EXPLORING THE RESEARCH ON HEALTH CARE COMPETITIVENESS: THE COVID-19 PANDEMIC PERSPECTIVE

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Abstract

The SARS-CoV2 pandemic crisis presents unprecedented challenges and has profound implications for the way governments plan and manage their strategy for the development of the medical system, with increasing demand from patients. This phenomenon has led researchers to analyze more competitive management models for the development of organizations. Additionally, the emergence of the SARS-CoV2 virus has influenced the general outlook on how healthcare organizations have managed their resources and outlined sustainable development strategies. This article presents a bibliometric analysis, with the help of two datasets retrieved from Scopus, which aims to examine how literature reflects general competitiveness in the health system. Moreover, how literature reflect the global competitiveness of the healthcare environment during the pandemic period. Thus, in a first step, the data collection technique consisted of searching for the keywords 'competitiveness', 'competitive advantage', 'health system', 'health care' and their derivatives, while in the second step, the word 'COVID19' was added in the analysis together with its derivatives. The results indicate an upward trend in scientific research both for competitiveness at a general level and for the implications of the pandemic on the medical system's competitiveness.

Keywords: bibliometric analysis, competitiveness, competitive advantage, healthcare.

1. INTRODUCTION

The SARS-CoV2 pandemic crisis presents unprecedented challenges and has profound implications for the way governments plan and manage their strategy for the development of the medical system. In addition, the health care system is under constant pressure from prohibitive costs and, at the same time, from increasing patient demands. All these phenomena have been reflected in academic research around the world, with researchers analyzing the problem from several perspectives, such as the cost of medical services, efficiency, quality, technology, resources, etc., all based on the principles of competitive advantage, improving processes, and service quality.

Thus, two research questions were raised:

Q1. *How is competitiveness in the health system reflected in the published research?*

Q2. *Has the global pandemic influenced the competitiveness of the healthcare system, as reflected in the literature?*

Therefore, the aim of the paper is to quantitatively analyze the number of scientific publications and what are the links between concepts such as "competitive advantage", "Covid19", and "health system". In the first part of the paper, will be highlighted the study of the literature to understand the phenomenon to be analyzed at a later stage. The second section includes the research methodology. Finally, the paper highlights the analysis of the collected data and the research focusing on three directions of analysis. Thus, in the foreground we intend to analyze the evolution over time of the works and their distribution by fields of study and geographical regions. In the second plan, we try to analyze the main journals and the top five most cited papers, and in the third plan we will realize the link map of the analyzed keywords. To create a keyword link map, the databases were grouped together to consider a single source and determine the scientific links within them.

2. LITERATURE REVIEW

The issue of competition as the main stimulus for the development of medical systems around the world has developed with increasing globalization, in a context in which patients are willing to pay the cost of quality medical services. Furthermore, with economic growth and due to the increase in living standards, the health environment analyses new management models, to implement development strategies based on the principles of competitive advantage, to improve processes and service quality.

2.1 How is competitiveness viewed in the health system in a general context?

Over time, various researchers have addressed topics on how to gain competitive advantage in the health system (Rivers and Glover, 2008; Zwanziger and Melnick, 1996). In a general context, it is necessary to understand how competitiveness is perceived and then to understand its specificity in the health system. When we refer to the concept of competitiveness, we understand that it is found in three directions (Ștefan et al., 2016). Thus, we find the concept of competitiveness at the level of an organization or company, at the level of a sector or industry or at the level of a nation.

A study by Waheeduzzaman (1996) looked at how competitiveness at the nation level is understood and how it has been defined in numerous studies. Thus, according to the mentioned study, national competitiveness is the capacity of a state to realize quality goods and services that can be exported on the international market, thus improving the living standards of citizens. Of course, this concept has been widely studied and approached in the literature, one of the most important authors in the field being Michael Porter. He analyzed the concept of competitiveness and the critical issues related to obtaining competitive advantage at the level of companies, sectors of activity, and even at the level of the nation.

In an interview with Snowdon and Stonehouse (2006), he mentions that there is confusion between understanding firm and national competitiveness; as a result, while organizational competitiveness involves the provision of goods or services in order to increase market share and profitability, a nation's competitiveness is also its ability to effectively exploit national resources to increase the living standards of its citizens. However, Michael Porter mentions in one of his papers (Porter, 1996) that any competitive advantage is temporary, so according to him competitors can quickly adapt or even copy any strategic position in the market.

While organizational competitiveness has been studied and highlighted over time due to the dynamic environment, competitiveness in a sector of activity has not received adequate attention (Momaya, 1998). Therefore, it is the extent to which an industry can produce goods or services by improving productivity. However, it is important to remember that each industry measures its competitiveness using different indicators. If we refer to the medical sector, we can notice that a competitive medical system is based on the level of costs, as well as the quality of services (Porter and Teisberg, 2006).

In addition, a competitive medical system focuses on providing patients with superior medical services, care, and / or pleasant experiences, at lower costs, which they cannot receive in other medical units. The purpose of competitiveness is studied (Rivers and Glover, 2008) in the medical sector to improve processes, activities based on internal and external factors of influence (Ștefan et al., 2016), to provide patients with the best experience, streamlining available resources.

Numerous studies have addressed competitiveness in the medical sector (Klapkiv et al., 2020; Pammolli et al., 2005; Kuznetsova et al., 2017; Ștefan et al., 2016). Thus, according to Klapkiv et al. (2020), a competitive health system is measured based on indicators that treat the patient as a consumer and health care as a commodity / service provided to consumers. However, the perception of the quality of services by the patient plays a key role in determining whether a health system is competitive or not (Ștefan et al., 2016).

2.2 What are the implications of competitive advantage in the health system?

Considering that the competitiveness of medical systems has increased in the last decade due to a higher standard of living, there have also been growing needs and expectations from patients. The ambitious goals of medical institutions raise expectations for better outcomes, better services, and greater social value (Kruk et al., 2018).

The desire of governments to make visible changes in health systems considers their desire to transform the health system into a flexible system. The ability of the health system to adapt must meet challenges

to increase the availability of medical services, patient satisfaction, and finally the quality of care and mainly the reduction of costs (Garcia-Barbero, 1998).

The paper written by Basu et al. (2012) analyzed why in underdeveloped countries, patients turn their attention to private health services. Thus, they found that the increased efficiency reported in the private sector is due to unnecessary investigations and treatments, with the greatest pressure on the public sector, where there is limited availability of equipment, medicines, and even staff. However, there have always been contradictions among society about how governments have managed health insurance funds and how they have been involved in the development of public health care systems. The emergence of the private medical sector has led the public health sector to manage its resources more efficiently and effectively.

The main factors that have characterized a health system as competitive (Pammolli et al., 2005) are the cost of medical services, their quality, equipment, and technology used, and even issues related to staff qualification. The public health system has always focused on the patient-satisfaction relationship, to benefit from quality services at the lowest possible cost, but also in terms of the unique services it offers to its customers, since the external environment is a trigger for competition in this industry. However, there are influences on the private and public health system from the perspective of competitiveness, and a study by Hoel and Sæther (2003) states that patient waiting times are a trigger for competition. Not only waiting time is a problem for patients, medical equipment and staff qualifications describe the private medical system as more efficient. In relation to the state, governments view a health care system as competitive in their way of regulating and controlling the cost of services to implement new sustainable development strategies. However, a critical issue in the public health system is how the government should consider alternative private treatment (Hoel and Sæther, 2003).

A report published by the WHO (2021) confirms that despite the general increase in life expectancy, which is due to the general improvement in the coverage of health services, there are still disadvantaged populations, who do not have access to health care and face enormous care costs.

The emergence of the SARS-Cov2 virus has led researchers to turn their attention to the effects it has on global economies, but also on the health system; for example, Welfens (2020) in his study calls the virus a necessary global evil because the pandemic has the role of uniting international health organizations, to create a close relationship between the government, the health system and beyond.

3. RESEARCH METHODOLOGY

New research is built based on other existing research in a particular field (Sánchez et al., 2017; Fernandez, 2020), therefore, in conducting this bibliometric analysis, the first step was to identify keywords and identify the database which could provide information on the volume of scientific materials in the established field. Thus, this study aims to investigate how the competitiveness of medical systems

has manifested itself in the literature. Bibliometrics has an ambivalent character, placing itself at the border between two spheres of science, but also of research and dissemination of scientific production (Rădulescu, 2019).

The influence of the pandemic has led us to observe the implications of the virus and how it has influenced the competitiveness of the healthcare environment, as reflected in the literature. This research examines scientific activity, both quantitatively and qualitatively. From the analysis of the literature (Vrontis et al., 2021) it can be mentioned that in the pandemic period caused by the SARS-CoV2 virus, the health sector must adopt innovative approaches and methods to cope with the increasingly competitive environment. Finally, such an analysis aims to identify research trends and the empirical link between fields of study, using a database (Granda-Orive et al., 2013).

Data was collected from the Scopus database (2022), a platform that provides powerful tools for information and analysis in the scientific field. Thus, at the time of the query of the database, it contained 84 million records, more than 15.8 million articles specializing in finance, and 10.9 million conference papers. Moreover, the platform offers access to 27.1 thousand journals and 825 books from different specialized fields such as: social sciences - 35%, physical sciences - 27%, and medical sciences 23% (Elsevier B.V, 2022).

Regarding the data collection technique, the keywords "competitiveness*", "competitive advantage*", "health system*", "health care*" were searched for in a first stage, as we later searched for the words: "competitiveness*", "competitive advantage*", "Covid*", "Covid19*", "health system*", "healthcare*". As we can observe, the search was done by enclosing the words in quotation marks, to be able to identify exact terms, and the "*" sign was used to extract the possible derivatives.

This article uses two databases from the same source, to analyze (1) how researchers approached the competitive advantage in the health system and the subsequent step (2) influences of the SARS-CoV2 virus, so we will note the two databases as the first database and the second database. Filtering fields in the Scopus database allowed search to be performed based on the title of the document, its abstract, and finally, the key terms. Therefore, starting from the query criteria for the database, 901 scientific documents were identified in the first database and 22 in the second. To make the link map of the terms, the database was downloaded in "bibteX" format, and with the help of Zotero (2022) the information was grouped in a single database with the "RIS" format and uploaded to the VosViewer software (Van Eck & Waltman, 2019), version 1.6.17.

Based on the literature, the paper is structured into three analyses steps (Gora, 2019):

    • Step 1 - aims at the evolution in time of the analyzed subjects and the distribution of documents in the fields of study and geographical areas.

• Step 2 - aims at analyzing the main journals and the top five most cited papers. The first two steps were achieved using the Scopus platform, which provided information on years, areas of research, type of material, country of origin, etc., while to determine which documents were most cited, the online function 'Sort' with 'Cited by highest' was used.

• Step 3 - will be build a link map of the analyzed keywords such as "competitiveness", "competitive advantage", "health system", "health care", but also "competitiveness", "competitive advantage", "Covid", "Covid19", "health system", "healthcare". To achieve the last step of analysis and build a keyword link map, the VosViewer program function (Van Eck & Waltman, 2019) "Create" + "Create a map based on text data" + "Read a data from a reference manager file (RIS)" following the "co-occurrence" analysis and having keywords as unit of analysis.

4. RESULTS AND DISCUSSION

4.1 Evolution over time and distribution of research by fields and country

Figure 1 shows the quantitative evolution of scientific papers that analyze concepts from the first database, "competitiveness", "competitive advantage", "health system", "health care". In 1974, it was published the first paper in which the subject of competitive advantage within the health system was approached. Moreover, until 1990 the subject did not represent an interest in research. We can see an increase in the next period, respectively, after 1990 and until the year 2000, when 64 scientific documents were published. There is an upward trend in research over time; the period 2000-2010 provides access to 235 scientific materials that have addressed methods of gaining competitive advantage in the health system. Due to the increase in standard of living and economic growth, the years 2010-2020 present a period of glory in the research on the competitiveness of medical systems, thus presenting 505 scientific materials. From 2021 until the time of analysis (30.03.2022), we can see that the subject remains just as interesting for researchers, with 99 scientific materials being published.
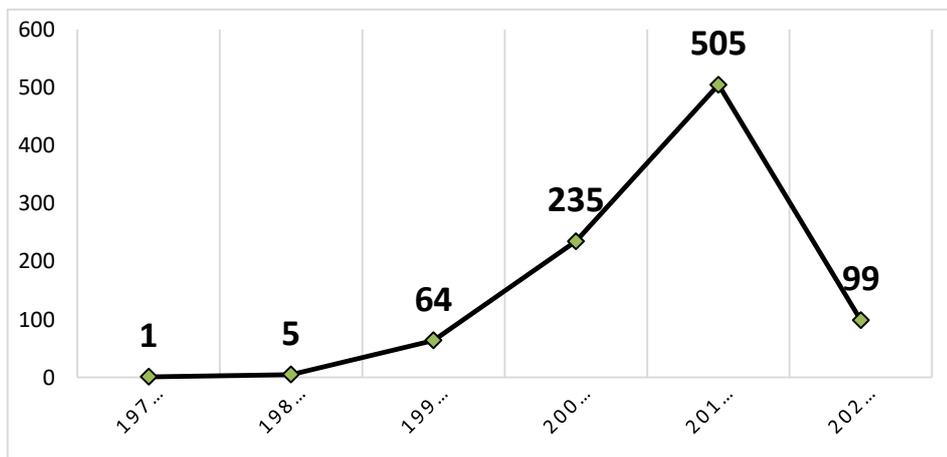
FIGURE 1. THE EVOLUTION IN TIME OF THE SCIENTIFIC RESEARCH THAT ANALYZE COMPETITIVENESS IN THE HEALTH SYSTEM
Source: The author's interpretation of Scopus (2022) data

To present how the global pandemic period influenced the competitiveness of the health environment in literature, Figure 2 was created. The figure indicates the evolution over time of scientific papers in which topics such as "competitiveness", "competitive-advantage", "Covid", "Covid19", "health system", "healthcare" was approached. Thus, we can observe that in 2020 only three scientific materials were published, in 2021, 13 documents, and in 2022 (until March) six scientific materials were published. We note that the volume of research is not strongly representative in the volume of papers that focus on ways to gain competitive advantage in the medical system in general. However, we notice an upward trend in the share of scientific articles that analyze both competitiveness in general and pandemic implications on the medical system, due to the growth of economies.
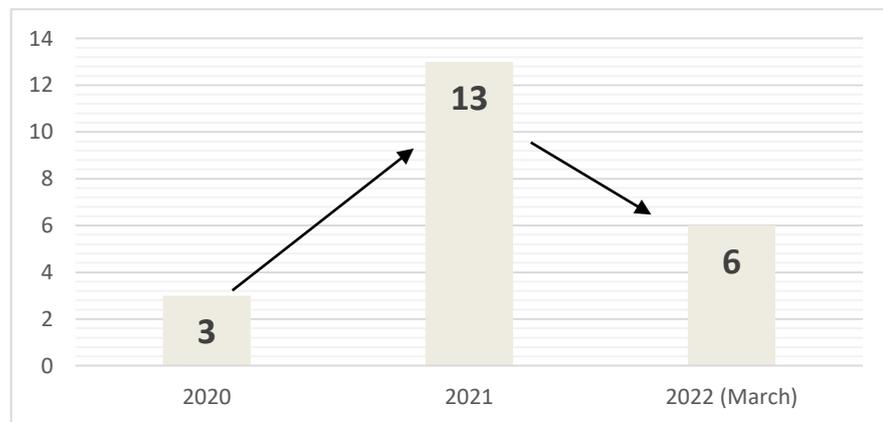

FIGURE 2. THE EVOLUTION IN TIME OF THE SCIENTIFIC RESEARCH THAT ANALYZE COMPETITIVENESS IN THE HEALTH SYSTEM, IN COVID-19 PANDEMIC CONTEXT
Source: The author's interpretation of Scopus (2022) data

In Table 1 we can see a list of the five primary areas in which researchers have shown scientific interest. Most articles have addressed the competitiveness of the medical system, since the first position is occupied by the field of "Medicine" as part of the research area, with a share of 37% of the total papers analyzed. The second place is occupied by "Business, Management and Accounting", and the third-place presents "Computer Science" in the research area, with a share of 15%.

However, we aim to see that the works that take care of the keywords of the analysis are mostly included in the first two areas, but that the interdisciplinarity of the approach is also noticeable. For example, we note that 32% of the analyzed papers are published in journals or conferences in the field of "Computer Science", "Engineering" and "Social Sciences".

TABLE 1. MOST APPROACHED RESEARCH AREAS

Rank	Research Areas	Number of publications	Percentage of 901
1.	Medicine	337	37%
2.	Business, Management and Accounting	263	29%
3.	Computer Science	138	15%
4.	Engineering	90	10%
5.	Social Sciences	60	7%

Source: The author's interpretation of Scopus (2022) data

Furthermore, to show how the pandemic period influenced the area of interest in research, the keyword Covid19 was introduced in the analysis process, and the results are highlighted in Table 2. The main areas of interest are experiencing a slight change. Thus, we notice in the first position "Business, Management and Accounting", "Medicine" occupies the second place, and the third place is occupied by "Engineering". Moreover, this change is evident because although the pandemic refers specifically to the medical field, most documents that have analyzed the competitiveness of the health system in correlation with the effects of COVID fall into the field of Business, Management and Accounting. This may be explained since to develop stronger health systems, it is necessary to develop new managerial strategies able to enforce the competitive advantage of health system and health organizations in the new pandemic conditions. We also can notice that the pandemic intervention has directed the research to a more technical side, as in this top we also find fields such as: "Engineering", "Environmental Science" and "Mathematics".

TABLE 2. THE MOST APPROACHED RESEARCH AREAS IN THE PANDEMIC CONTEXT

Rank	Research Areas	Number of documents	Percentage of 22
1.	Business, Management and Accounting	7	30%
2.	Medicine	6	26%
3.	Engineering	4	17%
4.	Environmental Science	3	13%
5.	Mathematics	3	13%

Source: The author's interpretation of Scopus (2022) data

Table 3 presents information about the top five countries that have been involved in the scientific process depending on the number of published materials. Thus, the table shows the top countries in the first database, but also the number of publications by country, if we include in the analysis the term "Covid". The results show that of the total share of the two databases, the United States ranks first in terms of the number of published materials, respectively 23% of a total of 901 scientific materials in the first case and 22% of 22 materials in the second database. Furthermore, we note that in the first database, the countries that had the greatest interest in research are the United Kingdom, India, Germany, and Spain, while in

the second database, after we included the term "Covid" in the analysis, the interest comes from countries such as Brazil, Spain, Colombia and Australia.

TABLE 3. COUNTRIES WITH THE MOST PUBLISHED DOCUMENTS

Rank	First data base			Second data base		
	Country	Number of documents	Percentage of 901	Country	Number of documents	Percentage of 22
1.	United States	209	23%	United States	5	22%
2.	United Kingdom	61	7%	Brazil	4	17%
3.	India	55	6%	Spain	3	13%
4.	Germany	37	4%	Colombia	2	9%
5.	Spain	36	4%	Australia	1	4%

Source: The author's interpretation of Scopus (2022) data

4.2 Journal analysis and the five most cited research

4.2.1. Journal analysis

Following the research analysis plan, this section presents information on the top five journals and the top five most cited papers.

Table 4 presents the top five journals according to the number of documents published in each journal. Thus, in the table we find eight journals, as in the first two positions we identified several journals with the same number of publications. Moreover, we can see that in the period 1974-2022 (until March), eight scientific papers were published in journals such as BMC Health Services Research, Healthcare Financial Management, and the Proceedings of The European Conference on Knowledge Management (ECKM). In the second place we find journals such as Advances in Intelligent Systems and Computing and Healthcare Financial Management Journal of The Healthcare Financial Management Association with a number of seven published documents.

TABLE 4. THE MOST PRODUCTIVE PUBLICATIONS

Rank	Publications	Number of documents
1.	BMC Health Services Research,	8
	Healthcare Financial Management,	
	Proceedings of The European Conference on Knowledge Management Eckm.	
2.	Advances in Intelligent Systems and Computing,	7
	The Healthcare Financial Management: Journal of the Healthcare Financial Management Association	
3.	International Journal of Pharmaceutical and Healthcare Marketing	6

4.	International Journal of Quality and Service Sciences	3
5.	Journal of Health Economics	2

Source: The author's interpretation of Scopus (2022) data

We also aimed to observe the ranks of the journals according to the number of documents published by including in the analysis the keywords "Covid" and "Covid19". Of a total of 22 scientific papers, each material was published in another journal. However, researchers have published in journals such as Health Services Management Research, International Journal of Quality in Health Care, International Journal of Environmental Research and Public Health, Sustainability Switzerland, and others.

4.2.2. Top five most cited research

To make a ranking of the top five most cited research in both databases, information was selected from the Scopus database by using 'Sort' + 'Cited by highest' criteria. Therefore, Table 5 classifies the most cited articles on studies that addressed topics of "competitive advantage" and "healthcare". Subsequently, Table 6 presents information on the most cited articles if we include in the analysis the term 'Covid19'. In the case of the first situation, the most cited paper is that of the authors, Mans et al. (2009) with 219 citations in the 2009 - April 2022 time period. This paper presents information on how to improve processes and flows in a Dutch hospital to gain competitive advantage. The next position in the first database is occupied by the work of researchers Kuratko et al. (2001) with 195 citations, this paper presenting a perspective on the entrepreneurial actions that a company in the medical sector has initiated to obtain competitive advantage.

TABLE 5. THE MOST CITED RESEARCH

Rank	Authors	Year	Journal/ Conference	Title	Total citations
1.	Mans, R.S. et al.	2009	International Joint Conference on Biomedical Engineering Systems and Technologies	Application of process mining in healthcare - A case study in a Dutch Hospital.	219
2.	Kuratko, D.F.	2001	Academy of Management Perspectives	Improving firm performance through entrepreneurial actions: Acordia's corporate entrepreneurship strategy.	195
3.	Brooks et al.	2014	Microbiome	Microbes in the neonatal intensive care unit resemble those found in the gut of premature infants.	149
4.	McKone-Sweet et al.	2005	Journal of Supply Chain Management	The ailing healthcare supply chain: A prescription for change.	147
5.	Nosratabadi et al.	2019	Sustainability	Sustainable business models: A review.	131

Source: The author's interpretation of Scopus (2022) data

From the point of view of the most cited documents, if we include in the analysis the term 'Covid19', we notice that the most cited article is written by the author Welfens (2020) which presents a perspective on

the integration of the medical system in macroeconomics during the pandemic period and possible economic problems that the economy may face due to the virus. In addition, researchers who looked for ways to gain an overall competitive advantage before the pandemic later looked at the implications of the virus on health systems.

TABLE 6. THE MOST CITED RESEARCH IN THE PANDEMIC CONTEXT

Rank	Author/s	Year	Journal/ Conference	Title of paper	Total citations
1.	Welfens, P.J.J.	2020	Nature Public Health Emergency Collection	Macroeconomic and health care aspects of the coronavirus epidemic: EU, US and global perspectives	20
2.	Fleischhacker et al.	2020	The American Journal of Clinical Nutrition,	Strengthening national nutrition research: Rationale and options for a new coordinated federal research effort and authority	16
3.	Braithwaite, J. et al.	2021	International Journal of Quality in Health Care	The 40 health systems, COVID-19 (40HS, C-19) study	6
4.	Vrontis et al.	2021	Foresight	Managerial innovative capabilities, competitive advantage, and performance of healthcare sector during Covid-19 pandemic period	4
5.	Homma, A. et al.	2020	Escola Nacional de Saúde Pública	Vaccines for neglected and emerging diseases in Brazil by 2030: The "valley of death" and opportunities for RD&I in Vaccinology 4.0.	3

Source: The author's interpretation of Scopus (2022) data

4.3 Keyword analysis

This section provides an analysis of the keywords in the two databases downloaded from the Scopus platform, using the terms "competitive advantage", "healthcare" and "Covid19". Thus, the two databases taken over were processed in the Zotero software (2022) where a single database was created, as we used the VosViewer software to create a keyword link map (Van Eck & Waltman, 2019). Thus, following the grouping of the two databases in Scopus, 923 scientific materials were identified, 901 from the first database in which the researchers studied the competitive advantage in the health system, and 22 materials, where, in addition to the mentioned aspects, the term "Covid" was also introduced (see Figure 3).
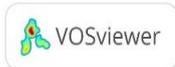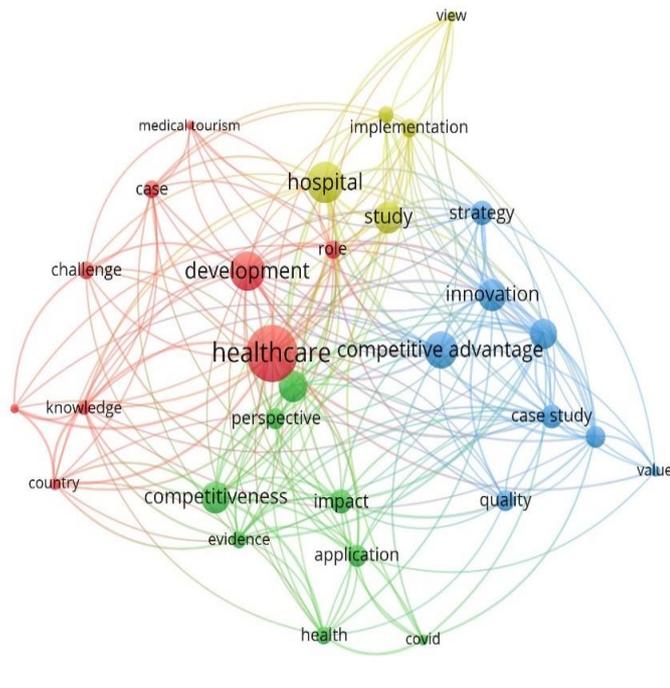
FIGURE 3. KEYWORD MAP OF THE TERMS "COMPETITIVE ADVANTAGE", "COVID19" AND "HEALTHCARE".
Source: The author's interpretation in VosViewer (Van Eck & Waltman, 2019) of Scopus (2022) data

Analyzing the keyword map presented in Figure 3, it can be seen that 30 nodes were identified, based on the criterion of the appearance of words in at least 10 articles. In fact, a word on the map is a node. From the point of view of grouping the nodes, four clusters were identified, which are represented in different colors. Curved lines of different thicknesses represent the connections between nodes, so a thicker line represents a stronger connection between terms. Moreover, the distance between the nodes indicates how close the terms are based on the co-occurrence links. Thus, if they are closer, they have a stronger connection (Bunea, 2021).

The first group, represented by the red color with nine nods, presents the term "healthcare" as the most used keyword, with links to other words such as: "case", "challenge", "country", "development" "healthcare", " knowledge", "medical tourism", "opportunity and "role". The connection of these words leads us to believe that the challenges and opportunities in the medical system have been studied to develop competitive advantages.

The second cluster, represented on the map in green, includes eight nodes, the most used keyword being "competitiveness" and has links between terms such as: "analysis", "perspective", "application", "covid", "evidence", "Health", "impact". The connection of these words underlines the idea that the Sars-Cov2 virus changes the perspective and competitiveness of medical systems.

Cluster three has a strong co-occurrence link with the first cluster, and it is represented in blue and has eight nodes. The most used node is "competitive advantage", as it also creates links with terms such as: "case study", "healthcare sector", "innovation", "performance", "quality", "strategy".

The last cluster is represented on the map in yellow with five connecting nodes. The main node is "hospital", and it creates co-occurrence links with terms such as "factor", "implementation", "study", and "view".

5. CONCLUSION

Competitiveness in the field of health is concerned with the analysis and management of several factors. Furthermore, the epidemic of the SARS-CoV2 virus has demonstrated the key role that the health system plays in raising the standard of living and increasing the sustainable economy.

This scientific paper presented a bibliometric analysis in terms of key concepts such as "competitive advantage", "healthcare", and "Covid19". Furthermore, the novelty of this paper is that two Scopus databases was used to determine the scientific links between the terms used in the analysis. Another novelty of the paper is that to our knowledge no other bibliometric papers have been identified on this topic.

As can be found in the methodology section, 901 scientific materials were analyzed in the first database and 22 materials in the second database, to highlight how competitiveness in the health system is viewed in a context and how the global pandemic period has scientifically influenced health competitiveness. Simultaneously with the mentioned purpose of the paper, we aimed to make a pertinent point of view regarding the quantitative research on the competitiveness in the medical system, with the role of providing support to future research in this field.

The results indicate that there is an upward trend in scientific research, the subject being increasingly addressed by researchers around the world. However, we noticed that the implications of Covid-19 in the health system were not of equal interest to researchers. However, we believe that the academic environment needs a longer period to achieve quality work.

In addition, our results coincide with the results of another bibliometric paper on competitiveness. Capobianco-Uriarte et al. (2019) states that in the analysis period 1983–2017 the United States of America is the most productive country in terms of the number of scientific papers, as we can identify this phenomenon in this paper also. Also, we identified which were the fields in which the researchers showed their scientific interest, and which were the most cited works in the analyzed period. The work of Kuratko et al. (2001) is the most influential research presenting a perspective on the entrepreneurial actions that a company in the medical sector has initiated to obtain the competitive advantage. In the second

database, the most influential research is that of the author Welfens (2020), which presents a perspective on the integration of the medical system in the macro-economy during the pandemic and possible economic problems that the economy may face due to the virus.

The connection of the keywords analyzed leads us to believe that the challenges and opportunities in the medical system have been studied to develop competitive advantages. The emergence of the Sars-Cov2 virus affects the organizational perspectives and the competitiveness of medical systems to a certain extent; therefore, we expect an increase in the interest of the academic community in studying this phenomenon, but also in identifying viable solutions, able to contribute to the adaptation of health organizations and the system as a whole to the new conditions and expectations.

The limit of this research is specific to bibliometrics because, although it is the best tool to analyze the dynamics of science, it is not a guarantee of the quality of scientific materials. As an opportunity for future research, it is recommended to perform a statistical analysis on their impact and quality.

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