sciendo

Decision-Making in Healthcare. A Bibliometric Exploration

Ana Alexandra OLARIU*
Bucharest University of Economic Studies, Bucharest, Romania
** Corresponding author, anaalexandra.olariu@man.ase.ro*

Andreea BREAZU
Bucharest University of Economic Studies, Bucharest, Romania
andreea.breazu@man.ase.ro

Ștefan Cătălin POPA
Bucharest University of Economic Studies, Bucharest, Romania
catalin.popa@man.ase.ro

Cătălina Florentina POPA
Bucharest University of Economic Studies, Bucharest, Romania
catalina.albu@man.ase.ro

Nicoleta CĂRUCERU
Bucharest University of Economic Studies, Bucharest, Romania
caruceru nicoleta18@stud.ase.ro

Abstract. *The dynamic environment in which healthcare systems operate highlights the importance of the decision-making process, especially considering the fact that it influences the quality of services and the well-being of patients. The aim of this research is to examine the conceptual link between the concepts "decision", "decision making process", "healthcare", and "management" and how they interact in the literature. Thus, the research aims to identify common trends and patterns in these areas. The research carries out scientific mapping using a three-stage methodological approach: bibliographic data collection through refined searches in the Web of Science database, data analysis using Biblioshiny, and subsequent bibliometric analysis of the 259 scientific documents collected. The main results of the analyses carried out illustrated an increase in scientific publications over time, especially in 2023, when most academic materials were published. International collaboration is in its infancy, with the US and China leading such collaborations. The theoretical implications are centered around the methodological approach to research in the healthcare field. Regarding the practical implications, the research provides information to decision-makers in the medical sector by identifying current contexts in the lives of organizations, but also to academics, with the research having the role of revealing publication sources and other information of interest to them.*

Keywords: decision, decision-making, decision making process, healthcare, management, bibliometric.

Introduction

Decision-making involves the process of identifying and selecting alternatives based on the values and preferences of the decision-maker, originally explored within the realm of psychology (Mellers et al., 1998). Thus, starting from then, decision-making was approached as an interdisciplinary field with strong relevance in different social and organizational environments. The act of decision-making inherently implies the existence of alternative choices, which, in certain contexts, aim to

DOI: 10.2478/picbe-2024-0264

maximize results, minimize efforts, or mitigate risks (Gregory et al., 2012). Despite the important role of decision-making in many fields, research on health-related decisions did not receive significant attention until the advent of Covid-19. However, in the contemporary landscape marked by internationalization and globalization, health organizations increasingly confront the necessity to make informed decisions to address various situations and fulfill various objectives (Labonté et al., 2011).

As a result of the attention given by researchers to studies in this field, this research aims to identify the links between the terms "decision", "decision-making process", "healthcare" and "management", as well as the way in which these concepts interact with other important concepts and the relationships that form between them, using a bibliometric technique.

Thus, it is intended to address three research questions, formulated as follows:

RQ1: What was the rise of scientific materials over time, and what are the emerging trends in the decision-making process in the healthcare system?

RQ2: Which are the academic institutions that are classified as the most productive, and how do they collaborate internationally?

RQ3: What are the most important concepts in healthcare decision research and what is the conceptual connection between them?

Furthermore, from a structural point of view, the analysis of the specialized literature was carried out to introduce the readers to the analyzed topic, and the methodological approaches were presented in detail. In the final sections of the study, the results and discussions based on them are presented. The paper ends with a series of conclusions to show the theoretical and practical implications of the research.

Literature review

Decision-making determines the success of organizations and is of significant importance in the medical organizational context. It goes beyond being just a managerial skill and it serves as a central element determining the course of businesses (Monteiro et al., 2021). In the organizational environment, the adoption of decisions has significant repercussions on strategic plans and on the way resources are distributed and operations are performed. Decisions related to product development, market expansion, and operational processes can significantly impact a company's competitiveness and long-term viability (Stefan et al., 2016). Moreover, the ability to make informed and timely decisions is often a key differentiator between successful and struggling organizations (Reymen et al., 2017).

Over time, various research studies (Eisenhardt & Zbaracki, 1992; Laroche, 1995; Wittmer, 2019) have been conducted on decision-making and its impact on organizations, regardless of their administrative form, whether public or private. The study developed by Laroche (1995) highlights the complexity of decisions in different organizational contexts. The study emphasizes the extent to which social characteristics influence the decision-making process in organizations. Thus, the researchers emphasize the idea that decisions are not individual and isolated phenomena, but have a strong root in society context, being influenced by facts such as culture, group dynamics, religion, and others. Moreover, Eisenhardt and Zbaracki (1992) paper constitutes a literature review addressing strategic decision-making. Thus, the research brings to attention three paradigms: the rationality of decisions, politics, and the influence of the factors that determine a certain decision. The researchers came to the conclusion that there is a correlation between these paradigms, considering the fact that decision-makers act within the limits of rationality requirements, have an

influence on power dynamics, and act as catalysts for opportunities in the organizational environment.

In addition, another aspect studied in the specialized literature refers to ethics and the legitimacy of decisions adopted in the organization. The study developed by Wittmer (2019) underlines the idea that most decisions are those that positively influence the life of the organization and have implications both for employees and for performance. Also, these decisions have a positive influence on society in general. Furthermore, the study brings to light the behavioral factors necessary to adopt an ethical decision through the existence of policies and an organized climate that encourages this.

Moreover, the characteristics of the factors that influence the adoption of decisions have not been sufficiently analyzed in the dynamic environment of contemporary organizations. Among these factors, organizational culture stands out as a critical determinant. Numerous empirical studies (Coeling & Wilcox, 1988; Marchisotti et al., 2019; Weatherly & Beach, 2014) have highlighted the key role of organizational culture in shaping decision-making processes. Thus, the organizational culture offers a perspective for the decision-makers in the decision-making process. In practice, the organizational culture that promotes innovation simultaneously encourages risk-taking, favoring risky and daring initiatives (Coeling & Wilcox, 1988).

Simultaneously, in healthcare, decisions bear the responsibility of not only affecting individual patient results but also molding the overall well-being of the community (Scholl et al., 2018). Thus, the adoption of optimal decisions leads to the quality of medical services and the performance of the medical system. Healthcare professionals constantly face complex choices regarding patient treatment plans, resource allocation, technology adoption, and policy development (Orton et al., 2011).

Healthcare decision making is influenced by several complex factors, including the quality and availability of data and information. Thus, healthcare decisions are often based on data, with professionals relying on patient histories, current health status, and predictive models to guide their choices (Bates et al., 2014). However, the quality of this data can vary, and poor data can lead to suboptimal decisions. The expertise and experience of the practitioners are another factor that influences the quality of a decision. While data provides a valuable foundation, the interpretation and application of this data often relies on the professional's judgment, which is shaped by their training, experience, and specialization (Gigerenzer & Gaissmaier, 2011). Studies by Barnett et al. (2012) discuss the importance of material availability and human resources in the decision-making process, considering the fact that financial constraints can impact the way in which decisions are made.

Considering the different approaches regarding the involvement of the various factors that can impact the decision-making process within an organization, a bibliometric analysis of the research identified in this field will be carried out in order to reveal the main themes, approaches, and research trends.

Methodology

Through this research, it was aimed to analyze the links between the keyword's "decision", "decision making process", "healthcare" and "management" and how these concepts interact in the specialized literature. Also, through the specific methodology of bibliometric analysis, the research seeks to highlight the conceptual links between these terms and the way they interact with other concepts.

As for the methodology that was the basis of the development of this research, it was based on the concept of "science mapping" and consisted of going through three stages specific to the authors' own vision, presented below.

Stage 1: Collection of bibliographic data. In this step (1) the database in which to search for scientific articles was selected, namely the Web of Science (WoS), (2) the database searches were defined and (3) searches were performed based on various criteria such as search period, type of document, language in which the document was published. More precisely, to collect the data necessary for the bibliometric analysis, searches were carried out for research-specific keywords in the Web of Science (WoS) database, a database selected for the quality of the information provided and due to the greater total number of indexed documents compared to other databases, such as Scopus (Popa et al., 2023). The search was made according to the following keywords and criteria: decision or decisions or "decision making process*" or "decision-making process*" AND healthcare or health-care or "health care*" AND management or managerial. To extract all conceivable combinations of the idea of decision making process and healthcare (e.g., decision-making process, decision-making processes, healthcare, health-care etc.), the wildcard `*` was employed. In addition, records with the precise phrases "decision making process" and "health care" were found by adding the signs `" "`. As a result of this search, the WoS database returned 319 scientific documents. Searches were refined according to the publication period (articles published in 2024 were eliminated), document type (only article, review and early access documents were selected) and the language in which the document was published, respectively English. In the end, a total set of 259 scientific documents was obtained and kept for further analyses.

Stage 2: Choosing software for data analysis. To facilitate bibliometric analyzes and obtain relevant graphs for discussions based on the analyzed subject, the documents were downloaded from the Web of Science platform and imported in the bibliometric analysis program Biblioshiny, developed by Aria and Cuccurullo (2017).

Stage 3: Bibliometric analysis of the collected data. In this stage, the bibliometric analysis focused on the analysis of the characteristics of the documents collected and on keywords' analysis. Thus, on the one hand, in the analysis process of the 259 selected documents, the bibliometric analysis focused (1) on the presentation of the evolution over time of the scientific production on the analyzed subject, (2) on the analysis of the country to which the corresponding author is affiliated, (3) on the analysis of the sources in which they been published documents and (4) institutions with the most contributions on the analyzed subject. On the other hand, the analysis of the keywords mentioned in the 259 selected documents sought to identify the relationships that the concepts "decision", "decision making process", "healthcare", and "management" have with other concepts; to gauge the strength of these connections and the frequency of occurrence of these keywords; and to find out how particular discussion topics are arranged within the research that has been done.

The results obtained from the selection and analysis of the 259 scientific documents are illustrated in the next section of this paper.

Results and discussions

Analysis of the selected documents

The evolution over time of scientific production regarding the subject "decision", "decision making process", "healthcare" and "management" is illustrated in Figure 1. According to this figure, the

first article written on this topic was identified in 1993. From this year until the year 2023, the number of documents written on the analyzed topic had ups and downs. Until 2004, there were one to three papers published each year, with some years recording no publications. Between 2005 and 2019, the number of publications ranged from 1 to 22 per year. However, according to Figure 1, starting from 2020, researchers' interest in this topic increased, the scientific documents thus appearing, maintaining an increasing trend until 2023. Moreover, during this period (2020-2023) there were published 42.47% of the total of 259 analyzed articles. The year 2023 was the year in which the analyzed topic enjoyed an increasing interest, in this year the most documents were published, respectively 35.

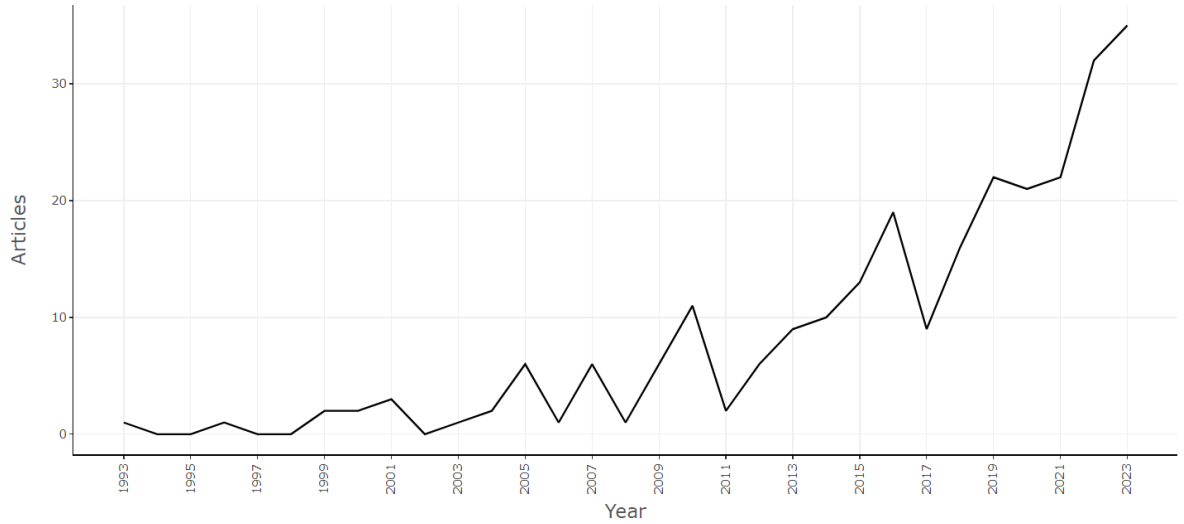

Figure 1. Annual Scientific Production

Source: authors with Biblioshiny.

The 259 documents written on the studied topic can be analyzed regarding the country to which the corresponding author is affiliated. Figure 2 indicates the first 16 countries with the largest contributions in providing scientific contributions on the analyzed topic. In this sense, it can be noted that the United States of America is the largest contributor, with a total number of 58 documents (22.39% of the total), followed by China with 23 documents (8.88%) and the United Kingdom with 14 documents (5.41%). As far as our country is concerned, only one document on the analyzed topic was published in Romania. Furthermore, Figure 2 also presents two indicators: (1) MCP – multiple country publications (which refers to those documents that have at least one co-author from another country); (2) SCP – single country publications (referring to documents whose co-authors are from the same country). In this sense, the values of SCP are higher than those of MCP, which indicates a rather low degree of international collaboration. Moreover, in this top 16 there is also a country with a very low degree of international collaboration, at the level of which no MCP values were recorded, namely Turkey.

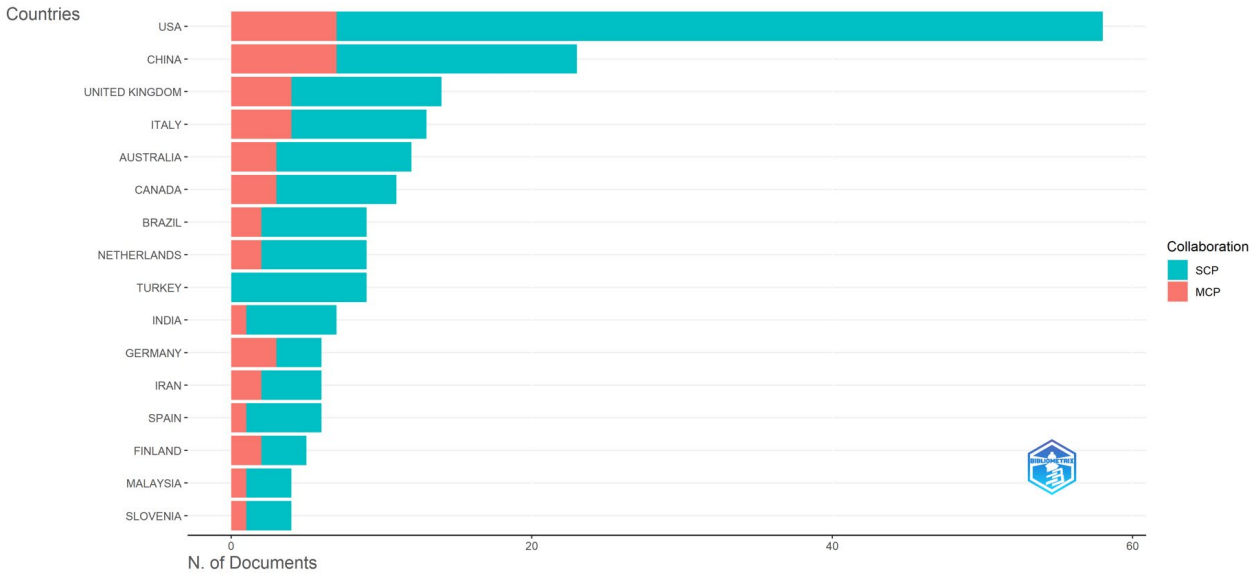

Figure 2. Top 16 Corresponding Author's Countries

Note: SCP – Single Country Publications; MCP – Multiple Country Publications

Source: authors with Biblioshiny

The analysis of the 259 scientific documents also concerned the journal in which these documents were published. Thus, the database includes 184 sources. Table 1 illustrates information on the top 10 sources in the collection (journals) that published scientific papers on the studied topic. Thus, the source with the most documents published, respectively 8 (3.09%) was "International Journal of Healthcare Management". Moreover, it should be noted that these first 10 sources published a total of 19.69% of the total of 259 selected articles.

Table 1. Top 10 Journals with contributions in the studied field

Rank	Institutions`name	Contributions	Percentage of 259
1	INTERNATIONAL JOURNAL OF HEALTHCARE MANAGEMENT	8	3.09%
2	HEALTH INFORMATICS JOURNAL	7	2.70%
3	DECISION SUPPORT SYSTEMS	6	2.32%
4	JOURNAL OF MEDICAL INTERNET RESEARCH	6	2.32%
5	BMJ OPEN QUALITY	4	1.54%
6	HEALTH INFORMATICS: AN OVERVIEW	4	1.54%
7	IEEE ACCESS	4	1.54%
8	INTERNATIONAL JOURNAL OF HEALTHCARE TECHNOLOGY AND MANAGEMENT	4	1.54%
9	JMIR MEDICAL INFORMATICS	4	1.54%
10	JOURNAL OF CLEANER PRODUCTION	4	1.54%

Source: authors with Biblioshiny.

Another analysis of the 259 scientific documents targeted the institutions with the most contributions on the analyzed subject. Thus, the top 15 institutions according to the number of

articles that had authors or co-authors affiliated with that institution are illustrated in Table 2. Moreover, according to Table 2, it can be found that the largest number of scientific documents affiliated to an institution is 20 (7.72% of the total), at the Mayo Clinic. At the same time, it can be observed that the first 15 institutions with contributions on the analyzed subject include 113 scientific documents, respectively 43.63% of the total of 259.

Table 2. Top 15 Institutions with contributions in the studied field

Rank	Institutions`name	Contributions	Percentage of 259
1	MAYO CLINIC	20	7.72%
2	JOHNS HOPKINS UNIVERSITY	12	4.63%
3	HARVARD UNIVERSITY	10	3.86%
4	DUKE UNIVERSITY	8	3.09%
5	PFIZER	8	3.09%
6	JOHNS HOPKINS MEDICINE	7	2.70%
7	UNIVERSITY OF WASHINGTON SEATTLE	7	2.70%
8	STATE UNIVERSITY OF NEW YORK (SUNY) SYSTEM	6	2.32%
9	BAYLOR COLLEGE OF MEDICINE	5	1.93%
10	HARVARD MEDICAL SCHOOL	5	1.93%
11	STATE UNIVERSITY SYSTEM OF FLORIDA	5	1.93%
12	TULANE UNIVERSITY	5	1.93%
13	UNIVERSITY OF ALBERTA	5	1.93%
14	UNIVERSITY OF ROCHESTER	5	1.93%
15	STATE UNIVERSITY OF NEW YORK (SUNY) SYSTEM	5	1.93%

Source: authors with Biblioshiny

Keywords` analysis

The keyword analysis was done to find the connections that the concepts “decision”, “decision making process”, “healthcare” and “management” form with other concepts, to identify the strength of the connections between them and the frequency of occurrence of these keywords, but also to discover how certain topics of discussion are grouped within the conducted research.

Therefore, the analysis of the keywords within the 259 scientific documents started with the tree map of the keywords provided by the authors, as shown in Figure 3. The size of each place in the tree is given by the frequency of occurrence of the keywords. Analyzing Figure 3, which presents the first 20 keywords according to the frequency of occurrence in the analyzed scientific documents, it can be emphasized that in the specialized literature on the analyzed subject, the concept “decision making” predominates, appearing in 53 scientific documents and has 18% occurrences, followed by the keywords “healthcare management” and “healthcare” that have a 13% occurrences, appearing in 38 and 37 documents, respectively.

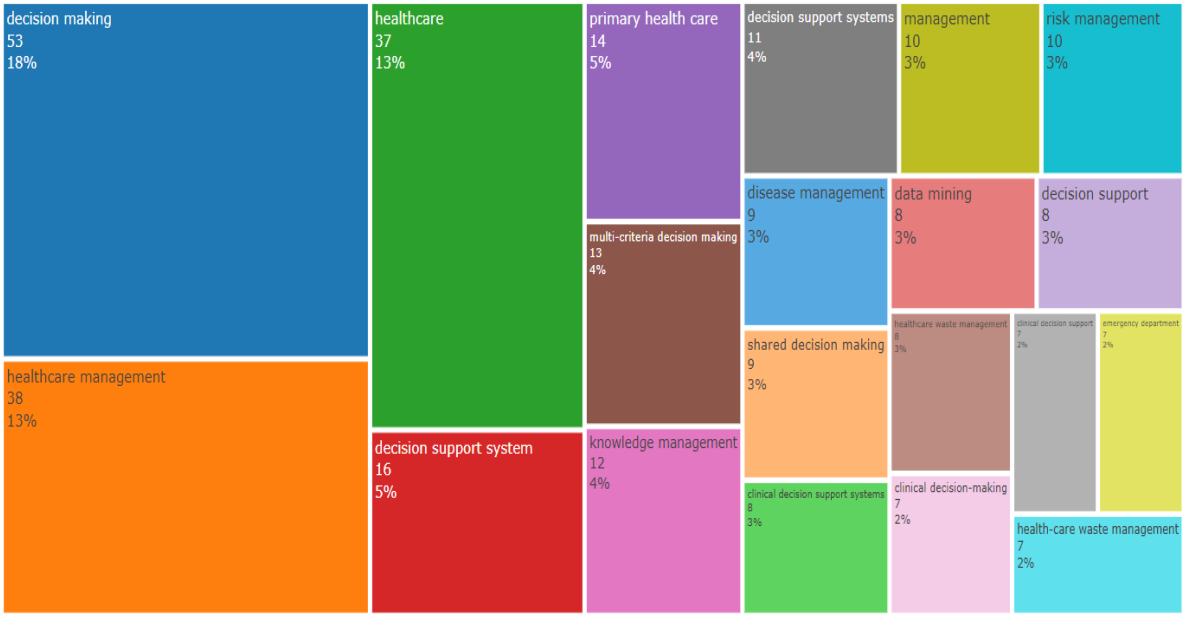

Figure 3. Tree map of the authors` keywords

Source: authors with Biblioshiny.

The existing links between the keywords of the authors allowed a thematic map analysis to be built and highlight research themes about "decision", "decision making process", "healthcare" and "management" (Figure 4). The analysis was run with 250 author's keywords and a minimum cluster frequency of 5 (per thousand documents), which resulted in seven clusters on the map. The bigger the circle, the higher the number of keywords appearing in that cluster (Saini et al., 2022). Thus, the largest cluster is "decision making" which includes 172 independent keywords and 712 cumulative occurrences, followed by the "safety" cluster with 60 independent keywords and 134 cumulative occurrences.

Moreover, Figure 4 presents the strategic map of the main keywords, where centrality and density are the two dimensions of the map. The term centrality makes reference to "the intensity of its links with other clusters" (Saini et al., 2022, p.1202). Thus, the importance of the theme in the field that is being developed is presented. Density refers to "the strength of the links that tie the words making up the cluster together" (Saini et al., 2022, p. 1203) and analyzes the ability of a topic to be developed over time.

To highlight the thematic research trends for each of these themes, the clusters were placed in one of the four quadrants of the strategic map. The classification of the research themes into the four quadrants delimits (Saini et al., 2022):

- *Motor Themes* - are equally important for the general research area, having strong links with other themes circumscribed to it, as well as well developed.
- *Basic Themes* – are of major importance for the development of the research field.
- *Emerging or Declining Themes* – are isolated, of little importance for the research field, being also little developed (emerging or declining).
- *Niche Themes* – are highly developed but isolated themes.

Analyzing Figure 4, the "decision-making" cluster and "safety" cluster are "Motor Themes" in the domain. Thus, the strong connection between the themes and other important themes is highlighted. Among the important keywords that belong to the "decision making" cluster

are “healthcare management”, “healthcare”, “decision support system”, while some of the major keywords falling in the “safety” cluster are “hypertension”, “mental health”, “shared decision-making”. Therefore, according to Taqi (2021) this quadrant demonstrates high density and centrality, indicating its significance for further research. In addition, the conceptual link between studies addressing management practices, perceptions of medical assistance, and the way in which the decision-making process is supported in the healthcare system is highlighted.

“Multi-criteria decision-making” cluster denotes a “Basic Theme”, significant for the domain and includes the keywords such as: “performance measurement”, “analytic network process (anp)”, “healthcare logistics” and “healthcare operations”. This quadrant is identified as a core theme characterized by high centrality but low density. The themes identified are characterized by their applicability in a general context, but they are also very important and relevant for contexts in which performance measurement was sought through the decisions adopted in the medical field.

The “Model-tree-based regression” cluster and the “Healthcare Operations Management” cluster stands for “Emerging or declining themes” within the research domain, characterized by both low density and low centrality. These topics can be considered by researchers as topics that are no longer of interest in current research; however, these topics can be important in the academic discourse in the future for studies that can reveal a new perspective.

“Competitive intelligence” cluster (contains keywords such as “data analytics”; “learning organizations”; “strategic management”) and “Healthcare dialogue management” cluster (includes major keywords like “partially observable markov decision processes (pomdp)”) are “Niches Themes”, with keywords which are loosely tied together. Thus, the quadrant presents a specific and rare theme but has a high development, which is indicated by high density but low centrality.

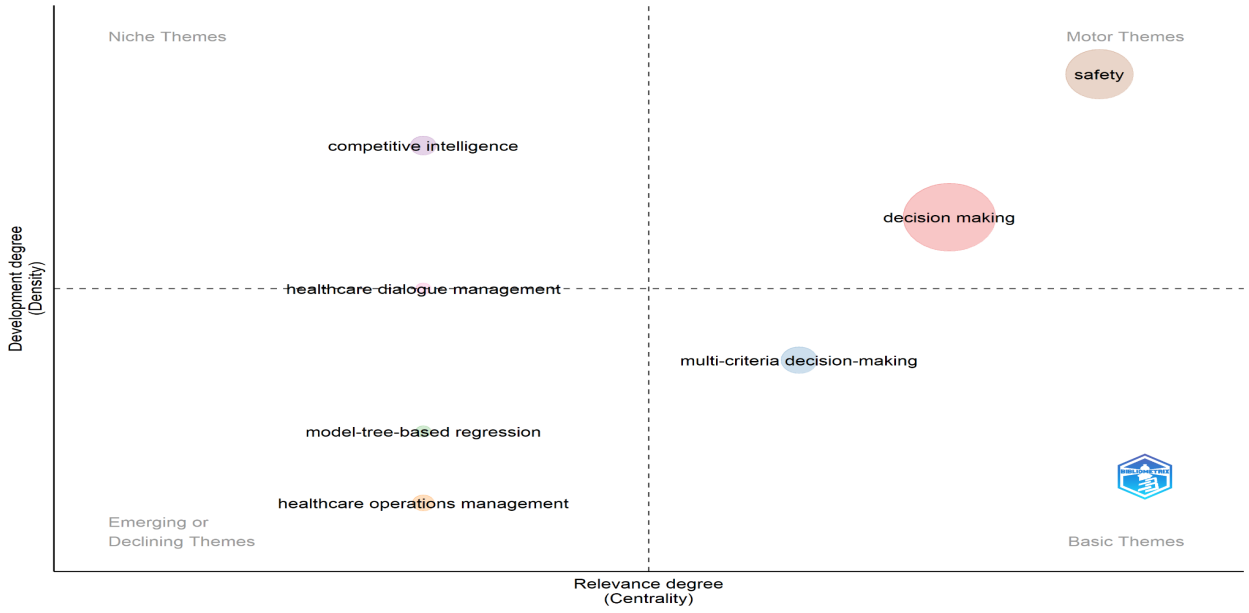

Figure 4. Thematic map of the authors` keywords

Source: authors with Biblioshiny.

The three-field plot of country, keywords and journal is presented in Figure 5. The three components are linked through a gray chart that is interrelated. Starting with the country, each nation indicates the predominant research publication topics, and each topic reveals the journals

frequently utilized for publication. The size of the rectangle represents the number of scientific materials associated with each element. The plot shows that larger boxes represent more occurrences (Saini et al., 2022). Thus, from Figure 5 it can be observed that researchers from the USA more often use keywords such as "decision making" or "healthcare", while researchers from Italy use the keyword "health care" more frequently. Examining journal-wise keywords, words like "decision making" and "healthcare" are used with greater preference in "International Journal of Healthcare Management".

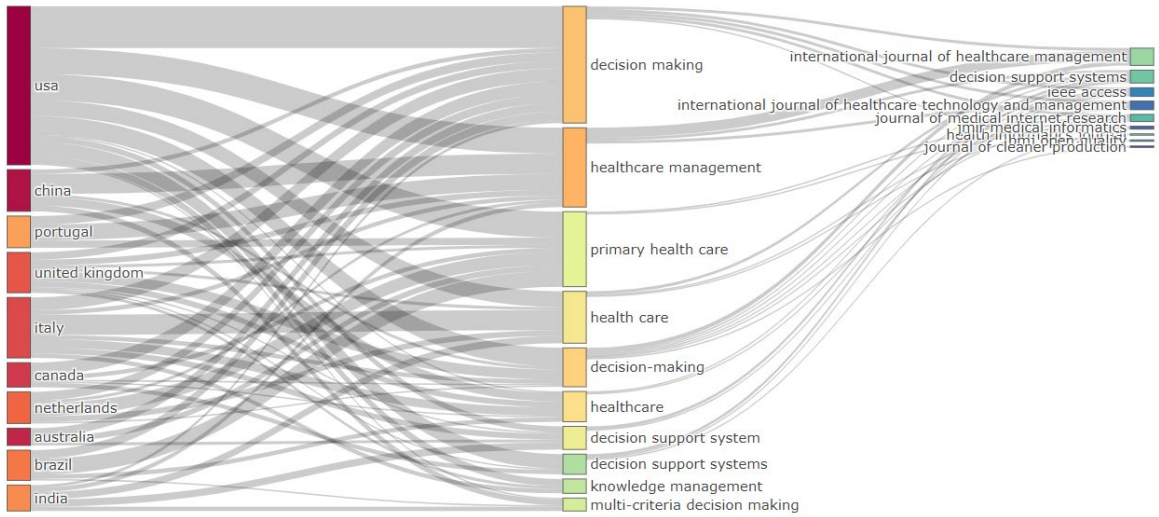

Figure 5. Three-field plot

Source: authors with Biblioshiny.

Further, this section presents information on annual scientific production, the top countries of corresponding authors, leading journals contributing to the fields of decision-making and healthcare, top institutions, the most frequently used keywords, their strategic map, and the interconnections between countries, keywords, and journals. The results of this study are interrelated with the findings of other studies in the field. A study that supports the research results was developed by Xu and Xu (2023); they highlighted similar trends and patterns that can support the credibility of the findings.

In addition, the results of this research are in line with those of Adunlin et al. (2015) who also identify that most academic publications were produced in the USA. Similarly, Diaby et al. (2013) analyzed the decision-making process in the healthcare system, and emphasized the importance of this field in the current context and how it can be improved, reaching the conclusions that the healthcare field is in continuous development from a scientific perspective.

Conclusion

This bibliometric analysis included scientific information over a period of 30 years and was composed of 259 scientific materials that analyzed the decision-making process in the health system. The research highlighted an upward trend in scientific writing in this field. The results thus indicated an interest of the writers in analyzing and highlighting critical elements that are the basis of the decision-making process in the healthcare field. Regarding the analysis process, the database was composed of scientific materials that addressed interdisciplinary topics in the adoption of

decisions in the health field, highlighting the complexity that practitioners face in the lives of organizations.

Therefore, the main results of the study can be highlighted as follows: (1) In the year 2023, there was the most interest in studying this field, resulting in the highest number of academic papers published. (2) Regarding the collaboration of countries in the research process, it was observed that this is still in an incipient phase; however, the USA and China have the most international collaborations. (3) Concerning the publication of articles in this field, it was found that the majority were published in the "International Journal of Healthcare Management". (4) Additionally, the institutions with the most contributed papers are "Mayo Clinic", followed by "Johns Hopkins University" and "Harvard University". (5) In terms of the most used keywords, according to the tree map, they coincided with our concepts of interest, namely decision making, healthcare and healthcare management. (6) Regarding the thematic map of the authors' keywords, four quadrants with different densities and centralities were identified. Each quadrant presented specific clusters and indicated emerging themes or drivers. Future research can address topics that may be of interest, such as the safety of the decision-making process, its legitimacy, ethical and moral aspects, and others. (7) Last but not least, the paper presented correlations between countries, top keywords, and the most used journals for researchers' publications. Thus, it was again observed that the USA is the most involved in the scientific process.

The results also provide practical and theoretical implications. As far as practical information is concerned, research provides important information to practitioners in the medical field to support their decision-making process, but also to theorists who are in the research process. Through the prism of this study, academics can identify the trends in the decision-making process in the healthcare system and what research topics can be explored in the future. This information can also be relevant for researchers who carry out qualitative analyses in the field. From the point of view of the theoretical implications brought by the results of the study, the study is highlighted by the methodological bibliometric approach and by the emerging analyses regarding the trends in medical research in different contexts.

Regarding the study limits in the context of bibliometric analysis, it can highlight the fact that bibliometric databases may not equally cover all journals or publications, which leads to a bias towards certain fields, journals or regions. Also, specific to bibliometric approaches, the research does not cover the qualitative analysis of academic publications, additional investigations are necessary to highlight their impact on the scientific discourse. Future studies can focus on removing these specific limits.

Acknowledgment

This study was conducted through doctoral and advanced post-doctoral research programs in the field of management, at the Bucharest University of Economic Studies.

References

Adunlin, G., Diaby, V., & Xiao, H. (2015). Application of multicriteria decision analysis in health care: a systematic review and bibliometric analysis. *Health Expectations*, 18(6), 1894-1905. https://doi.org/10.1111/hex.12287.

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.

Barnett, K., Mercer, S.W., Norbury, M., Watt, G., Wyke, S., & Guthrie, B. (2012). Epidemiology of multimorbidity and implications for health care, research, and medical education: a cross-sectional study. *The Lancet*, 380(9836), 37-43. https://doi.org/10.1016/S0140-6736(12)60240-2.

Bates, D.W., Saria, S., Ohno-Machado, L., Shah, A., & Escobar, G. (2014). Big data in healthcare: using analytics to identify and manage high-risk and high-cost patients. *Health Affairs*, 33(7), 1123-1131. https://doi.org/10.1377/hlthaff.2014.0041.

Coeling, H.V.E., & Wilcox, J.R. (1988). Understanding organizational culture: A key to management decision-making. *JONA: The Journal of Nursing Administration,* 18(11), 16-24.

Diaby, V., Campbell, K., & Goeree, R. (2013). Multi-criteria decision analysis (MCDA) in health care: a bibliometric analysis. *Operations Research for Health Care,* 2(1-2), 20-24. https://doi.org/10.1016/j.orhc.2013.03.001.

Eisenhardt, K.M., & Zbaracki, M.J. (1992). Strategic decision making. *Strategic Management Journal*, 13(S2), 17-37. https://doi.org/10.1002/smj.4250130904.

Gregory, R., Failing, L., Harstone, M., Long, G., McDaniels, T., & Ohlson, D. (2012). *Structured decision making: a practical guide to environmental management choices.* John Wiley & Sons.

Gigerenzer, G., & Gaissmaier, W. (2011). Heuristic decision making. *Annual Review of Psychology,* 62, 451-482. https://doi.org/10.1146/annurev-psych-120709-145346.

Laroche, H. (1995). From Decision to Action in Organizations: Decision-Making as a Social Representation. *Organization Science,* 6(1), 62–75. https://doi.org/10.1287/orsc.6.1.62.

Labonté, R., Mohindra, K., & Schrecker, T. (2011). The growing impact of globalization for health and public health practice. *Annual Review of Public Health*, 32, 263-283. https://doi.org/10.1146/annurev-publhealth-031210-101225.

Marchisotti, G.G., Domingos, M.D.L., & Almeida, R.L. (2018). Decision-making at the first management level: The interference of organizational culture. *Revista de Administração Mackenzie,* 19(3). https://doi.org/10.1590/1678-6971/eRAMR180106.

Mellers, B.A., Schwartz, A., & Cooke, A.D. (1998). Judgment and decision making. *Annual Review of Psychology,* 49(1), 447-477. https://doi.org/10.1146/annurev.psych.49.1.447.

Monteiro, A.P., Vale, J., & Silva, A. (2021). Factors determining the success of decision making and performance of Portuguese companies. *Administrative Sciences*, 11(4), 108. https://doi.org/10.3390/admsci11040108.

Orton, L., Lloyd-Williams, F., Taylor-Robinson, D., O'Flaherty, M., & Capewell, S. (2011). The use of research evidence in public health decision making processes: systematic review. *PloS One*, 6(7), e21704. https://doi.org/10.1371/journal.pone.0021704.

Popa, I., Cicea, C., Ștefan, S.C., Marinescu, C., & Botez, D. (2023). Bibliometric Analysis of Electrical and Electronic Equipment Production and Consumption in the Context of the Circular Economy. *Amfiteatru Economic*, 25(62), 63-79. https://doi.org/10.24818/EA/2023/62/63.

Reymen, I., Berends, H., Oudehand, R., & Stultiëns, R. (2017). Decision making for business model development: a process study of effectuation and causation in new technology-based ventures. *R&D Management,* 47(4), 595-606. https://doi.org/10.1111/radm.12249.

Saini, G.K., Lievens, F., & Srivastava, M. (2022). Employer and internal branding research: a bibliometric analysis of 25 years. *Journal of Product & Brand Management*, 31(8), 1196-1221. https://doi.org/10.1108/JPBM-06-2021-3526.

Scholl, I., LaRussa, A., Hahlweg, P., Kobrin, S., & Elwyn, G. (2018). Organizational-and system-level characteristics that influence implementation of shared decision-making and strategies to address them—a scoping review. *Implementation Science*, 13(1), 1-22. https://doi.org/10.1186/s13012-018-0731-z.

Stefan, S.C., Popa, I., & Dobrin, C.O. (2016). Towards a model of sustainable competitiveness of health organizations. *Sustainability*, 8(5), 464. https://doi.org/10.3390/su8050464.

Taqi, M., Rusydiana, A.S., Kustiningsih, N., & Firmansyah, I. (2021). Environmental accounting: A scientometric using biblioshiny. *International Journal of Energy Economics and Policy,* 11(3), 369-380. https://doi.org/10.32479/ijeep.10986.

Weatherly, K.A., & Beach, L.R. (2014). *Organizational culture and decision making.* In Decision making in the workplace (pp. 117-132). Psychology Press.

Wittmer, D.P. (2019). *Ethical decision-making*. In Handbook of administrative ethics (pp. 481-507). Routledge.

Xu, D., & Xu, Z. (2023). Bibliometric analysis of decision-making in healthcare management from 1998 to 2021. *International Journal of Healthcare Management,* 16(4), 623-637. https://doi.org/10.1080/20479700.2022.2134641.