Annals of "Dunarea de Jos" University of Galati
Fascicle I. Economics and Applied Informatics
Years XXXII – nº1/2026
ISSN-L 1584-0409 ISSN-Online 2344-441X
www.eia.feaa.ugal.ro

DOI https://doi.org/10.35219/eai15840409573

Quality Management in Healthcare System: A Bibliometric Analysis

Valentina-Alina Vasile (Dobrea)★, Florina Oana Virlanuta★★, Radu-Octavian Kovacs★★★

ARTICLE INFO

Article history:
Received November 15, 2025
Accepted December 29, 2025
Available online April 30, 2026

JEL Classification
I11, I18, M10

Keywords:
quality management, healthcare system, efficiency, VOSviewer

ABSTRACT

This study aim is to at identify the research trends and conceptual developments in the field of quality management in healthcare system, using data extracted from the Web of Science database and processed through VOSviewer software. The analysis covers publications from 2014 to 2024. The study reveals the central role of the terms "quality" and "management" in academic literature, as well as their correlations with emerging themes such as efficiency, patient satisfaction, data analysis, and policy implementation. The results highlight the growing interest of researchers in integrating quality management practices into healthcare system. This bibliometric approach provides useful insights for policymakers and healthcare professionals, helping them prioritize resources and future research directions that enhance quality and performance in healthcare system.

1. Introduction

The healthcare sector is a vibrant environment that deals with influence factors, which impacts many of its components (Epizitone et al.,2022). To understand the current state of knowledge in any field, it is essential to identify and analyse the scientific contributions made by researchers over time within the targeted domain. Bibliometric analysis serves as a valuable tool for mapping and evaluating the development of knowledge in a specific area. This quantitative approach allows for the identification and examination of information obtained through keyword-based searches, the relationships among those keywords, the number of articles published within a defined period, and their corresponding citations (Zang et al.2021). In recent years, there has been a growing focus on quality management in healthcare system, driven by the significant importance and impact of this sector on both the economic and social environments (Ali et al., 2021).

Quality management in healthcare system is a necessity in health sector. The quality principles have been adopted in healthcare. A quality healthcare system can be defined as one that is accessible, available, efficient, safe, and patient related (Rathee, 2016).

It is hard to imagine any country without a functioning healthcare system. It is one of the fundamental sectors upon which a nation depends, as it is closely connected with many other fields (Al-Shdaifat, 2015). Beyond its importance, the healthcare system is one of the fastest-growing industries and has gained global visibility for its increasing competitiveness (Islam et al., 2016).

The healthcare context is distinguished by permanent innovations and fluctuations. To improve the efficiency and quality in healthcare system, is needed to analyse and rethink the service, which involves healthcare activities (Silvola et al., 2023). Healthcare sector is characterized by the incidence of a variety of actors and a continuing transition for an integrated managerial strategy capable handling all complexities (Spath and DeVane, 2022).

Given the shifting of the healthcare paradigm to a patient-centred and value-based medicine, a holistic approach to the review of healthcare services is essential. A substantial body of literature has emerged, addressing various aspects of service quality in healthcare, reflecting the complexity and relevance of this field.

2. Research Methodology

To support the foundation of this research, we used the Web of Science database, with the results subsequently processed using VOSviewer software. The research design was based on the definition of relevant keywords (*healthcare system management, healthcare policies, healthcare leadership, quality management in*

★, ★★, ★★★ Dunarea de Jos University of Galati, Romania. E-mail addresses: dobrea.alina@gmail.com (V. A. Vasile Dobrea), florina.virlanuta@ugal.ro (Corresponding author - F.O. Virlanuta), rokwise@gmail.com (R.O. Kovacs).

healthcare, efficiency of medical services), the selection of research domains, and the time frame for publication (2014–2024). According to these criteria, the analysis identified a total of 4,949 articles (see Figure 1).

Figure no. 1. Web of Science scientific publications database filtering results.

Source: print screen Web of Science

An analysis of the number of publications (Table 1) reveals a growing interest among researchers in healthcare system management, healthcare leadership, and quality management in healthcare. A notable increase can be observed starting in 2019, with the number of publications reaching 774 in 2024, which is 2.78 times higher than in 2014.

Table no.1 Filtering results of the Web of Science scientific publications database, distribution between 2014 and 2024

Year of publication	No. of publications
2024	774
2023	588
2022	549
2021	563
2020	471
2019	453
2018	376
2017	344
2016	310
2015	243
2014	278

Source: own processing based on data from Web of Science

Bibliometric mapping is a quantitative analysis based on a spatial interpretation of how concepts are related to one another, highlighting the relationship between research components (Kumar et al., 2023). The publication dataset, obtained according to the defined criteria (keywords, domain, and time frame), was analysed using VOSviewer software. As a result, a bibliometric map was generated, with keywords grouped into clusters, each highlighted in a different color. Relevant concepts from the field of quality management in healthcare are clearly represented on the bibliometric map. Node size indicates the importance of keywords, which is determined by their frequency of occurrence in the analysed research publications. The connecting lines between keywords reflect significant relationships and strong conceptual links among the terms presented in the articles. A greater distance between concepts suggests a weaker connection, while a shorter distance implies a stronger association. The intensity of color and thickness of the lines illustrate the frequency and strength of co-occurrence between keywords.

3. Results and discussion

The network visualization map generated using VOSviewer software highlights the connections between the identified keywords. An analysis of Figure 2 reveals the presence of four clusters, each representing a group of interrelated keywords that collectively illustrate a common thematic area.

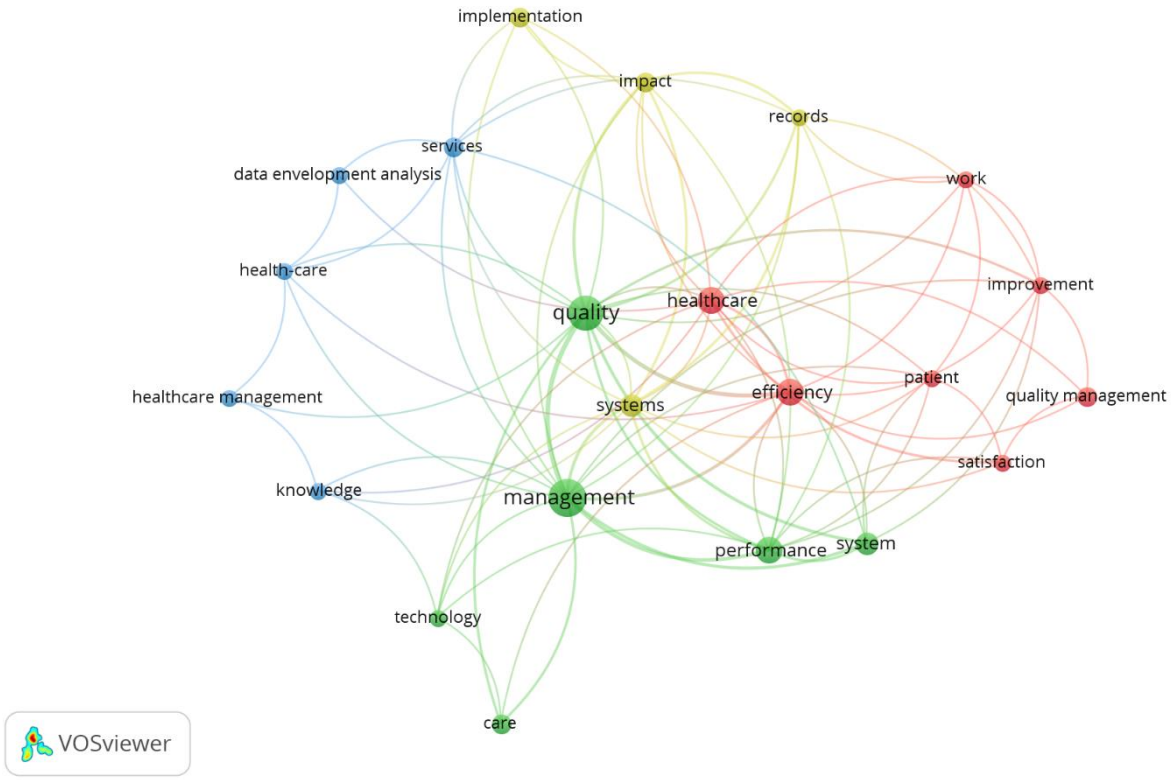

Figure no. 2. Network Visualization

Source: output soft VOSviewer

Figure 2 illustrates the relationships between concepts in the fields of health, healthcare management, and quality management in healthcare system, based on the frequency of term usage in academic literature between 2014 and 2024.

Each cluster of terms is represented by a distinct color, indicating specific subdomains or interrelated themes. The colors highlight how terms are grouped based on their co-occurrence in scholarly articles. Each term is visualized as a node, with the size of the node reflecting its frequency of appearance in the analysed publications. The connection between two terms represents a relationship based on their joint appearance in the same articles. The thicker the connecting line, the stronger the relationship between the terms.

The analysis identified the following major conceptual clusters:

- Performance, and quality in healthcare system (Green): This cluster includes terms such as "management," "quality," "performance," "system," "technology," and "care," indicating that the literature often explores the intersection of technology, system performance, quality, and managerial practices.
- Healthcare management (Blue): Includes terms such as "knowledge," "healthcare management," "services," and "data envelopment analysis." This cluster reflects a growing interest in the measurement and improvement of quality in healthcare services.
- Efficiency and patient satisfaction (Red): The red cluster links terms like "efficiency," "quality management," "improvement," and "satisfaction," suggesting an emphasis on system efficiency and its impact on patient satisfaction.
- Impact and implementation (Yellow): Contains terms such as "impact," "implementation," and "records." This cluster emphasizes how policies and tools are implemented to generate a positive impact on healthcare system.

The terms "healthcare," "quality," and "management" appear as central and highly connected nodes, suggesting that they serve as core pillars in the analyzed literature. The 2014–2024 timeframe highlights a focus on emerging and recent trends in healthcare research. The thematic domain "Health Care Sciences & Services" indicates a strong focus on applied and practice-oriented research in the field of health administration and management. Overall, the academic literature has emphasized the integration of quality and efficiency within healthcare management, with continued interest in advanced technologies and high-performing system that improve health outcomes. The relationship between patient satisfaction and the quality of medical services remains a key area of concern and inquiry.

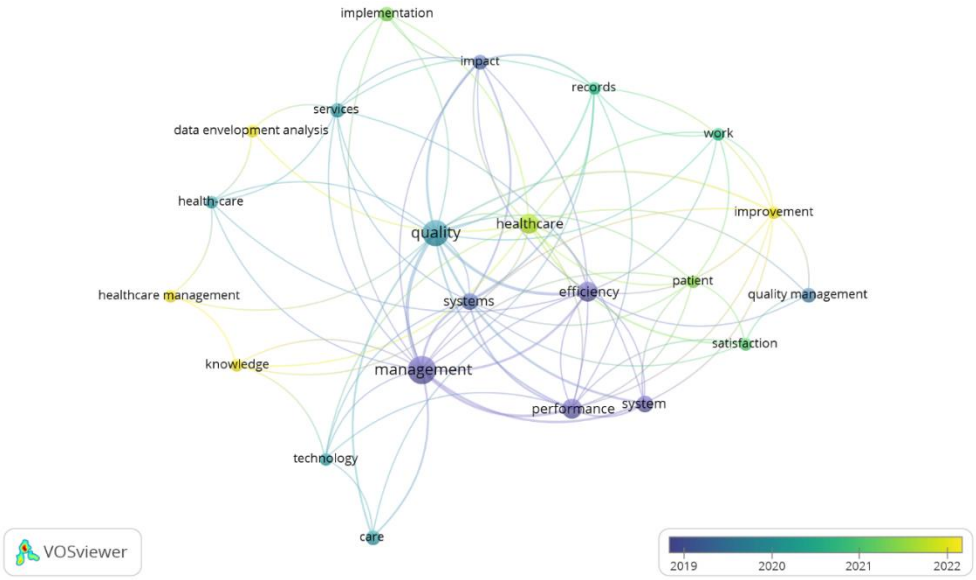

Figure no. 3. Overlay visualization

Source: output soft VOSviewer

Figure 3 presents a network visualization with a temporal dimension, indicated by the color bar at the bottom (2019–2022). The colors of the terms and their connections reflect the time period in which they became prominent in the academic literature. Darker shades (blue/purple) represent terms that were frequently used in earlier publications, particularly around 2019. Terms such as "management," "healthcare," and "quality" reflect fundamental concepts that have consistently been at the core of scientific literature, forming the backbone of research in quality management in healthcare system. These terms remain central and highly interconnected throughout the entire period analysed, emphasizing their ongoing significance in the field.

Lighter shades (yellow) highlight more recent terms and areas of focus, indicating emerging trends in academic research. During 2021–2022, terms highlighted in green and yellow—such as "impact," "records," "improvement," and "healthcare management"—appear frequently in publications within the field. This reflects a shift in scholarly interest toward the implementation and impact of managerial strategies in healthcare system. Terms connected to "efficiency," "quality management," and "patient satisfaction" suggest a recent research focus on the relationships between operational efficiency, quality assurance, and patient experience.

Figure 4 displays the density visualization of the analysed terms, offering a clear overview of their frequency of occurrence and their positioning—whether central or peripheral—within the body of academic literature.

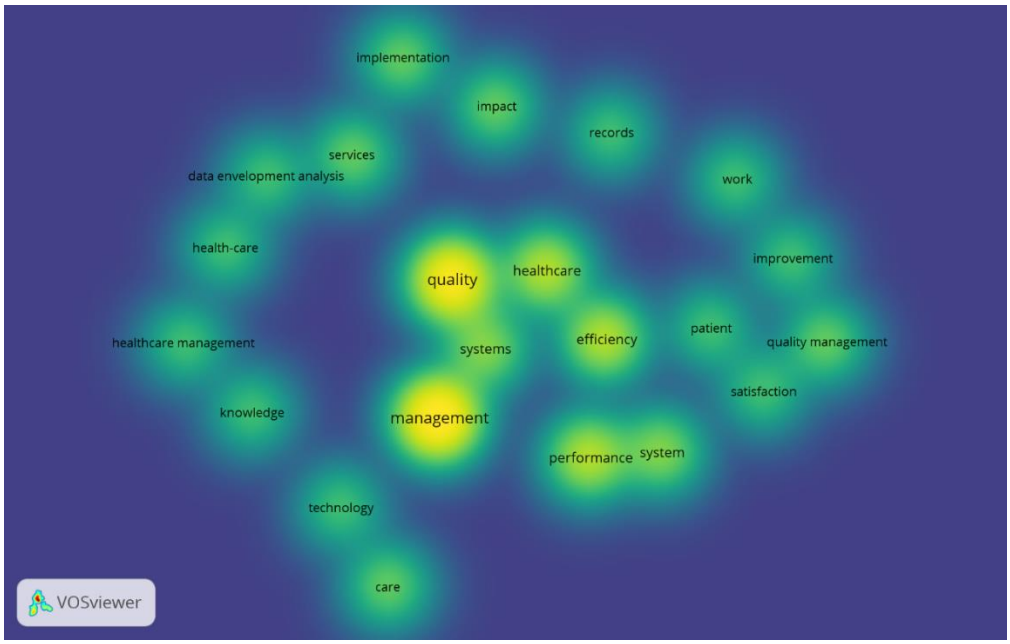

Figure nr. 4. Item density visualization.

Source output soft VOSviewer

The terms "quality" and "management" highlight areas of high density, appearing as the most prominent nodes in the visualization. This indicates their central and consistent presence in the analysed research. The strong connection between "quality" and "management" reflects their close relationship, both being essential concepts in the field of healthcare.

Other terms such as "healthcare," "efficiency," "system," and "performance system" also display considerable density, suggesting their importance in the literature, although they are not as central as the two leading terms. These keywords are located in close proximity to the main nodes ("quality" and "management"), indicating a high frequency of co-occurrence in publications focused on quality management in healthcare system.

Terms like "implementation," "impact," "records," "work," "satisfaction," "technology," and "care" exhibit lower but still significant densities, pointing to the existence of niche research areas.
"Implementation" and "impact" signal a growing interest in the application and evaluation of health policies or technologies. "Satisfaction" and "quality management" suggest a patient-centered perspective, emphasizing efforts to improve healthcare services.

The distribution of density levels illustrates that the specialized literature not only emphasizes core themes, but also increasingly explores related areas such as efficiency, performance, and patient satisfaction, which are closely linked to quality management in healthcare.

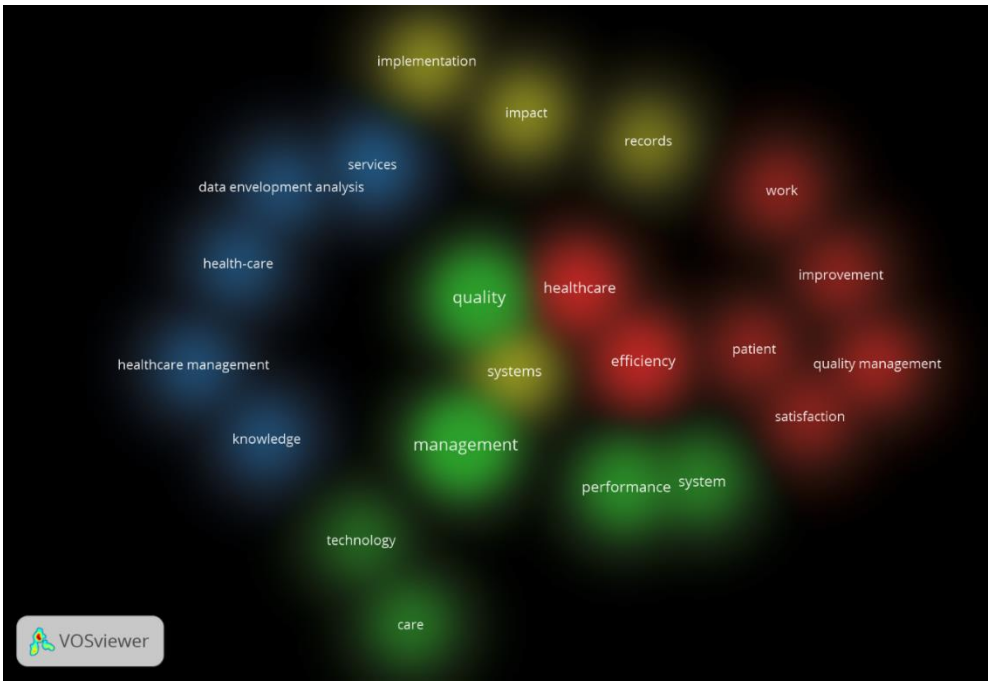

Figure nr. 5. Density visualization cluster.
Source: output soft VOSviewer

The figure illustrates the clusters formed based on keyword density visualization, highlighting how the main themes in the analysed literature are grouped. Each cluster is represented by a distinct color and indicates interconnected subdomains.

The green cluster includes the core terms: “management,” “performance,” “quality,” “system,” “technology,” and “care.” This cluster reflects the interconnection between management, quality, technology, and health system performance.

The red cluster is composed of terms such as “efficiency,” “healthcare,” “patient,” “satisfaction,” “quality management,” and “improvement,” indicating a strong focus on enhancing service efficiency, patient satisfaction, and quality management in healthcare.

The blue cluster centre’s on the use of data analysis and knowledge to evaluate and optimize healthcare services. Its main terms include “services,” “data envelopment analysis,” “healthcare management,” and “knowledge.” This cluster underscores the importance of data-driven decision-making in healthcare management.

The yellow cluster is oriented toward the implementation of policies and technologies and the assessment of their impact on services, with key terms including “implementation,” “impact,” “records,” and “work.”

The terms “quality” and “management” are central nodes that bridge all clusters, emphasizing their cross-cutting relevance across all subdomains of healthcare research. Figure 5 reveals a clear segmentation between research focused on data analysis, quality and satisfaction improvement, and policy implementation.

The first cluster (Table 2) highlights the relationship between efficiency, healthcare, patients, and quality management. The association of these keywords reflects the critical importance of healthcare efficiency and service improvement as key drivers for enhancing patient satisfaction.

Table no. 2. Cluster 1 (red)

Keyword	Cluster	Links	Total link strength	Occurrences
efficiency	1	11	18	7
healthcare		13	15	7
improvement		8	9	3
patient		8	8	3
quality management		4	4	4
satisfaction		5	6	3
work		6	6	3

Source: own processing based on data from VOSviewer software

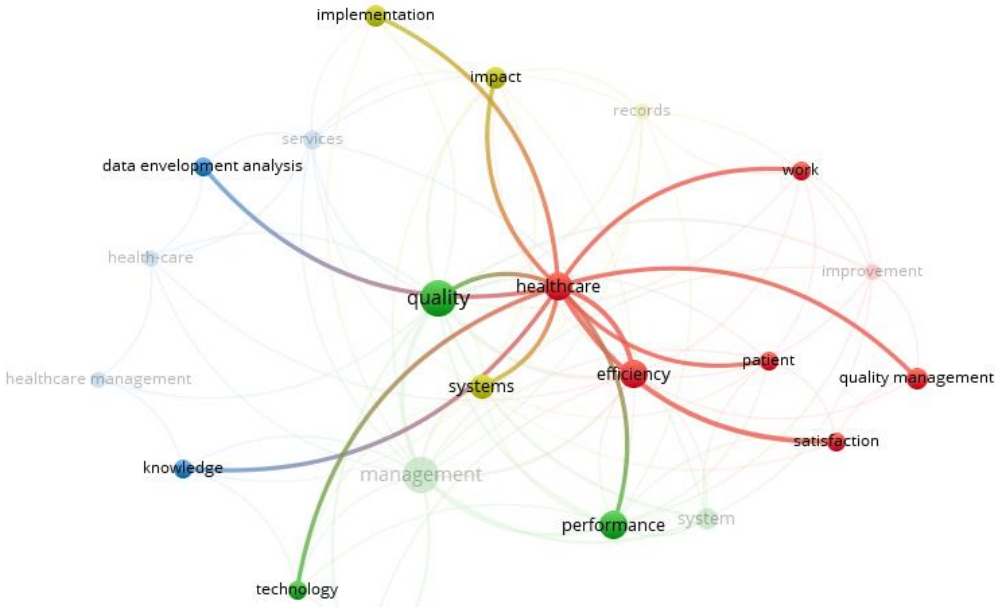

Figure no. 6. Cluster 1 (red).
Source: output soft VOSviewer

The second cluster (Table 3) is centred around the terms "management," "performance," and "quality". Performance is closely linked to both quality and management, with these keywords recording the highest frequency of occurrence in the academic literature. Their association highlights the critical connection between management practices, system performance, quality outcomes, and the role of technology in advancing healthcare system.

Table 3. Cluster 2 (green)

Keyword	Cluster	Links	Total link strength	Occurrences
care	2	4	6	4
management		15	31	15
performance		12	18	7
quality		16	34	13
system		7	12	5
technology		6	6	3

Source: own processing based on data from VOSviewer software

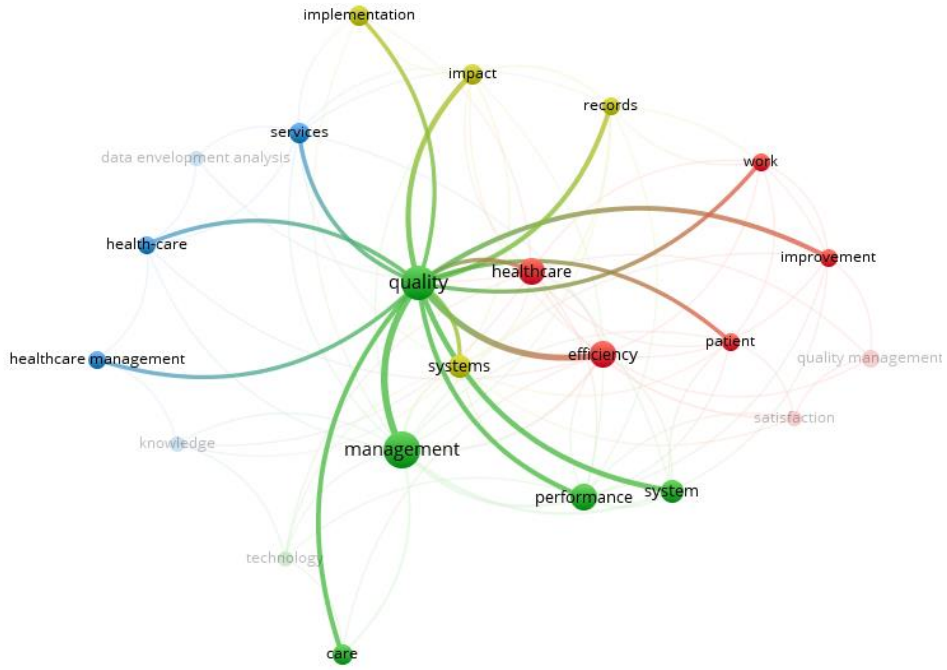

Figure 7. Cluster 2 (green).
Source: output soft VOSviewer

In the third cluster, the focus is placed on healthcare services. This concept is closely associated with data analysis, knowledge, and healthcare management. The connection between these terms suggests that healthcare services are strongly linked to managerial approaches in the health sector, as well as to the knowledge and data analysis that underpin the decision-making process.

Table no. 4. Cluster 3 (blue)

Keyword	Cluster	Links	Total link strength	Occurrences
data envelopment analysis	3	3	3	3
health-care		6	6	3
healthcare management		3	3	3
knowledge		5	5	3
services		9	9	4

Source: own processing based on data from VOSviewer software

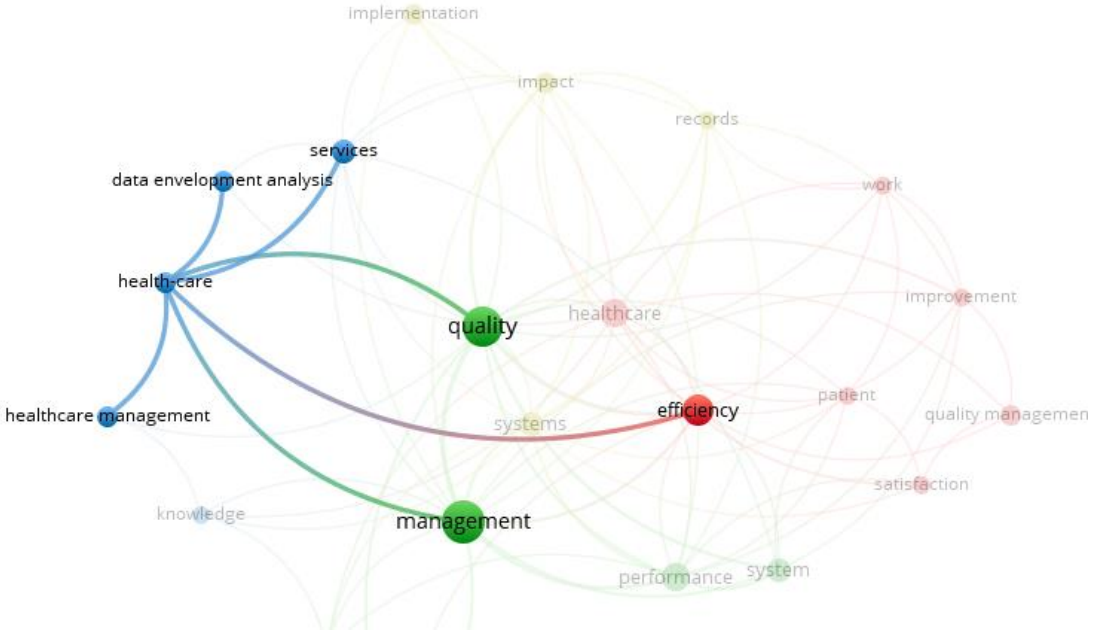

Figure 8. Cluster 3 (blue).
Source: output soft VOSviewer

Cluster 4 (Table 5) highlights the relationship between the implementation of strategic and managerial policies and their impact on healthcare services. The main terms within this cluster include "implementation," "impact," "records," and "work." This association reflects a growing interest in understanding how policy execution and managerial initiatives influence the effectiveness and quality of healthcare delivery.

Table no. 5. Cluster 4 (yellow)

Keyword	Cluster	Links	Total link strength	Occurrences
impact	4	9	13	4
implementation		5	5	4
records		8	11	3
system		11	16	5

Source: own processing based on data from VOSviewer software

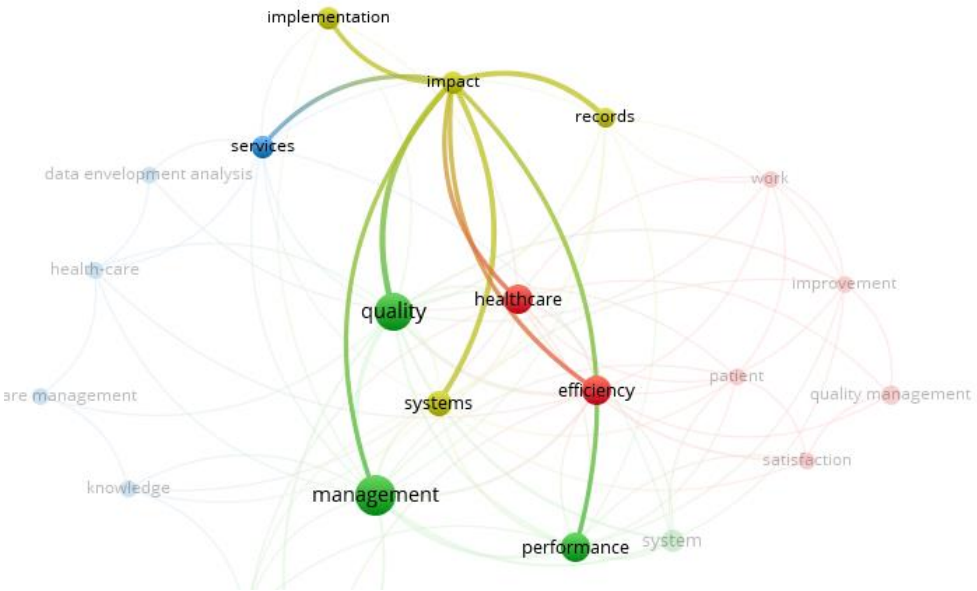

Figure no. 8. Cluster 4 (yellow)

Source: output soft VOSviewer version 1.6.19

The bibliometric analysis highlights the central and consistent position of the terms “quality” and “management” in the analyzed research, with their strong interconnection underscoring their critical importance in the healthcare field. There is a noticeable increase in academic interest in topics related to quality management in healthcare system, particularly those that explore the connections between key concepts such as:

- efficiency, patient care, and quality management
- management, performance, and quality in healthcare
- data analysis, knowledge, and healthcare management
- implementation, impact, and health system

These research directions underscore the importance and complexity of the healthcare sector, as well as its multiple implications and correlations with other economic sectors.

5. Conclusions

The result of bibliometric analysis highlights the importance of quality management as a core concept in the healthcare sector. The predominance of terms such as “quality” and “management”, and their correlation with related concepts like efficiency, performance, data analysis, and policy implementation, reflect the complexity of the research topic. This analysis provides valuable insights for healthcare decision-makers, who may use the findings to allocate resources more effectively toward key areas such as healthcare service quality and patient satisfaction. Furthermore, health researchers can build on these results to expand investigations related to quality and efficiency, as well as to explore new approaches for the better integration of quality management practices within the healthcare sector.

The analysis offers a clear map of publication trends but is limited by using a single database (Web of Science) and the choice of specific keywords. Future research could expand the analysis by including multiple databases and by integrating qualitative approaches.

References

Ali, J., Jusoh, A., Abbas, A. F., & Nor, K. M. (2021). Global trends of service quality in healthcare: A bibliometric analysis of scopus database. Journal of Contemporary Issues in Business and Government Vol, 27(1), 2917-2930.

Al-Shdaifat Emad A. (2016) Implementation of total quality management in hospitals. J Taibah Univ Med Sci;10(4):461e466.

Epizitone, A., Moyane, S. P., & Agbehadji, I. E. (2022). Health information system and health care applications performance in the healthcare arena: a bibliometric analysis. In Healthcare (Vol. 10, No. 11, p. 2273). MDPI.

Huebner, C., & Flessa, S. (2022). Strategic management in healthcare: a call for long-term and system-thinking in an uncertain system. International journal of environmental research and public health, 19(14), 8617.

Islam, R., Ahmed, S., & Tarique, K. M. (2016). Prioritisation of service quality dimensions for healthcare sector. International Journal of Medical Engineering and Informatics, 8(2), 108-123.

Kumar, M., George, R. J., & PS, A. (2023). Bibliometric analysis for medical research. Indian Journal of Psychological Medicine, 45(3), 277-282.

Rathee M. (2016). Quest for quality: pivotal paradigm for healthcare transformation. J IDA Northwest Delhi Branch;3(2):55–56.

Silvola, S., Restelli, U., Bonfanti, M., & Croce, D. (2023). Co-design as enabling factor for patient-centred healthcare: a bibliometric literature review. ClinicoEconomics and outcomes research, 333-347.

Spath, P. L., & DeVane, K. A. (2022). Introduction to healthcare quality management. ACHE Learn.

Zhang, C., Moreira, M. R., & Sousa, P. S. (2021). A bibliometric view on the use of total quality management in services. Total Quality Management & Business Excellence, 32(13-14), 1466-1493.