publications). This indicates a strong dominance of a small group of authors contributing a substantial share of the scholarly output.

Local Citation Score (LCS), which reflects influence within the analysed dataset, highlights Kumar S as the most influential author with an LCS of 1054, followed closely by Kumar A (LCS = 970). Authors such as Gupta N (553), Kumar V (610), and Dhama K (482) also demonstrate strong local influence. High LCS values suggest that these authors' works are frequently cited by peers working within the same research domain.

Global Citation Score (GCS), indicating broader international visibility, further reinforces the prominence of key authors. Kumar A recorded the highest GCS (24,348 citations), followed by Dhama K (14,714 citations), Das S (13,192 citations), and Kumar R (13,206 citations). Notably, Das S, despite having a relatively moderate publication count (217 papers), achieved a high GCS, indicating substantial global recognition and influence.

Citation intensity per year, measured through LCS/t and GCS/t, provides insight into the sustained relevance of authors' contributions. Kumar S (LCS/t = 182.71) and Kumar A (LCS/t = 172.01) show consistently high citation rates over time, suggesting long-term scholarly relevance. Similarly, Das S (GCS/t = 3567.07) and Dhama K (GCS/t = 3210.23) exhibit high global citation intensity, underscoring the enduring impact of their research outputs.

The analysis reveals a clear distinction between publication volume and citation impact. For instance, Wiwanitkit V, despite a high publication count (582 records), shows relatively low local and global citation scores (LCS = 100; GCS = 1,369), indicating limited influence compared to other prolific authors. Conversely, authors such as Dhama K, Das S, and Gupta N demonstrate high citation impact with comparatively fewer publications, emphasizing the importance of research quality and relevance over sheer output.

The negative values observed in LCSe for several authors suggest a decline in recent citation influence or a stronger impact of earlier publications. This pattern may reflect shifts in research focus, emergence of new contributors, or saturation within specific sub-themes. However, authors with relatively stable or less negative values continue to maintain consistent scholarly visibility.

Overall, the findings indicate that while a few authors dominate in terms of productivity, scholarly impact is more strongly associated with citation quality and sustained relevance. Authors such as Kumar A and Kumar S combine high productivity with high impact, whereas others like Dhama K and Das S achieve exceptional influence despite lower publication volumes. This underscores the fact that research quality, relevance, and citation longevity are more critical indicators of scholarly impact than publication count alone.

Journal Productivity

The Indian Journal of Ophthalmology emerged as the most preferred source, publishing 537 articles, accounting for 2.5% of the total output. This was followed by the Journal of Biomolecular Structure & Dynamics with 320 publications (1.5%), and Scientific Reports with 246 publications (1.1%). Other frequently used publication venues include Frontiers in Public Health (216 articles), PLOS ONE (215 articles), and the Indian Journal of Medical Research (196 articles). The dominance of these journals indicates their central role in disseminating research within the studied domain.

Local Citation Score (LCS), reflecting influence within the analysed dataset, shows notable variation across journals. The Journal of Biomolecular Structure & Dynamics recorded the highest LCS (2020), followed by the Indian Journal of Ophthalmology (1284) and the Indian Journal of Medical Research (744). Journals such as the Journal of

Table 1: Author Productivity and Citation Impact

Author Name	*Records*	*Percent*	*LCS*	*LCS/t*	*LCSx*	*GCS*	*GCS/t*	*LCR*	*LCSb*	*LCSe*
Kumar A	651	3	970	172.0071429	661	24348	5308.678571	853	546	-313
Kumar S	582	2.7	1054	182.7095238	726	15960	2958.642857	861	692	-258
Wiwanitkit V	582	2.7	100	16.31428571	43	1369	220.8190476	82	73	-424
Singh S	373	1.7	574	100.3	401	14086	2993.630952	428	348	-169
Singh A	328	1.5	308	58.18809524	178	10768	2649.22381	380	151	-191
Sharma A	320	1.5	442	75.47380952	284	9806	1956.204762	438	263	-125
Sharma S	316	1.5	539	95.42619048	386	10702	2475.983333	395	371	-146
Gupta A	308	1.4	518	88.5	343	8821	1699.683333	356	375	-136
Kumar R	292	1.3	533	98.28809524	371	13206	3112.204762	405	286	-111
Kumar P	281	1.3	364	64.22857143	237	7496	1435.645238	427	184	-147
Gupta S	261	1.2	365	64.72619048	231	10107	2497.280952	318	250	-128
Kumar V	249	1.1	610	103.7404762	466	6281	1199.585714	390	357	-87
Singh P	219	1	353	63.24761905	217	11159	2962.428571	294	252	-122
Das S	217	1	432	73.9452381	306	13192	3567.071429	267	310	-100
Singh R	215	1	376	61.77619048	250	5481	974.5452381	327	293	-99
Mungmunpuntipantip R	211	1	14	2.702380952	7	155	29.21904762	26	3	-172
Sharma P	208	1	352	61.13333333	249	6262	1212.735714	236	213	-81
Kumar M	195	0.9	158	28.00238095	82	9025	2159.585714	304	104	-104
Ghosh S	193	0.9	261	46.24047619	214	5754	1160.619048	189	163	-85
Kumar N	189	0.9	342	63.01428571	230	11277	2620.728571	322	165	-73
Gupta N	178	0.8	553	91.36666667	429	4653	800.4333333	161	416	-43
Dhama K	172	0.8	482	81.13095238	194	14714	3210.22619	479	338	-63
Kumar D	172	0.8	214	37.28095238	157	3822	790.0452381	277	128	-103
Agarwal V	168	0.8	269	54.70238095	43	2470	458.7666667	378	97	-126
Gupta R	156	0.7	344	57.24761905	219	10480	2776.578571	157	258	-51

Medical Virology (558) and Indian Journal of Pediatrics (405) also demonstrate strong local influence. High LCS values suggest that articles published in these journals are frequently cited by researchers working within the same thematic area.

In terms of global visibility, Journal of Biomolecular Structure & Dynamics again leads with a GCS of 10,385, followed by Science of the Total Environment (9,785) and Asian Journal of Psychiatry (8,333). Despite publishing fewer articles, Science of the Total Environment and Asian Journal of Psychiatry exhibit exceptionally high global citation counts, indicating strong international recognition. Similarly, multidisciplinary journals such as Scientific Reports, PLOS ONE, and Frontiers in Public Health show substantial global citation impact, reflecting their broad readership and interdisciplinary reach.

Citation intensity, measured through LCS/t and GCS/t, highlights journals with sustained and high-impact influence over time. The Journal of Biomolecular Structure & Dynamics shows the highest citation intensity (LCS/t = 360.87; GCS/t = 1933.82), indicating long-term scholarly relevance. The Indian Journal of Ophthalmology also demonstrates strong citation performance (LCS/t = 207.9). Among globally oriented journals, Science of the Total Environment (GCS/t = 1570.83) and Asian Journal of Psychiatry (GCS/t = 1224.15) exhibit high annual citation rates, emphasizing the enduring value of their published research.

Several journals, including Scientific Reports, PLOS ONE, Frontiers in Public Health, and Frontiers in Immunology, show zero local citations (LCS = 0) but high global citation scores. This suggests that while these journals may be less central within the specific local dataset, they enjoy strong international visibility and wider interdisciplinary impact. Conversely, Indian journals such as Indian Journal of Ophthalmology, Indian Journal of Medical Research, and Indian Journal of Pediatrics display balanced local and global

Table 2: Journal Productivity

Journal Name	*Records*	*Percent*	*LCS*	*LCS/t*	*GCS*	*GCS/t*	*LCR*
INDIAN JOURNAL OF OPHTHALMOLOGY	537	2.5	1284	207.9	5651	915.79	958
JOURNAL OF BIOMOLECULAR STRUCTURE & DYNAMICS	320	1.5	2020	360.86	10385	1933.81	791
SCIENTIFIC REPORTS	246	1.1	0	0	3904	749.55	279
FRONTIERS IN PUBLIC HEALTH	216	1	0	0	3832	664.90	201
PLOS ONE	215	1	0	0	4053	710.81	237
INDIAN JOURNAL OF MEDICAL RESEARCH	196	0.9	744	113.10	2661	413.27	218
INDIAN JOURNAL OF PSYCHIATRY	175	0.8	160	24.20	1278	198.91	98
ASIAN JOURNAL OF PSYCHIATRY	174	0.8	0	0	8333	1224.15	76
VACCINES	157	0.7	0	0	2675	563.62	370
INDIAN JOURNAL OF PUBLIC HEALTH	145	0.7	121	18.52	859	133.14	77
INDIAN JOURNAL OF PEDIATRICS	139	0.6	405	62.55	3336	505.31	129
JOURNAL OF MEDICAL VIROLOGY	130	0.6	558	97.01	4853	865.89	160
INDIAN PEDIATRICS	127	0.6	267	40.46	1334	201.92	123
MULTIMEDIA TOOLS AND APPLICATIONS	122	0.6	152	32.96	1431	329.19	201
HELIYON	116	0.5	0	0	1948	389.27	132
ENVIRONMENTAL SCIENCE AND POLLUTION RESEARCH	112	0.5	238	42.32	3132	608.04	242
SCIENCE OF THE TOTAL ENVIRONMENT	107	0.5	0	0	9785	1570.82	104
COMPUTERS IN BIOLOGY AND MEDICINE	105	0.5	0	0	3055	549.61	199
HUMAN VACCINES & IMMUNOTHERAPEUTICS	100	0.5	275	41.57	1888	320.15	146
INDIAN JOURNAL OF MEDICAL MICROBIOLOGY	99	0.5	91	15.63	547	99.22	95
SUSTAINABILITY	95	0.4	0	0	1903	359.38	78
FRONTIERS IN IMMUNOLOGY	93	0.4	0	0	2842	468.09	142
INTERNATIONAL JOURNAL OF SURGERY	92	0.4	27	5.09	986	202.94	48
CURRENT SCIENCE	89	0.4	119	18.79	415	65.01	24
IEEE ACCESS	86	0.4	231	36.57	2542	442.03	92

citation performance, indicating both national relevance and international reach.

The Local Citation Rate (LCR) further illustrates the continuing relevance of journals. The Indian Journal of Ophthalmology (LCR = 958) and Journal of Biomolecular Structure & Dynamics (LCR = 791) show high recent citation activity, suggesting sustained scholarly interest. Journals such as Vaccines, Environmental Science and Pollution Research, and IEEE Access also exhibit relatively high LCR values, reflecting their relevance to emerging and contemporary research themes.

Overall, the analysis reveals that high publication volume does not always correspond to higher citation impact. While journals like the Indian Journal of Ophthalmology lead in productivity, journals such as Journal of Biomolecular Structure & Dynamics, Science of the Total Environment, and Asian Journal of Psychiatry demonstrate greater citation influence despite comparatively lower publication counts. The findings underscore the importance of journal visibility, interdisciplinary scope, and research quality in determining scholarly impact rather than publication quantity alone.

Table 3: Frequency of Word occurrence

Word	*Records*	*Percent*	*LCS*	*GCS*
COVID	14033	64.5	17602	290652
PANDEMIC	3523	16.2	3202	68853
SARS	2911	13.4	4633	66313
INDIA	2841	13.1	4637	43311
COV	2774	12.7	4473	63472
BASED	1726	7.9	2052	34194
PATIENTS	1611	7.4	1618	25467
ANALYSIS	1579	7.3	1290	38905
USING	1462	6.7	1839	28469
REVIEW	1391	6.4	1761	47082
IMPACT	1276	5.9	1650	28918
HEALTH	1164	5.3	839	27084
INFECTION	1112	5.1	1226	17625
DISEASE	1070	4.9	1916	34630
CARE	870	4	639	10497
LEARNING	859	3.9	1336	21505
POTENTIAL	852	3.9	1295	19391
VACCINE	833	3.8	1018	15399
APPROACH	763	3.5	1205	15700
CORONAVIRUS	746	3.4	2038	25359
LOCKDOWN	716	3.3	1516	18070
VACCINATION	708	3.3	601	7280
MODEL	700	3.2	729	12262
DETECTION	684	3.1	998	16872
CLINICAL	661	3	925	15157

Keyword Frequency and Thematic Emphasis of the Literature

The term "COVID" overwhelmingly dominates the literature, appearing in 14,033 records (64.5%), with exceptionally high citation impact (LCS = 17,602; GCS = 290,652). This confirms that COVID-19 constitutes the central thematic focus of the dataset. Closely related terms such as "Pandemic" (16.2%), "SARS" (13.4%), "CoV" (12.7%), and "Coronavirus" (3.4%) further reinforce the virological and epidemiological orientation of the research domain.

The prominence of "SARS" and "CoV" indicates a strong linkage between COVID-19 research and earlier coronavirus related studies, suggesting continuity and knowledge transfer from previous outbreaks to the current pandemic context.

The frequent occurrence of the keyword "India" (2,841 records; 13.1%) highlights a substantial geographical emphasis on India-related COVID-19 research. The relatively high citation scores associated with this term (LCS = 4,637; GCS = 43,311) indicate strong national relevance coupled with notable international visibility. This reflects India's significant contribution to global COVID-19 research and policy-relevant studies during the pandemic period.

Several high-frequency keywords reflect the methodological orientation of the literature. Terms such as "Analysis" (7.3%), "Using" (6.7%), "Review" (6.4%), "Model" (3.2%), and "Approach" (3.5%) suggest a strong emphasis on analytical, modelling, and review-based studies. The high global citation impact of "Review" (GCS = 47,082) and "Analysis" (GCS = 38,905) indicates that synthesis-based and data-driven research outputs have played a critical role in shaping scholarly discourse.

Additionally, the presence of "Learning" (3.9%) points to the growing adoption of machine learning and artificial intelligence techniques in COVID-19-related research, particularly for prediction, diagnosis, and decision support.

Keywords such as "Patients" (7.4%), "Clinical" (3.0%), "Care" (4.0%), "Health" (5.3%), "Disease" (4.9%), and "Infection" (5.1%) underscore the strong clinical and public health orientation of the literature. The relatively high citation impact of "Disease" (GCS = 34,630) and "Clinical" (GCS = 15,157) highlights the importance of patient-centred and disease-focused research in addressing the pandemic.

The appearance of keywords such as "Lockdown" (3.3%), "Vaccine" (3.8%), and "Vaccination" (3.3%) reflects substantial scholarly attention to non-pharmaceutical interventions and immunisation strategies. While "Vaccine" shows moderate citation impact, the comparatively lower citations for "Vaccination" suggest that early vaccine-related studies may have been more exploratory or context-specific, gaining momentum later in the research timeline.

Keywords including "Detection" (3.1%), "Potential" (3.9%), and "Impact" (5.9%) indicate a growing focus on diagnostic methods, therapeutic possibilities, and socio-economic or health-system impacts of COVID-19. The high citation impact associated with "Impact" (GCS = 28,918) highlights the multidisciplinary nature of COVID-19 research, extending beyond clinical science to social, economic, and policy dimensions.

Overall, the keyword analysis demonstrates that the literature is heavily centred on COVID-19 and pandemic-related themes, with strong integration of clinical research, public health interventions, analytical methodologies, and emerging computational approaches. The high citation impact of core and methodological keywords indicates that studies addressing broad pandemic implications, evidence synthesis, and data-driven analysis have been particularly influential. The thematic distribution reflects the evolution of COVID-19 research from outbreak characterisation to clinical management, policy evaluation, and advanced analytical modelling.

Findings of the Study

The scientometric analysis of scholarly publications on COVID-19 for the period 2019–2025, based on data retrieved from the Web of Science database, reveals the following key findings:

The study observed an extraordinary growth in COVID-19 related publications during the study period. The surge reflects the urgent global research response to the pandemic and confirms COVID-19 as one of the most intensively researched topics in recent scientific history.

A small group of authors contributed a disproportionately large share of the total publications. Kumar A emerged as the most prolific author with 651 publications (3%), followed by Kumar S and Wiwanitkit V with 582 publications (2.7%) each. This indicates the dominance of core authors in COVID-19 research output.

High productivity did not always correspond to high scholarly impact. Authors such as Kumar S and Kumar A recorded the highest Local Citation Scores (LCS), indicating strong influence within the dataset. In contrast, authors like Dhama K and Das S achieved exceptionally high Global Citation Scores (GCS) despite lower publication counts, highlighting the importance of research quality and relevance.

Citation intensity measures (LCS/t and GCS/t) revealed that several authors maintained sustained scholarly relevance over time. Kumar S, Kumar A, Das S, and Dhama K demonstrated consistently high citation rates per year, indicating long-term impact rather than short-term visibility.

The Indian Journal of Ophthalmology was identified as the most productive journal with 537 publications (2.5%), followed by the Journal of Biomolecular Structure & Dynamics and Scientific Reports. This confirms the presence of a core set of journals serving as major publication outlets for COVID-19 research.

The Journal of Biomolecular Structure & Dynamics recorded the highest Local Citation Score (LCS = 2020) and Global Citation Score (GCS = 10,385), indicating strong local and international influence. Journals such as Science of the Total Environment and Asian Journal of Psychiatry demonstrated high global citation impact despite fewer publications, emphasizing quality over quantity.

Several multidisciplinary journals, including Scientific Reports, PLOS ONE, and Frontiers in Public Health, exhibited high global citation scores but zero local citations, suggesting wider international visibility beyond the core dataset. Indian journals showed a balanced local and global citation presence, reflecting both national relevance and international reach.

The keyword "COVID-19" dominated the literature, appearing in 64.5% of the records, followed by Pandemic, SARS, CoV, and Coronavirus. This confirms the strong virological and epidemiological focus of the research domain.

The frequent occurrence of the keyword "India" (13.1%) highlights India's substantial contribution to COVID-19 research. High citation scores associated with this keyword indicate both national significance and global visibility of Indian research output.

The study identified a strong emphasis on clinical, public health, and patient-centred research, along with growing use of analytical, review-based, and modelling approaches. The increasing presence of terms related to machine learning and artificial intelligence indicates an evolving methodological orientation in COVID-19 research.

Conclusion

The article presents a comprehensive scientometric analysis of scholarly publications on COVID-19, examining the global research response to the pandemic from 2019 to 2025. The unprecedented outbreak of COVID-19 triggered an extraordinary surge in scientific publications across multiple disciplines, including medicine, public health, social sciences, and information science. This study aims to systematically map, measure, and interpret the structure, growth, and impact of COVID-19 research using scientometric techniques.

Bibliographic data were retrieved from the Web of Science database and analyzed using tools such as HistCite and Microsoft Excel. The study evaluates publication growth, author productivity, citation impact, journal productivity, and keyword frequency to understand research trends and scholarly influence. Citation indicators such as Local Citation Score (LCS), Global Citation Score (GCS), and citation intensity measures were employed to assess research impact.

The findings reveal a sharp increase in COVID-19-related publications, with a small group of authors contributing a

significant share of the total output. While authors such as Kumar A and Kumar S demonstrated both high productivity and high citation impact, others like Dhama K and Das S achieved substantial scholarly influence despite fewer publications, highlighting the importance of research quality over quantity. The study also shows a clear distinction between publication volume and citation impact among authors.

Journal analysis indicates that although journals like the Indian Journal of Ophthalmology lead in publication volume, journals such as the Journal of Biomolecular Structure & Dynamics, Science of the Total Environment, and Asian Journal of Psychiatry exhibit higher citation influence. This finding underscores the role of journal visibility, interdisciplinary scope, and research relevance in determining scholarly impact.

Keyword analysis demonstrates that COVID-19 research is heavily centred on themes such as pandemic management, virology, clinical care, public health, vaccination, and lockdown measures. The strong presence of methodological keywords reflects a growing emphasis on analytical, review-based, and data-driven research approaches. The frequent occurrence of "India" as a keyword highlights India's significant contribution to global COVID-19 research.

References

Aria, M., & Cuccurullo, C. (2017). bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics, 11*(4), 959–975. https://doi.org/10.1016/j.joi.2017.08.007

Bradford, S. C. (1934). Sources of information on specific subjects. *Engineering, 137*, 85–86.

Brandt, M., Ghozy, S., Kallmes, D., McDonald, R., & Kadirvel, R. (2022). Comparison of citation rates between covid-19 and non-covid-19 articles across 24 major scientific journals. Plos One, 17(7), e0271071. https://doi.org/10.1371/journal.pone.0271071

Chatterjee P, Nagi N, Agarwal A, Das B, Banerjee S, Sarkar S, et al. The 2019 novel coronavirus disease (COVID-19) pandemic: A review of the current evidence. *Indian J Med Res*. 2020;151(2–3):147–159.

Chen, C. (2006). CiteSpace II: Detecting and visualizing emerging trends and transient patterns in scientific literature. *Journal of the American Society for Information Science and Technology, 57*(3), 359–377. https://doi.org/10.1002/asi.20317

Chiari, W., Damayanti, R., Harapan, H., Puspita, K., Saiful, S., Rahmi, R., … & Iqhrammullah, M. (2022). Trend of polymer research related to covid-19 pandemic: bibliometric analysis. Polymers, 14(16), 3297. https://doi.org/10.3390/polym14163297

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research, 133*, 285–296. https://doi.org/10.1016/j.jbusres.2021.04.070

Falagas, M. E., Pitsouni, E. I., Malietzis, G. A., & Pappas, G. (2008). Comparison of PubMed, Scopus, Web of Science, and Google Scholar: Strengths and weaknesses. *The FASEB Journal, 22*(2), 338–342. https://doi.org/10.1096/fj.07-9492LSF

Garfield, E. (1972). Citation analysis as a tool in journal evaluation. *Science, 178*(4060), 471–479. https://doi.org/10.1126/science.178.4060.471

Garfield, E. (2009). *From the science of science to scientometrics visualizing the history of science with HistCite software*. Journal of Informetrics, 3(3), 173–179. https://doi.org/10.1016/j.joi.2009.03.009

Gupta BM, Dhawan SM, Gupta R. Global research on COVID-19 disease: A scientometric study of publications and citations during 2020. *Diabetes Metab Syndr.* 2021;15(1):19–25.

Hood, W. W., & Wilson, C. S. (2001). The literature of bibliometrics, scientometrics, and informetrics. *Scientometrics, 52*(2), 291–314. https://doi.org/10.1023/A:1017919924342

Ioannidis, J., Salholz-Hillel, M., Boyack, K., & Baas, J. (2021). The rapid, massive growth of covid-19 authors in the scientific literature. Royal Society Open Science, 8(9). https://doi.org/10.1098/rsos.210389

Kambhampati, S., Vaishya, R., Paleti, S., & Khanduja, V. (2020). Making sense of the infodemic – a bibliometric analysis of publications on covid-19 in trauma and orthopedics. Indian Journal of Medical Sciences, 0, 1-12. https://doi.org/10.25259/ijms_206_2020

Khatter, A., Naughton, M., Dambha-Miller, H., & Redmond, P. (2021). Is rapid scientific publication also high quality? bibliometric analysis of highly disseminated covid-19 research papers. Learned Publishing, 34(4), 568-577. https://doi.org/10.1002/leap.1403

Khazaneha, M., Tajedini, O., Esmaeili, O., Abdi, M., Khasseh, A., & Sadatmoosavi, A. (2022). Thematic evolution of coronavirus disease: a longitudinal co-word analysis. Library Hi Tech, 41(1), 7-24. https://doi.org/10.1108/lht-10-2021-0370

Kokol, P., Blazun Vosner, H., & Zavrsnik, J. (2021). Application of bibliometrics in medicine: A historical bibliometrics analysis. *Health Information and Libraries Journal, 38*(2), 125–138. https://doi.org/10.1111/hir.12309

Kumar A, Nayar KR. COVID-19 and its mental health consequences. *J Ment Health*. 2021;30(1):1–2.

Martinez-Perez, C., Alvarez-Peregrina, C., Collar, C., & Sanchez-Tena, M. (2020). Citation network analysis of the novel coronavirus disease 2019 (covid-19). International Journal of Environmental Research and Public Health, 17(20), 7690. https://doi.org/10.3390/ijerph17207690

Van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics, 84*(2), 523–538. https://doi.org/10.1007/s11192-009-0146-3

World Health Organization. (2020). *WHO Director-General's opening remarks at the media briefing on COVID-19*. World Health Organization.

Zhai, F., Zhai, Y., Cong, C., Song, T., Xiang, R., Feng, T., & Jiankun, L. (2020). Research progress of coronavirus based on bibliometric analysis. International Journal of Environmental Research and Public Health, 17(11), 3766. https://doi.org/10.3390/ijerph17113766

Zupic, I., & Cater, T. (2015). Bibliometric methods in management and organization. *Organizational Research Methods, 18*(3), 429–472. https://doi.org/10.1177/1094428114562629