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Scientometric Perspectives on Viral Disease Research: The Role of PubMed with Special Reference to COVID-19 - a review

P. Meena Priya Dharshini[1], M. Yasmin[2], Muthumathi Dharuman[3]

[1] Research Scholar, Madurai Kamaraj University, Madurai, Tamil Nadu, India

[2] Department of Library Science, SFR College for Women, Sivakasi, Tamil Nadu, India

[3] Corresponding Author: Dr. Muthumathi Dharuman, St.Peter's Institute of Higher Education and Research,Avadi, Chennai, Tamil Nadu, India

Abstract: Viral diseases are a major area of research within the scientific community and pose many challenges in human health raise questions about prevention, diagnosis, treatment, and control. The recent COVID-19 pandemic caused by the coronavirus has demonstrated the importance of timely research publication in combating new health threats.This article aims to contribute to the discussion about the relevance of scientometric analysis of the study of viral diseases and provide a theoretical basis for the research of COVID-19 and PubMed as a bibliographic database. The main aspects of scientometric analysis are explored and evaluated in terms of publication development, authorship, journals, collaboration, research topics, and citations. The existing literature on the publication data of COVID-19 and related coronavirus diseases is reviewed, and the benefits and limitations of publication analysis are discussed. Particular attention is paid to the methodological aspects of database selection, search strategies, authorship recognition, citation analysis, and the application of bibliometric indicators. The article does not offer an empirical scientometric study but provides a theoretical discussion of the application of scientometric analysis to research into viral diseases. The analysis highlights the necessity of interpreting publication counts in the context of research areas and methodology and recognising how publication data can be used for evaluating scientific literature in the case of COVID-19.

Keywords: Scientometrics; bibliometrics; Viral diseases; COVID-19; PubMed; biomedical literature; research collaboration; scholarly communication; research evaluation.

1. Introduction

Scientific research plays an essential role in understanding infectious diseases and finding an appropriate response to the challenges they present. Scientific findings contribute to the overall understanding of the emergence and mechanisms of infection, as well as diagnostic, vaccine, and treatment solutions and preventive measures.

The field of scientometrics aims to study scientific activity and communication from a quantitative point of view. Scientometric analyses investigate the properties of the published works and the connections with the authors, journals, subjects, as well as scientific community. Bibliometric research is a type of scientometrics that looks at publications and the quantitative aspects of them to understand how science communication works and how science develops.

A comprehensive discussion of the concept of bibliometric analysis is provided by Donthu et al. **[1],** who stress the importance of formulating an appropriate research question using the appropriate data and an appropriate research design.

Viral diseases, in particular, offer a broad range of topics for scientific research. Virology, epidemiology, clinical medicine, immunology, public health, molecular biology, vaccine development and other fields are interconnected disciplines that provide a foothold for studying the health-related challenges of viruses. However, related subjects

are not necessarily equally represented in scientific publications. A scientometric analysis of the scholarly discourse on viral diseases can identify patterns of development and priority topics in a particular field of research.

The spread of the virus, COVID-19, posed a challenge to global health care systems and to scientific research globally. The need to find information on the aetiology of the disease determined the scientific community's interest in the characteristics of the virus, while the necessity to prevent its spread and treat its symptoms drew attention to related clinical issues. The scientific literature on COVID-19 progressed at a rapid pace as the researchers shared their results to tackle the key questions related to the disease.

Chahrour et al. **[2]** analysed the scientific response to the pandemic during its early stages, and Palayew et al. **[3]** explored the characteristics of the earliest publications on COVID-19 and identified the subjects that were prioritised by scholarly discourse in response to the pandemic.

The research mentioned above proves that scientometric analysis of this kind is both necessary and relevant. At the same time, it raises some additional questions. Is the number of publications indeed correlated with the number of crucial research questions, or does it reflect a researcher's interest in the topic? How can we identify quickly developing areas of research (such as the study of COVID-19) and subjects which show steady progression? What can scientometric analysis say about the characteristics of scholarly communication in this field? The questions mentioned above are difficult to address properly without engaging in scientometric analysis. Although it is undoubtedly of value, publication data provide limited insight into the qualities of scientific research.

PubMed is the largest body of literature on biomedical and life sciences subjects and, as such, is of particular interest to the study of scientometric analyses related to viral diseases. Its database contains a wide selection of literature pieces with bibliographic information and, in some cases, controlled subject headings. The National Library of Medicine states that it includes MEDLINE as its primary component and is complemented by other indexes and resources **[4].** Therefore, PubMed provides great opportunities for exploring the properties of publication trends in biomedicine, although it is not always representative of scholarly communication in its entirety.

The current article aims to provide a general outline of scientometric analysis as a method of exploring the research field. It sheds light on the peculiarities of scholarly communication and presents the key questions that the analysis of PubMed data can answer. The article does not claim to introduce a new data set or propose an in-depth study of the scientific literature on viral diseases. Instead, it attempts to summarise the existing research and data to outline the contribution and limitations of scientometric analysis of this kind.

2. Conceptual Understanding Of Scientometric Analysis

Scientometric analyses focus on the processes of creation, distribution, mention, and organisation of scientific information and the way these aspects are related to each other. Bibliometric analysis is a sub category of this looking at how information is organised in scholarly publications.

Although it is possible to use the terms scientometrics and bibliometrics interchangeably, this is not advisable because the two fields of study are different, representing distinct sets of methods and areas of research. Bibliometric analyses seek to study publication data, while scientometric analyses focus more on the characteristics of the scientific system. Zupic and Čater [5] outline the ways in which bibliometric analysis of the scientific literature can help identify the intellectual structure of a research area. Donthu et al. [1] go into detail on the way in which scientometric analyses focus on the importance of choosing the right indicators and methods.

Within the framework of scientometric analysis, it is possible to separate the topic into several areas of exploration. Publication analysis focuses on the way the scholarly literature on the topic is organised, which subjects are prioritised (subject analysis), and how authors collaborate (collaboration analysis). Additionally, scientometric

analyses can take into account data on the citations made (citation analysis) and the distance between publications to create a depiction of the relationship between different pieces of research (science mapping).

An outline of publication data can show the extent to which the subject has been explored and the number of articles published on the topic. However, it will not provide any insight into the impact factor of the publication, which shows how well recognised the work has been by researchers.

Citation analysis demonstrates the number of mentions that a particular article, journal, or author has received from scholarly literature sources. However, citation data indicates the researcher's popularity and is subject to bias; therefore, it provides very limited insight. Collaboration analysis can be used to outline the level of interaction between scientists and institutions, which is of interest in terms of identifying trends in scholarly communication. However, a high degree of collaboration does not necessarily reflect the quality of the research and the level of success within a project. Therefore, collaboration data is more of a sign of the organisation of scholarly communication rather than a characteristic of its quality.

Overall, the scientometric study of a topic provides answers and raises questions, and it should be used not to find the best author, journal, or article, but to gain a better understanding of the processes taking place in the scientific community.

3. Viral Diseases As The Field Of Research

Viral diseases constitute a broad area of research comprising a variety of infections that can be different in terms of transmission, severity, prevalence, and consequences. Particular research fields can include respiratory viral infections, arthropod-borne viruses, emerging zoonoses, viral hepatitis, human immunodeficiency virus infection, and others.

The multiplicity of this area of research makes it interesting for scientometric analysis. On the one hand, one can try to find out the distribution of scientific literature across different topical fields of virology; on the other hand, a particular scientometric inquiry can be made for a certain virus, an epidemic of a particular disease, or other topics.

Moreover, the topic of viral diseases is of interest because research activities in this field are determined by practical necessities. The appearance of a new infection can produce a trend of related studies, while the decreasing number of cases can reduce the level of interest. The research efforts can be reoriented when new approaches appear or when the practical relevance changes. Yan et al. [6] provide an overview of coronavirus-related research before the COVID-19 pandemic, which demonstrates the ongoing research activities in the field prior to COVID-19. In addition, Haghani et al. [7] take into consideration the COVID-19 pandemic and analyse pandemic-related safety literature from a scientometric perspective. This demonstrates that different research fields can be influenced by the study of viral diseases.

A scientometric study can help identify the relationship between different research topics, which can benefit the understanding of the research field in general.

4. Covid-19 And The Development Of Scientific Publishing

The COVID-19 pandemic can be seen as an example of how a public health crisis can shape scientific literature production in a particular field. A new disease will cause the need for urgent research to discover the clinical features, transmission, epidemiology, lab testing, treatment options and prevention strategies of the disease.

In terms of research fields, clinical studies, virology, epidemiology, and public health research are those that are immediately associated with the study of COVID-19. Other areas of research that are impacted by the COVID-19 pandemic include psychology, sociology, occupational health, engineering, economics, and many other fields of science.

Several bibliometric studies were dedicated to the early stages of the COVID-19 pandemic. Chahrour et al. [2] provide insight into how research on COVID-19 developed at the beginning of the pandemic. Similarly, Lou et al. [8] analyse the characteristics of scholarly articles on COVID-19 published in PubMed. Moreover, Palayew et al. [3] attempt to assess whether the early output of scientific articles addressed the key research questions related to the novel disease.

On the other hand, Haghani et al. [7] analyse the COVID-19 pandemic from the point of view of science safety. This article, however, demonstrates that the safety of workers, transport, laboratories, and other facilities is only a part of the COVID-19-related research. Namely, the study shows that various aspects of occupational health, ranging from psychology to engineering, have been explored.

In general, this body of research demonstrates that scientometric analyses can be helpful in understanding the development of scholarly literature in response to a public health crisis like the COVID-19 pandemic. It also shows that publishing activity in different research fields is subject to change, and these changes can be informative. Such bibliometric analyses are especially interesting if there is a sudden change in the research output.

However, an increase in the number of scholarly articles published in different research fields associated with the disease cannot be seen as a sign that all problems related to the disease are being addressed.

5. Pubmed As A Resource For Scientometric Research

PubMed is widely used to search biomedical and life-sciences literature. It is maintained by the National Centre for Biotechnology Information within the United States National Library of Medicine. Its records contain bibliographic information and, where available, links to abstracts and full-text resources [4]. What makes PubMed unique is that it includes MEDLINE. This contains information using Medical Subject Headings (MeSH) to describe the subjects within biomedical literature. A controlled vocabulary was used to ensure standardised indexing for subjects [9], this makes it easier for researchers to find literature where authors use different terminology to describe the same concept. For example, when searching for a viral disease you should consider all the different terms relating to the disease. This includes the name of the disease, name of the virus causing it, recognised synonyms and and related subject headings. Narrow search terms may risk missing relevant publications, and a very broad search may include records with only indirect reference to the subject. PubMed, therefore, is a good tool for investigating the structure of biomedical literature, but its coverage and indexing practices should be understood. PubMed is not identical to MEDLINE, and a PubMed record does not necessarily have MEDLINE indexing or MeSH terms [4,9]. Newly added records, in particular, may have different indexing characteristics from records that have passed the indexing process.

Research using PubMed can provide useful findings if they take into account what is covered by the database and do not generalise from the literature found.

5.1 Advantages of PubMed

- Firstly, its subject focus is appropriate to studies into infectious diseases, clinical medicine, virology, epidemiology, and public health. Researchers can therefore examine a large range of biomedical topics using the same retrieval environment.
- Secondly, its bibliographic records facilitate the analysis of dates of publication, journal names, authorship, and publication types. Where appropriate, additional information is available for abstracts, affiliations, identifiers, and subject indexing.
- Thirdly, the availability of MeSH headings provides an opportunity to explore how the biomedical literature is classified. The subject indexing can be helpful to identify relationships between viral diseases, medical conditions, prevention, vaccination, and related subjects.

- Fourthly, PubMed can be searched using a clear, documented process. Search histories and precise query expressions can be recorded, so that readers appreciate how the literature was retrieved.

5.2 Limitations of PubMed

The relevance of PubMed depends on the research strategies. It is primarily a biomedical and life-sciences resource, and may not provide comprehensive coverage of research published in every social science, information science, management, or humanities journal.

Limitations are very important when studying the larger effects of viral diseases. Research into healthcare policy, public communication, education, economic disruption, or information behaviour may be published in journals that are not comprehensively represented in PubMed. A broader multidisciplinary study, therefore, may need to consult additional databases.

Search results are affected by indexing practices, the choice of fields of search, publication type filters, and terminology. The absence of a record from a particular search results it doesn't mean that there isn't any research, it just means that it isn't indexed in the database or the terminology used doesn't match.

6. Major Dimensions Of Scientometric Analysis In Viral Disease Research

6.1 Publication Development

Publication development is a question of how scientific output evolves over time. Time-based analysis can show whether there has been an increase in research, a rapid increase in research following an outbreak, variations in research or an increase in specialism.

For viral diseases, publication development needs to be understood with reference to the history of the disease and the availability of scientific evidence. An increase in publications can be associated with a new outbreak, change in diagnostics, introduction of a vaccine or increased interest in an existing infection.

However, publications should not be based on a few years of data**.** The time period used, search strategy and type of publication will influence the results. A short period of time may reflect temporary trends, whereas a longer period of time may show regular trends.

Researchers, therefore, should specify an observation period in advance and justify their choice. Where appropriate, a study should differentiate between changes in publication output and changes in the database's coverage or indexing.

6.2 Authorship and Research Collaboration

Authorship analysis can identify researchers who contribute to a particular body of literature. It can also indicate whether research is concentrated in a small group of writers, or distributed among a larger scholarly community.

Collaboration in research on viral diseases may occur between clinical experts, scientific researchers, epidemiologists, statisticians, public health professionals and others. Scientometric analysis may explore co-authorship relationships and the connections between research groups.

A co-authorship network is one method of representing these connections. Nodes typically represent authors, and links represent co-authorship. Network analysis can help to identify connected groups and researchers that bridge different communities.

However, author productivity requires careful interpretation. Authors may have similar names and authors may use different formats for their name. Authorship should use extra information if possible to identify authors such as their institutional affiliation and persistent identifiers. Furthermore, the number of co-authors is not a reliable

indicator of research quality. Large collaborations may be needed for complex research; however, smaller research teams can produce equally valuable research.

6.3 Journal Distribution and Scholarly Communication

Journal analysis investigates the publication outlets for research and can identify journals that publish significant volumes of work on a subject. It can show whether a field is concentrated in specialised journals or spread across multiple disciplines. Viral disease research could appear in journals devoted to virology, infectious diseases, clinical medicine, epidemiology, immunology, vaccines, and public health.

Research on COVID-19 has been published in journals looking at more general scientific and social issues reflecting the multifaceted nature of the pandemic.Journal productivity must be distinguished from journal quality. While a journal might publish many articles on a subject, this could be due to its wide scope or to its dedication to a specific event. Publication counts can indicate neither the quality of a journal's editorial processes nor the reliability of its research, nor the influence of individual papers.

In investigating journal concentration, Bradford's law could be a useful analytical tool. The law quantifies the distribution of relevant articles across journals, and is often used to identify a set of core journals. Its application requires an accurate and appropriately ranked journal-frequency distribution, and the results will depend on the subject definition and database coverage.

6.4 Citation Analysis

Citation analysis looks at how many references a publication has received from other publications. This indicates the work has been acknowledged, discussed or used in other researcher’s work. It can show which publications are influential and can show links between different research areas. Citation analysis can be used to see how scientific knowledge about viral diseases has developed, which publications have been frequently cited and how clinical, epidemiological and public health research relate to each other.

However, citations require careful interpretation. Older publications will have had more time to receive citations than recent publications, and citation norms vary between disciplines. Review articles may receive citations for reasons that are not typical of original research papers.

A highly cited article is not necessarily methodologically sound, and a low citation count does not automatically indicate poor quality. Citation indicators must therefore be interpreted in the context of publication, research design, and the period in which a paper appeared. When comparing research fields or publication years, appropriate normalisation may be required.

6.5 Subject Analysis and MeSH Indexing

Subject analysis explores the topics covered by the scientific literature. In PubMed-based research, MeSH headings can be a useful source of information on major subject categories and associations between concepts.

Viral disease literature could involve the biology of pathogens, modes of disease transmission, clinical symptoms, diagnostic procedures, vaccines, treatment, and public health interventions. Subject analysis can explain how these themes are expressed in a retrieved collection of publications.

Using MeSH means that a controlled vocabulary is used [9]; however, the indexing can vary depending on the publication and whether it has been fully indexed.

A study should distinguish between a publication's subject heading and its full-text content. Just because a term is mentioned in the title, abstract, or MeSH does not mean that it is solely about this subject.

Subject analysis is therefore most informative when the method of term identification and counting is clearly described. Researchers should consider whether a term has changed over time, or whether related terms should be combined for interpretation.

6.6 Language and Geographic Distribution

Language analysis can describe the languages in which retrieved publications are written. Geographic analysis can be used to look at which countries or regions the authors are associated with. However, the country the author is affiliated with may not be the country the study was carried out in. These aspects are relevant to viral disease research since infectious diseases can affect countries differently and require international collaboration. Geographic analysis could identify areas that contribute significantly to the literature and areas in which international research partnerships might be developed.

However, the country of the author's institution does not necessarily mean the research was conducted in that country. Similarly, the language of the publication does not indicate the nationality of the authors or who the research applies to.

Researchers should state how geographic information was obtained and whether multiple affiliations were counted. Language and country indicators should be regarded as characteristics of the retrieved publications rather than as direct measures of national scientific capacity or public health performance.

6.7 Research Themes and Science Mapping

A science map can be created using bibliographic relationships to show the structure of a research area. This will highlight clusters of similar publications, common themes and relationships between authors, journals or keywords.

VOSviewer is one established tool for constructing and visualising bibliometric networks [10]. The bibliometrix package provides further bibliometric analysis and visualisation capabilities in the R environment [11].

In viral disease research, these tools could be used to explore the connection between clinical research, epidemiology, virology, vaccination, and public health. They could also identify whether topics that were previously distinct become more closely related as a disease or outbreak evolves.

Network visualisations must be interpreted with caution. The appearance of a cluster depends on the data source, the search strategy, the thresholds, and the counting method. The software should be used to support the research question.

The software should be used to support the research question rather than define it. The researchers should explain why they have created a particular network, what the nodes and edges represent and how the visualisation was interpreted.

7. Lessons From Previous Scientometric Studies Of Covid-19

Lou et al. [8] analysed the early publications on COVID-19 retrieved from PubMed. Their study demonstrated that bibliographic data can be used to describe certain features of the publication landscape and research priorities.

Chahrour et al. [2] also analysed the scientific response to the outbreak of the disease. However, their article focuses on the rapid increase in the number of articles on the topic. Similarly, Palayew et al. [3] describe the evolution of the early literature landscape in relation to public health priorities.

Haghani et al. [7] provide an insight into the safety-related dimensions of the studies on coronavirus and COVID-19. Their article shows that the impact of a pandemic stretches beyond the health-related issues and can include

the safety of healthcare providers, labs, transport, and other elements. The authors also highlight the importance of research into the psychological and social well-being of the population caused by the virus.

Yan et al. [6] analyse the research landscape on coronavirus prior to COVID-19. The article provides a bibliometric perspective on the chronological evolution of research on the virus, which is crucial for understanding the emergence of COVID-19. The study demonstrates that the scientific literature on a novel disease emerges within the paradigm of the related fields, and the prior research contributes to the understanding of the new health threat.

Overall, Lou et al., Chahrour et al., Palayew et al., Haghani et al., and Yan et al. demonstrate that scientometric studies can yield essential insights into the research landscape on a novel health threat. First of all, they identified that the research output landscape quickly evolves after the appearance of a new health-related threat. Moreover, the majority of the publications are focused on the immediate health-related issues, while the other important topics related to the novel disease are neglected. Therefore, bibliometric analysis can help identify the most urgent topics and prioritise scientific research. [14] Finally, the sudden emergence of a new health threat should be analysed within the framework of the bibliometric landscape of related fields to ensure that the COVID-19 studies build upon the related research on similar topics.

The mere description of the publication trends and their visualisation can be misleading if the underlying processes are not well understood. [15] Therefore, it is essential to combine the scientometric analysis with the detection and discussion of the underlying trends to produce meaningful conclusions.

8. Methodological Considerations For Future Pubmed-Based Studies

A well-defined research question will shape the choice of the subject of analysis, databases, search strategy, and indicators. A vague research question will lead to collecting a pile of bibliographic data that will not provide answers to any specific questions.

8.1 Defining the Scope

The scope of the study should define the diseases, topics, period, databases, and record types to be included in the study. There are two options for defining the scope for the study on the emerging disease: broad and narrow. A broad scope will include various infectious diseases, and a narrow scope will zoom in on one specific condition, e.g., COVID-19. The selection of the search terms will also depend on the scope: a narrow scope would include multiple terms specific to the research question that would be left out otherwise.

The difference between the two approaches should be justified, e.g., “If the goal is to compare the bodies of literature, the search strategy should ensure that the same terms are used and that the same records would be retrieved by different queries.”

8.2 Developing a Reproducible Search Strategy

A search strategy should include relevant disease and virus names, synonyms and related subject headings. Queries should be recorded, including the date on which they were performed.

The search should be tested for relevance by investigating whether known relevant publications are retrieved and irrelevant records are not found in abundance. Such a procedure can reveal gaps in terminology and the weaknesses of a search strategy.

8.3 Selecting and Cleaning Records

Bibliographic records may include missing fields, variant names of authors, journal title formats and subject details. Data cleansing should be documented.

Duplicate records should be found wherever the retrieval procedure can yield duplicates. If multiple databases are used, the study should report how records were matched and de-duplicated.

Records should not be deleted solely because they appear anomalous. Exclusion criteria should be defined in advance according to the research question.

8.4 Choosing Appropriate Indicators

Indicators should be chosen with reference to the purpose of the analysis. Counting the number of publications could be relevant to describe output, whereas citation analysis provides a tool for investigations of scholarly interest. Measures of collaboration and network analysis may be relevant if the aim is to analyse research interactions.

No one indicator can capture the overall quality or importance of research in a field. A combination of indicators can provide a fuller picture, but it can only be achieved if each indicator is clearly defined and interpreted.

8.5 Reporting Methods Transparently

Transparent reporting can provide the reader with confidence that the methods have been performed accurately and allows for analysis to be assessed. [16] The database, date searched, search terms, inclusion criteria, data cleaning methods, indicators and software should be included in the manuscript.

Wherever systematic review procedures are used, the PRISMA 2020 reporting guideline may help authors to describe how records were identified, screened, and included [12]. However, PRISMA should not be presented as an alternative to bibliometric analyses, and a narrative review should not claim to follow it without using the relevant procedures.

9. Ethical And Interpretive Issues

Scientometric analysis seems to be objective because it uses numerical information, but the choice of databases, search terms, publication types, indicators and timeframes are methodological decisions that affect the final presentation of a research field.

“Among the ethical issues is the danger of equating productivity and quality. The number of publications is an indicator of the amount of research, but does not confirm the validity of the findings or the contribution of a study to public health. Similarly, citations show attention but do not evaluate the quality of the research reported.

The limitations of coverage in any database. Researchers whose work appears only in journals not included in the database would be under-represented. The use of languages other than English may have a variable impact on visibility, depending on the database and the search procedure. During a public health emergency, quick publishing can help to communicate new evidence. Critical appraisal is very important to assess the reliability of findings. Scientometric analysis can describe the volume of research and its overall structure, but it cannot substitute for an evaluation of the underlying science and reliability of any specific finding.

10. Research Gaps And Future Directions

The literature reviewed in this article highlights several areas for future scientometric research.

First, future studies could analyse trends in research relevant to viral diseases over long periods of time in order to understand the extent to which research efforts continue after an outbreak is over.

Second, comparative studies could examine the relationship between research on different viral diseases making sure that categories of subjects are similar and differences in database coverage and terminology are acknowledged.

Third, further research could be conducted using co-authorship networks to understand the relationships between authors, institutions and countries. Further exploration of institutional and international collaborations would help to understand research in this area's dynamics.

Fourth, future research could analyze the relationship between themes in research and public health needs. This endeavor would require more than publication counts, but researchers could use bibliometric evidence in combination with policy documents, expert evaluations, funding information, or established public health priorities.

Fifth, further research could be done to look at the relationship between the quantity of publications and how they have been used. Citation analysis could find connections in scholarly communication, but more research would be required to evaluate whether findings had any impact on clinical practice, policy, or public health.

Sixth, there is a need for greater transparency in the use of scientometric methods, including publication of exact search expressions, selection criteria, data-processing procedures, and analytical decisions.

Finally, future research could combine PubMed with other bibliographic databases when the research question extends beyond biomedical literature, making it possible to take a broader perspective on the social, economic, informational, and policy aspects of research on viral diseases. Such analysis requires careful Consideration to account for differences within the databases.

11. Conclusion

Scientometric analysis is an efficient method for examining the dynamics of scientific research and the patterns of scholarly communication. Applying it to the field of virology and viral disease research allows to identify the trends in terms of publications, themes, collaboration patterns, and changes in research focus. Therefore, using such data retrieved from PubMed, which provides access to bibliographic records and publishes articles in the field of biomedical and life sciences, is of particular interest.

COVID-19 is an illustration of the importance of scientometric studies in the case of a public health emergency. The analysis of bibliographic data is of little value in assessing the quality of the research. Moreover, citation counts are not a reliable metric of the impact of scientific research. The peculiarities of indexing policies in databases are also significant.

The most meaningful scientometric research acknowledges both the limitations and the possibilities. It explores the scope of the evidence in relation to the research question, takes account of the context in which the literature was produced, and identifies areas for further investigation. These considerations enable scientometric analysis to contribute to a richer understanding of research on viral diseases and the development of scientific knowledge during both ordinary research activity and major public health emergencies.

References

[1] Donthu N, Kumar S, Mukherjee D, Pandey N, Lim WM. How to conduct a bibliometric analysis: An overview and guidelines. Journal of Business Research. 2021;133:285–296. https://doi.org/10.1016/j.jbusres.2021.04.070

[2] Chahrour M, Assi S, Bejjani M, et al. A bibliometric analysis of COVID-19 research activity: A call for increased output. Cureus. 2020;12(3). https://doi:10.7759/cureus.7357

[3] Palayew A, Norgaard O, Safreed-Harmon K, Andersen TH, Rasmussen LN, Lazarus JV. Pandemic publishing poses a new COVID-19 challenge. Nature Human Behaviour. 2020;4:666–669. https://doi:10.1038/s41562-020-0911-0.

[4] Zupic I, Čater T. Bibliometric methods in management and organization. Organizational Research Methods. 2015;18(3):429–472. doi:10.1177/1094428114562629.

[5] Yan W, Li Z, Li W, Lu Q, Hui C, Bai O, et al. Bibliometric analysis and systematic review of global coronavirus research trends before COVID-19: Prospects and implications for COVID-19 research. Frontiers in Public Health. 2021;9:774945. doi:10.3389/fpubh.2021.774945.

[6] Haghani M, Bliemer MCJ, Goerlandt F, Li J. The scientific literature on Coronaviruses, COVID-19 and its associated safety-related research dimensions: A scientometric analysis and scoping review. Safety Science. 2020;129:104806. doi:10.1016/j.ssci.2020.104806.

[7] Lou J, Tian SJ, Niu SM, Kang XQ, Lian HX, Zhang LX, et al. Coronavirus disease 2019: A bibliometric analysis and review. European Review for Medical and Pharmacological Sciences. 2020;24(6):3411–3421. doi:10.26355/eurrev_202003_20712.

[8] van Eck NJ, Waltman L. Software survey: VOSviewer, a computer program for bibliometric mapping. Scientometrics. 2010;84:523–538. doi:10.1007/s11192-009-0146-3.

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

[10] Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. BMJ. 2021;372. doi:10.1136/bmj.n71.

[11] Zyoud SH, Al-Jabi SW. Mapping the situation of research on coronavirus disease-19 (COVID-19): A preliminary bibliometric analysis during the early stage of the outbreak. BMC Infectious Diseases. 2020;20:561. doi:10.1186/s12879-020-05293-z.

[12] Bala, J., & Sharma, S. (2024). Investigating the impact of COVID-19 on loss of smell (anosmia) and taste (ageusia): A comprehensive review. ShodhKosh: Journal of Visual and Performing Arts, 5(7SE), 112–115. https://doi.org/10.29121/shodhkosh.v5.i7SE.2024.5856

[13] Sánchez Domínguez, S., Fernández García, A., & Ruiz Chaveco, A. I. (2023). The epidemic control process, the corona virus, mathematical modeling. International Journal of Engineering Science Technologies, 7(1), 17–28. https://doi.org/10.29121/ijoest.v7.i1.2023.541

[14] V, A. (2024). Scientometric analysis and titles word linkage in doctoral thesis of vegetable pathology during the period of 2007–2019. International Journal of Research - GRANTHAALAYAH, 12(10), 85–97. https://doi.org/10.29121/granthaalayah.v12.i10.2024.5827